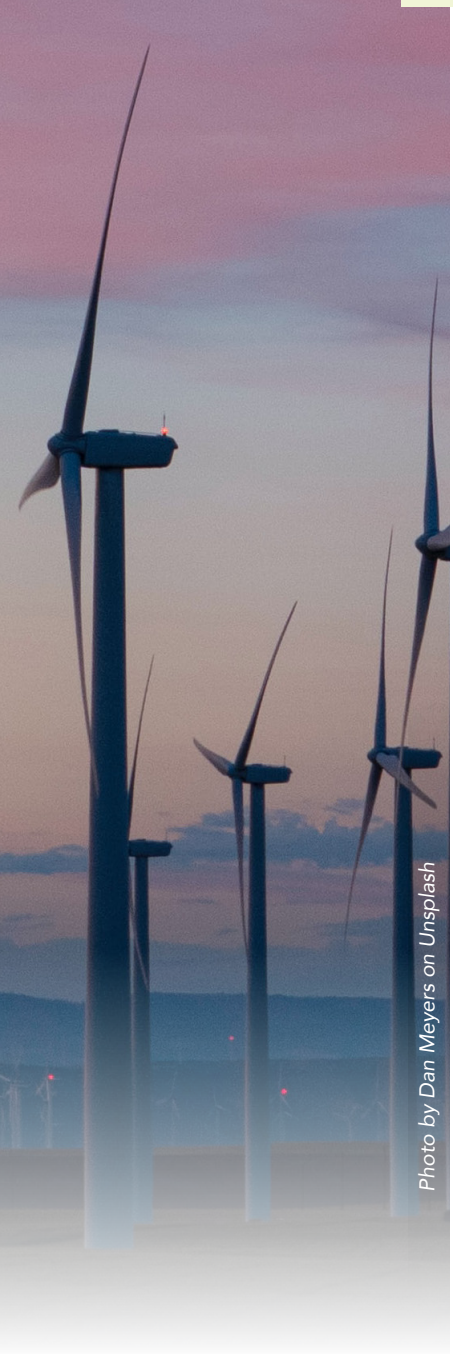


Photo by Dan Meyers on Unsplash

"Clean Energy in Michigan" Series, Number 15

Communities and Zoning: Keeping Up With Technology

By Andrew Light and Jonathan Newman, University of Michigan

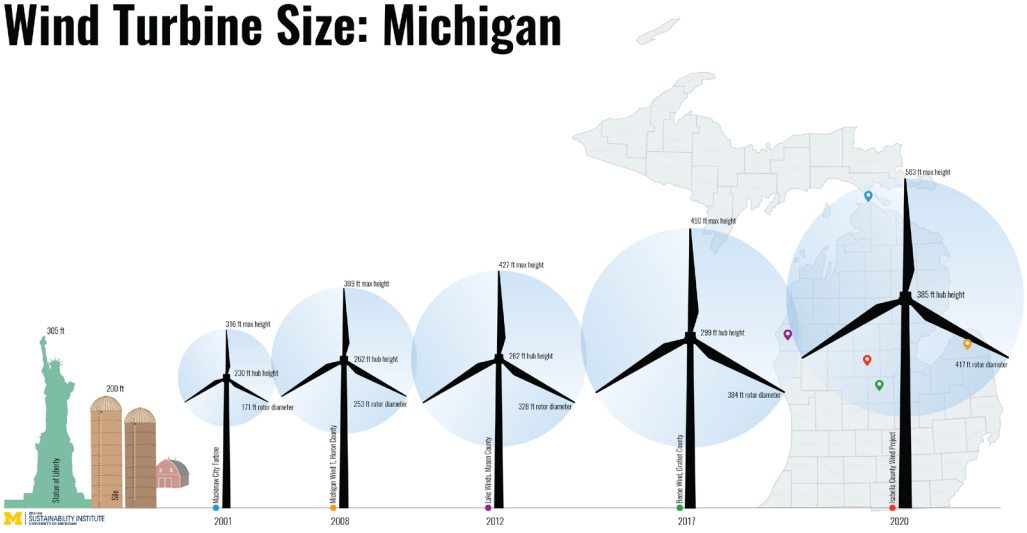
The following information comes from two recent research projects:

1) Zoning for Renewable Energy Database
2) Michigan Local Energy Survey (MiLES)

Background

Zoning for renewable energy can be a complex and difficult process, compounded by the rapidly changing technologies of wind turbines and solar panels. For an ordinance to stand the test of time, regulations for height, setback, noise, and shadow flicker, among others, must be updated in step with technological advancements.

