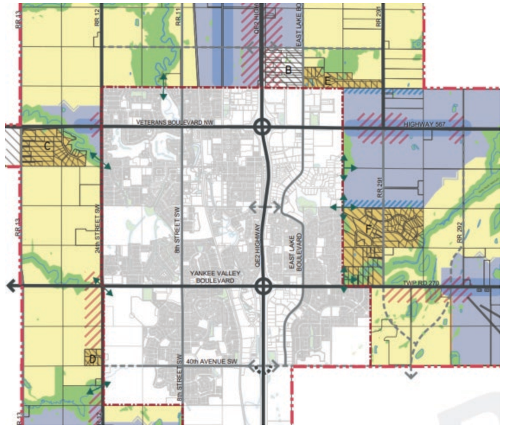
MPSC Renewable Energy and Energy Storage Facility Siting Meeting






MPSC Staff

September 4, 2024

MPSC
MICHIGAN PUBLIC SERVICE COMMISSION

Disclaimer

This meeting will be recorded and
the recording will be posted.

The opinions expressed today are the speaker's own and do not reflect the view of the Michigan Public Service Commission or the State of Michigan.

Sign up for our email distribution list:
www.michigan.gov/mpsc/commission/workgroups/2023-energy-legislation/renewable-energy-and-energy-storage-facility-siting

Agenda

- **Welcome and Intro – MPSC**
- MPSC Draft Sound Guidelines
- Open Comment Period – All participants
- Next Steps and Closing – MPSC

Sign up for our email distribution list:
www.michigan.gov/mpsc/commission/workgroups/2023-energy-legislation/renewable-energy-and-energy-storage-facility-siting

Implementation Process

Collaborate on solutions
Work collaboratively to develop potential draft guidance and application instructions

Public comment period
Public comment period in case docket followed by Commission order adopting application instructions and guidance

Solicit input
What questions and issues should the Commission address prior to the effective date?

File Staff proposal
File Staff proposed application instructions and guidance in docket June, 21, 2024

Implementation
The effective date of the new law is 11/29/24.

Michigan Public Service Commission (MPSC) Draft Sound Guidelines for Energy Facilities

Stakeholder Presentation

September 2024

Outline

- MPSC Noise Limit - Definition and Explanation
- Sound Study Guidelines – Basic Overview
- Permitting – Modeling and Preconstruction Sound Monitoring
- Compliance – Postconstruction Sound Monitoring
- Questions

MPSC Noise Limit

MI MCL 460.1226 noise limit

An energy facility meets the requirements of subsection (7)(g) [The proposed energy facility does not present an unreasonable threat to public health or safety] if it will comply with the following standards, as applicable: …

The [energy] facility does not generate a maximum sound in excess of 55 average hourly decibels as modeled at the nearest outer wall of the nearest dwelling located on an adjacent nonparticipating property. Decibel modeling shall use the A-weighted scale as designed by the American National Standards Institute.

MPSC Noise Limit Value

MI MCL 460.1226 noise limit

The [energy] facility does not generate a maximum sound in excess of 55 average hourly decibels as modeled at the nearest outer wall of the nearest dwelling located on an adjacent nonparticipating property. Decibel modeling shall use the A-weighted scale as designed by the American National Standards Institute.

RSG

MPSC Noise Limit Weighting

MI MCL 460.1226 noise limit

The [energy] facility does not generate a maximum sound in excess of 55 average hourly decibels as modeled at the nearest outer wall of the nearest dwelling located on an adjacent nonparticipating property. Decibel modeling shall use the A-weighted scale as designed by the American National Standards Institute.

RSG

MPSC Noise Limit Averaging Time

MI MCL 460.1226 noise limit

The [energy] facility does not generate a maximum sound in excess of 55 average hourly decibels as modeled at the nearest outer wall of the nearest dwelling located on an adjacent nonparticipating property. Decibel modeling shall use the A-weighted scale as designed by the American National Standards Institute.

