



Lessons Learned

Community Engagement for
Wind Energy Development in Michigan

January 2018

PURPOSE

This document was drafted with input from members of the Wind Energy Stakeholder Committee (WESC) over a series of bimonthly meetings in 2017. The Committee sought to distill its collective expertise, knowledge, perspectives and experiences with wind energy development to create an informative accounting of collective lessons learned. The Committee intends this document to be of informative value to utilities, developers, local decision makers, the Michigan Public Service Commission, and community members.

DISCLAIMER

This document represents the knowledge and experiences of the WESC as of January 2018. It is not meant as an exhaustive description of every aspect of wind energy development and does not represent a full accounting of all of the past, present, or future considerations involved in wind energy development in Michigan. This document also does not represent a “guide” or a “model” for wind energy development. As emphasized throughout, every community and situation has unique characteristics. The Committee does not advocate a “one-size-fits-all” approach to wind energy development in Michigan and does not intend to present solutions to all of the challenges and unresolved issues surrounding wind energy development in Michigan.

Although this document was crafted in a collaborative manner by the WESC, neither every member of the Committee nor the organizations they represent necessarily fully agree with every statement contained in the document.

This document is informational only and is not meant to convey or constitute legal advice.

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EXECUTIVE SUMMARY

Wind energy has become cost competitive in almost every U.S. market, including in Michigan. As of February 2017, Michigan ranked 14th in the nation in installed wind energy capacity,¹ with 961 operating turbines and an installed capacity of 1757.7 MW.² Market trends, consumer and business preferences, as well as the stated intention of Michigan utilities to close coal-fired power plants and increase the deployment of renewable energy, underscore the need for wind developers, community leaders, and other stakeholders to reach a common understanding regarding the lessons learned from previous wind energy development efforts.

Wind energy development brings significant benefits to local communities, along with the potential for controversy and what some may consider a significant change in a community's character. Nonetheless, fair consideration to all viewpoints requires transparency, meaningful public engagement, flexibility and responsiveness to concerns on the part of wind developers and utilities, intentional leadership and effective facilitation of community input on the part of local officials, as well as long-term commitments from knowledgeable stakeholders who reside in affected Michigan communities.

Over the last decade, members of the Wind Energy Stakeholder Committee (WESC) have been involved in different ways with many wind energy developments. Through these experiences, Committee members have learned a lot about the types of issues that communities should consider prior to planning for wind development, the ways in which developers can effectively engage with communities, and which elements are essential to developing trust and lasting positive relationships between developers, utilities, local leaders, and residents.

Drawing on its collective expertise, the WESC developed this “lessons learned” document to describe some of the experiences that developers, utilities, and communities across Michigan have had with wind energy over the last decade. Although this document is not meant as a guidebook or model zoning ordinance, members of the WESC hope that the lessons described in this document will help developers, utilities, local officials, community leaders, landowners, and residents across Michigan navigate the complex issues surrounding wind energy development.

¹ AWEA State Fact Sheets. 2017. <http://awea.files.cms-plus.com/FileDownloads/pdfs/Michigan.pdf>.

² Michigan Public Service Commission. 2017. http://www.michigan.gov/documents/mpsc/MPSC_PA295_Renewable_Energy_Report_Feb_2017_551772_7.pdf.

INTRODUCTION

Clean energy is now in high demand and is becoming a clear policy preference for many cities, businesses, colleges and universities, investors, and homeowners.^{3, 4, 5} Wind and solar power also provide significant air quality and climate benefits.⁶ Wind and solar power are now among the cheapest forms of new electricity available in almost every U.S. market,⁷ and the cost of clean energy continues to decline as the technology improves.⁸ In 2016, according to the U.S. Energy Information Administration, 60 percent of all new electric generation resources added to the power grid in the U.S. were wind and solar resources.⁹ In addition, global investment in wind and solar energy in 2016 (\$261 billion) totaled more than twice that in coal and gas-fired power generation (\$130 billion).¹⁰

These trends are evident in Michigan. As of February 2017, Michigan ranked 14th in the nation in installed wind capacity,¹¹ with 961 turbines operating in the state with an installed capacity of 1757.7 MW.¹² Wind energy in Michigan has the potential to generate enough electricity to meet the state's future energy needs¹³ and there is significant corporate, government, and consumer demand for clean energy. However, meeting this demand will require continued, meaningful engagement and dialogue in communities across the state. In some areas, as the number of turbines has increased, negative perceptions and experiences with wind development have led to opposition to future projects.

Michigan's first large utility-scale wind project was the Harvest Wind Farm in Elkton, which became operational in 2007. The following year, in 2008, the Michigan legislature passed PA 295,¹⁴ which created the state's first Renewable Portfolio Standard (RPS), requiring renewable sources to generate 10 percent of the state's electricity by 2015. This policy, combined with technology improvements, led to declining costs for wind energy projects in Michigan.¹⁵ In late 2016, the Michigan legislature passed comprehensive energy legislation (PA 341 and PA342)

³ Rocky Mountain Institute, Business Renewables Center. <http://businessrenewables.org/corporate-transactions/>.

⁴ Michigan Public Service Commission. 2017. http://www.michigan.gov/documents/mpsc/MPSC_PA295_Renewable_Energy_Report_Feb_2017_551772_7.pdf.

⁵ *Business Insider*. August 12, 2016. <http://www.businessinsider.com/the-greenest-american-cities-renewable-energy-2016-8/-rochester-minnesota-2>.

⁶ Millstein et al. 2017. The climate and air-quality benefits of wind and solar power in the United States. *Nature Energy*. https://www.nature.com/articles/nenergy2017134.epdf?author_access_token=uYr0473RE7N8qJCivi6eKNRgN0jAjWel9jnR3ZoTv0O9NQQavv-jglBpgJVQy91sl6ZpWXil0zPIZ8H2tvWaSoZi9rrMjTx9l2FLlqAykV00GsKxOpkwjZM1RpGmND_BuVZCRc2dDL42qJnM_Aq4DGw%3D%3D.

⁷ Lazard. Levelized Cost of Energy Analysis 10.0. 2016. <https://www.lazard.com/perspective/levelized-cost-of-energy-analysis-100/>.

⁸ *Ibid.*

⁹ U.S. Energy Information Administration. 2017. <https://www.eia.gov/todayinenergy/detail.php?id=30112>.

