MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

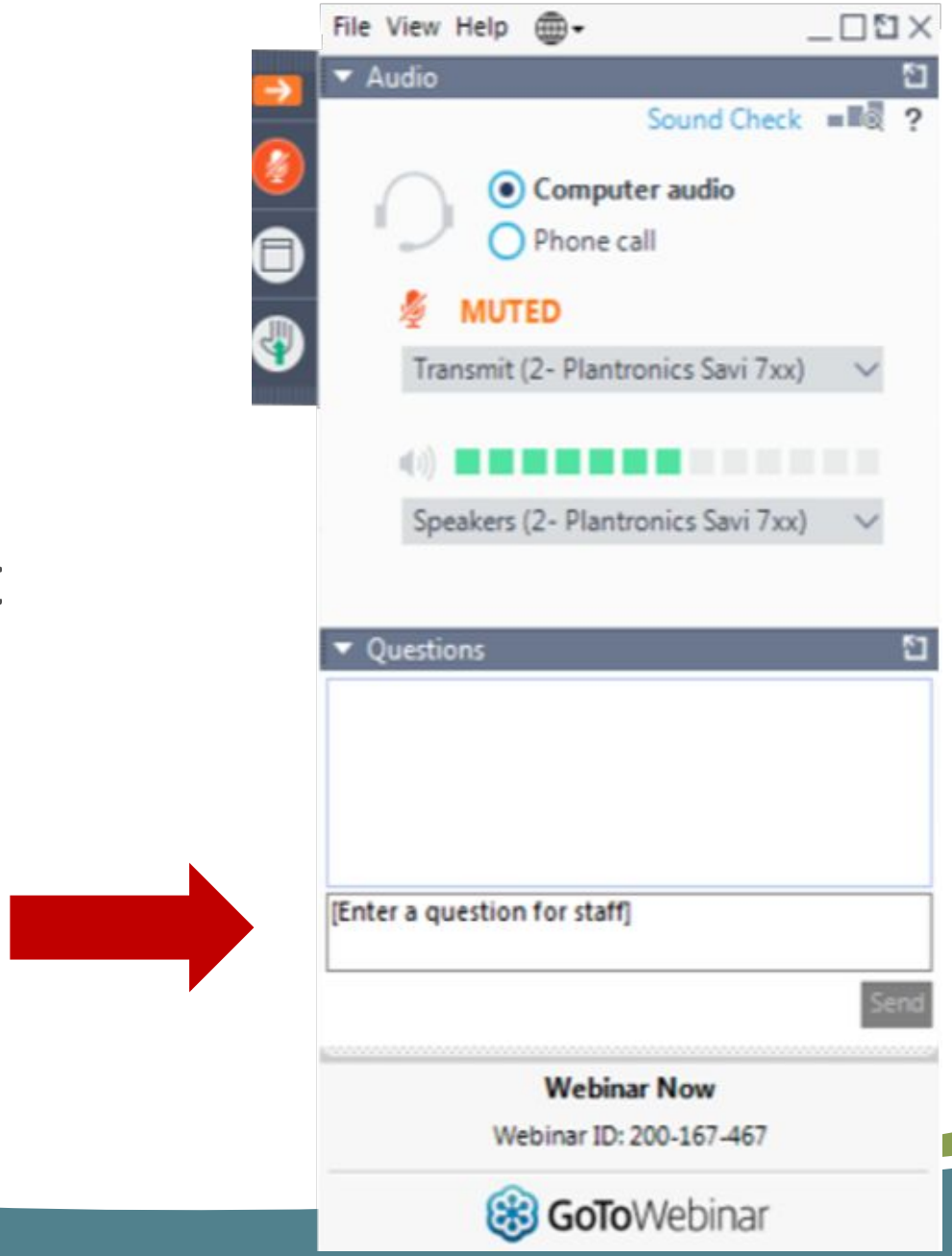
GRAHAM SUSTAINABILITY INSTITUTE
UNIVERSITY OF MICHIGAN

CLEAN ENERGY & ENERGY MANAGEMENT WEBINAR SERIES

Planning & Zoning for Utility-Scale Wind

Have a question?

Use the “Questions” function to pose questions throughout the webinar



Today's Speakers

- **Hannah Smith** - Master's Student at the University of Michigan School of Urban and Regional Planning
- **Sarah Mills, PhD** - Senior Project Manager at the Graham Sustainability Institute

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PLANNING & ZONING FOR UTILITY-SCALE WIND

