Is Wind Energy Right for your Township?

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Who am I?

• PhD in land use planning
  o Farmland preservation

• C.S. Mott Foundation Grant
  o Ensure future wind development respects local community values

• To provide data-based account of perceptions from MI communities with wind
  o Voice to the quiet folks
  o Neutral broker
What I’ll cover

• Overall Findings
• Benefits of Wind
• Common Concerns
• Summary
• Q&A
Overall Findings
What determines attitudes about wind?

• Attitudes about process

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

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

Same at community level: not population density, home values, etc.
Bottom Line

Wind Energy =

Rural Economic Development Opportunity

But not a good fit for all communities
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

- If goal is to sustain agriculture, wind can fit
  - Good for farmers
  - Good for tax base
Your zoning should match your goal

- Possible to create a legitimate zoning ordinance that minimizes or maximizes opportunities for turbines
  - Provides/limits opportunities through setbacks, noise, other requirements
  - Directs wind development to particular areas

- Needs to be supported by rationale

- No zoning silver bullet
What are the Benefits?

... Why would you want wind?
Revenues to Farmland Owners

- For farmers, another way to make their land productive

- Farm income diversification & succession planning
  - Reinvestment the farm
  - May stabilize population
Other Impacts on Farms?

- Takes little land out of production
  - Especially if sited on property lines
  - Compatible with PA 116
  - Do need to reclassify with FSA for crop insurance

- “No agronomic reason not to have seed grown in same field as wind turbines” - Pioneer

- But difficulties with pivot irrigation; may increase cost of aerial application
Direct Benefits to Others

- Old Model: Winner takes all
  - Disturbance
  - Royalty

- Newer Model: Pooled Royalties
  - Usually per-acre

- Newest Model: Includes Smaller Parcels

- Direct benefit to others depends on model
Community-wide Tax Benefits

• Turbine value + easement (~$2.1M)
  o x 100% in year 1
  o x 30% in year 10+

• ~$20M per year statewide ($22k / turbine)

• Huron County (just in 2015)
  o $2.6M to townships
  o $2.75M to county gov’t
  o $2.083M to ISD
  o $2.074M to local schools

• Increased township revenues by as much as 500%
Caveat on School Taxes

- Per Proposal A (1994), local school district general funds are redistributed on per-pupil basis
- Local districts keep sinking/debt fund revenues
- Some ISDs take on local-district services
- Some developers donate to local schools

- The local school district may see little impact
Job Creation

- Most direct local jobs are...
  - during construction
  - in hospitality industry, aggregate & earth moving

- “Induced” jobs
  - Leaseholders spending money
  - Township spending tax revenue

- Local jobs are created, just not tons of high-paying, direct long-term jobs
Summary of Benefits

• Direct impacts on farmers
  o Often non-farmers, too, depending on the business model

• Indirect tax impacts benefit everyone
  o Biggest benefit to township and county, ISD
  o Impact on local school depends

• Other broad financial impacts harder to quantify, but some impact
  o Jobs
  o Donations
What are the Drawbacks?

... Why would you NOT want wind?
Impacts on Property Values

• U.S. peer-reviewed studies say no impacts on home values
  o New study finds people self-sort into wind turbine communities

• In Michigan, 54% of landowners perceive a negative impact

• MI assessors / realtors say farmland values may increase

• No specific home value studies in Michigan (including mine)

• Wind turbines probably don’t decrease home/property values, but we just don’t know for certain in Michigan
Impacts on Human Health

• Most peer-reviewed studies find no direct causal link
  o Research underway on annoyance/stress indirect links
  o Other research on power of suggestion

• Research on flicker finds low risk; flicker can be managed

• In Michigan, 72% of landowners *perceive* no health impacts

• Medical research says no direct health impacts; Sarah says inclusive, fair process may make project less stress-inducing
Impacts of Noise

• Hearing loss not a concern

• Sleep disturbance, quality of life disturbance question
  o WHO nighttime-standard, but not wind-specific
  o New WHO “conditional” recommendation, based on 10% ‘highly annoyed’ @ 45dBLden
  o No nighttime recommendation; studies inconsistent

• National study: 18% at least somewhat annoyed by noise
• My study: 48% say turbines create noise pollution

• Something you can regulate, but are you regulating noise for anything else?
Turbines create noise pollution

- All: 19 strongly agree, 29 agree, 40 disagree, 12 strongly disagree
- Paid: 12 strongly agree, 22 agree, 47 disagree, 18 strongly disagree
- Unpaid: 21 strongly agree, 31 agree, 38 disagree, 10 strongly disagree
Wildlife Impacts

- **US. Fish & Wildlife Service**
  - Cats: 2,400,000,000
  - Building Glass: 599,000,000
  - Vehicles: 214,500,000
  - Onshore Wind: 234,012

- Newer turbine towers better; farm fields better than forests

- Developers consider endangered species in siting

- **Not a huge concern in most of Michigan, but FWS recommends limiting lighting, land disturbance**
Decommissioning / End of Life

• What happens if project sold?
• Usually covered in private leases
• Can also be included in zoning ordinance
  o Plan
  o Financial guarantee
• Few residents know about it

• Talk about it
Community Tension

• Peer-reviewed research finds contention peaks at proposal/building stage

• Majority (70%) in MI don’t think it’s divided the community
  o Even in some pretty contentious projects

• Wind energy reopens right-to-farm fault lines

• Whether gets built or not, damage done
Summary of Drawbacks

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

- Unproven human health, property value impacts but you could use them to make an argument

- Impacts on wildlife comparatively minimal

- Decommissioning common concern, include in ordinance

- Tension highlights different reasons people live in township
Summary
Bottom Line

• Wind = economic development

• Figure out how it fits in your long-term plan
  o Ag-based?
  o Tourism / residential-based?

• Make zoning match your goal
  o Will not satisfy everyone
  o Will impact ability to develop wind (or not)
  o Doesn’t have to be all or nothing
Example zoning ordinances

- MSU Extension

- Dept. of Energy
  - Look for similar types of communities
  - Includes places both with/without wind
  - [https://windexchange.energy.gov/policies-incentives](https://windexchange.energy.gov/policies-incentives)

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

- My website ([www.closup.umich.edu/wind](http://www.closup.umich.edu/wind))
  - Just the communities which have existing windfarms in Michigan

Consider whether peer communities do or do not have turbines
Don’t be afraid to ask questions of developer

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

Questions?

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Survey Data

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

- Owners of land assessed ag 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