¹⁰ Renewable Energy Policy Network for the 21st Century. Renewables 2016: Global Status Report. http://www.ren21.net/wp-content/uploads/2016/10/REN21_GSR2016_KeyFindings_en_10.pdf.

¹¹ AWEA State Fact Sheets. 2017. <http://awea.files.cms-plus.com/FileDownloads/pdfs/Michigan.pdf>.

¹² Michigan Public Service Commission. 2017. http://www.michigan.gov/documents/mpsc/MPSC_PA295_Renewable_Energy_Report_Feb_2017_551772_7.pdf.

¹³ National Renewable Energy Laboratory and AWS Truewind. 2014. http://apps2.eere.energy.gov/wind/windexchange/docs/wind_potential.xls.

¹⁴ Michigan Legislature. Act 295 of 2008. <http://legislature.mi.gov/doc.aspx?mcl-Act-295-of-2008>.

¹⁵ Michigan Public Service Commission. 2017. http://www.michigan.gov/documents/mpsc/MPSC_PA295_Renewable_Energy_Report_Feb_2017_551772_7.pdf.

that became effective on April 20, 2017.¹⁶ This law increases the state’s RPS from 10 percent to 15 percent by 2021. Meeting this new RPS will require significant build of additional new renewables over the next five years.

Wind exists in the realm of the “commons,” and as such, it belongs to every living person. Therefore, how we use these resources must be especially sensitive to common community good. Wind deployment is driven primarily by three factors – community support, transmission availability, and wind speed. However, every area of Michigan is different and has unique characteristics – and as a result, not every area is necessarily conducive to wind energy development. Early wind farms in Michigan found community support to be broad and available, leaving transmission capacity and wind speed to drive siting decisions. Because of the high wind speeds and availability of transmission in Michigan’s Thumb region, developers and utilities focused their wind deployment efforts in that region. As they advanced wind farms, developers and utilities came to understand the importance of community engagement and community participation in wind energy development.

Wind farms have brought measurable benefits to Michigan communities through new revenue to local governments and school districts as well as dependable income streams to farmers and other property owners. For example, from 2012 through 2016, Gratiot County and entities within the County have received more than \$30 million in tax revenue from wind farms. This includes \$11.75 million to the County, \$3.74 million to townships, and \$14.85 million to local schools and Regional Education Service Districts.¹⁷

Wind farms in local communities have also brought changes to the visual landscape, night-time navigation lights, turbine noise, and conflicting levels of acceptance among neighbors. Although developers are working to minimize the perceived negative aspects of wind energy through siting practices, improved technologies, and enhanced communication, the tradeoffs communities face must be understood, acknowledged, and addressed. Differing practices among developers and utilities, differences in responses of local officials, as well as variations in community characteristics and prevailing values have led to disparate experiences with wind energy development and varying levels of support for wind energy across Michigan.

WIND ENERGY STAKEHOLDER COMMITTEE

The Wind Energy Stakeholder Committee (WESC) was formed to bring experienced and knowledgeable stakeholders together in a year-long effort to discuss critical issues affecting wind energy development in Michigan. The charge of the WESC was to examine and discuss issues including night navigation lighting, noise, taxation, siting, and community engagement practices. The goal of the WESC was to discuss these issues in a manner that builds relationships and enables consensus. Its mission was not to facilitate wind energy development in any particular community, but to assist those who support wind energy generation as a desirable land use that belongs in Michigan’s energy portfolio, as well as to inform those who may be ambivalent regarding wind energy but who believe that local democracy requires a knowledgeable citizenry and a level playing field by which community decisions are made.

There was representation on the WESC from the following interested parties (see Appendix A for membership list): Gratiot-Isabella Regional Education Service District, Michigan Agri-Business Association, Michigan Association

¹⁶ Michigan Legislature. Act 341 and 342 of 2016. <https://www.legislature.mi.gov/documents/2015-2016/publicact/htm/2016-PA-0341.htm>.

¹⁷ Gratiot County Tax Track 2017. http://www.gratiot.org/1/292/2012_tax_track.asp.

of Counties, Michigan Townships Association, Michigan Farm Bureau, Michigan Department of Agriculture and Rural Development, Michigan Renewable Energy Collaborative, University of Michigan, wind developers, Michigan utilities, local community representatives, the faith community, and legal representatives.

SUGGESTED CONSIDERATIONS FOR LOCAL GOVERNMENT LEADERS

Members of the WESC have been involved in different aspects of wind energy development for a number of years – as local officials, government representatives, and representatives for wind developers and utilities. These experiences have given the committee members a unique understanding of the challenges and opportunities facing local communities. A key lesson learned is that wind energy project development is complex and does not occur in the same manner in every community.

Members of the WESC suggest that there are a number of questions that local communities should consider prior to engaging in direct discussions with wind energy developers. The Committee has also compiled resources that may be valuable to communities (see Appendix B).

Community Vision

- Does our community have the needed attributes to host a utility-scale wind energy development (e.g., adequate wind resource, available land, electric transmission system capacity)?
- What is the collective future vision for our community? (e.g., economic development, land planning, resource development, etc.)
 - How does wind energy development fit into that vision?
 - In what document(s) is that vision articulated (e.g., in a master plan, vision document, ordinances, etc.)?
- If our community has not articulated a future vision, what is known about prevailing attitudes of community leaders and residents regarding:
 - Regional and statewide needs versus local interests?
 - Receptiveness to change?
 - Awareness of existing local government and intermediate school district fiscal status and needs?
 - Unmet community needs due to revenue constraints?
 - Pros and cons of economic development opportunities in rural communities?
 - Air and water quality concerns and interest in energy independence?
- What can be learned from wind energy development in other communities?
 - How have wind energy related revenues impacted local governments and schools?
 - How did local officials facilitate community discussions?
 - What regulations did local governments put in place to address community concerns?
 - What were the long-term impacts on the character of host communities?
 - Were wind developers transparent in terms of short and long-term impacts? Was information complete and truthful?
 - Were wind farms sold to a new owner or operator after construction was completed? Did the successor owner/operator honor commitments made by the original owner/operator?
 - What costs did the community incur in research, legal, and consulting expenses that were not incurred by the developer?
 - What were the long-term costs of ensuring compliance with local government regulations that were not incurred by the developer?
 - What were the long-term costs of property tax assessments and appeals?

