

## Noise Decibels

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To Michael Brown <supervisor@conwaymi.gov>

Mike,

Here is a list of some municipalities that have noise requirements below the state set 55 dBA.

**Montcalm Township:** 40 dB (A) Lmax

**Sidney Township:** 40 dB (A) Leq + a masonry or evergreen berm around inverters

**Marion Township:** 40 dB (A) Lmax daytime 35 dB Lmax between 9:00 p.m. - 7:00 a.m. + a masonry or evergreen berm around inverters.

**Almer Township:** 40 dB (A) Lmax as measured at the property line. All sound measurements are instantaneous and shall not be averaged.

**Garfield Township:** Inverters to be located in the center of the site - 45 dB (A) Lmax

**Township of Moore:** 40 dB (A) LEQ within 300 feet of any inhabited structure (notice there is a setback of 1000 feet)

**Deerfield Township:** 1. Forty (40) Dba Lmax, as measured at the property line of any adjacent RA Residential or C Commercial zoned land in existence at the time the Solar Farm is granted conditional use approval.

2. Forty (40) Dba Lmax, as measured at any neighboring residence in existence at the time the Solar Farm is granted conditional use approval, between the hours of nine (9) p.m. and seven (7) a.m.

3. Forty (40) Dba Lmax, as measured at the lot lines of the project boundary.

**Boone County (Indiana):** SES may not produce noise that exceeds forty-five decibels (45 dBA) measured at any point along the site's property line. The one (1)-hour average noise generated from an Accessory BESS cannot exceed forty-five decibels (45 dBA) measured at the property lines.

**Shiawassee County:** The noise generated from a Commercial WECS or SES shall not exceed forty (40) dB(A) LAMax (not to be calculated as an average) as measured at the closest Non-Participating property line to the WECS or SES. This sound pressure level may be exceeded during short-term events such as utility shortages or severe windstorms. If the ambient sound pressure level exceeds forty (40) dB(A), the standard shall be the ambient dB(A) plus five (5) dB(A) LAMax (not to be calculated as an average).

**Brady Township:** No solar farm facilities shall exceed forty (40) dBA Lmax as measured at the property line. Noise levels to be verified by a third-party testing company within 60 days from the completion of the project. The findings are to be posted with the Township within thirty (30) days of end of testing.

**Fort Gratiot Twp:** The sound pressure level of a large principal-use SES and all ancillary solar equipment shall not exceed 45 dBA (Leq (1-hour)) at the property line of an adjoining non-participating lot. The site plan shall include modeled sound isolines extending from the sound source to the property lines to demonstrate compliance with this standard.

**Ingham Twp:** The Solar Energy System shall not generate a maximum sound in excess of 50 dB(A) Leq hourly decibels as modeled at the nearest outer wall of the nearest dwelling located on the adjacent nonparticipating property. Applicants must provide a pre construction and post construction sound study to the Township demonstrating compliance with this standard.

**Leslie Twp:** Sound. Further, in recognition of the adverse effects consistent noise on human health, reducing incidence of nuisance, and in line with the recommended guidelines by the EPA, the maximum ambient noise level of sounds created by a Commercial Energy System shall be forty-five (45) DBA Lmax or less along the exterior boundary of a fenced compound. The following standards do not apply to short, intermittent bursts of sound, rather consistent, intrusive noise ofr sixty (60) minutes or longer. Daytime 7 am - 10 pm 45 DBA Leq 60, Night Time 10 PM - 7 AM 40 DBA Leq (60).

**Locke Twp:** Noise. All sound measurements are to be instantaneous and shall not be averaged. The noise generated by a Utility-Scale Solar Energy System shall not exceed the following limits:

- a. 40 dBA Lmax, as measured at the property line, between the hours of 7:00 a.m. and 9:00 p.m.
- b. 35 dBA Lmax, as measured at the property line, between the hours of 9:00 p.m. and 7:00 a.m.
- c. The owner/operator of the Utility Scale Solar Energy System shall annually provide for a sound analysis or modeling, conducted by an auditory expert chosen by the Township, at the expense of the applicant.

**Montrose Twp:** Commercial solar energy system facilities shall not exceed 40 dBA Leq (1- hour) measured at the project boundary. As part of the application, and prior to installation, the applicant shall provide noise modeling study and analysis that will demonstrate the solar energy system will not exceed the maximum permitted noise levels. Site plans shall include modeled sound isolines extending from the sound source to the property line to demonstrate compliance with this standard. Post construction, the applicant and/or owner will conduct sound modeling to ensure the project complies with the zoning ordinance standards.

**Thetford Twp:** Sound noise levels shall be measured at the property line of the project boundary. The sound level shall not exceed forty-five (45) decibels. Decibel modeling shall use A- weighted scale as designed by the American National Standards Institute. The sound level limits apply to the contribution from the facility only and do not include contributions from background ambient sounds. The site plan shall include modeled sound isolines extending from the sound source(s) to the property lines or dwellings located on adjacent nonparticipating property to demonstrate compliance with this standard.