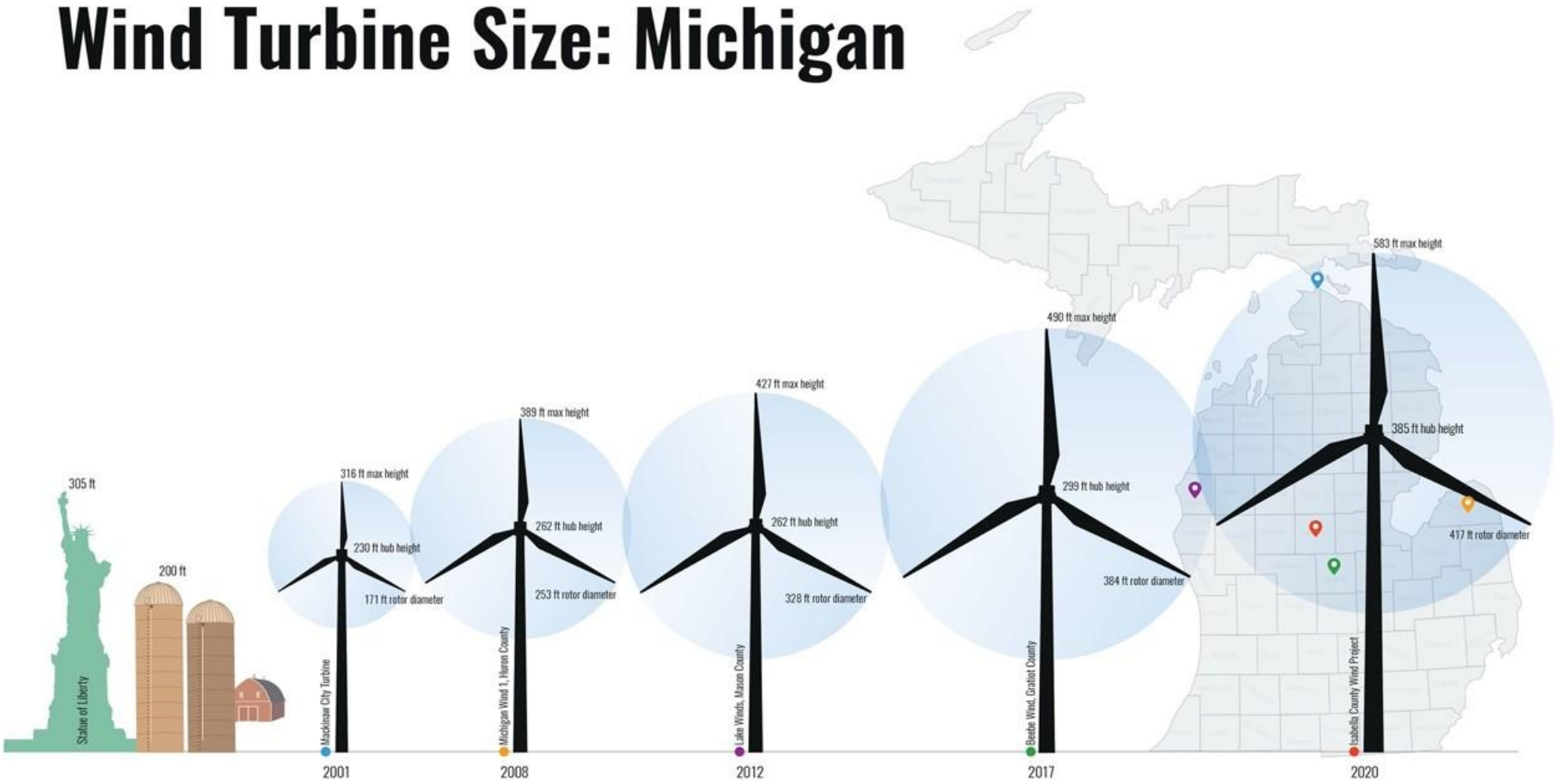
Hannah Smith
Sarah Mills, PhD

Overview

- Why plan or replan for wind?
- Planning for Wind
- Zoning for Wind

WHY PLAN (OR-REPLAN) FOR RENEWABLE ENERGY?

Wind Turbine Heights Over Time



Why Plan Now?

Photo:
https://www.uppermichiganssource.com/content/news/Friends-of-the-Huron-Mountains-not-in-favor-of-wind-turbine-project-in-LAnse-489183491.html

- **Set clear expectations for property owners and potential developers**
  - "Open for business"
  - "Don't bother here"
- **Best before proposal is on the table**
  - Time
  - Fewer conflicts of interest
  - Strategize

PLANNING FOR WIND ENERGY

Planning for Wind Energy

- How does renewable energy fit with your long-term plan?
- Which technologies, at which scales?

Different scales

Energy-Specific Goal Language

Goal 1: Encourage on-site production of renewable energy to allow residents to be more energy independent.

Goal 2: Maximize the production of wind energy to the extent feasible, while minimizing potential biological, agricultural, visual, and other environmental impacts.

As strategy for existing Goals & Objectives

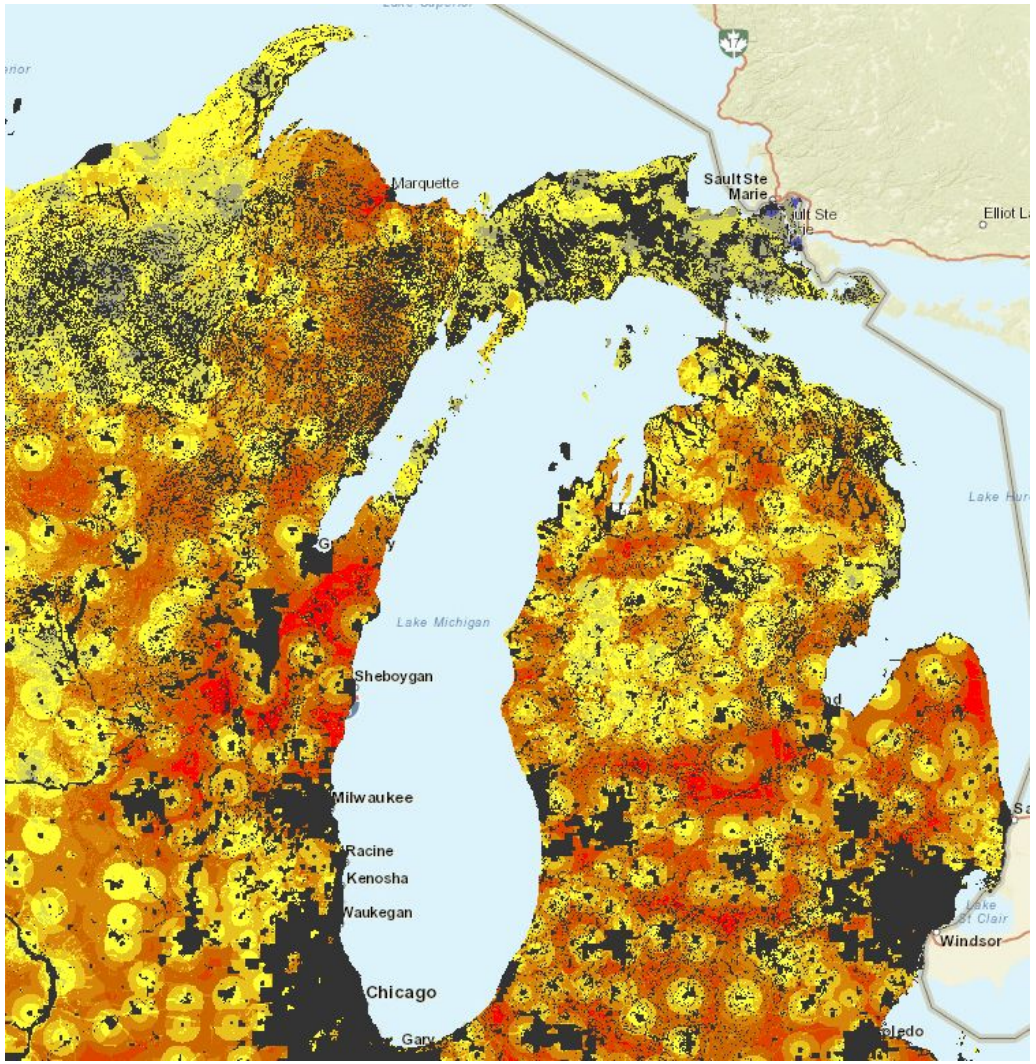
- **Economic Development:** opportunity to expand tax base, additional income to landowners; but not necessarily other industries (e.g., tourism)
- **Farmland Preservation:** opportunity to help farmers diversify and sustain ag
- **Natural Resource Protection:** not reliant on natural resources, wind harnessed without depletion; may have impacts on birds, bats
- **Sustainability:** strategy to reach sustainability goals