- What additional investments can wind energy investments leverage?
- How were any negative events handled? Was the company responsive to complaints?
- Will wind turbines be welcomed or controversial?
 - Do we believe that wind energy development will be consistent or inconsistent with community members' sense of place?
 - Do we anticipate large community meetings? If so, are we experienced in handling large meetings where many people will want to express their opinions? Or can we identify additional support as needed?
 - Can we create an environment where all sides have an opportunity to be heard and considered?
 - Would we consider bringing in a neutral person experienced in mediation and conflict resolution to facilitate public discussions?
 - How can we effectively engage our community to become knowledgeable on wind turbine impacts?
 - What would be the role of local officials? Would they remain neutral up to and until land use decisions need to be made?
 - Are we familiar with Michigan's conflict of interest laws that might come into play if local officials have entered into land leases or will personally benefit from a pending wind farm-related decision?

Zoning and Site Plan Requirements

- According to the County Register of Deeds, how much land in our jurisdiction has already been leased to wind developers?
- Does our community have appropriate zoning in place for wind energy development?
 - What are typical zoning regulations that communities similar to ours have found appropriate? Which of these have operating wind projects and which do not?
- How can/will our community effectively address some of the more controversial wind energy development issues such as: night-time navigation lighting requirements, noise, shadow flicker, and decommissioning requirements?
- Are noise ordinances relevant, repeatable, predictable, and enforceable?
- What are reasonable turbine setbacks that would be appropriate for current and future community development?
- What will happen when the wind turbines are past their lifetime or if the owner/operator is no longer solvent or decides to cease power production?
 - How can our community protect the future public interest to ensure that obsolete wind turbines are properly dismantled and the land can be restored to other productive uses?
 - Do we understand how a performance bond could be required to assure appropriate wind turbine decommissioning?
 - What are developers' decommissioning policies?
 - Will developers offer customers the option for repowering?¹⁸
- Does our community want to set the parameters of development (e.g., turbine number, height, land area, time period) and then approach developers or utilities?
- Does our community understand what it means to have and promote a viable wind energy opportunity?

Process

- What will our community's role be in the wind energy project's development?
- Which other communities have had similar experiences to what developers predict for our community? Could those community leaders provide expert advice and counsel?

¹⁸ Repowering a wind farm would enable the wind farm to keep operating. Updates to technology and turbines may be required. Repowering would be initiated by either extension of an existing contract or creation of a new contract between the same parties.

- What are the inputs and considerations that local leaders should be prepared to present to have a meaningful role in a project's design?
- How will the public be engaged by developers, utilities, and local governments throughout the initial consideration and approval process, as well as development, construction, and production periods?
- How long does it take for a wind project to develop from conceptualization to operation?

Economic Considerations

- What is the typical valuation of a wind turbine?
 - How much tax revenue would be expected over the life of a wind turbine?
 - How do the turbines change in value?
 - How will tax revenues to the locality change over time?
 - On which of the multiplier tables is this estimate based?
 - How much do wind turbine tax valuation appeals cost to the community?
- What is the developer's general approach to compensating the community?
- How many jobs will be created? Will local residents be given preferred hiring status?
 - How many jobs will be temporary and how many will be permanent?
- What other future economic development might be made possible, or impossible, by the presence of the turbines?
- What impact will wind energy have on electricity bills in the local community?
- Where does the electricity go and how does that work?
 - What is a Power Purchase Agreement? What is a takeoff of electricity? What is the difference?

Communication

- Will the developer or utility have a permanent office in the community?
- Who can community members or local officials contact with questions?
- How will community concerns be addressed as they are raised? Who will address concerns?

Local Impacts

- If our community is concerned about night-time navigation lighting, is there a way for the developer or utility to mitigate the effects of red lights?
- What is the fire risk of wind turbines?
 - How would community fire suppression resources handle a turbine-related fire?
 - Does the operator of a project work with the local community on training in the event of an emergency?
- How will our community be impacted during construction? (e.g., roads, traffic, drainage, noise, power interruptions)
 - Does our ordinance provide a method to address temporary construction impacts as a condition of development approval?
 - Does our ordinance provide for coordination with county agencies with authority over resources such as roads and drains?

LESSONS LEARNED

Over the last decade, members of the WESC have learned a lot about the opportunities, considerations, and challenges associated with wind energy development in Michigan. The following sections detail some of these lessons. It is the Committee's hope that this will be instructive and informative for future projects.

UNDERSTANDING THE COMMUNITY

Some early wind developments were undertaken without an in-depth understanding of the local community by a developer or utility. Sometimes these efforts did not involve the development of relationships with local community leaders and residents. In some cases, this led to mistrust and the appearance of a lack of transparency between the community and the developer or utility.

In the future, it may be helpful for developers, utilities, and communities to consider employing the practices described below in the early stages of development of a wind project.

Character

Before approaching a community, a developer or utility may want to consider the character of that community including: percentage of farmland, average number of years residents have lived in the community, parcel size, residential home locations and density, and the relative percentages of rural versus urban areas within and surrounding the project area.

The wind developer should also consider why it is that people choose to live in that community. In some rural communities, most residents have deep family ties to the community; many of them may be farmers themselves or may come from farming families. In other rural communities, people may have moved to the township for rural amenities (e.g., peace and quiet or access to recreation lands such as lakes and forests). Wind developers should recognize that all of these residents have a very different connection to the landscape, which will influence their attitudes about how well wind turbines do or do not fit into that landscape. Some value the land for aesthetic features while others value it for its utility as a productive landscape (e.g., for crops, etc.).

Develop Relationships

Developers and utilities often benefit from the development of long-term relationships with local officials, who can also serve their communities better when they are equipped with objective facts and knowledge. These relationships can be forged before discussions begin with landowners about wind agreements. Members of the WESC have found that it can be helpful to engage in conversations and relationship building with many different stakeholders including the developer or utility, local officials, economic development organizations, landowners, business owners, religious leaders, school officials, state officials, and community thought-leaders. To maintain transparency and trust, it can be helpful to engage in regular communication throughout project development, construction, and operation. It's also important that the same information is shared with all stakeholders.

