

NOISE LIMITS POSITION

**Health Advisory
Committee • Public Act
233 (2023)**





PURPOSE & POLICY CONTEXT

Why this briefing

Build informed support for adopting and advocating stricter renewable-energy noise limits that better protect Livingston County residents.

Current baseline

Michigan Public Act 233 models a statewide limit of 55 dBA Leq (1-hour) at the nearest nonparticipating dwelling.

Public health context

Evidence shows harms below 55 dBA—especially in quiet rural soundscapes—impacting sleep, cardiovascular stress, and children.



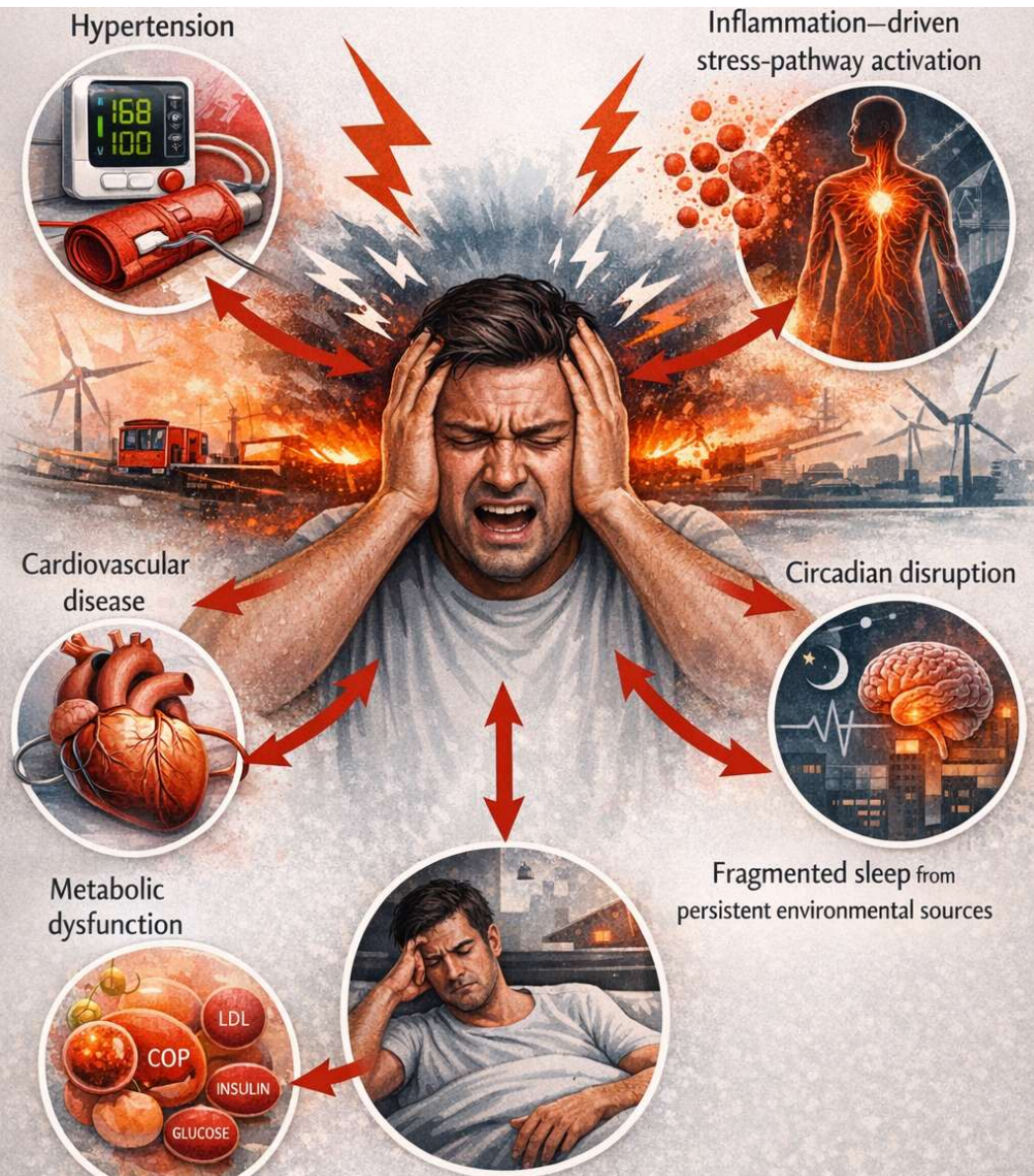
The impacts of
noise on
health



World Health Organization

- Environmental noise a major public health threat
- Impacts beginning in the 40-55 dBA range and nighttime exposures as low as 30-40 dBA affecting vulnerable groups
- More than 1M healthy life years are lost annually in Western Europe from sleep disturbance, cardiovascular disease, and chronic annoyance.

Exhibit A: World Health Organization. (2011). *Burden of disease from environmental noise: Quantification of healthy life years lost in Europe.*



Medscape Review, 2024

Describes noise as a chronic multisystem stressor linked to the following:

- Hypertension
- Cardiovascular disease
- Metabolic dysfunction
- Inflammation-driven by stress-pathway activation,
- Circadian disruption
- Fragmented sleep from persistent environmental sources

Exhibit B: Medscape. (2024). *Noise Pollution and Chronic Disease* (Slideshow).

CHILD NOISE VULNERABILITY

Developmental Impacts

- Noise affects children from infancy and can disrupt cognition, attention, reading, memory, speech comprehension, sleep, and stress regulation.

Learning Standards

- Classroom guidance targets ≤ 35 dBA (ANSI) and ≤ 30 dBA (ASHA), indicating that higher limits—and intermittent or tonal noise—can impair focus and rest.