RSG

MPSC Noise Limit Location

MI MCL 460.1226 noise limit

The [energy] facility does not generate a maximum sound in excess of 55 average hourly decibels as modeled at the nearest outer wall of the nearest dwelling located on an adjacent nonparticipating property. Decibel modeling shall use the A-weighted scale as designed by the American National Standards Institute.

Relevance

Repeatability

Predictability

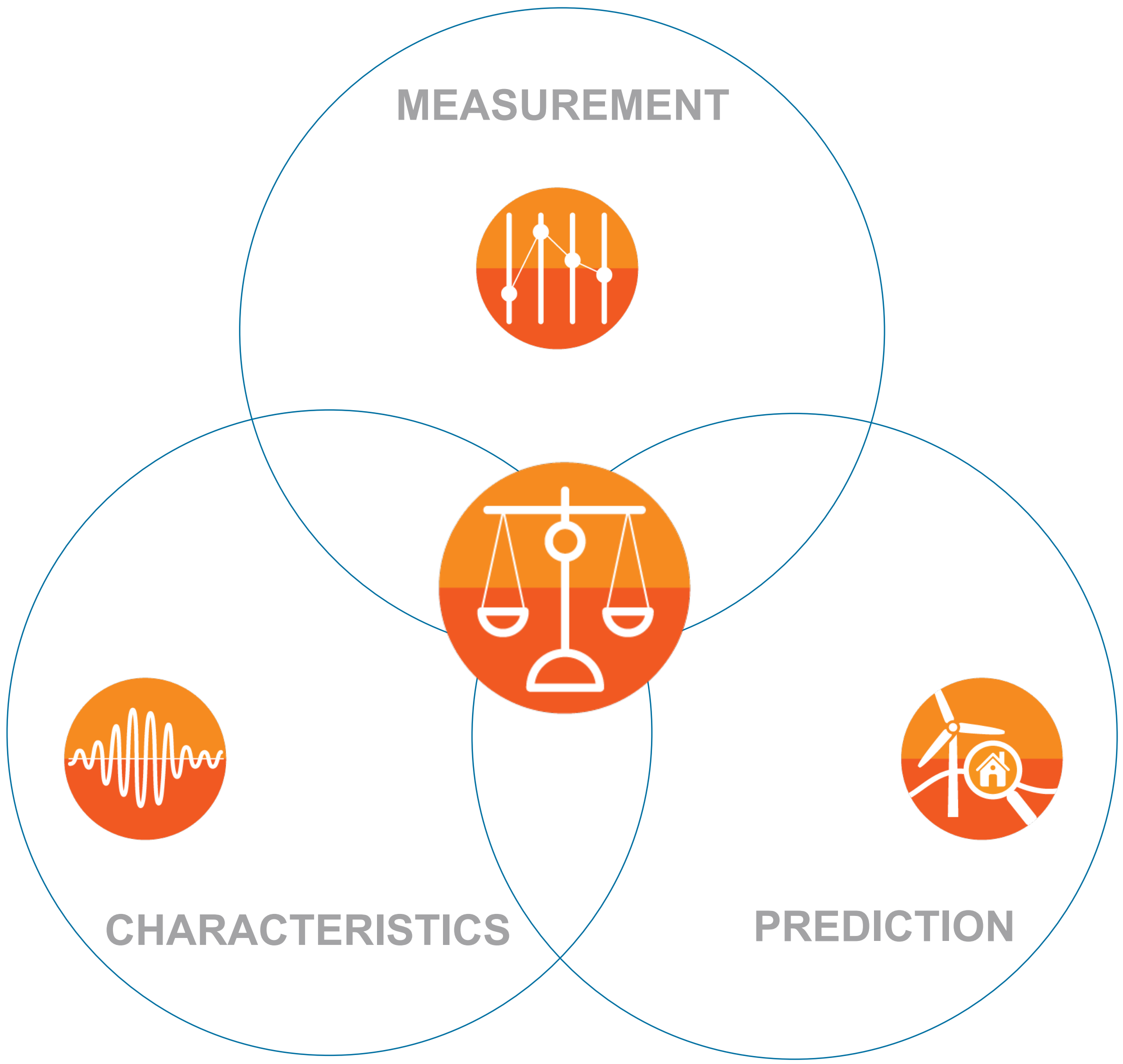
Ease of implementation

Our Goals

Create a set of implementation guidelines that

- **Are relevant to the noise standard as written**
- **Are repeatable – Different experts will get the same results**
- **Are predictable – Based on best practices and standards**
- **Can be implemented by experts in the field**

