Is Wind Energy Right for your Township?

Greenwood Township
September 20, 2017

Sarah Mills, PhD
Who am I & Why am I here?

• PhD in land use planning
  o Farmland preservation

• Grant from C.S. Mott Foundation, taking lessons-learned from Michigan windfarms to ensure future wind development respects local community values

• To provide data-based account of opinions
  o Not relying on newspaper accounts
  o Give voice to the quiet folks
What I’ll cover

• Overview of wind development

• Surveys of landowners
  o Individual impacts
  o Community impacts

• What should you consider?
Utility-scale windfarms in Michigan

- 900+ turbines
  - 1,600 MW

- 8 counties
Wind Development 101

- **Zoning constraints**
- **Landowner payments**
  - Disturbance
  - Royalty
  - Participation/friendly neighbor
- **Personal Property Tax**
  - ~$20M per year statewide
  - Turbine value + easement (~$2.1M)
    - x 100% in year 1
    - x 30% in year 10+
Survey Data

When, who, and where & what did I find?
2016 Community Survey

- Owners of land assessed as agricultural or residential
- 10 townships with windfarms
- 2,013 responses (53% response rate)
- Funded by C.S. Mott Foundation
2014 Farmland Survey

- All owners of land assessed ag
- 14 townships
  - 9 with windfarms
  - 5 without
- 1,210 responses (72% response rate)
- Funded by Dow Fellowship
Overall drivers of attitudes

• Type of land owned
  o secondary vs. primary residence
  o farmland / rental property only

• Being within earshot of turbines

• Direct compensation
  o Some better than none
  o $1,000 per year as key threshold

• Attitudes about process, wind developer
Individual-level Impacts

- Noise
- Visual
- Health
- Property value
- Farm income
- Farm succession
Individual-level Impacts

Turbines create noise pollution

- Noise
- Visual
- Health
- Property value
- Farm income
- Farm succession

![Chart showing responses to turbine impacts](chart)

- Strongly agree: 21 (All), 22 (Paid), 21 (Unpaid)
- Agree: 31 (All), 38 (Paid), 38 (Unpaid)
- Disagree: 10 (All), 18 (Paid), 38 (Unpaid)
- Strongly disagree: 12 (All), 12 (Paid), 12 (Unpaid)
Individual-level Impacts

Turbines create visual/aesthetic problems

- Noise
- Visual
- Health
- Property value
- Farm income
- Farm succession

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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<td>Visual</td>
<td>14</td>
<td>19</td>
<td>46</td>
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<td>Health</td>
<td>27</td>
<td>27</td>
<td>37</td>
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All Paid

Unpaid
Individual-level Impacts

Turbines cause human health problems

- Noise
- Visual
- **Health**
- Property value
- Farm income
- Farm succession

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<tr>
<td>Strongly agree</td>
<td>9</td>
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<td>Agree</td>
<td>18</td>
<td>47</td>
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<tr>
<td>Disagree</td>
<td>49</td>
<td>37</td>
<td>19</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>23</td>
<td></td>
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</table>

• Noise
• Visual
• **Health**
• Property value
• Farm income
• Farm succession
Individual-level Impacts

Turbines decrease nearby property values

- Noise
- Visual
- Health
- **Property value**
- Farm income
- Farm succession

![Chart showing responses to the impact of turbines on property values, farm income, and farm succession for paid and unpaid turbines.](chart.png)
Individual-level Impacts

Investments over 5 years: 2009-2013

- Noise
- Visual
- Health
- Property value
- Farm income
- Farm succession

Non-windfarm
- Home: $187k

Unpaid neighbors
- Home: $180k
- Outbuildings: $187k

Neighbors in pool
- Home: $193k
- Outbuildings: $180k
- Drainage/Irrigation: $187k

Turbines
- Home: $449k
- Outbuildings: $193k
- Drainage/Irrigation: $187k
- Equipment: $180k
Individual-level Impacts

- Noise
- Visual
- Health
- Property value
- Farm income
- Farm succession

% that have farm succession plan

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<thead>
<tr>
<th>Group</th>
<th>%</th>
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<tr>
<td>Non-windfarm</td>
<td>57</td>
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<tr>
<td>Unpaid neighbors</td>
<td>64</td>
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<tr>
<td>Neighbors in pool</td>
<td>62</td>
</tr>
<tr>
<td>Turbines</td>
<td>80</td>
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</table>
Individual-level Impacts Take-aways

- Views on noise, visual impact, property values roughly 50/50
  - Financial stake = rosier view
  - OR
  - no financial stake = more soured view
  - **BUT STILL SPLIT OPINIONS**

- Most don’t see health impacts, but some do

- Having turbine on property is linked to additional on-farm investment, succession planning
Community-level Impacts

- Job creation
- Roads
- Township services
- County services
- Schools
- Relationships with neighbors
Community-level Impacts

- **Job creation**
- Roads
- Township services
- County services
- Schools
- Relationships with neighbors

Turbines create jobs

- **Strongly agree**
- **Agree**
- **Disagree**
- **Strongly disagree**

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<td>Disagree</td>
<td>6</td>
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<td>17</td>
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<tr>
<td>Strongly disagree</td>
<td>5</td>
<td>5</td>
<td>7</td>
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Community-level Impacts

- Job creation
- Roads
- Township services
- County services
- Schools
- Relationships with neighbors

Turbines’ effect on local roads

- Greatly improved
- Somewhat improved
- Neither
- Somewhat worsened
- Greatly worsened