- **Preserve Natural Beauty:** controversial

Adding Existing Conditions and Trends

- Identify areas with greatest wind potential using mapping resources
  - Transmission lines
  - Substations
  - Resource potential

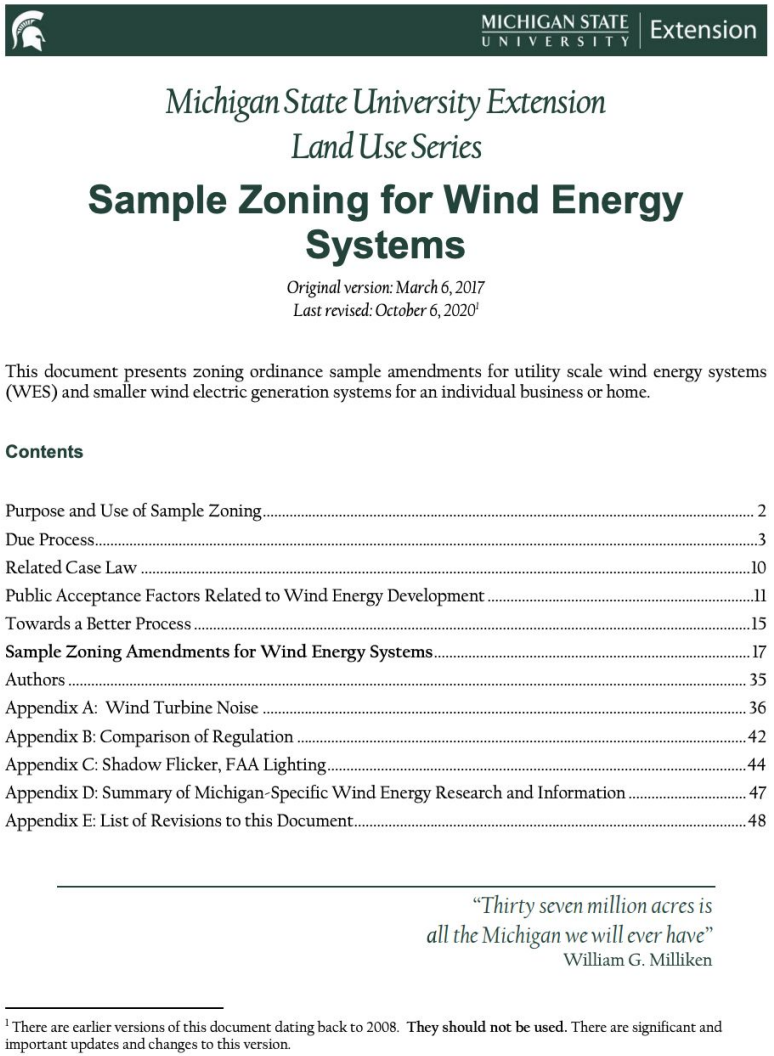
- Energy Zones Mapping Tool (EZMT)
  - EGLE/UM webinar & demo



ZONING FOR WIND ENERGY

Sample Zoning

- **MSU Extension Sample Zoning for Wind Energy Systems**
  - https://www.canr.msu.edu/resources/sample_zoning_for_wind_energy_systems_1



MICHIGAN STATE UNIVERSITY | Extension

Michigan State University Extension
Land Use Series

Sample Zoning for Wind Energy Systems

Original version: March 6, 2017
Last revised: October 6, 2020[1]

This document presents zoning ordinance sample amendments for utility scale wind energy systems (WES) and smaller wind electric generation systems for an individual business or home.

Contents

"Thirty seven million acres is all the Michigan we will ever have"
William G. Milliken

[1] There are earlier versions of this document dating back to 2008. **They should not be used.** There are significant and important updates and changes to this version.

Zoning for Wind Energy - Key Considerations

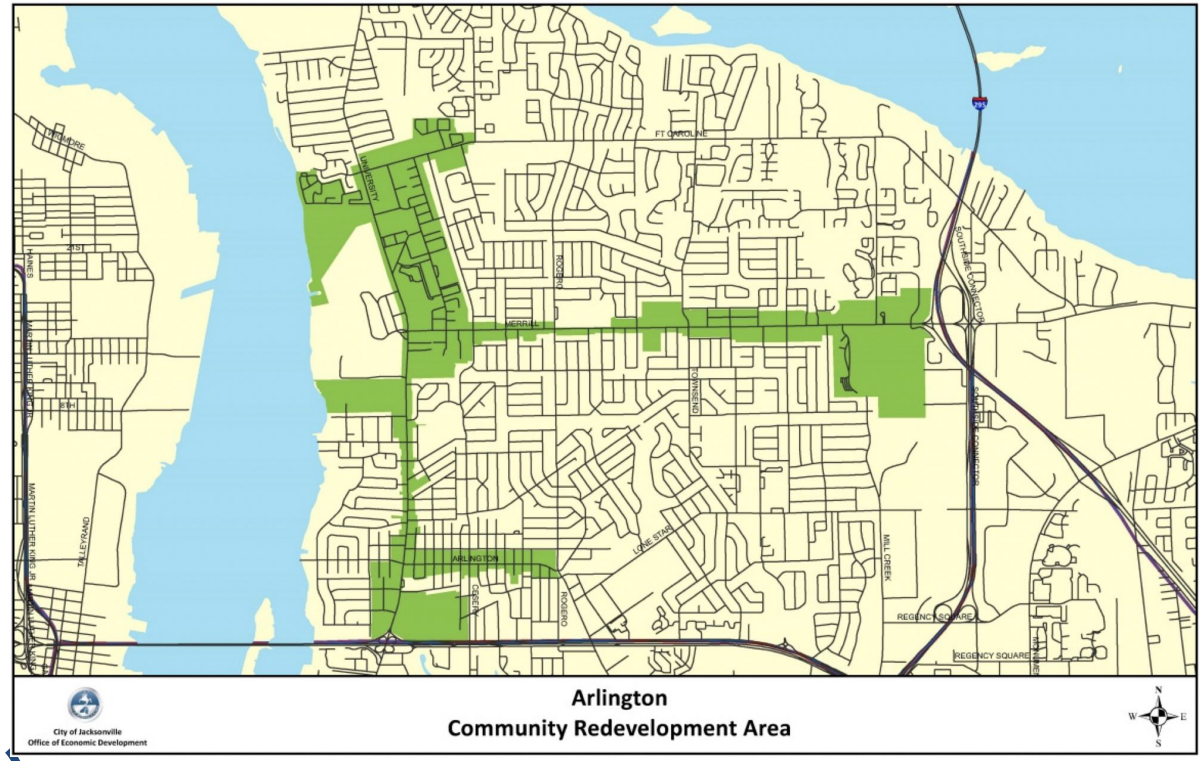
- **Zoning districts**
  - Which are appropriate?
- **Ordinance structure**
  - Permitted use/special use/overlay
- **Specific zoning standards**
  - Main focus today