These guidelines consider prediction methods, sound characteristics, and measurement techniques



Noise Study Guidance for Permitting Energy Facilities

- Expertise Required for Study Preparation
- Preconstruction Study (Permitting)
  - Sound Modeling
  - Preconstruction Sound Monitoring
- Postconstruction Study (As-Built)
  - Postconstruction Sound Monitoring

Expertise of the Preparer

- All sound studies shall be completed by or under the direction of a qualified noise control engineer. The minimum qualification is Board Certification through the Institute of Noise Control Engineering (INCE). If the preparer is not Board Certified, then qualifications shall be justified and submitted with the application. A professional engineering license alone is not sufficient qualification to prepare the preconstruction or postconstruction noise studies.

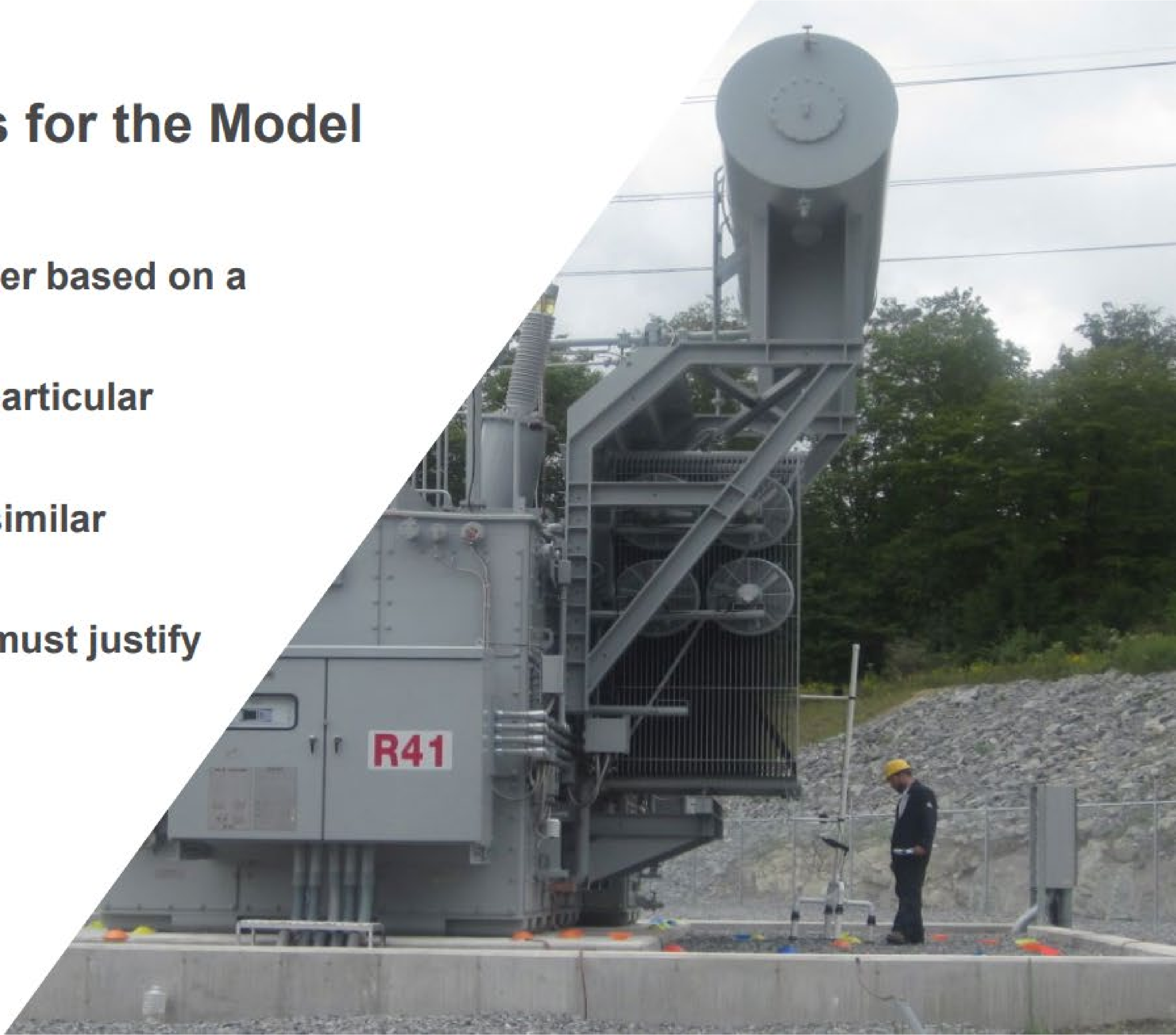
Preconstruction Noise Study

- The purpose of the preconstruction sound report is to provide the Commission with information necessary to assess whether the facility meets the noise limits defined in MI MCL 460.1226.
- Sound modeling shall be conducted following the requirements of ISO 9613-2 (2024), "Engineering method for the prediction of sound pressure levels outdoors."
- For modeling wind turbine sound, ANSI/ACP 111-1 (2022), "Wind Turbine Sound Modeling," and Annex D of ISO 9613-2 (2024) provide additional guidance for the calculation of sound pressure levels from wind turbines.
- Where any ambiguities exist, the MPSC guidelines have a table of parameters.

PARAMETER	VALUE
G (Ground factor)	0.0 over water and large areas of hard ground, 0.5 everywhere else
