

PERCEPTIONS OF THE IMPACT OF WIND ENERGY GENERATION IN COASTAL COMMUNITIES

Energy Policy Priorities

prepared by the msu land policy institute and the great lakes commission

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Introduction

Wind energy can summon strong responses from community residents, whether or not a wind farm has been proposed. Qualifying the reasons for these reactions involves a look into what wind represents for different people in different places.

For some, wind energy means energy security and independence, cleaner air, cleaner water, slowing the effects of climate change or an economic development opportunity. For others wind power developments represent a dramatic change to a community and an industrial incursion into rural landscapes. This may include a change in property values, environmental risks, impaired aesthetics and even a change to a community's identity.

The challenge to objectively considering wind development is in finding the balance between the concerns and anxieties of a community and the benefits they would receive. The way the current system operates, most of the intended benefits of wind energy are felt at the state or national level—jobs may be created throughout a state, or the country may become less reliant on non-renewable sources of energy. Local benefits, including new jobs, a cleaner environment and steadier energy prices, are tempered by real or perceived negative effects of wind. Finding ways to balance the risks and rewards of wind energy is essential. As with all potentially controversial issues, it may not be possible to reach consensus on wind energy, but exploring the issues in depth with a community can help educate those community members who may not have yet formed an opinion on wind power.

In early 2010, the Michigan State University (MSU) Land Policy Institute (LPI) sent a mail survey to 300 randomly selected households in each of the study areas (900 total surveys mailed total). Three-hundred seventy-five surveys were returned for a response rate of 45%. The survey consisted of closed-end questions centered on the following themes: attitudes

towards commercial wind farm development, perceived effects of wind farms, distributive and procedural fairness and general values and environmental beliefs. Most of the questions asked respondents to consider how they would feel about a commercial wind farm development in or near their community—defined as the township, village or city in coastal Michigan where they live during all or part of the year. The remainder of this factsheet focuses on the results of the survey regarding policy priorities issues.



What We Heard from Our Focus Groups about the Environment

Information Gaps/ Remaining Questions

- Effects of lighting on birds and other wildlife
- Effects on wildlife beyond birds/bats
- What are the environmental impacts of construction, transmission, maintenance, etc?

Introduction (Cont.)

Policy Priorities of Coastal Residents

Policy can have a tremendous effect on energy markets. Innovative investment strategies, such as those undertaken in Germany, Spain and Denmark internationally and by states in the U.S. have greatly expanded the market for renewable energy. One such example is the Renewable Portfolio Standard (RPS), which requires a percentage of the electricity sold in an area (state, country, municipality) to come from renewable sources. Twenty-four states have enacted RPS policies. Other policies include incentives that apply to both renewable energy and conventional energy, and those geared toward economic development through industry development, such as support for building additional coal power plants as job creators, or support for wind energy manufacturing. In relation to wind, policy incentives can also be affected by support for other issues, such as solar power, energy conservation issues, development of new domestic energy supplies and incentives for fossil fuel-based energy generation.

There is evidence of a crowding effect, where support of conventional energy crowds out support for renewable energy and also the converse. For example, in 2009, the then State of Michigan Speaker of the House participated in a rally to boost the construction of coal-fired power plants rather than renewable energy development.¹ Scientific studies also have observed this effect.² There is also evidence of a similar effect within the renewable energy community with proponents of various technologies vying for supremacy. If the public is in support of policy priorities for conventional electric power technologies they may be less supportive of wind. Further, if the public places a higher value on energy efficiency and solar policy, then support for wind power may also be lower. This factsheet summarizes what coastal residents say are their policy priorities, and identifies the types of energy infrastructure and associated policy incentives that policy makers should be examining.