Zoning Districts

- **Doesn't have to be all or nothing: certain districts eligible and appropriate for wind**
  - Small-scale: compatible in most all situations
  - Utility-scale
    - Typically ok in agricultural, light / heavy industrial, possibly commercial
    - Typically not as compatible in residential, most commercial/retail
    - A/R districts the hardest!

Permitted/Special Use

- **Permitted Use**
  - Best for small-scale
- **Special land use**
  - Most communities
- **Overlay zone (Huron County)**
  - Allows differentiation if lots of ag/res
  - Wind then as permitted use (typically with site plan approval)
  - Rezone on application or proactively



Height

- **If trying to be amenable over time, not recommended to set maximum height**
  - Alternative: set height restriction (i.e. 500 ft), but allow for exceptions if will improve performance of turbines

- **If have height limit for other things, may be way to legitimately block wind development**
  - Any limit of less than 490' will likely mean no "windfarm"

Setbacks

- **Setbacks from:**
  - Property lines (participating/not)
  - Occupied structures
  - Special natural features (rivers)
  - Roads/public lands

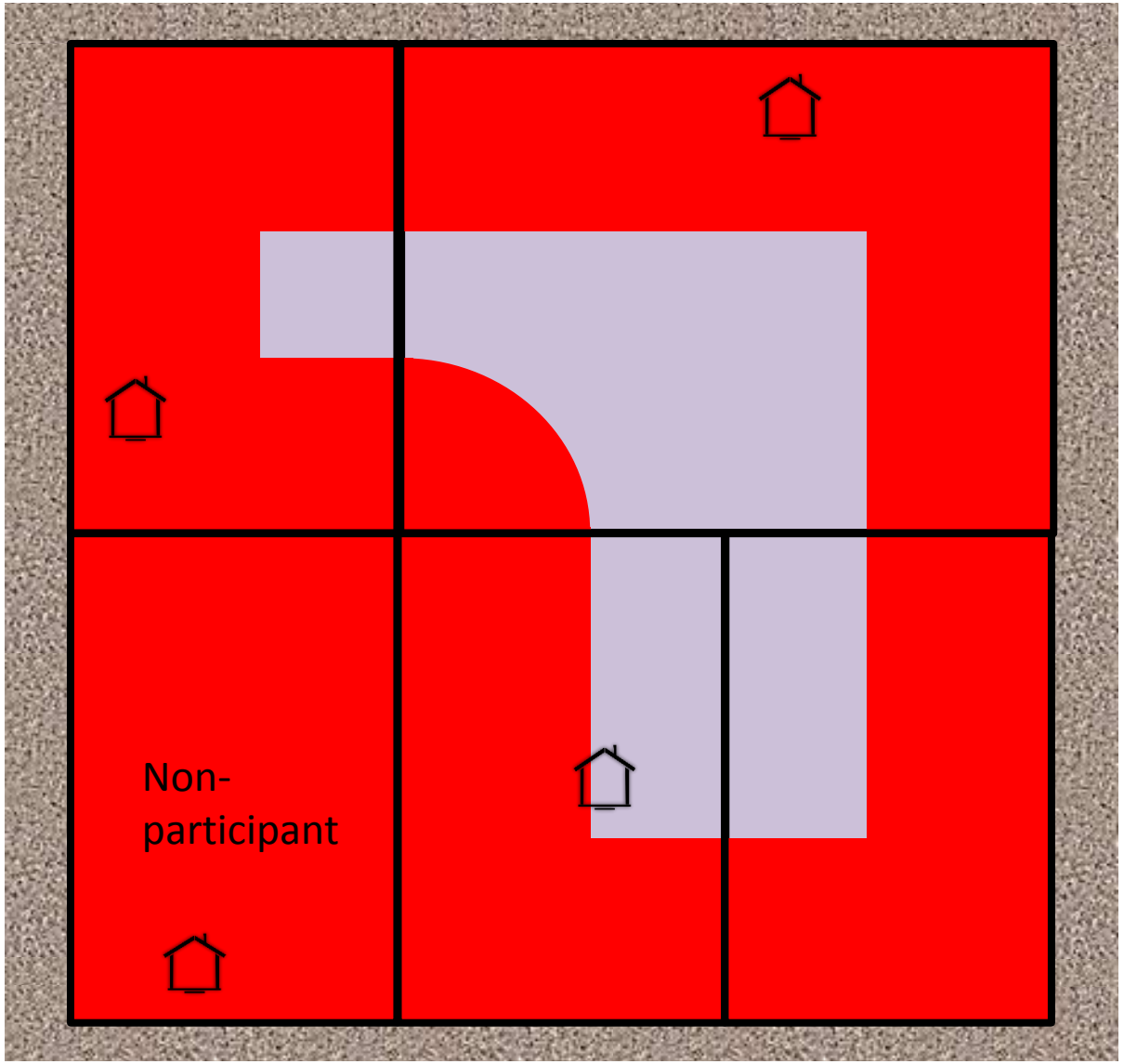
Setbacks

- **Crucial in determining viability of projects, important for safety reasons**
  - 1-1.5x height of turbine
  - Can be by district

