Pros and Cons of Wind Turbines
Experiences from Michigan

Gibson Township
August 14, 2017

Sarah Mills, PhD
2016 Community Survey

- Owners of land assessed 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 for agriculture
- 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
Common arguments AGAINST wind turbines
## Noise

Turbines create noise pollution

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Paid</th>
<th>Unpaid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>19</td>
<td>12</td>
<td>21</td>
</tr>
<tr>
<td>Agree</td>
<td>29</td>
<td>22</td>
<td>31</td>
</tr>
<tr>
<td>Disagree</td>
<td>40</td>
<td>47</td>
<td>38</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>12</td>
<td>18</td>
<td>10</td>
</tr>
</tbody>
</table>

Noise created by turbines is a significant concern for the community.
Visual/Aesthetic

Turbines create visual/aesthetic problems

- Strongly agree
- Agree
- Disagree
- Strongly disagree

<table>
<thead>
<tr>
<th>All</th>
<th>Paid</th>
<th>Unpaid</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>14</td>
<td>27</td>
</tr>
<tr>
<td>25</td>
<td>19</td>
<td>27</td>
</tr>
<tr>
<td>39</td>
<td>46</td>
<td>37</td>
</tr>
<tr>
<td>12</td>
<td>22</td>
<td>10</td>
</tr>
</tbody>
</table>

CLOSUP
Gerald R. Ford School of Public Policy

NOTES
Health Problems

Turbines cause human health problems

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Paid</th>
<th>Unpaid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>9</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Agree</td>
<td>18</td>
<td>47</td>
<td>21</td>
</tr>
<tr>
<td>Disagree</td>
<td>49</td>
<td>37</td>
<td>50</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>23</td>
<td>19</td>
<td>19</td>
</tr>
</tbody>
</table>
Property values

Turbines decrease nearby property values

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Paid</th>
<th>Unpaid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>24</td>
<td>14</td>
<td>27</td>
</tr>
<tr>
<td>Agree</td>
<td>30</td>
<td>21</td>
<td>33</td>
</tr>
<tr>
<td>Disagree</td>
<td>36</td>
<td>46</td>
<td>32</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>10</td>
<td>19</td>
<td>7</td>
</tr>
</tbody>
</table>
Common arguments FOR wind turbines
# Job Creation

Turbines create jobs

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All</strong></td>
<td>21</td>
<td>57</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td><strong>Paid</strong></td>
<td>31</td>
<td>54</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td><strong>Unpaid</strong></td>
<td>18</td>
<td>58</td>
<td>17</td>
<td>7</td>
</tr>
</tbody>
</table>
Farm Income

Investments over 5 years: 2009-2013

- Non-windfarm: $187k
- Unpaid neighbors: $180k
- Neighbors in pool: $193k
- Turbines: $449k

[Bar chart showing the breakdown of investments by category for each group, with Home, Outbuildings, Drainage/Irrigation, and Equipment categories represented.]
Farm Succession

% that have farm succession plan

- Non-windfarm: 57%
- Unpaid neighbors: 64%
- Neighbors in pool: 62%
- Turbines: 80%
Land usage

• 1-2 acres for turbine + road

• Practically no impact if placed on property line
  o Avoids field tile
  o Rent for previously unfarmed fence row
  o Nothing to farm around
  o New lane for trucks
Tax benefits

Turbines’ effect on township services

<table>
<thead>
<tr>
<th></th>
<th>Greatly improved</th>
<th>Somewhat improved</th>
<th>Neither</th>
<th>Somewhat worsened</th>
<th>Greatly worsened</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>4</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>10</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unpaid</td>
<td>2</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15
Roads

Turbines’ effect on local roads

- **All**
  - Greatly improved: 7
  - Somewhat improved: 20
  - Neither: 60
  - Somewhat worsened: 8
  - Greatly worsened: 4

- **Paid**
  - Greatly improved: 17
  - Somewhat improved: 32
  - Neither: 40
  - Somewhat worsened: 5
  - Greatly worsened: 9

- **Unpaid**
  - Greatly improved: 17
  - Somewhat improved: 67
  - Neither: 67
  - Somewhat worsened: 3
  - Greatly worsened: 3

---

[Image credit: CLOSUP, Gerald R. Ford School of Public Policy]
Local Schools

Turbines’ effect on local schools

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

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Paid</th>
<th>Unpaid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greatly improved</td>
<td>9</td>
<td>19</td>
<td>6</td>
</tr>
<tr>
<td>Somewhat improved</td>
<td>24</td>
<td>35</td>
<td>21</td>
</tr>
<tr>
<td>Neither</td>
<td>64</td>
<td>11</td>
<td>70</td>
</tr>
<tr>
<td>Somewhat worsened</td>
<td>1</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>Greatly worsened</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Take-aways

• Most opinions relatively evenly split
  Financial stake = rosier view
  No financial stake = more soured view
  BUT STILL SPLIT OPINIONS

• Most don’t see health impacts, changes in local services

• Most do see job creation benefits

• Key benefit is to farmers
How have turbines changed the community?

Turbines’ effect on overall quality of life in township

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

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Paid</th>
<th>Unpaid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greatly improved</td>
<td>13</td>
<td>21</td>
<td>10</td>
</tr>
<tr>
<td>Somewhat improved</td>
<td>55</td>
<td>54</td>
<td>55</td>
</tr>
<tr>
<td>Neither</td>
<td>19</td>
<td>10</td>
<td>22</td>
</tr>
<tr>
<td>Somewhat worsened</td>
<td>10</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Greatly worsened</td>
<td>10</td>
<td>8</td>
<td>11</td>
</tr>
</tbody>
</table>
My recommendations on zoning

- How does the fit with your township’s long-term plan?
  - If goal is for substantial residential development or growth of tourism, wind may not be right
  - If goal is to sustain agriculture, wind can fit

- Distinguishing between participating and non-participating landowners

- Be open & transparent
The CLOSUP Wind Project

Sarah Mills, Project Manager
Phone: (734) 615-5315
Email: sbmills@umich.edu
Web: www.closup.umich.edu/wind