Encourage Nuclear

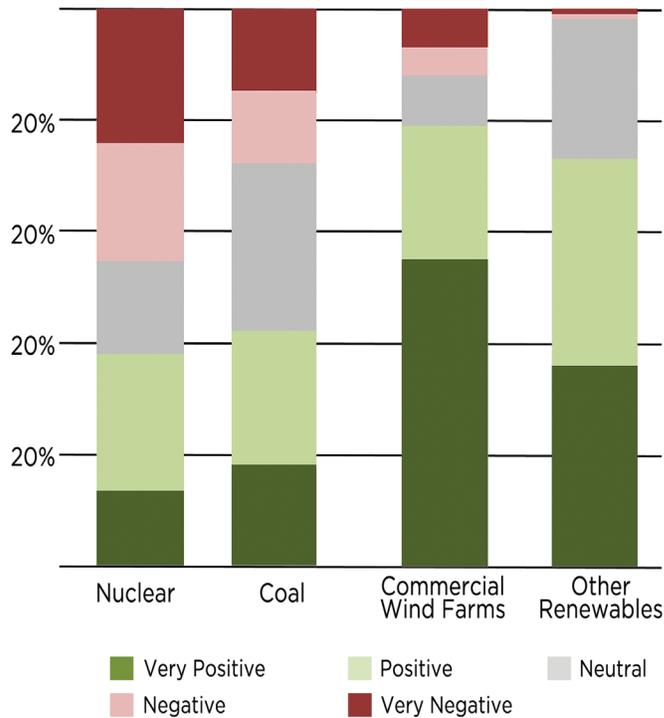
The survey asked if participants agree that encouraging the development of nuclear power plants should be a priority for Michigan. The responses show no significant majority. A quarter of respondents indicate they are neutral, closely followed by the 22% in agreement and the 22% that strongly disagree. Nineteen percent of those surveyed state they disagree, while 12% say they strongly agree. See Figure 1.

1. Michigan Country Lines, "Capitol Clean Energy Rally Energizes Workers": http://www.countrylines.com/rss/?rss_id=3.

2. Bang, H., A. Ellinger, J. Hadjimarcou and P. Traichal. 2000. "Consumer Concern, Knowledge, Belief, and Attitude toward Renewable Energy: An Application of the Reasoned Action Theory." *Psychology and Marketing* 17(6):449-468.

Opinions of Coastal Residents

Figure 1: We Should Encourage the Development of . . .



Encourage Coal-Fired Power Plants

Respondents were asked if they agree that it should be a priority for Michigan policy makers to encourage development of coal-fired power plants. The highest percentage of those surveyed, 30%, neither agree nor disagree and indicate neutral. This is followed by 24% in agreement, 18% strongly agreeing, 15% strongly disagreeing and, finally, 13% saying they disagree that it should be a priority for State policy makers to encourage development of coal-fired power plants.

Develop Other Renewables

When asked if they agree that Michigan policy makers should make a priority of developing other (non-wind) sources of renewable energy, respondents reveal very little opposition to this policy strategy. Only 1% say they are in strong opposition, and another 1% say they are in opposition. Twenty-five percent indicate they are neutral. The remaining 73% is split between those in agreement and those strongly agreeing at 37% and 36%, respectively.

Michigan Renewable Portfolio Standards

Responding to the 2008 Michigan RPS, 37% of those participating in the survey strongly support the passage of the RPS, with another 32% supporting the standard. Those feeling neutral about the RPS are at 19%. Of the remaining 12% of respondents, 6% strongly oppose the passage of the state's RPS and 6% oppose the standard.

What We Heard from Our Focus Groups about the Environment

Pros

- Source of renewable energy
- Clean energy and fewer emissions
- Visible source of power and reminds people of energy use

Cons

- Avian mortality
- Habitat destruction in forested areas
- Construction-based impacts of generation and transmission

What We Heard from Our Focus Groups About Governance and Fairness (Cont.)

Information Gaps/ Remaining Questions

- Role of counties and the state in setting standards.
- Can private lands be condemned for wind farm development?
- Do citizens have a say in planning and siting?
- More assistance is needed in the development of ordinances.

Opinions of Coastal Residents (Cont.)

Extend Transmission Lines into Windy Areas

When asked if they agree that extending transmission lines into windy areas should be a priority for Michigan policy makers, 43% say they agree. In combination with the 15% that strongly agree, this accounts for a majority of the respondents. Thirty-three percent indicate they are neutral. Those that disagree and those that strongly disagree that extending transmission lines into windy areas should be a priority account for 5% and 4% of respondents, respectively. See Figure 2.