- **GIS very helpful to model impacts of setbacks**

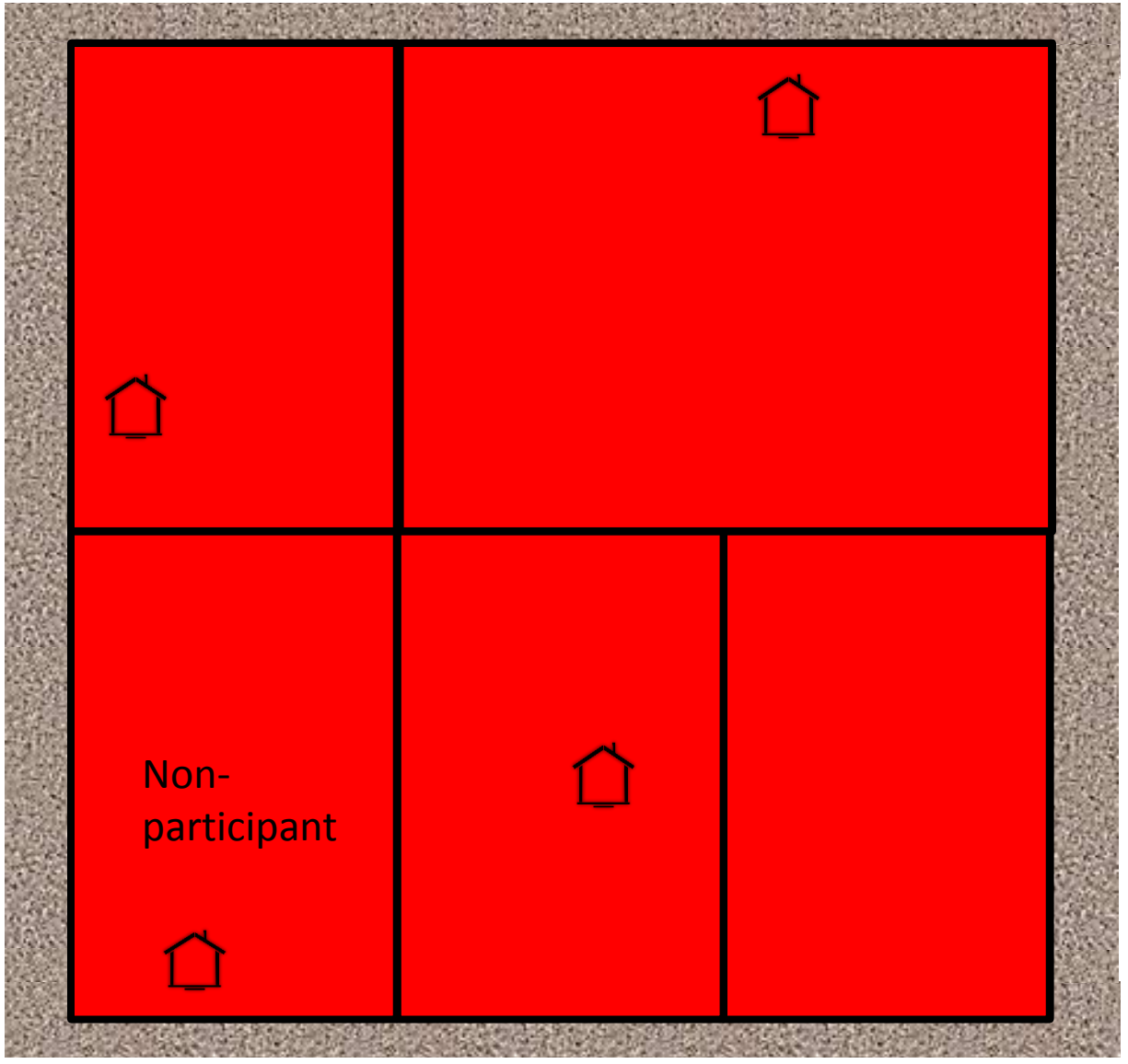
Example of Impact of Setback

1000’ from road, non-participating



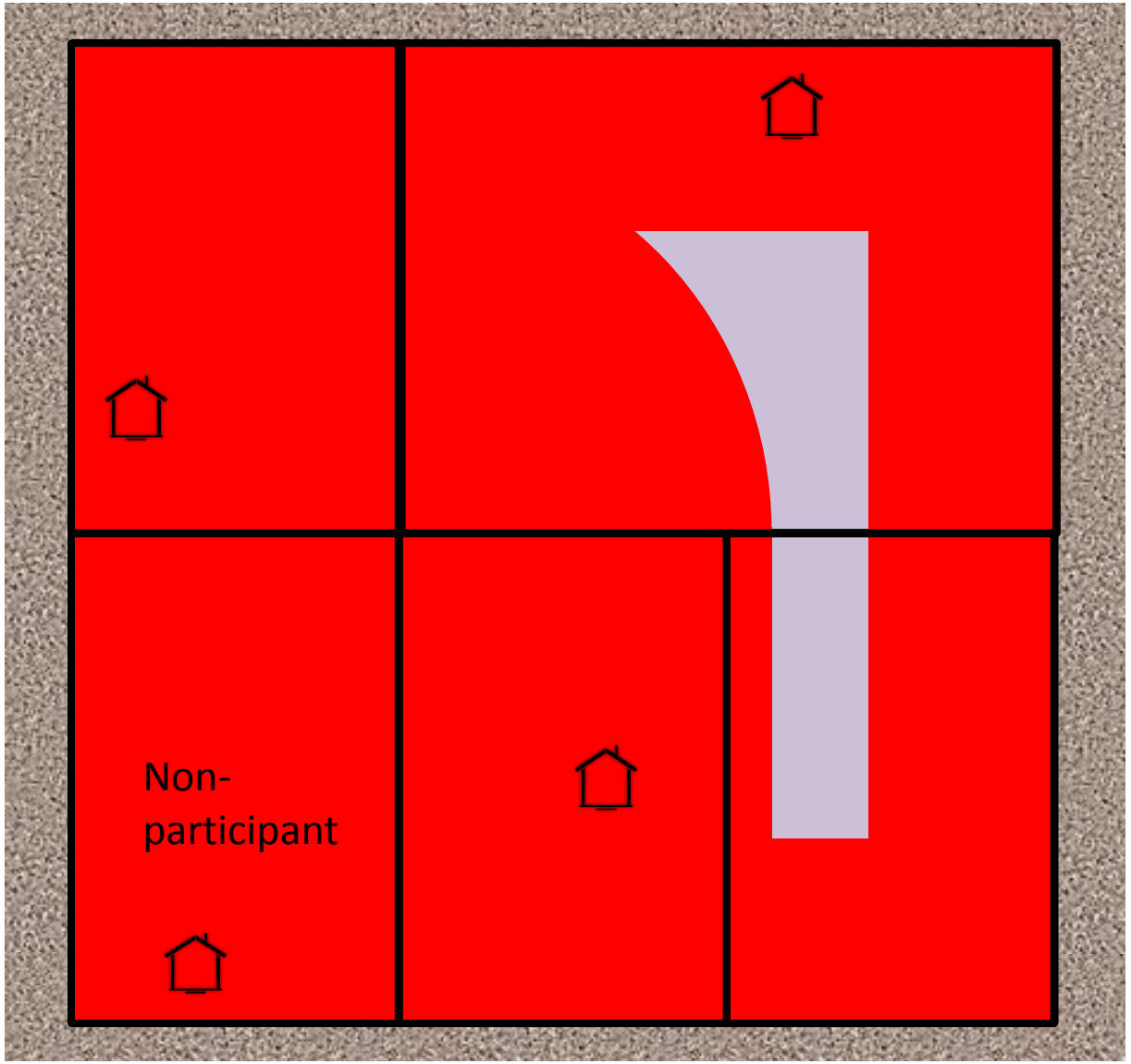
Double setback?