Modeling uncertainty adjustment	Minimum of +2 dB for wind projects, Minimum of +0 dB for all other sources
Receptor/grid height	4.0 m for wind projects, otherwise, • 4.0 m for two- or more-story dwellings (default) • If sound barriers are proposed, the height of the highest window for each dwelling • 1.5 m for property boundaries and one-story dwellings
Source height	For wind turbines, hub height. For all other sources, top of the sound source
Receptors	All dwellings within 1 mile of any facility sound source
Temperature/Humidity	10°C, 70%
Sound power level	Next slide
Source directivity	For wind turbines, omnidirectional. For all other sources, directionality of sound power may be considered, if known.
C_{met} (meteorological adjustment)	0 (none)
Include all sources within	8,000 m
Dense vegetation	No foliage attenuation allowed to be considered outside of Project-controlled parcels
Tonal prominence	+ 5 dB tonal penalty to source sound power. The tonal penalty can be removed if it can be shown that the facility would not have a tonal prominence at a dwelling when the measured background sound of the lowest hourly L_{90} is added.
Façade pressure doubling	+6 dB to modeled free field outer wall sound pressure level
Other energy facilities	Other energy facilities that have an application submitted prior to this facility, approved, or built, within two miles of the facility must be included in a separate cumulative impact model run.

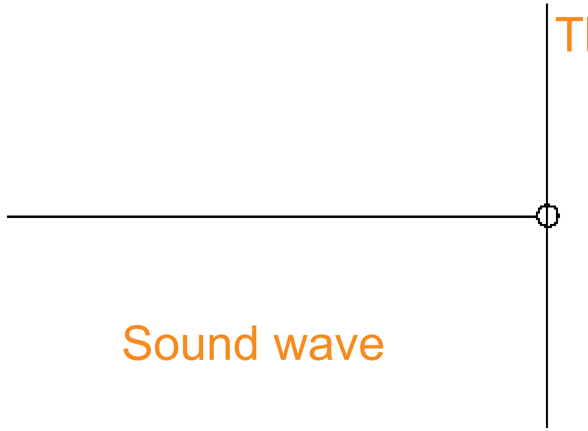
Source Sound Levels for the Model

1) Data from the manufacturer based on a standardized test, or
2) Data from standards for particular equipment, or
3) Sound levels from other similar equipment, or
4) Otherwise, the applicant must justify their choice of method