KEY LESSONS

- It can be helpful for developers, utilities, community leaders, and residents to develop long-term relationships built on trust and candor.
- A community can take the lead to shape its future vision and determine if and how wind energy development fits into that vision.

Community Vision

Members of the WESC have found that it may be helpful for a community to assess their collective future vision prior to considering the specifics of wind energy development. For example, Gratiot County came together to develop a vision document and a model county wind ordinance before allowing wind development in the county. This allowed the community to determine that they wanted to remain focused on agriculture and set the parameters to enable wind energy development in the area. Gratiot County worked across township lines to ensure wind zoning and regulatory consistency and included landowners and other community members in the planning and education process.

This collaborative planning process can also allow a community to determine which aspects of wind energy development may be most beneficial or most concerning to them. An open dialog between the developer or utility and the community is important to jointly addressing concerns so that the project is mutually beneficial.

Community Committee

Throughout the development process, one approach that can prove beneficial is for influential members of the local community to come together to explore wind energy development, design and deliver community information, and advocate for the community. The committee can help focus the community vision, provide educational opportunities, and review and comment on various aspects of the project.

Connectivity

Communities in Michigan differ in terms of how people receive information and news. The local restaurant, movie theater, school, or community center may be a gathering place to share information. The local newspaper may be delivered to most households every week. The community's website or social media outlet may have a strong reach. As a result, information about wind development in general or specific meetings may be best disseminated using different means in each community.

EDUCATION

Members of the WESC have found that local officials and community members need access to accurate, non-biased information about wind energy development. It can sometimes be difficult for the community to determine whether a source of information is accurate and fact-based. Appendix B of this document provides factual resources for local communities.

In the future, it may be helpful for developers, utilities, and communities to take the considerations described below into account when addressing questions about wind energy development.

Two-Way Education

In many cases, it can be helpful for all parties involved in a wind project to engage in educational dialogue. Not only can community leaders and residents learn from developers and utilities, but also, residents may have

KEY LESSONS

- It is helpful to accurately identify both the benefits and costs of wind energy development.
- It can be beneficial for all stakeholders to engage non-biased third parties to present facts regarding wind energy.

unique solutions to challenges that arise for developers or utilities. The unique concerns and opportunities faced by each community should be explored by all stakeholders.

Pros and Cons

Members of the WESC have found that it can be helpful to provide a full account of the true and accurate benefits and costs of wind energy development. Only discussing the positive aspects of wind energy can lead to disappointment and, ultimately, a lack of trust.

Non-biased Third Parties

As described above, it can sometimes be difficult for local leaders and community members to determine the validity of information depending on its source. Non-biased third parties such as university researchers, agricultural organizations, or national laboratories can be a trusted resource for providing accurate, peer-reviewed information about wind energy development. Members of the WESC have found that this type of information is best explored and discussed early in a project.

COMMUNICATION

There is a growing body of scientific research indicating that local support for wind energy development depends significantly on the degree of community input and on the perceived transparency of developers and utilities.

- Researchers from Lawrence Berkeley National Laboratory surveyed studies of wind projects constructed over the last 30 years.¹⁹ They found that the processes surrounding wind project planning and development significantly affects public acceptance. A lack of opportunity for community participation can reduce support and increase conflicts, whereas a planning process that is perceived as “fair” can lead to increased trust and tolerance or support for the project.
- A study in Canada found that there was three times more support for wind energy in Nova Scotia than in Ontario due to a greater degree of public input and participation during planning as well as improved financial compensation models including community-based ownership and more equitable distribution of financial incentives.²⁰
- Recent research conducted by Dr. Sarah Mills similarly found that support for additional wind turbines in Michigan is significantly related to whether residents felt that they had the opportunity to provide input, for example on the

KEY LESSONS

- It is beneficial for developers, utilities, and community members to engage in meaningful discussions throughout the lifetime of a wind energy development.
- Transparency among all parties involved can lead to greater support for wind development.

¹⁹Rand and Hoen, 2017. Thirty years of North American wind energy acceptance research: What have we learned? *Energy Research & Social Science*. <https://emp.lbl.gov/publications/thirty-years-north-american-wind>.

²⁰Walker and Baxter, 2017. Toolkit for Turbines: Wind Energy Development in Ontario and Nova Scotia, Canada. http://coarep.uwo.ca/documents/Toolkit_For_Turbines_COAREP_FINAL.1.pdf.

location or number of turbines.^{21,22} Residents who “strongly agreed” that they had been given ample opportunity to provide input during wind project planning were more likely to strongly support or somewhat support additional wind turbines in their township (75 percent of respondents). This is in comparison to a much lower percentage (13 percent) that would support additional turbines if they did not feel that they were able to provide input during wind project planning.

Meaningful and Continuing Community Engagement

Meaningful community engagement before a wind project is developed, during construction, and over the lifetime of the operation of the wind farm is critical to maintaining relationships and garnering support for the project. Members of the WESC have found that these discussions are often most effective when they are not simply advertisements in support of wind development – instead, all parties should have the opportunity to listen and learn. In addition, the more often that stakeholders are able to engage with developers and utilities, the more likely all parties will be able to address questions, modify aspects of the project to address concerns, and gain mutual respect. There are a variety of techniques for public engagement that local elected officials and developers/utilities should consider utilizing – these range from those that afford relatively low levels of engagement (e.g., public meetings) to those that offer very high levels of engagement (e.g., visioning and charrettes).²³

Although each community is different, these discussions in Michigan have included:

- developers/utilities
- local officials
- economic development organizations
- landowners
- local business leaders
- state officials
- community leaders
- residents

These discussions can occur in many different forms, such as:

- public meetings
- small group discussions
- individual one-on-one meetings
- open houses
- landowner meetings
- attendance at local events
- educational presentations
- focus groups
- opinion surveys
- visioning sessions

Tips for Running an Effective Public Meeting

Local elected officials may find that public hearings or other public meetings covering wind energy development are larger, more contentious, and attract more attendees from outside the local area than meetings covering other topics. There are many resources available that can help officials develop a greater understanding of the wind energy industry and prepare for these meetings (see Appendix B). As outlined below, members of the WESC have learned some practices that can help make these meetings run more smoothly and provide all points of view a fair opportunity to be heard. A general guide on conducting public meetings can be found at: <http://plannersweb.com/2014/10/holding-effective-public-meetings/>. Additional suggestions include the following:

- Consider using a trained facilitator to moderate meetings that will draw large public participation. Michigan State University Extension or another nearby university may be able to provide a person who can conduct

²¹ Mills, S., 2017. Is Wind Energy Right for Your Township? The CLOSUP Wind Project. <http://closup.umich.edu/files/Mills-MTA-Wind-Presentation-04112017.pdf>.