2000’ from road, non-participating



Happy medium?

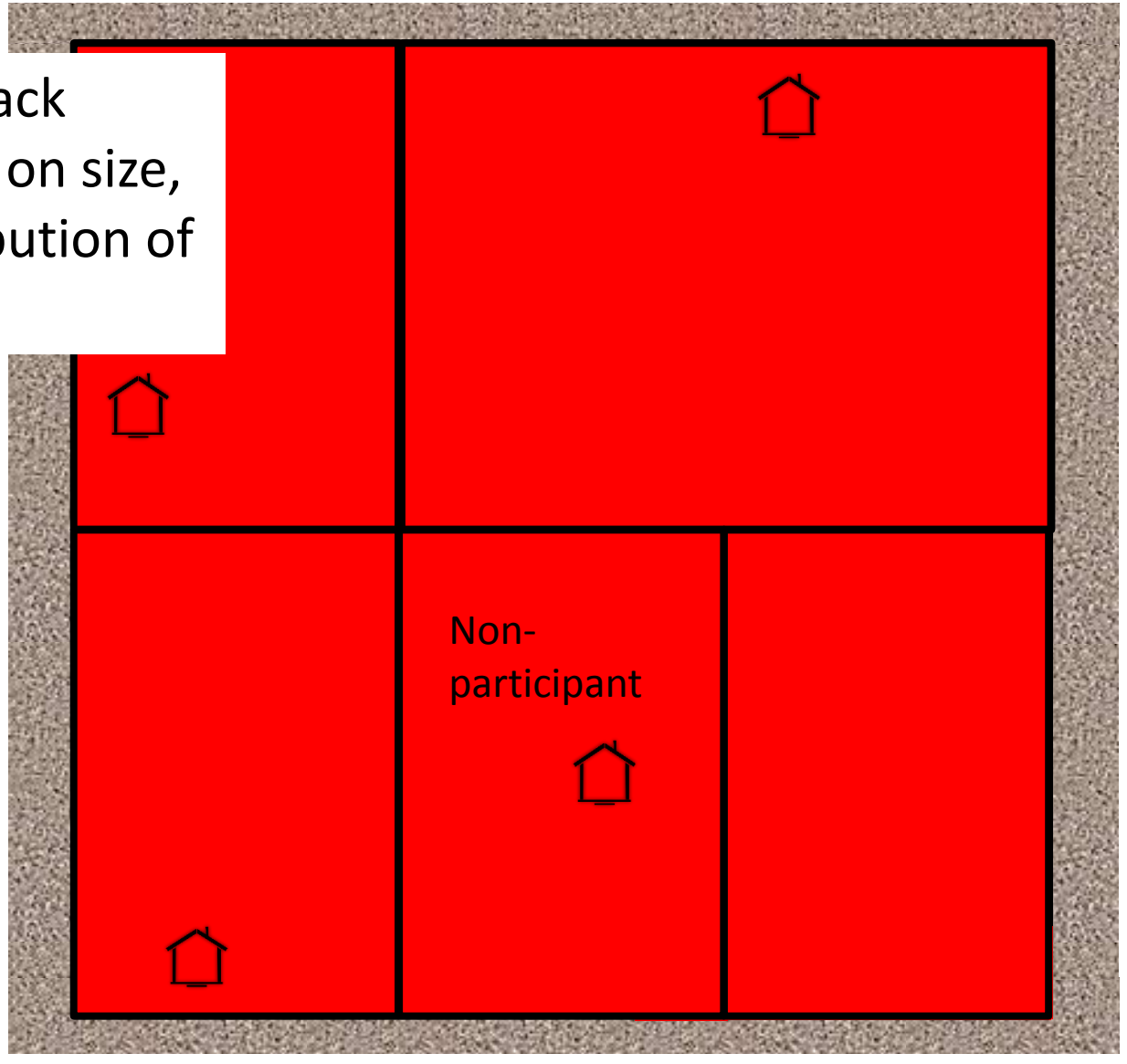
1000’ from road, 2000’ non-participating



Happy medium?

1000’ from road, 2000’ non-participating

Impact of setback really depends on size, number, distribution of parcels



Sound

- **Need to be specific in measure and method; get an acoustic engineer involved**
  - Can be different according to district
  - Can differentiate between constant, intermittent, during day and night
  - Typically need pre/post sound study
- **What else do you regulate sound on?**
- **If wind not compatible, can use precautionary principle and WHO Europe to limit sound**

Shadow/Flicker

- **Standard maximum requirement is 30 hours per year maximum**
- **Lower levels possible, but more costly (since missed opportunity to produce power)**
- **Require mitigation measures to minimize effect on surrounding properties**
  - Vegetative buffer, fence/building
  - Turbine shut down

Visual Impact (day and night)

- **Can require measures that minimize visual impact of turbines**
  - Non-obtrusive colors: white, gray
  - Non-reflective surfaces
  - Prohibit advertising/signage on turbines
  - No lights beyond FAA requirements
  - Lighting in adherence with FAA Standards
    - Can require asking FAA for Aircraft Detection Lighting System (ADLS)

Decommissioning

- **Define what is "end of life"**
  - allow ~12 months

- **Decommissioning plan to be approved at time of site plan approval**
  - Include outline of life of project, decommissioning costs, process details for equipment removal and site restoration
  - Common to require financial guarantee or surety bond for decommissioning (e.g., 150% cost of removal)
  - Periodic review

Other Considerations

- Performance security for local roads
- Ground clearance
- Permitting (EGLE, FAA, FWS) and construction/ electrical/ building codes
- Safety signage
- Complaint resolution process

