

## Draft Position Statement on Noise Limits Under Public Act 233 of 2023 — UPDATED

### Executive Summary

Public Act 233 (PA 233) sets a statewide modeled limit of **55 dBA Leq (1-hour)** at the nearest nonparticipating dwelling. Current public-health evidence shows this level is **not sufficiently protective**, particularly in quiet rural communities or for vulnerable groups (infants, children, adolescents). The **World Health Organization (WHO)** links environmental noise well below 55 dBA with sleep disturbance, annoyance, cardiovascular effects, and cognitive impacts in children (Exhibit A).

New national and international evidence — including the **Medscape chronic disease review** — links environmental noise to hypertension, metabolic dysfunction, cardiovascular disease, and chronic stress-mediated inflammation (Exhibit B).

Comparative siting practice further demonstrates that Michigan's statewide limit is unusually high. **Multiple states set lower limits** for solar facilities (40–50 dBA), and several use setbacks and receptor-based protections (Exhibit F). Additionally, a **large body of Michigan municipalities** has independently adopted limits between **30–45 dBA**, reflecting a much more protective approach aligned with rural acoustics and WHO health guidelines (Exhibit G).

Given the combined evidence, we recommend **≤40 dBA daytime / ≤35 dBA nighttime** limits at nonparticipating dwellings, reductions for tonal noise, and enhanced protections for schools, daycares, and other sensitive uses.

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### 1) Public-Health Evidence: Harms Occur Below 55 dBA

WHO estimates over one million healthy-life years lost annually in western Europe due to chronic environmental noise, especially from sleep disturbance and cardiovascular disease (Exhibit A). Noise impacts occur even within the **40–55 dB** range, with **30–40 dB** affecting vulnerable populations at night.

Recent clinical summaries (Medscape) identify environmental noise as a **multi-system chronic stressor**, contributing to:

- hypertension
- cardiovascular disease
- metabolic disorders
- sleep fragmentation
- stress-related inflammation

(Exhibit B)

These findings support limits **well below** PA 233's 55 dBA.

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## 2) Comparative Practice: New York’s §94-c Sets More Protective Limits

New York’s §94-c renewable-siting framework requires **≤45 dBA** long-term levels at nonparticipating residences, supported by ISO-based modeling and seasonal baseline monitoring (Exhibit C).

**State-level comparisons also show Michigan as an outlier:**

- **Indiana — 50 dBA** at nonparticipating dwellings
- **Michigan — 55 dBA**
- **New York — 45 dBA**
- **Ohio — 40 dBA** for sensitive receptors
- **Oregon — 36 dBA** (varies; code-based) (Exhibit F)

Michigan’s 55 dBA limit is one of the least protective nationally.

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## 3) Children & Adolescents: Unique Vulnerabilities Demand Stronger Protections

According to the American Academy of Pediatrics, noise affects children beginning in infancy and accumulates across development, interfering with:

- cognition
  - attention
  - reading and memory
  - speech comprehension
  - sleep
  - physiologic stress
- (Exhibit D)

Classroom standards (<35 dBA ANSI; <30 dBA ASHA) further illustrate the need for quieter environments—levels incompatible with a 55 dBA project limit.

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## 4) Why Michigan’s Rural Context Requires Lower Numeric Limits

Rural Michigan townships commonly exhibit **L90 backgrounds in the mid-20s to low-30s dBA**, and filtered daytime ambients around **40 dBA**. Thus a 55 dBA limit permits **+15 to +25 dB** elevation above ambient—an intrusive change to the soundscape (Exhibit E).

Additionally, **municipal data across Michigan** show that townships overwhelmingly choose **30–45 dBA** maximum limits for solar noise when setting their own ordinances. Examples include:

- Montcalm Township: **40 dBA Lmax**
- Marion Township: **40 dBA day / 35 dBA night**
- Almer Township: **40 dBA Lmax, instantaneous**
- Garfield Township: **45 dBA Lmax at center-sited inverters**
- Deerfield Township: **40 dBA Lmax**
- Boone County (IN): **45 dBA property line**
- Shiawassee County: **40 dBA Lmax**  
(Exhibit G)

These local choices demonstrate that **55 dBA is inconsistent with common Michigan rural practice** and with public-health evidence.

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## 5) Policy Recommendations

- **Residential Limits:**  
≤ **40 dBA** (day) / ≤ **35 dBA** (night) at nonparticipating dwellings; apply a **5 dB tonal penalty**.
  - **Comparative Benchmark:**  
≤ **45 dBA** as an upper bound, consistent with New York §94-c.
  - **Sensitive Receptors:**  
≤ **35 dBA day / 30 dBA night** for schools, daycares, healthcare sites.
  - **Modeling & Compliance:**  
Require seasonal baseline monitoring, ISO-based propagation modeling, cumulative impact assessment, and transparent mitigation documentation.
  - **Mitigation Toolkit:**  
Acoustic enclosures; barriers; equipment orientation away from receptors.
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## **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 PDF.

Includes Montcalm, Sidney, Marion, Almer, Garfield, Deerfield, Boone County, Shiawassee, Brady Township, Fort Gratiot, Ingham, Locke, Montrose, Thetford, Venice, and numerous others.