Recommended Limits

- For sensitive receptors (homes, daycares, playgrounds, healthcare), the committee recommends 35 dBA day and 30 dBA night to protect long-term developmental health.



RURAL SOUND LIMITS

Baselines vs community tolerance

Rural baselines are quiet

Michigan rural background or ambient noise often sits in the mid-20s to low-30s dBA (filtered daytime near ~40 dBA).

55 dBA is a large step change

It can allow +15 to +25 dB over the natural soundscape—clearly perceptible and often intrusive.

Local ordinances show preference

Many Michigan townships adopt 30–45 dBA limits (e.g., Montcalm, Marion, Almer, Deerfield), aligning with rural quality-of-life.

Exhibit E: K & S Engineers, LLC. (2025). *Noise impact analysis of the proposed Headlands Solar Energy Facility.*

Exhibit G: **Exhibit G — Municipal Noise Limits Summary**

MICHIGAN VS OTHER STATES

Numeric limits: Michigan is higher

Michigan's 55 dBA statewide limit is less protective than peer states: NY 45 dBA (nonparticipants), IN 50 dBA, OH 40 dBA (sensitive receptors), and OR as low as 36 dBA in some contexts.

Evidence-driven approaches exist

New York's 94-c framework pairs lower thresholds with ISO-based acoustic modeling and seasonal baseline monitoring—reflecting a precautionary, public-health-aligned standard.

Why it matters in rural areas

Lower limits better preserve quiet rural baselines and community character; aligning Michigan with peers can improve trust, reduce conflict, and strengthen evidence-based governance.

Exhibit C Resource Systems Group, Inc. (n.d.). *Modeling noise to advance New York's clean energy goals.*

Exhibit F: **State-by-State Noise Limits Table**



RECOMMENDED NOISE LIMITS

Residences (nonparticipating)

≤40 dBA day, ≤35 dBA night; add a 5 dB penalty for tonal/disruptive noise.

Sensitive receptors

Schools, daycares, healthcare: ≤35 dBA day, ≤30 dBA night.

Modeling & mitigation

Seasonal baseline monitoring; ISO-based modeling; cumulative impacts

Conclusion:

A 55 dBA limit is not a safe threshold for chronic evening/night exposure. Health-protective limits align closer to the Health Advisory Committee recommendation: **40 dBA day** and **35 dBA night** at nonparticipating dwellings.





WHY COUNTY SUPPORT MATTERS

Evidence supports stricter limits

Adverse health effects are documented below 55 dBA, especially with chronic and nighttime exposure. Michigan's current standard is an outlier compared to other states and many municipalities.

County endorsement drives action

Support from the Board of Commissioners and Health Department can shape state discussion, guide implementation, and elevate public health expertise—enabling renewable energy that remains health-protective.

Call to action

Acknowledge the evidence and Livingston County's rural context; endorse stricter noise limits to protect long-term health and set a standard for responsible governance.

References / Exhibits

Exhibit A

World Health Organization. (2011). *Burden of disease from environmental noise: Quantification of healthy life years lost in Europe.*

Exhibit B

Medscape. (2024). *Noise Pollution and Chronic Disease (Slideshow).*

Exhibit C

Resource Systems Group, Inc. (n.d.). *Modeling noise to advance New York's clean energy goals.*

Exhibit D

Balk, S. J., Bochner, R. E., Ramdhanie, M. A., & Reilly, B. K. (2023). *Preventing excessive noise exposure in infants, children, and adolescents. Pediatrics, 152(5).*

Exhibit E

K & S Engineers, LLC. (2025). *Noise impact analysis of the proposed Headlands Solar Energy Facility.*

Exhibit F — State-by-State Noise Limits Table

State-level solar-noise limits including Indiana (50 dBA), Michigan (55 dBA), New York (45 dBA), Ohio (40 dBA), Oregon (36 dBA). Sourced from your provided state comparison table.

Exhibit G — Municipal Noise Limits Summary

Comprehensive list of Michigan and Indiana township solar-noise limits (30–45 dBA), drawn from email correspondence (from Sarah Porter to Michael Brown Supervisor of Conway County, MI) PDF. Includes Montcalm, Sidney, Marion, Almer, Garfield, Deerfield, Boone County, Shiawassee, Brady Township, Fort Gratiot, Ingham, Locke, Montrose, Thetford, Venice, and numerous others.

Future Impacts/ considerations- Data Centers

- **Construction noise is loud and continuous**, generated by heavy machinery used to build the facilities.
- **Operational noise comes from diesel generators and HVAC systems**, producing a persistent hum that can be heard by nearby residents and wildlife.
- **Noise levels may exceed 90 decibels**, surpassing the threshold (85 dB) considered harmful to human hearing.
- **Chronic noise exposure contributes to health problems**, including: Hearing loss, Increased stress, Insomnia, Decreased overall quality of life



Pavlinich, E. J. (2026, February 27). *The dangers of data centers*. Environmental Health Project.
<https://www.environmentalhealthproject.org/post/the-dangers-of-data-centers>

Low-Frequency Noise Travel & Ordinance Violations

•Data center HVAC systems produce low-frequency hum that can **travel up to 2.5 miles**, potentially **violating noise ordinances** of 55–60 dB.

•Low-frequency sound is difficult for the brain to filter out, increasing annoyance and physiological stress. **Community-Reported Health Effects**

•Residents near data centers report **stress, sleep disruption, and difficulty sleeping** due to constant background noise. Prolonged construction periods (10–20 years in some regions) add long-term exposure to harmful noise levels. **Noise-Driven School Impacts**

•Noise can disrupt school operations, with research showing **HVAC-generated noise potentially impairing classroom learning environments**.

•Soundproofing one affected elementary school was estimated to cost **\$20 million**.