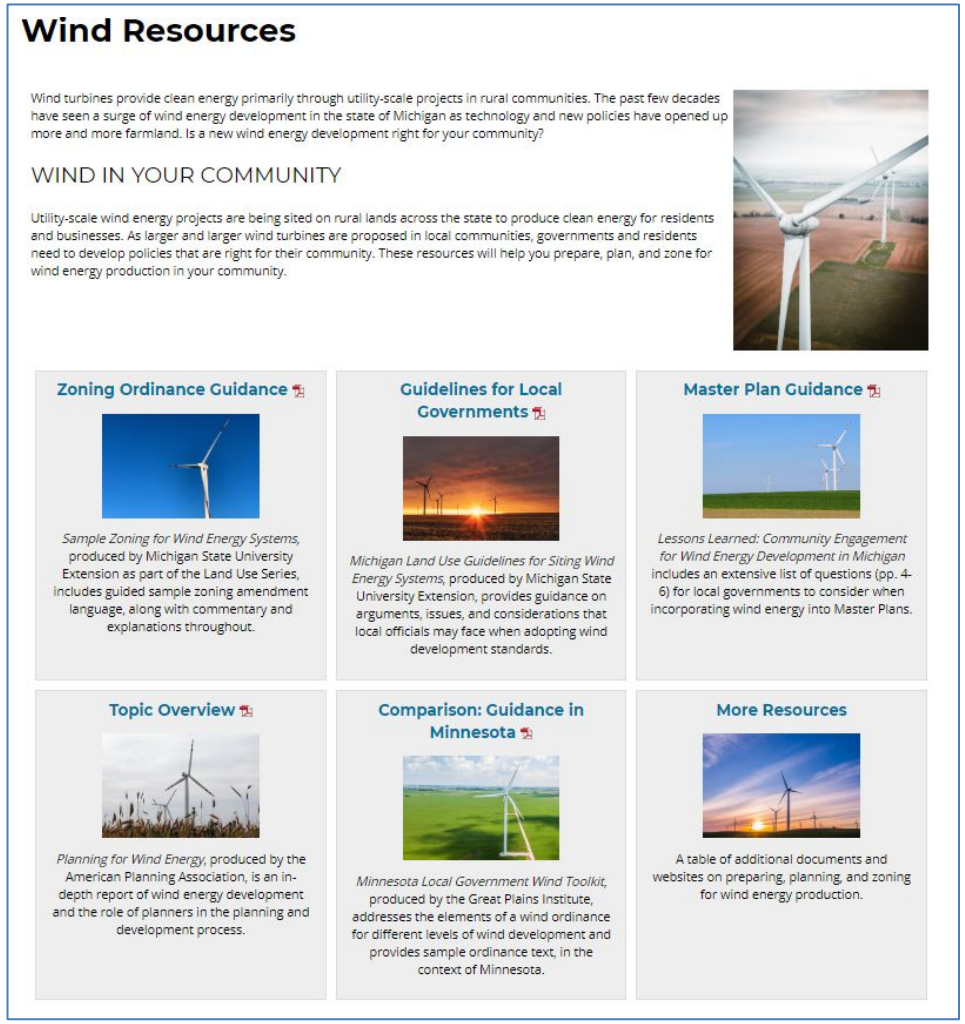
Site Plan

- **Should be matched to standards of approval:**
  - Noise impact analysis, traffic analysis, visual impact analysis, shadow flicker analysis, environmental permits, FAA approval, wildlife impact studies, lease agreements

- **Issues of double-standard: if not required for other developments, why wind?**

Planning and Zoning Resources

- Curated repository of templates, guidance
  - http://graham.umich.edu/climate-energy/energy-futures
- Case Studies, FAQs
- March-April 2020 issue of Planning & Zoning News
- Updated (Oct 2020) zoning guidance on wind from MSU



Wind Resources

Wind turbines provide clean energy primarily through utility-scale projects in rural communities. The past few decades have seen a surge of wind energy development in the state of Michigan as technology and new policies have opened up more and more farmland. Is a new wind energy development right for your community?

WIND IN YOUR COMMUNITY

Utility-scale wind energy projects are being sited on rural lands across the state to produce clean energy for residents and businesses. As larger and larger wind turbines are proposed in local communities, governments and residents need to develop policies that are right for their community. These resources will help you prepare, plan, and zone for wind energy production in your community.

Zoning Ordinance Guidance

Sample Zoning for Wind Energy Systems, produced by Michigan State University Extension as part of the Land Use Series, includes guided sample zoning amendment language, along with commentary and explanations throughout.

Guidelines for Local Governments

Michigan Land Use Guidelines for Siting Wind Energy Systems, produced by Michigan State University Extension, provides guidance on arguments, issues, and considerations that local officials may face when adopting wind development standards.

Master Plan Guidance

Lessons Learned: Community Engagement for Wind Energy Development in Michigan includes an extensive list of questions (pp. 4-6) for local governments to consider when incorporating wind energy into Master Plans.

Topic Overview

Planning for Wind Energy, produced by the American Planning Association, is an in-depth report of wind energy development and the role of planners in the planning and development process.

Comparison: Guidance in Minnesota

Minnesota Local Government Wind Toolkit, produced by the Great Plains Institute, addresses the elements of a wind ordinance for different levels of wind development and provides sample ordinance text, in the context of Minnesota.

More Resources

A table of additional documents and websites on preparing, planning, and zoning for wind energy production.