Develop Wind Farms Offshore

When asked if developing wind farms offshore should be a priority issue for Michigan policy makers, the majority of respondents agree that it should. Thirty-eight percent say they agree, while 24% say they strongly agree. Neutral responses account for 19% of those surveyed. Finally, 10% say they disagree and 9% say they strongly disagree that developing wind farms offshore should be a priority issue for State policy makers. See Figure 3.

Encourage Residential Wind Energy Systems

Participants were also asked to what extent they agree that encouraging homeowners to install residential wind energy systems should be a priority in Michigan. Exactly half of the participants feel some level of agreement with the proposal, with 31% agreeing and 19% strongly agreeing. Thirty-two percent are neutral about making it a statewide priority to encourage homeowners to install residential wind energy systems, while those that disagree and strongly disagree account for 11% and 7% of the total, respectively.

Figure 2: Extend Transmission Lines to Windy Areas

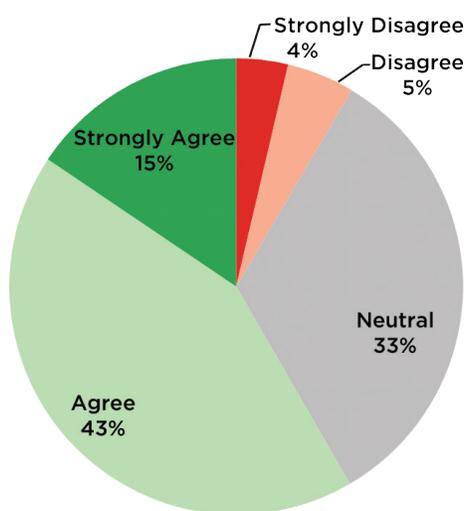
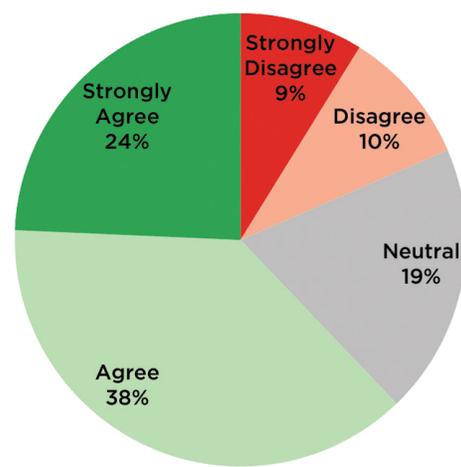


Figure 3: Developing Wind Farms Offshore



Opinions of Coastal Residents (Cont.)

Create Residential and Business Programs to Conserve Energy

More than three quarters of the respondents are in some level of agreement that creating programs to help residents and businesses conserve energy should be a priority for the Michigan legislature. Close to half of respondents, 43%, say they agree with this idea and 38% strongly agree. Those expressing neutrality account for 14%, while 4% disagree and 1% strongly disagree about making it a priority to create residential and business-based programs to help conserve energy. See Figure 4.

Study the Effects of Wind Farms

When asked to what extent they agree that Michigan lawmakers should make studying the effects of wind farms a priority, the majority are in support of the idea. The largest portion belongs to the 44% in agreement, followed by 37% indicating strong agreement. Those who are neutral make up 14% of the total responses, with 2% disagreeing and 3% strongly disagreeing about making it a priority to study the effects of wind farms. See Figure 5.

Encourage Community-Owned Wind

The survey asked participants to what extent they agree that encouraging development of community-owned wind farms should be a priority for policy makers. More than half of the respondents indicate support for this priority, with 31% saying they agree and 30% saying they strongly agree. Twenty-seven percent choose neutrality. The remaining 12% of respondents are split between the 7% who disagree and the 5% strongly disagreeing about the legislature encouraging development of community-owned wind farms.

