PERCEPTIONS OF THE IMPACT OF WIND ENERGY GENERATION IN COASTAL COMMUNITIES

Project Overview

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 energy represents for different people in different places.

For some, wind energy means energy security and independence. For others, it symbolizes cleaner air, cleaner water and slowing the effects of climate change. Some focus on the jobs and economic effects created by wind developments. No matter how you look at it, however, wind power developments represent a dramatic change to a community—one that may include a potential change in property values, environmental risks, 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 it would receive. Currently, wind energy projects generally create a number of short-term construction jobs, yet only a handful of long-term jobs may be created at the local level. While communities may enjoy the creation of some new jobs, a cleaner environment and steadier energy prices, they are the sole bearers of the perceived negative effects of wind—any noise or view disturbances are confined to the locale of the wind development. Addressing these challenges and 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 unanimity on wind energy, but exploring the issues in depth with a community can help it work toward consensus.

FACTSHEET

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integrated assessment

Introduction (cont.)

The negative impacts of wind energy development have been identified as visual blight; bird, bat and other wildlife interference; noise and health impacts arising from noise; decline in property values; and the potential for a reduction in tourism. The positive impacts are seen to include economic development, job creation, expansion of the local tax base and environmental quality gains in the form of less carbon dioxide and other emissions from electricity generation. These contrasting views of wind development have created a great deal of discussion in the policy arena, at all levels, as to how these issues should be regulated and the negative impacts mitigated.

Project Description

Michigan is recognized as a state with strong wind energy development potential; hence, windy, coastal communities will face pressure to develop wind farms for many years to come. Therefore, to help understand the complex dynamics between communities, policy and the public, the Michigan State University Land Policy Institute (LPI), with funding from Michigan Sea Grant, performed an integrated assessment of the impacts of wind energy development in coastal areas. The Institute partnered with the

Project Description (Cont.)

Great Lakes Commission and the MSU Environmental Science and Policy Program throughout this project. These groups also provided assistance to LPI for this study.

The objectives of the project were to:

- Increase the general knowledge among residents and decision makers about state energy and wind development issues, and how they may affect their coastal communities.
- Increase stewardship of local resources, which are under real or perceived risk when local wind development occurs.
- Identify inconsistencies between state policies and regulations and local ordinances.
- Demonstrate to decision makers and the public the full costs and benefits of energy choices.

The overall goal of this project was to help identify the benefits, consequences and optimum approaches for locating wind energy–generating facilities in Michigan coastal communities. The Project Team proposed to assist communities in coastal areas with assessing the multiple factors that affect the placement of wind energy–generating facilities.

Results from this study will help community leaders in the windiest coastal regions of Michigan understand what the costs and benefits of wind energy development may be for their communities. Results will also provide coastal communities with a suite of policy options that address the natural, cultural and visual resources, economic and tax benefits and costs, tourism, wind turbine structural factors, transmission facilities, land use regulation and other factors that emerge in the process. According to Michigan Sea Grant:

> *"The goal of an Integrated Assessment (IA) is to bring together knowledge of ecosystems, people and policy to develop tools and information that policy makers can use. Integrated Assessments summarize scientific knowledge to build consensus and guide decision-making around a particular resource management, environmental or sustainability issue.*

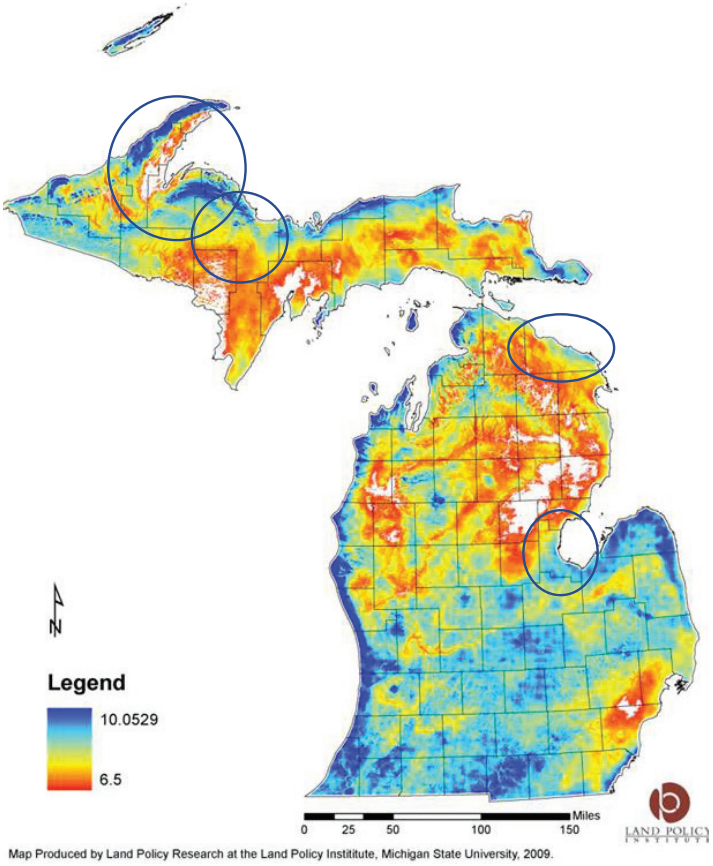
Project Description (Cont.)