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<tr>
<th></th>
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<tr>
<td>Greatly improved</td>
<td>7</td>
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<td>60</td>
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<td>8</td>
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<tr>
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<td>4</td>
<td>17</td>
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## Community-level Impacts

$2.630 Million to townships in Huron County in 2015

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<th>County services</th>
<th>Schools</th>
<th>Relationships with neighbors</th>
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<td>4</td>
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<td>2</td>
<td>14</td>
<td>79</td>
<td>3</td>
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</table>

- **Greatly improved**
- **Somewhat improved**
- **Neither**
- **Somewhat worsened**
- **Greatly worsened**
Community-level Impacts

Turbines’ effect on county services

- Job creation
- Roads
- Township services
- County services

$2.749 Million to county gov’t in Huron County in 2015
Community-level Impacts

- Job creation
- Roads
- Township services
- County services

Turbines’ effect on local schools

- Greatly improved
- Somewhat improved
- Neither
- Somewhat worsened
- Greatly worsened

$2.083 Million to ISD; $2.074 Million to local schools in Huron County in 2015
Community-level Impacts

Turbines’ effect on relationships with neighbors

- Job creation
- Roads
- Township services
- County services
- Schools
- Relationships with neighbors

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<tr>
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<td>Neither</td>
<td>11</td>
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<td>12</td>
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<td>18</td>
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Community-level Impacts Take-aways

• Most see job creation (with caveat about types of jobs)

• Majority haven’t seen changes to community services or schools
  • Increasing cost of services, declining revenues over time may limit visible impacts

• Majority don’t think it’s divided the community
  • Even in some pretty contentious projects
Would they welcome more wind development?

- Quality of life
- Willingness to accept new turbines
Would they welcome more wind development?

Turbines’ effect on overall quality of life in township

- Quality of life
- Willingness to accept new turbines

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<tr>
<td>Greatly worsened</td>
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27
Would they welcome more wind development?

- Quality of life
- Willingness to accept new turbines

Willingness to host additional turbines in your township:

- Strongly support
- Somewhat support
- Neither
- Somewhat oppose
- Strongly oppose

<table>
<thead>
<tr>
<th>Quality of life</th>
<th>Willingness to accept new turbines</th>
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</thead>
<tbody>
<tr>
<td>21</td>
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<td>23</td>
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<tr>
<td>26</td>
<td>15</td>
<td>30</td>
</tr>
</tbody>
</table>

Legend:
- Dark blue: Strongly support
- Light blue: Somewhat support
- Gray: Neither
- Tan: Somewhat oppose
- Brown: Strongly oppose
What should you consider?

How to reap the benefits without the heartburn
How does this fit with your long-term plan?

• If goal is for substantial residential development or growth of tourism, wind may not be right
  - These landowners less likely to directly benefit
  - Some may be deterred from building

• If goal is to sustain agriculture, wind can fit
  - Farm income diversification & succession planning
    • May stabilize population
  - Siting on property lines takes little land out of production
    • Compatible with PA 116
Your zoning should then match

• Possible to create a legitimate zoning ordinance that minimizes or maximizes opportunities for turbines
  o Setbacks, noise, other requirements

• Your zoning ordinance can send a message
  o Open for business
  o Not interested
Example zoning ordinances

• MSU Extension

• Dept. of Energy database
  o Look for similar types of communities
  o Includes places both with/without wind
  o https://windexchange.energy.gov/policies-incentives

• Shiawassee County Planning
  o Comparison charts on height, noise, setback
  o https://www.shiawassee.net/Departments/Community-Development/Wind-Energy-Conversion-Systems

• My website (www.closup.umich.edu/wind)
  o Just the communities which have existing windfarms in Michigan
The ideal zoning ordinance?

Support/oppose additional turbines in township, by zoning setback distance

<table>
<thead>
<tr>
<th></th>
<th>Strongly support</th>
<th>Somewhat support</th>
<th>Neither</th>
<th>Somewhat oppose</th>
<th>Strongly oppose</th>
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<tr>
<td>Unzoned township</td>
<td>24</td>
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<tr>
<td>1.5x height</td>
<td>33</td>
<td>27</td>
<td>22</td>
<td>8</td>
<td>11</td>
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<tr>
<td>1,000'/1,320'</td>
<td>19</td>
<td>18</td>
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<tr>
<td>1,320'</td>
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CLOSUP

Gerald R. Ford School of Public Policy
What my research suggests on zoning

- Participating vs. non-participating landowners
- Noise, flicker analysis
- Decommission plan/financial assurance
- Have an open & transparent process
The importance of process

Support/oppose additional turbines in township, by agree/disagree opportunity to participate in planning

<table>
<thead>
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<tr>
<td>All</td>
<td>21</td>
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<td>58</td>
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<td>Disagree</td>
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<tr>
<td>Strongly disagree</td>
<td>7</td>
<td>6</td>
<td>14</td>
<td>10</td>
<td>63</td>
</tr>
</tbody>
</table>

“I had ample opportunity to provide input during the wind project planning stage.”

35
The importance of transparency

Support/oppose additional turbines in township, by agree/disagree wind developer acted transparently

“The wind project developer acted openly and transparently throughout the planning process.”
Don’t be afraid to ask questions

• About who benefits, business model
• Amount of tax revenue
• The impacts (noise, flicker) on specific homes
• Typical siting schemes
• Decommissioning
The CLOSUP Wind Project

Sarah Mills, Project Manager
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Email: sbmills@umich.edu
Web: www.closup.umich.edu/wind