**Venice Twp:** The noise generated from a Commercial WECS or SES shall not exceed forty (40) dB(A) (LMax-not to be calculated as an average) as measured at the closest Non-Participating property line to the WECS or SES.

**Davison Twp:** No large solar energy systems shall exceed fifty (50) dBA as measured at the property line.

**Iosco Twp:** The noise levels generated by a Large SES shall not exceed the following limits, measured along the lot line at any instantaneous moment and not averaged over time. Noise levels shall be measured during winter months. If the ambient sound pressure level exceeds the sound pressure standard below, the standard shall be the ambient dB(A) plus 5 dB(A). The standards below apply to all noise sources including inverters and substations but shall not apply during emergency conditions at the facility about which the Zoning Administrator has been notified by the facility operator. a) 40 dBA Lmax between the hours of 7:00 a.m. and 9:00 p.m. b) 35 dBA Lmax between the hours of 9:00 p.m. and 7:00 a.m.

**DeKalb County (Indiana):** Generating Equipment Setback: All Equipment shall meet the minimum underlying Zoning District setbacks for primary structures. Equipment that could create objectionable sounds during normal operations shall be located as far as practically possible away from any non-participating existing dwelling. Unless otherwise allowed by IC 36-7-4-1109, a project owner may not install or locate a CSES unless the project owner demonstrates to the Zoning Administrator that the CSES will operate so the sound attributed with the CSES will not exceed an hourly average sound level of fifty (50) A-Weighted decibels, as modeled at the outer wall of an existing dwelling located on an adjacent nonparticipating property or no less than 150 feet from any nonparticipating property line.

**Dearborn County (Indiana):** The Noise Evaluation Report shall include any potential mitigation measures to minimize sound levels above 40 decibels and 55 decibels—the former of which is considered an accepted noise level in a quiet rural setting and the latter of which is considered an accepted noise level in a quiet urban area—at the aforementioned property line point(s).

**Hamilton County (Indiana):** i.

No operating C-SES shall produce noise that exceeds any of the following limitations except during construction. Adequate setbacks, barriers, enclosures, use of quieter equipment, or other effective means of reducing noise shall be used to comply with these limitations:

- ii. Fifty (50) dBA, as measured at the property line of any adjacent residentially zoned lot.
- iii. Forty-five (45) dBA, as measured at any existing adjacent residence between the hours of nine p.m. and seven a.m.; and
- iv. Sixty (60) dBA, as measured at the property lines of the project boundary, unless the owner of the affected property agrees to a higher noise level, as follows: The owner of an adjacent property that would otherwise be protected by the sixty dBA noise limitations may voluntarily agree, by written waiver, to a higher noise level. Any such agreement must specifically state the noise standard being modified, the extent of the modification, and be in the form of a legally binding contract or easement between the landowner (including assignees in interest) and the solar energy system developer, effective for the life of the project. This waiver must be recorded and cross-referenced with the affected property (properties).
- v. The executive director may hire an appropriate company, at the C-SES's owner or C-SES's operator's expense, to determine if noise levels have been exceeded.

**Clinton County:** A background (ambient) sound study shall be performed by a certified third-party acoustic or sound engineer selected by the Zoning Administrator at the expense of the applicant and a report provided which indicates Leq 1 second, L10, and L90 sound levels using A-weighting and C-weighting. Data shall be collected at midpoints along property lines of adjoining Non-Participating and Landowners Participating. Measurement procedures are to follow the most recent versions of ANSI S12.18 and ANSI S12.9, Part 3 guidelines (with an observer present). Measurements shall be taken using an ANSI or IEC Type 1 Precision Integrating Sound Level Meter. The study must include a minimum of a four day (96 hour) testing period, include one Sunday, and divide data by daytime and nighttime. The sound background study shall report for the period of the monitoring topography, temperature, weather patterns, sources of ambient sound, and prevailing wind direction. In such cases where the existing, pre-development background (ambient) sound level exceeds 45 dBA (55 dBC) Leq 1 second

as measured at the property line and as described herein, at no times shall the noise generated by the Utility Scale Solar Energy System result in a sound measurement exceeding said predevelopment ambient sound level. All sound measurements are to be instantaneous and shall not be averaged.

**Rivers Township:** No operating Solar Energy System shall produce noise that exceeds Forty-Five (45) dBA, as measured at the property line of any neighboring lot with the facility at full capacity or production. Adequate setbacks shall be provided to comply with this requirement.

**Charter of Madison:** No component of any solar farm shall produce noise that exceeds any of the following limitations. Adequate setbacks shall be provided to comply with these limitations:

1. 50 dBA, as measured at the property line of any adjacent Low Density Single Family, High Density Single Family, Two Family, Townhouse, Multiple Family and Mobile Home Residential district zoned land in existence at the time the solar farm is granted conditional use approval;
2. 45 dBA, as measured at any neighboring residence in existence at the time the solar farm is granted conditional use approval, between the hours of 9:00 pm and 7 am;
- 3 60 dBA, as measured at the lot line of the project boundary.