EGLE

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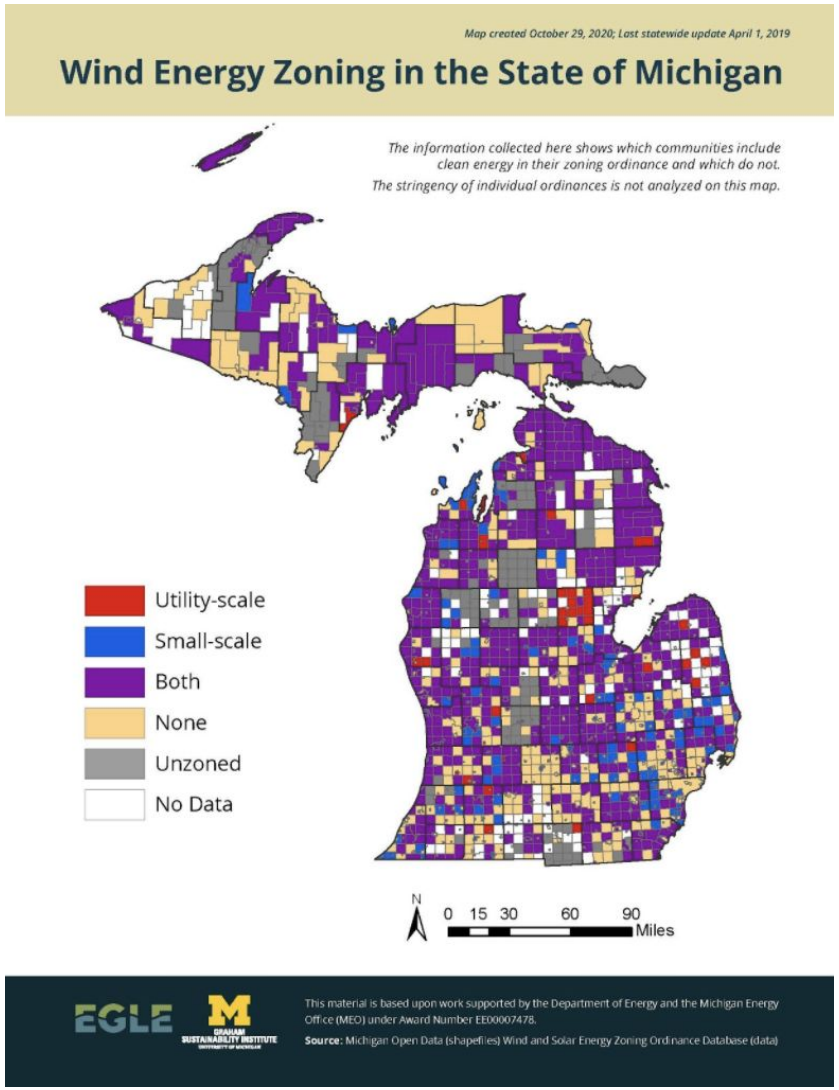
Michigan Zoning Database (Thanks to EGLE)

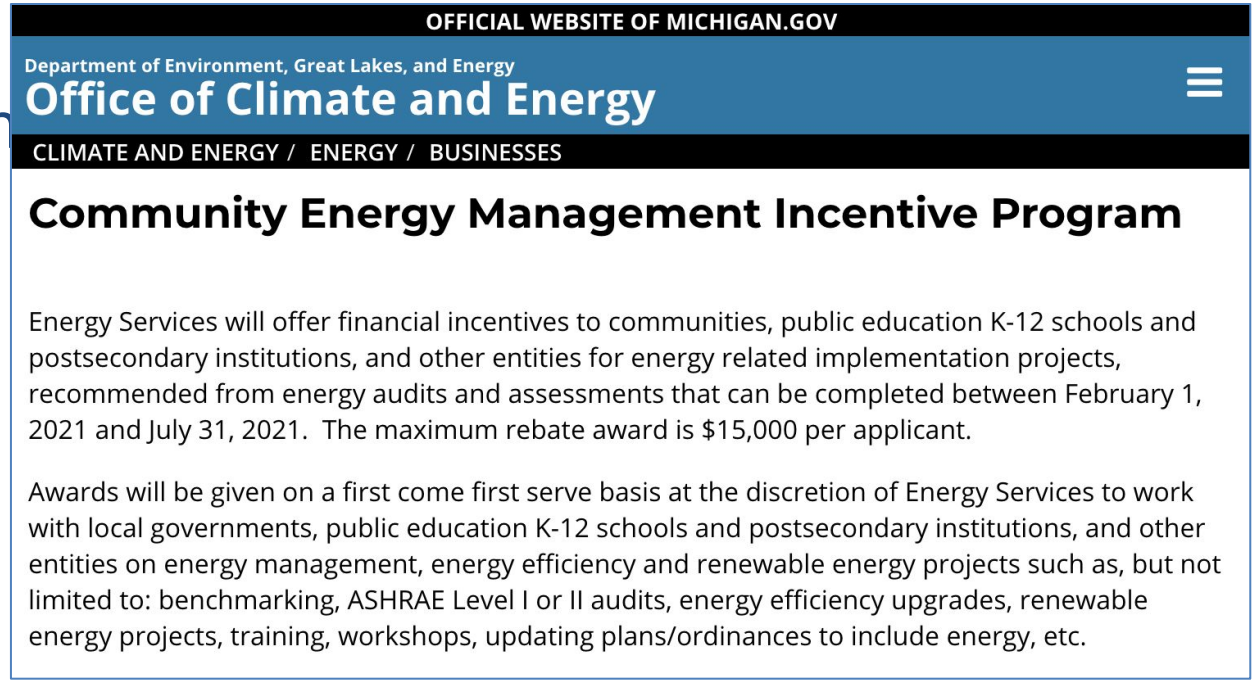


- Database of most zoning ordinances in the state; which have wind/solar content
- Available at https://www.michigan.gov/energy/

Consider whether peer communities do or do not have energy projects

EGLE grants

- Community Energy Management Incentive Program
- Grants for updating plans & ordinances for renewable energy
  - Up to $15,000
- Apply at www.Michigan.gov/energy



OFFICIAL WEBSITE OF MICHIGAN.GOV

Department of Environment, Great Lakes, and Energy

Office of Climate and Energy

CLIMATE AND ENERGY / ENERGY / BUSINESSES

Community Energy Management Incentive Program

Energy Services will offer financial incentives to communities, public education K-12 schools and postsecondary institutions, and other entities for energy related implementation projects, recommended from energy audits and assessments that can be completed between February 1, 2021 and July 31, 2021. The maximum rebate award is $15,000 per applicant.

Awards will be given on a first come first serve basis at the discretion of Energy Services to work with local governments, public education K-12 schools and postsecondary institutions, and other entities on energy management, energy efficiency and renewable energy projects such as, but not limited to: benchmarking, ASHRAE Level I or II audits, energy efficiency upgrades, renewable energy projects, training, workshops, updating plans/ordinances to include energy, etc.

https://www.michigan.gov/climateandenergy/0,4580,7-364-85453_85455_85523-475266--,00.html

More questions?

- **Reach out to us**
  - Answer questions
  - Send you copies of PZN
  - Give presentation
  - Connect you to MSU-Extension, other communities

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April 27 Planning & Zoning for Utility-Scale Solar

Stay Up-to-Date and Find Recordings

www.Michigan.gov/Energy > Energy tab > Communities