Figure 4: Create Residential/
Businesses Programs
to Conserve Energy

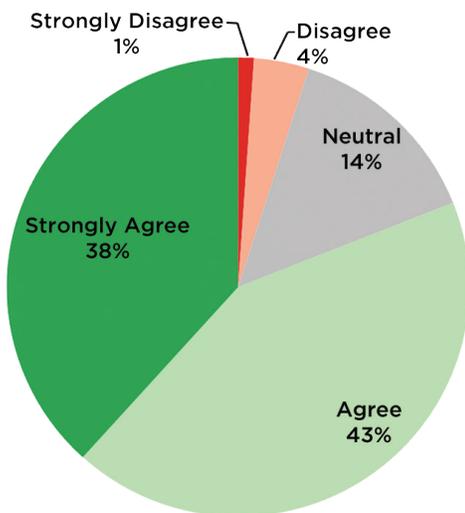
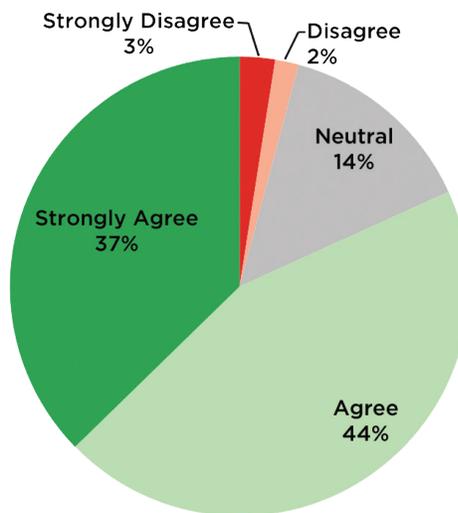


Figure 5: Study the Effects
of Wind Farms



What We Heard from Our Focus Groups About Governance and Fairness

Pros

- Local control via zoning authority

Cons

- Uncontrolled development in areas that do not have ordinances
- Exploitation of communities and land owners
- Weak standards
- Inconsistent standards within counties/regions
- Development on one property might limit development on neighboring properties
- Decommissioning/removal of projects
- Lack of transparency in development

What We Heard from Our Focus Groups about Other Areas Information Gaps/ Remaining Questions

- Interest in community-scale and residential wind energy
- Comparison of wind to other energy sources (e.g., costs, effects, etc.)
- Can wind farms be constructed on commercial forest reserve lands?
- Are there other turbine designs that have fewer negative impacts?

Discussion

This portion of the survey indicates a noteworthy amount of public support for wind development in lieu of traditional energy production, i.e., coal or nuclear. Surprisingly, there is a solid majority in support of developing wind projects offshore, despite offshore wind continuing to be a contentious topic for many coastal communities. This, combined with the very strong support for policies that support renewable energy, and the strong support for developing other sources of renewable energy, indicates interest in promoting a diverse portfolio of these energy sources.

Interestingly, the survey indicates that there is still a solid corps of supporters for coal-fired power plants, with nearly one-third of participants in favor of encouraging more coal. However, a close second, at 28%, were those opposed to more coal. The remaining third of respondents were neutral—an interesting split of opinion considering that there has been much debate and controversy over a potential coal plant in one of the study areas. Hence, survey participants were more familiar with coal power than they might otherwise have been. Likewise, one-third of survey respondents were in support of encouraging development of nuclear energy. These numbers may indicate that although a majority of the public supports renewable energy, there is still much work to be done to shift people's mindset about reducing our reliance on fossil fuels and more nuclear power.

Further, survey results indicate support for alternative energy infrastructure for wind, with 58% of participants in agreement or strong agreement that the extension of transmission lines into windy areas should be a priority. Survey results also show that coastal residents encourage the creation of energy conservation programs for both residents and businesses.