More Information on Pressure Doubling at a Wall

- Reflections off a wall increase the measured sound level
  - The “reflected” sound adds to the “direct” sound from the source
  - Close to the wall, we get as much as a 3 dB increase for non-tonal sounds
  - <u>At</u> the wall, we get a 6 dB increase due to “pressure doubling”
  - The noise limit of Section 460.1226 is measured “at the nearest outer wall”



Animation courtesy of Dr. Dan Russell, Grad. Prog. Acoustics, Penn State


Free Field
No Reflections
SC310
62.7
dB
62.7 dBA
FREQ. W
FUNCTION
MODE
SCREEN
C
OK


Near the wall
+3 dB
SC310
65.7
dB
65.7 dBA
FREQ. W
FUNCTION
MODE
SCREEN
C
OK


On the wall
(window)
+6 dB
SC310
68.7
68.7 dBA
C
OK

Sound Monitoring

- Preconstruction and postconstruction monitoring are specified in the MPSC energy facility noise guidelines
- Preconstruction sound monitoring provides an understanding of potential noise impacts on the existing soundscape prior to development of an energy facility. It is used to determine the existing character of the area that is being considered for construction of an energy facility.
- Postconstruction sound monitoring validates the preconstruction modeling of noise impacts and allows a built project to demonstrate operational compliance with the MI noise limits.

Sound Monitoring Requirements

- Class 1 sound level meters with windscreens
- At least two locations in representative soundscapes
- Exclude anomalous data, high winds, precipitation, and conditions outside the sound level meter specifications
- If there are insects, report A- and ANS-weighted sound. ANS weight removes insect and other high frequency animal sounds.
- The sound monitoring should generally follow the requirements of ANSI S12.18 and ANSI S12.9 Part 3, and the relevant portions of IEC TS 61400-11-2 for wind facilities
- Applicants submit a postconstruction sound monitoring protocol for routine and complaint sound monitoring

Postconstruction Monitoring Procedures are Detailed in the MPSC Noise Guidelines

For all energy facilities

- Sound monitoring is for the worst-case sound output and propagation conditions.
- At least three valid worst-case hours must be collected

For wind facilities

- Additional procedures are required, consistent with IEC 61400-11-2, to the extent feasible.
- “Shutdown” method is recommended
- “Valid” meteorological and operational conditions are specified

NOTE

Thank you

- **Ken Kaliski**
Principal
- **Ryan Haac**
Consultant

RSG®

Next Steps

- Thank you for your input and participation in today's meeting.
- Additional input is welcomed.
- The Commission is seeking comments on MPSC Draft Sound Guidelines filed in Case No. U-21547 on August 22, 2024
  - Public comments may be filed in the docket by September 11, 2024

Please reference Case No. U-21547 in your comments.

Written Comments

Email To:

mpscedockets@michigan.gov

Mail To:

Executive Secretary
Michigan Public Service Commission
Attn: Cathy Cole
P.O. Box 30221
Lansing, MI 48909

Sign up for our email distribution list:
www.michigan.gov/mpsc/commission/workgroups/2023-energy-legislation/renewable-energy-and-energy-storage-facility-siting

How To Submit A Comment

Online

All attendees will be muted until called upon to speak which is on a first-come, first-serve basis.

To Be Called On:

Raise your hand by clicking on the "Raise" icon.

When Called On:

Unmute your mic by clicking on the "Mic" icon.

You may turn on your camera by clicking on the "Camera" icon.

By Telephone

Dial: 248-509-0316;

Passcode: 931 820 311#

To Be Called On:

Press *5 to enter the line to speak.

When Called On:

Press *6 to unmute.

By Email

Send informal comments to:
mullkoffs1@michigan.gov and
baldwinj2@michigan.gov

Closing

Please email questions to mullkoffs1@michigan.gov and baldwinj2@michigan.gov

Sign up for our email distribution list:
www.michigan.gov/mpsc/commission/workgroups/2023-energy-legislation/renewable-energy-and-energy-storage-facility-siting