**White River:** No solar energy system generating component shall emit noise exceeding forty-five (45) dBA, as measured at the parcel's property boundary or road right-of-way.

**Clyde Township:** No component of any Large Solar Energy System shall emit noise exceeding a sound pressure level of 50 dB(A) as measured at the outside perimeter of the project. This sound pressure level shall not be exceeded for more than 6 minutes (L 10) in any hour of the day. If the ambient sound pressure level exceeds 50 dB(A), the standard shall be ambient dB(A) plus 5 dB(A)

**Odessa Twp:** The sound pressure level generated by a Large Solar Energy System shall not exceed 45 dBA Leq over a one (1) hour period as measured at any Non-Participating Property line. Applicants must provide the Township a pre-construction and post-construction sound study report to confirm this standard is met.

**Forest Township:** No sound from the solar energy system may be audible at the property lines.

**City of Davison:** The sound - noise generated from a Large-Scale SES shall not exceed fifty (50) dB(A), as measured from both the exterior of any habitable structures and also the closest property line to the SES. This sound pressure level may be exceeded during short-term events such as utility shortages

or severe wind storms. If the ambient sound pressure level exceeds fifty (50) dB(A), the standard shall be the ambient dB(A) plus five (5) dB(A).

**Charter Township of Mt. Morris:** Noise emanating from a Ground-Mounted Commercial Solar Energy Collector System shall not exceed 50 decibels (dBA) as measured from any property line. The Township Planning Commission may reduce this Mt. Morris Township Zoning Ordinance Page 18-63 maximum noise level in order to protect adjacent residents and property owners.

**Pine River:** No component of any Large Solar Energy System shall emit noise exceeding a sound pressure level of 50 dB(A) as measured at the outside perimeter of the project. This sound pressure level shall not be exceeded for more than 6 minutes (L 10) in any hour of the day. If the ambient sound pressure level exceeds 50 dB(A), the standard shall be ambient dB(A) plus 5 dB(A).

**Wright Township:** The noise pressure level generated by a CSES must dissipate to 50 dB(A) Leq (1-min) as measured at the perimeter of the lot upon which it is located and any public rights-of-way or private roads.

**Chester Township:** Noise emanating from the solar energy collector system shall be a maximum of fifty (50) decibels (dBA) as measured from any lot line of the lot on which the system is located.

**Macon Township:** No operating large solar energy facility (Solar Project) shall produce noise that exceeds any of the following limitations. (a) Thirty (30) dBA, as measured at the lot lines of the project boundary.

**Bethany Township:** No component of any Large Solar Energy System shall emit noise exceeding fifty (50) dBA as measured at the outside perimeter of the project.

**Miden Township:** A noise study will be performed and included in the application. The noise study will be performed by an independent noise study expert and paid for by the applicant. Audible noise or the sound pressure level from the operation of the SEF shall not exceed forty-five (45) dBA, or the ambient sound pressure level plus five (5) dBA, whichever is greater, for more than ten (10%) percent of any sixty (60) minute interval, measured at any property line existing on the date of approval of any SEF special approval permit. The applicant shall be able to provide sound pressure level measurements from a reasonable number of sampled locations at the perimeter and the interior for the SEF to demonstrate compliance with this standard. The studies will be done before and after completion of project.

**Delaware Township:** A noise study will be performed and included in the application. The noise study will be performed by an independent noise study expert and paid for by the applicant. Audible noise or the sound pressure level from the operation of the Solar Energy Facility shall not exceed forty-five (45) dBA, or the ambient sound pressure level plus five (5) dBA, whichever is greater, for more than ten percent (10%) of any sixty minutes interval, measured at any property line existing on the date of approval of any Solar Energy Facility special approval permit. The applicant shall be able to provide sound pressure level measurements from a reasonable number of sampled locations at the perimeter and the interior for the Solar Energy Facility to demonstrate compliance with this standard.

**Pinconning:** No operating SES shall produce noise that exceeds forty (40) dB(A) Lmax and fifty-five (55) db(C)/Lmax, as measured at the property line of any adjacent non-participating property/lot lines.

**Sherman Township:** No component or any Utility Scale Solar Energy System shall emit noise exceeding Thirty-Five (35) dBa L Max during the day (7:00 AM- 10:00 PM) and Thirty (30) dBa L Max during the night (10:00PM – 7:00AM) as measured at the outside perimeter of the Utility Solar Energy System.

**Bushnell Township:** The noise pressure level generated by solar panels, inverters, and transformers must be shown to dissipate to 40 dB(A) Leq (1-min) at the solar farm perimeter or any public right-of-way.

Sarah