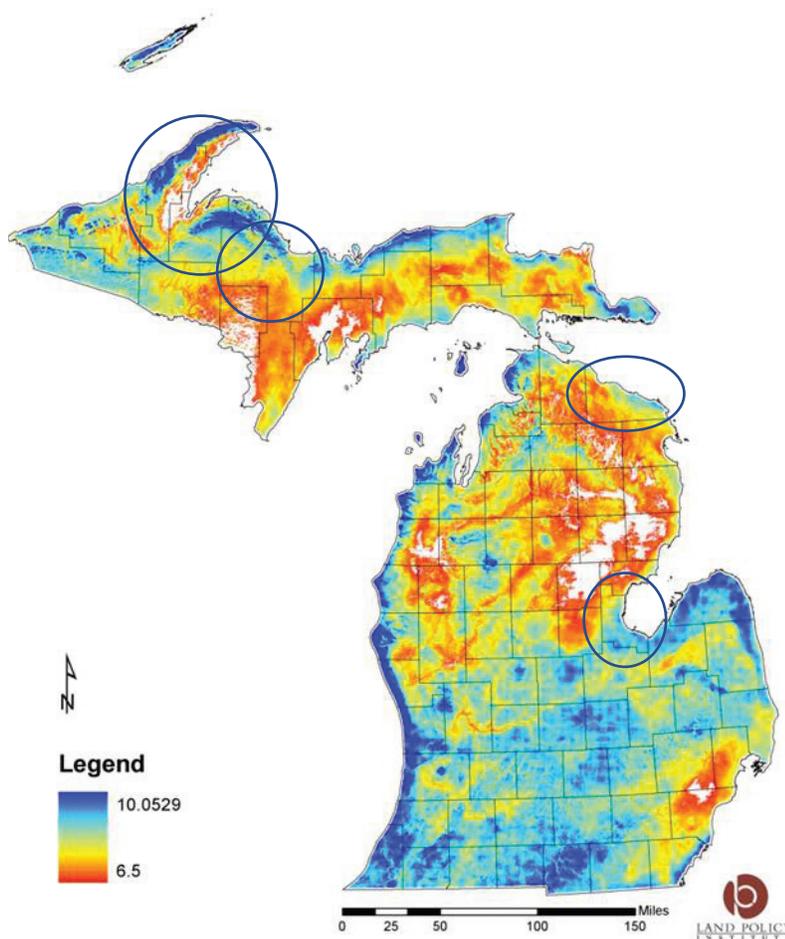
This overwhelming support for renewables and conservation was not without consideration of the effects of wind or other renewable energy developments—81% of participants indicated agreement or strong agreement that studying the effects of wind projects should be a policy priority in Michigan, which shows a sense of uncertainty over new technologies.

These responses point to a need to rethink and revitalize the energy plans for coastal communities to better reflect public attitudes towards renewable energy, diverse energy portfolios and energy conservation. Additionally, the public's concern for studying the effects of wind power shows a need to both gather and widely disseminate information on this topic throughout coastal communities.

Project Description

Michigan is recognized as a state with strong wind energy development potential. Windy, coastal communities will face pressure to develop wind farms for many years to come. This factsheet is part of a Michigan Sea Grant-funded integrated assessment of wind energy in coastal communities. During 2010, the MSU Land Policy Institute hosted focus groups and surveyed residents in Michigan coastal communities to understand their perceptions of wind energy. As referenced in Figure 6, the coastal community areas selected as the focus of the study included Bay County, Presque Isle County, and a four-county area of the Upper Peninsula (Baraga, Houghton, Keweenaw and Marquette counties).

Figure 6: Map of Focus Area Communities with Wind Resource at 100 Meters (m/sec)



Map Produced by Land Policy Research at the Land Policy Institute, Michigan State University, 2009.

Wind Farm Development in Coastal Communities Integrated Assessment Factsheet Series

1. Community Views
2. Energy Policy Priorities
3. Regulation Issues
4. Trust and Fairness Issues
5. Impact Perceptions
6. Project Overview

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Project Description (Cont.)

Through the survey and focus groups, LPI identified the costs, benefits, consequences and optimum approaches for locating wind energy-generating facilities in Michigan coastal communities by assessing multiple factors that affect their siting. As a result, an integrated assessment tool was developed that these communities can use for creating policy and making decisions about such facilities.



The MSU Land Policy Institute partnered with the Great Lakes Commission, the Great Lakes Wind Collaborative and the MSU Environmental Science and Policy Program throughout this project. These groups also provided assistance to LPI for this project.

This factsheet #WND-2 is part of the Wind Farm Development in Coastal Communities Integrated Assessment factsheet series. Results of the project will assist Michigan coastal communities with assessing multiple factors that affect the siting of wind generating facilities. Communities may use the tool for developing legally and technically sound policy and making decisions about such facilities.

For more information on this project and to view the other factsheets in this series, please visit www.landpolicy.msu.edu and click on the project link in the green "Check out LPI" box in the left-hand column of the site.

Photos by Richard Dudley, front cover; and flickr, back cover.