²² Mills, S., 2016. The CLOSUP Wind Project: Landowner Survey. <http://closup.umich.edu/files/2016-Mott-survey-sample.pdf>.

²³ Wyckoff, M. A., Neumann, B., Pape, G., and Schindler, K. MSU Land Policy Institute, 2015. *Placemaking as an Economic Development Tool*. <http://www.canr.msu.edu/resources/pmedtguidebook>.

the meeting with neutrality toward any position, ensure that all viewpoints are given a fair opportunity to be presented, and who knows how to make the most effective use of the meeting to foster public understanding.

- It is helpful to set rules of engagement prior to the meeting. These should be made clear to all participants and all participants should be asked to indicate that they agree to abide by them. Example rules:
 - Audience members who wish to speak should identify themselves (e.g., name and address).
 - Anyone can state an opinion freely. Any stated “fact” must include the source of the information – if not, the statement is an opinion.
 - Voices should be kept at a conversational tone; no one should raise their voice.
 - Invited speakers will be given a time limit to speak. If there are invited speakers, they will take turns with the “pro” side speaking first and the “con” side speaking second. The time limitation should be discussed with and agreed to by the speakers. Each speaker will be given a limited time to speak a second time for rebuttal.
 - One person can speak at a time. The first time a person speaks from the floor they can speak for ten minutes. The second time they speak they are limited to two minutes. No one may speak a second time until everyone who wishes to speak has had an opportunity.
 - Audience comments and questions should be directed to the meeting moderator, who will redirect to the appropriate source. Do not allow individuals to argue among themselves.
 - Time limits should be set on individuals wishing to make public comments.
- Publicizing the meeting agenda prior to the meeting and adhering to it during the meeting, as well as instituting specified enforced speaking time limits is essential to ensuring that these meetings do not run inordinately long.
- Public meetings with wind energy development on the agenda should include experts/individuals who are knowledgeable about wind development.

In addition to public meetings, there are a variety of other techniques for public engagement that local elected officials and developers/utilities should consider utilizing – these range from those that afford relatively low levels of engagement (e.g., public meetings) to those that offer very high levels of engagement (e.g., visioning and charrettes).²⁴

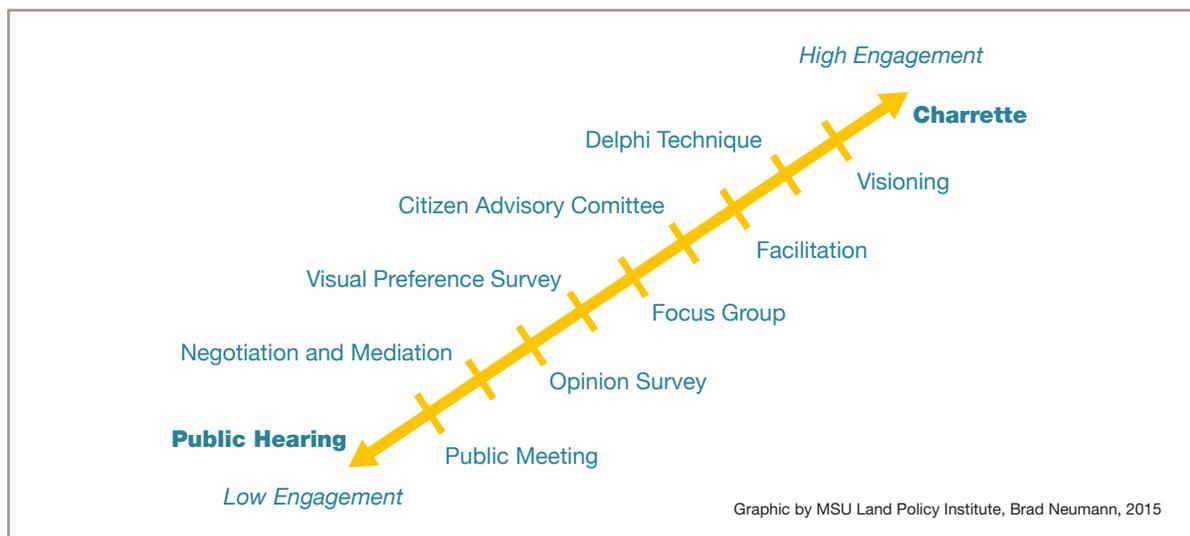


Figure: Methods of public engagement.²⁵

²⁴ Wyckoff, M. A., Neumann, B., Pape, G., and Schindler, K. MSU Land Policy Institute, 2015. *Placemaking as an Economic Development Tool*. <http://www.canr.msu.edu/resources/pmedtguidebook>.

²⁵ Wyckoff, M. A., Neumann, B., Pape, G., and Schindler, K. MSU Land Policy Institute, 2015. *Placemaking as an Economic Development Tool*. <http://www.canr.msu.edu/resources/pmedtguidebook>.

Transparency

Dr. Sarah Mills has found that transparency by wind developers and utilities increases the likelihood that residents will support future energy wind development.²⁶ In a survey of Michigan residents, 77 percent of respondents who felt the wind project developer acted openly and transparently would support additional wind development in their township. In contrast, only 8 percent who strongly disagreed that the wind developer acted transparently said they would support future wind energy development.²⁷ As described above, members of the WESC have found that residents are more likely to trust someone who describes the pros and the cons of wind energy development than someone who only describes the benefits. Trust and mutual respect can create positive word-of-mouth communication in favor of wind development within a community and even beyond the project area.

Communication with Landowners

In addition to regular communication with local leaders and the general public, members of the WESC have found that ongoing communication with landowners who have signed wind energy agreements is important to maintaining support for specific projects and wind energy in general. Landowners can be strong advocates for wind energy development, but negative direct experiences can also significantly discourage support in a community.