These projects are assessments in that they involve a review and analysis of existing information. Rather than running additional experiments, experts synthesize what is known and go a step beyond the pure facts to offer an assessment or evaluation of those facts.

Integrated Assessment projects are integrated in at least four ways:

1. *They integrate decision maker input, to clarify the policy context and frame the assessment in a way that can best guide decisions.*
2. *They integrate stakeholder perspectives, to incorporate diverse views about the issues and potential solutions.*
3. *They integrate knowledge from several disciplines, typically physical, biological, technological and social sciences.*

Figure 1: Map of Focus Area Communities with Wind Resource at 100 Meters (m/sec)



Project Description (Cont.)

4. *They, in contract with other types of assessments, integrate both an analysis of the causes and consequences of an issue and an analysis of the possible solutions."*

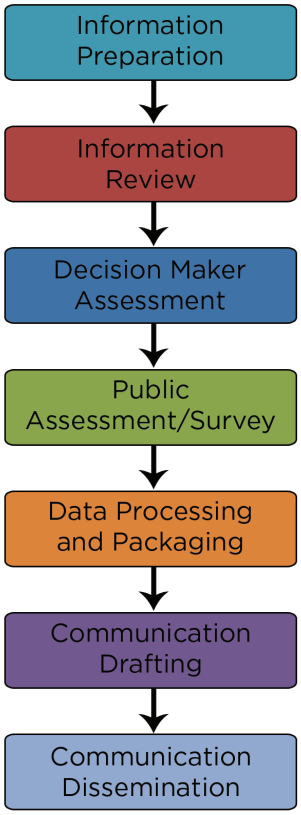
As shown in Figure 1, the coastal community areas selected as the focus of the study included Bay County; Presque Isle County; and a four-county area of the Upper Peninsula (Baraga, Houghton, Keweenaw and Marquette counties).

The Land Policy Institute approached this project as a stakeholder-focused assessment and, to that end, we followed the project outline shown in Figure 2.

Methods

We began by assembling a comprehensive set of information resources related to wind energy into a presentation for educational purposes. We then asked experts in wind energy development and education to review the booklet to see if it presented a balanced and thorough summary of the issues.

Figure 2: Wind Energy Integrated Assessment Flowchart



Once the information was developed, the team then hosted a series of 16 focus groups in the study areas on wind energy. These sessions were divided into two groups: 1) community leaders and elected officials; and 2) the general public. During the sessions we delivered expert information, answered questions, facilitated stakeholder deliberation, and asked the participants to complete surveys regarding wind energy.

Methods (Cont.)

We also performed a random survey of 300 randomly selected households in each of the study areas (900 total surveys mailed). Three-hundred seventy-five surveys were returned for a response rate of 45%. The survey consisted of close-ended 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.

Factsheet Series on Survey Results

Results from these information-gathering activities have been summarized in a series of factsheets on "Perceptions of the Impact of Wind Energy Generation in Coastal Communities." The six factsheets in the series, **including this overview**, cover the major themes of the survey inquiries, including:

- Community Views – This factsheet examines how the respondents feel about their community, and potential changes to it, as related to wind energy development.
- Energy Policy Priorities – 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.
- Regulation Issues – This factsheet explores what survey respondents say about who should regulate wind energy and how confident they feel in various aspects of the planning, zoning and regulatory process.
- Trust and Fairness Issues – This factsheet reviews the opinions of the survey respondents in regards to trust, fairness and exploitation in relation to the development of commercial wind energy.
- Impact Perceptions – This factsheet addresses the potential impacts of wind development on a community and examines the level of knowledge survey respondents say they have about renewable energy and wind energy development.

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Factsheet Series on Survey Results (Cont.)

We learned a lot about communities and wind during this project. One of the most interesting outcomes was that respondents actually appear to be more supportive of wind development than some other types of electricity generation in their communities.

This is the final factsheet (#WND–6) in the Wind Farm Development in Coastal Communities Assessments Factsheet Series, which was funded by Michigan Sea Grant. Please explore the other factsheets in the series to get a more in-depth view of on people's attitudes toward wind energy development in coastal areas of Michigan. The factsheets are available for download, along with the informational booklet at: www.landpolicy.msu.edu.

This project also supported a Ph.D. dissertation by MSU graduate student David Bidwell, titled "The Structure and Strength of Public Attitudes Towards Wind Farm Development." The dissertation is available through the MSU Libraries and ProQuest websites.

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