Communities generally update zoning for maximum building height every few decades. Figure 1 below shows that the height of modern wind turbines has climbed at a much faster rate. A community that set a maximum height limit a decade ago of 400 feet for utility-scale wind turbines and left the ordinance unchanged would not be in contention for a new wind development today. This is an example of a community's outdated ordinance working against its best interest and intentions. Local leaders should be aware that new research shows this phenomenon is prevalent in Michigan communities.



Acknowledgement

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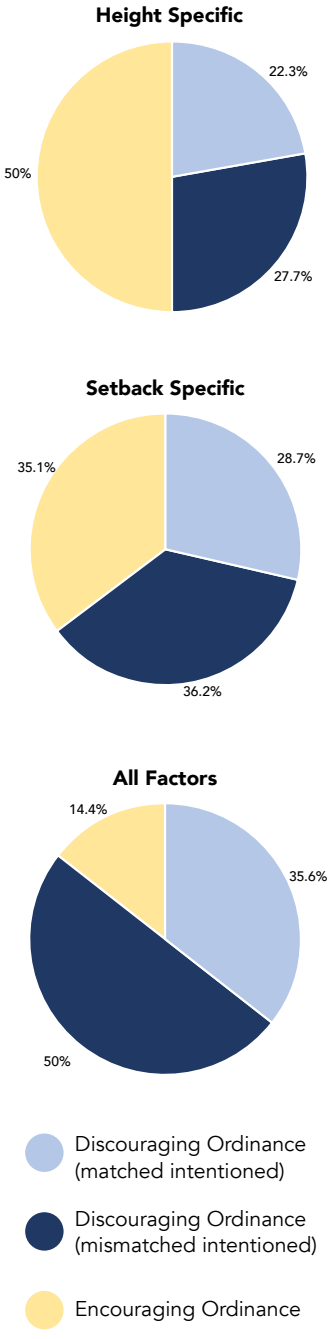
The Clean Energy in Michigan series provides case studies and fact sheets answering common questions about clean energy projects in Michigan.

Find this document and more about the project online at graham.umich.edu/climate-energy/energy-futures.

Mismatched Zoning and Community Objectives



Proliferation of Unintended Consequences

Many communities across Michigan have zoning ordinances on wind energy that conflict with the community's intended goals. In particular, height regulations are often set below the minimum threshold for a modern turbine (currently 490 feet)—even in communities hoping to encourage wind development. Of the 188 municipalities surveyed through MiLES, 52 had zoning ordinances at odds with community objectives. These municipalities indicated on the survey that their ordinance encouraged wind development, but a separate ordinance review exposed restrictive height regulations.

Unintended zoning consequences also stem from setback requirements. Sixty-eight communities analyzed through MiLES claimed to encourage wind development, but had incompatible setback requirements. Shadow-flicker and noise-restriction ordinances were also considered and are reflected in the "All Factors" pie chart (left).

Take Action for Your Community

It is essential that local leaders and policy makers ensure their zoning regulations are updated to match the latest technology and trends in commercial renewable energy development. For both solar and wind energy, zoning regulations must also reflect the values and goals of the community.

Overall, the following steps can help set communities up for success:

1) Determine if wind and solar energy are right for your community. Weigh the financial and economic benefits with the desires and goals of the community. Consider hosting special townhall meetings to discuss the options with community members, potentially including industry and research experts to gain additional insight.
2) Analyze your current zoning ordinances to ensure they reflect your desire to encourage development. Work with EGLE and regional planning groups to develop up-to-date ordinances.
3) Design new wind and solar zoning ordinances if none exist for your community.
4) Engage with EGLE to ensure your wind and solar ordinances are uploaded to the Zoning for Renewable Energy Database for industry, researchers, and other communities to view.

To learn more about the latest renewable design parameters across the country, check out the Wind Power Technology Trends and Utility-Scale Solar Technology Trends pages from Berkeley Lab.