It is valuable to maintain transparency and an open line of communication with landowners prior to, during, and after construction. Members of the WESC have also found that prior to construction, it is valuable to hold multiple meetings with a landowner to discuss the location of turbines, access roads, crane walks, collection systems, and delineation of the project footprint. In some cases, drain easements between landowners or drain tile locations may not be described on title reports but need to be understood by all parties. Consequently, during pre-construction meetings, investigative discussions on such issues can be documented and relayed to contractors.

COMMUNITY PRESENCE

Members of the WESC have found that it is often beneficial if community engagement occurs both while a project is being developed and constructed and after the wind farm is operating. When concerns or issues arise, community members appreciate being able to quickly and easily contact the correct local representative. In addition, members of the WESC have found that it can be beneficial for developers and utilities to undertake sponsorships and donations to charitable events as well as long-term investments in the local community as a means of sustaining a community presence.

Creating Continuity

As described above, wind farms often change ownership during project development or after construction. This can create confusion, mistrust and uncertainty among community members. When projects change ownership, it can

KEY LESSONS

- It can be helpful for developers and utilities to create an ongoing and visible presence in the community by creating an office, hiring local contractors and vendors, and donating to local charities.

²⁶ Mills, S., 2017. Is Wind Energy Right for Your Township? The CLOSUP Wind Project. <http://closup.umich.edu/files/Mills-MTA-Wind-Presentation-04112017.pdf>.

²⁷ *Ibid.*

be beneficial for developers and utilities to work together to explain the changes and introduce the new personnel to the community. This can be done by introducing the new company and personnel to landowners, local officials, local economic development organizations, community leaders, and the general public (e.g., at a public meeting). Some developers in Michigan have also found it valuable to host regular landowner dinners to keep landowners informed, create a community, and provide regular updates during the construction and development process.

Permanent Office

Some Michigan developers and utilities have established permanent or semi-permanent offices in the communities where they own wind farms. These offices serve multiple purposes including providing 1) a location for community members to ask questions and voice their concerns, 2) a space for community members and employees to reach common understanding, 3) a clear and easily identifiable contact point for the company, and 4) reassurance to the community that the developer or utility is making a commitment to stay in the community.

Charitable Activities

Many developers and utilities in Michigan believe that it is important to invest in the communities where they have a prominent presence. Several ways to do this include donating to local charities, sponsoring or taking part in local events, and participating in public-private partnerships with governmental entities on projects benefitting a community. Members of the WESC have found that it can be most impactful to work with local leaders to identify those charities, events, or projects that are beneficial to the local community. For example, donations to local 4-H clubs or sponsorship of high school sporting events may be valued in some Michigan communities. Additionally, once a developer or utility is established in a community, participation in and volunteering with local community organizations is often welcome. This could include anything from local economic development activities to the Chamber of Commerce to events planning.

Developers and utilities can also increase awareness of wind energy through wind farm tours for community members. Although some companies do offer tours, these are often given to tourists or elected officials. It may be valuable to establish programs through local schools, community centers, or the local area Chamber of Commerce to offer regularly scheduled tours to local residents.

Foundations

Some developers and utilities create and fund foundations to meet needs in the community and conduct other philanthropy outside of the project boundary. These foundations can be beneficial to local communities and may serve to build community support for wind energy projects. In some cases, these foundations are governed by a Board of Trustees comprised of community members. This enables community members to make philanthropic decisions for their local community with funding provided by the developer or utility.

Local Hiring

Local communities are often told about the potential economic benefits of wind development when they are considering a new project. Members of the WESC have found that these promises can be supported through the hiring of local contractors, employees, and vendors. These hiring practices benefit community members, provide local economic benefits, and may help improve public opinion of wind development.

COMPENSATION

Wind energy development brings economic benefits to local communities in two primary forms: direct payments to landowners/community members and payment of property taxes. Recent research suggests that acceptance of wind energy development depends significantly on whether or not residents are compensated financially.^{28, 29} In Michigan, Dr. Sarah Mills found that residents who were compensated were more likely to support additional wind turbines in their township than residents who were not paid.³⁰ In addition, residents who are compensated are less likely to believe that turbines create noise and visual pollution, less likely to think that turbines create health problems, and less likely to believe that turbines decrease nearby property values.³¹ In contrast, a lack of compensation to some residents in a project area can create anger and distrust amongst neighbors, stressing the social fabric of the community.

Landowner/Community Payments

Some developers and utilities in Michigan seek opportunities to provide payments to a wide range of landowners or homeowners in a wind energy development area, whether or not they have a turbine or supporting infrastructure constructed on their property. Every developer and utility has their own structure for agreements and compensation to landowners. Payments are sometimes tiered depending on a landowner's relative involvement in the wind development. In some cases, developers and utilities may establish agreements with landowners or homeowners who do not have turbines on their property. A team of researchers looking at wind development in the Canadian province of Ontario suggests that such payments may result in fairer financial incentive distribution in communities with wind development.³²

Potential Conflicts of Interest

Members of the WESC have observed concerns regarding potential conflicts of interest among local elected officials who have signed wind agreements and also have to make decisions about wind zoning ordinances. These situations may create both perception and legal concerns in the community. Because both the Michigan Public Act 196 of 1973³³ and local governance regulations and bylaws impact these situations, officials should consult with their local attorney regarding potential conflicts of interest.

Reimbursements

Developers and utilities reimburse landowners for lost crop revenues during wind farm construction, repairs to

KEY LESSONS

- It can be beneficial for developers and utilities to provide payments to a wide range of landowners in a wind energy development area.

²⁸ Mills, S., 2017. Views of Wind Development from Michigan's Windfarm Communities. The CLOSUP Wind Project: Landowner Survey. <http://closup.umich.edu/files/wind-summary-20170216.pdf>.

²⁹ Walker and Baxter, 2017. Toolkit for Turbines: Wind Energy Development in Ontario and Nova Scotia, Canada. http://coarep.uwo.ca/documents/Toolkit_For_Turbines_COAREP_FINAL.1.pdf.

³⁰ Mills, S., 2017. Views of Wind Development from Michigan's Windfarm Communities. The CLOSUP Wind Project: Landowner Survey. <http://closup.umich.edu/files/wind-summary-20170216.pdf>.

³¹ *Ibid.*

³² Fast, S. et al. 2016. Lessons learned from Ontario wind energy disputes. *Nature Energy*. <http://www.nature.com/articles/nenergy201528.pdf>

³³ [http://www.legislature.mi.gov/\(S\(xtumzcbkaqrhjbztz3ilnj\)\)/mileg.aspx?page=getObject&objectName=mcl-15-342a](http://www.legislature.mi.gov/(S(xtumzcbkaqrhjbztz3ilnj))/mileg.aspx?page=getObject&objectName=mcl-15-342a).

drain tile, and other incurred costs. Members of the WESC have found that processing such reimbursements in a timely manner is beneficial to maintaining positive relationships with landowners. Some developers and utilities organize these payments through the local manager or liaison who is the point-of-contact for the landowner and is well known in the local community.

Taxation

Regardless of the wind developer's compensation model, all residents in the communities with wind energy development benefit indirectly from the property tax payments that windfarm owners pay to local governments, schools,³⁴ and intermediate school districts. Local governments may use such tax revenues for general fund purposes to fund local services and projects. Research conducted by Dr. Sarah Mills, however, finds that most residents in Michigan's existing wind farm communities cannot identify the more indirect economic benefits that wind tax revenue has had on their communities. This is particularly true when these tax revenues are being used to pay off debt or to incrementally supplement community services that are normally provided (e.g., graveling a couple extra miles of road). Only when a specific (new) service is provided using wind tax revenue (e.g., curbside trash collection), and the payment structure is made known to the community, does this connection become clear.³⁵

In recent years, there have been a number of property tax developments relating to wind turbines. The Michigan Legislature defines wind energy system assets, including turbines, as personal property.³⁶ In Michigan, certain personal property is generally valued using depreciation tables that result in decreasing taxable values. New capital expenditures are treated as new property, and the value of that new property similarly depreciates in value. Because Michigan assesses personal property, including wind energy system assets, annually based on taxable value, tax revenues to local governments will change over time. Declining revenues may cause fiscal planning challenges for local governments. This has been further complicated as the State Tax Commission ("STC") has amended the multiplier table that assessors use to help determine the true cash value for wind turbines three times since it was originally adopted. The current table provides for a turbine to be assessed at 100 percent of original historical cost in year one and declines over ten years to 30 percent of its original cost for the remaining life of the turbine. These changes to the multiplier table by the STC have created uncertainty and, in most cases, lower revenues to local governments than the tables that existed when the wind turbines were first installed.

In addition, most assessors have based their assessments on a multiplier table other than that adopted by the STC, and many wind developers have appealed their assessments to the Michigan Tax Tribunal. As of December 2017, there are several hundred individual wind turbine appeals before the Tribunal. These are comprised of two wind farms owned by Consumers Energy consisting of two docketed cases and six wind farms owned by DTE Energy consisting of six docketed cases. Appeals filed by some taxpayers have been settled using multiplier tables other than STC tables. Uncertainty about the outcome of these appeals has led local governments to escrow a portion of collected tax revenues generated from wind turbines as a hedge against potentially having to refund taxes collected in a contested prior year resulting from an unfavorable Tribunal outcome. As a result, local governments often feel constrained from fully utilizing tax revenues generated from wind turbines. The lack of clarity and certainty created by the tax assessment and appeal process poses a long-term budgeting challenge

³⁴ Wind turbines are exempt from the 6 mill State Education Tax and up to 18 mills of local school district operating millage. MCL 211.903; MCL 380.1211. They are, however, subject to school operating, debt and sinking fund/recreation millages.

³⁵ Mills, S., 2017. Is Wind Energy Right for Your Township? The CLOSUP Wind Project. <http://closup.umich.edu/files/Mills-MTA-Wind-Presentation-04112017.pdf>.

³⁶ Pursuant to an STC Memorandum, dated May 13, 2008, wind energy systems are classified as industrial personal property. http://www.michigan.gov/documents/treasury/STC_Memo_May13_234159_7.pdf.

for governmental entities dependent upon these revenues. These tax appeals have also led to both municipalities and taxpayers incurring significant legal fees.

The STC is currently considering revisions to the multiplier table, which may help resolve some of these issues. Adoption of a mutually agreeable fact-based STC multiplier table would provide predictability to the system and help reduce costs to utilities, wind developers, and local governments. In particular, a less contentious tax assessment process and one that provides more stability in tax funding and more certainty for taxpayers would be a step in the right direction in addressing community and industry concerns. Members of the WESC recommend that all stakeholders work together and with the STC to issue an updated wind turbine multiplier table that would produce an acceptable taxable value for all stakeholders, thereby reducing tax appeals.

CONSTRUCTION/RESTORATION AND DECOMMISSIONING

Wind energy technology has improved dramatically since the construction of the first wind farm in Michigan. Developers and utilities that are members of the WESC have found that there are design, construction, restoration, and decommissioning practices that can help to minimize impacts on landowners and farmland as well as provide increased certainty to host communities.

Design

There are several design practices that can be employed to minimize impacts on landowners, decrease damage to crops, and improve relationships with landowners. These are described below:

- Design layout to minimize disruption to farmable lands and discuss these options with landowners to determine the optimal layout. For example, these practices may include:
 - Propose turbines along property lines, fencerows, or other field divisions where practical and beneficial from an agricultural production standpoint.
 - Where possible, share property lines for road access to avoid removal of tillable lands.
 - Limit soil disturbance area to the extent possible (e.g., install collection line within area of crane path).
 - Place overhead lines to avoid introducing new obstacles to farming.
- If possible, provide a visual simulation depicting the impact to the landscape of select turbine locations viewable from prominent local area landmarks. This practice can assist local constituents and decision makers in visualizing how a proposed wind energy development will be incorporated into the surrounding landscape.
- When placing collector lines, be cognizant of local regulations and depths necessary for compatibility with deep tilling equipment.
- Minimize soil compaction to the extent possible and decompact soil after construction. Developers can take steps with earth moving equipment to decompact soils as part of the construction process.
- Confirm and obtain approvals for permits proactively. In most jurisdictions, approvals related to field drain and ditch crossings require approvals from the county drain commission and county road commission, as well as approval from the county or township. County road commissions also require a road use agreement to minimize damage to public roads during construction and provide for repair as needed after construction.

KEY LESSONS

- It may be helpful for developers, utilities, community leaders, and residents to engage in further discussions regarding decommissioning requirements.

Further, regulated waterways require Michigan Department of Environmental Quality permits. Confirming and obtaining such approvals proactively can minimize frustrations related to construction for all parties involved.

Topsoil and Tile Repair and Maintenance

Developers and utilities that are members of the WESC have found that there are a number of construction practices that can help to maintain good relationships with landowners and ensure that project construction occurs smoothly. These are described below:

- Prior to construction, map drain tiles using available information and in consultation with landowners. This enables more rapid and accurate repairs of drain tiles that are damaged during construction.
- Warehouse topsoil on site where possible. By holding topsoil from tower construction onsite, developers and utilities are able to more readily support land restoration when construction is complete.
- Offer excess topsoil to landowners where possible. After turbine construction, if there is excess topsoil remaining, it can be offered to landowners. Farmers may be able to use the topsoil in other areas of their property.
- Address known drain tile repairs promptly and seek landowner acknowledgement of proper repair.

Decommissioning

Most county and township ordinances in Michigan require that developers or utilities pay to completely remove wind turbines at the end of their useful lifetimes. These ordinances also usually include a requirement that developers or utilities post a financial instrument to cover the cost of decommissioning in case the company fails in their obligation to pay for complete turbine removal. These financial instruments are similar to those required of coal mining companies to cover reclamation costs.

In addition, many developers and utilities include decommissioning requirements in their contracts with landowners. These may indicate what period of operational down time triggers a turbine's decommissioning, what structures will be removed, to what depth in the ground they will be removed, and within what time decommissioning must commence and be completed. This provides an additional legal protection for landowners and communities from the possibility that a wind farm may be abandoned at the end of its useful lifetime.

Despite these requirements, members of the WESC have found that many community members are either unaware of the requirements for decommissioning or do not believe that developers or utilities will follow through on their obligations. It may be beneficial for local officials to include this information in the public discussion of the requirements being placed in the zoning documents and for developers and utilities to engage residents and local leaders in continuing discussions regarding bonding and decommissioning requirements.

APPENDIX A. WIND ENERGY STAKEHOLDER COMMITTEE

The following individuals participated as members of the WESC in 2017. Each individual and organization participated in the Committee and in the creation of this document for a different reason and with a different purpose. Those are briefly described here.

Jan Amsterburg (Gratiot-Isabella Regional Education Service District)
Steve Currie (Michigan Association of Counties)
Scott Hawken (Apex Clean Energy)
Albert Jongewaard (Apex Clean Energy)
George Heartwell (Grand Valley State University, former Mayor of Grand Rapids)
DK Hirner (American Wind Energy Association)
Erin Kricher (Invenergy LLC)³⁷
Larry Merrill (Michigan Townships Association)³⁸
Sarah Mills (Gerald R. Ford School of Public Policy, University of Michigan)³⁹
Brad Pnazek (Tradewind Energy)⁴⁰
Andrew Richner (Michigan Renewable Energy Collaborative)
Steven A. Schneider (Consumers Energy Company)
Lynn Wilson (Consumers Energy Company)
Don Schurr (Greater Gratiot Development, Inc.; retired 9/30/17)⁴¹
David Shiflett (Geronimo Energy)
Mark Trumbauer (NextEra Energy Resources)
Rich VanderVeen (Mackinaw Power)
Andrew Vermeesch (Michigan Farm Bureau)
Matthew Wagner (DTE Energy)
Gordon Wenk (Michigan Department of Agriculture and Rural Development)⁴²

Conveners:

Wind on the Wires
5 Lakes Energy

³⁷ Invenergy participated in the WESC to encourage wind energy development in Michigan with meaningful engagement with stakeholders and host communities.

³⁸ The Michigan Townships Association's support of the WESC was provided consistent with its mission is to "advance local democracy by fostering township leadership and public policy essential for a strong and vibrant Michigan." The MTA's involvement should not be construed as attempting to influence local officials' land use policies but is intended to support civic engagement essential for knowledge-based decisions on issues of great public interest.

³⁹ Dr. Mills provided the group with findings from her research surveying residents in Michigan communities with wind farms. Her research, funded by the Charles Stuart Mott Foundation, aims to use lessons from existing wind farms to help ensure future wind development respects local community values.

⁴⁰ Tradewind Energy participated in the WESC to engage with a diverse stakeholder group in order to discuss and collaborate on best practices for wind energy development.

⁴¹ Greater Gratiot Development, Inc. has participated in the Wind Energy Stakeholders Committee so that other communities may benefit from Gratiot County's experience. We are pleased to make contributions to a "lessons learned" document.

⁴² Wind energy development on Michigan's agricultural land can provide a certain measure of farm vitality as well as making quite a change in rural character. Given these challenges and opportunities it was important for the department to be part of the discussions.

APPENDIX B. RESOURCE LIBRARY

General Information

- National Renewable Energy Laboratory (NREL): <https://www.nrel.gov/wind/>
- Lawrence Berkeley National Laboratory: <https://emp.lbl.gov/projects/wind>
- American Wind Energy Association: <https://www.awea.org>
- Wind Works Michigan: <https://www.windworksmichigan.com/> and <https://www.windworksmichigan.com/resources>

Community Considerations

- Community Wind. Written and compiled by Wind Resource, the Superior Watershed Partnership and Land Trust, and Windustry. 2014: <https://itun.es/us/skelM.l>
- Windustry Community Wind Toolbox: https://winwinwind.files.wordpress.com/2013/02/full_community-wind-toolkit.pdf
- NREL Wind Energy Guide for County Commissioners: <http://www.nrel.gov/docs/fy07osti/40403.pdf>
- Michigan Land Use Institute. Gratiot County story: <http://www.mlui.org/energy/news-views/news-views-articles/trust-teamwork-keys-to-gratiots-windpower-success.html> - .WxD5KsaZOIM
- Michigan Association of Planning. Planning Commissioner's Toolkit: Meetings. https://www.planningmi.org/downloads/conducting_effective_public_meetings.pdf
- Michigan State University Extension. List of Experts. <http://msue.anr.msu.edu/experts>

Zoning/Siting

- MSU Extension. Michigan Land Use Guidelines for Siting Wind Energy Systems: http://msue.anr.msu.edu/resources/michigan_land_use_guidelines_for_siting_wind_energy_systems_wo_1053

