

Is Wind Energy Right for your Township?

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Sherwood Township

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Who am I?

- PhD in land use planning
 - Farmland preservation
- C.S. Mott Foundation Grant
 - Ensure future wind development respects local community values
- To provide data-based account of perceptions from MI communities with wind
 - Voice to the quiet folks
 - Neutral broker

What I'll cover

- Overall Findings
- Benefits of Wind
- Common Concerns
- Summary
- Q&A

Overall Findings

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What determines attitudes about wind?

- Attitudes about process
- Direct compensation
 - Some better than none
 - \$1,000 per year as key threshold
- Type of land owned
 - secondary vs. primary residence
 - 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?

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Why would you want wind?

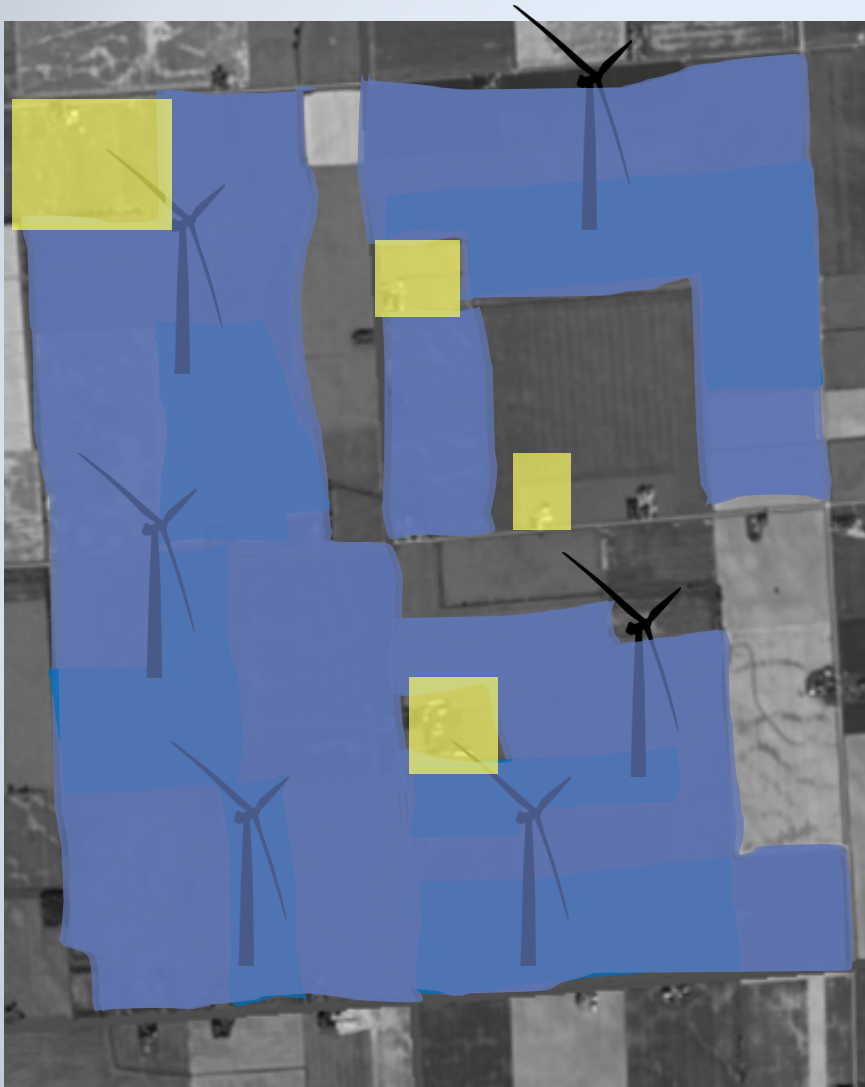
Revenues to Farmland Owners

- **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)
 - x 100% in year 1
 - x 30% in year 10+
- ~\$20M per year statewide (\$22k / turbine)
- Huron County (just in 2015)
 - \$2.6M to townships
 - \$2.75M to county gov't
 - \$2.083M to ISD
 - \$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
 - Often non-farmers, too, depending on the business model
- Indirect tax impacts benefit everyone
 - Biggest benefit to township and county, ISD
 - Impact on local school depends
- Other broad financial impacts harder to quantify, but some impact
 - Jobs
 - Donations

What are the Drawbacks?

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Why would you NOT want wind?

Impacts on Property Values

- U.S. peer-reviewed studies say no impacts on home values
 - 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

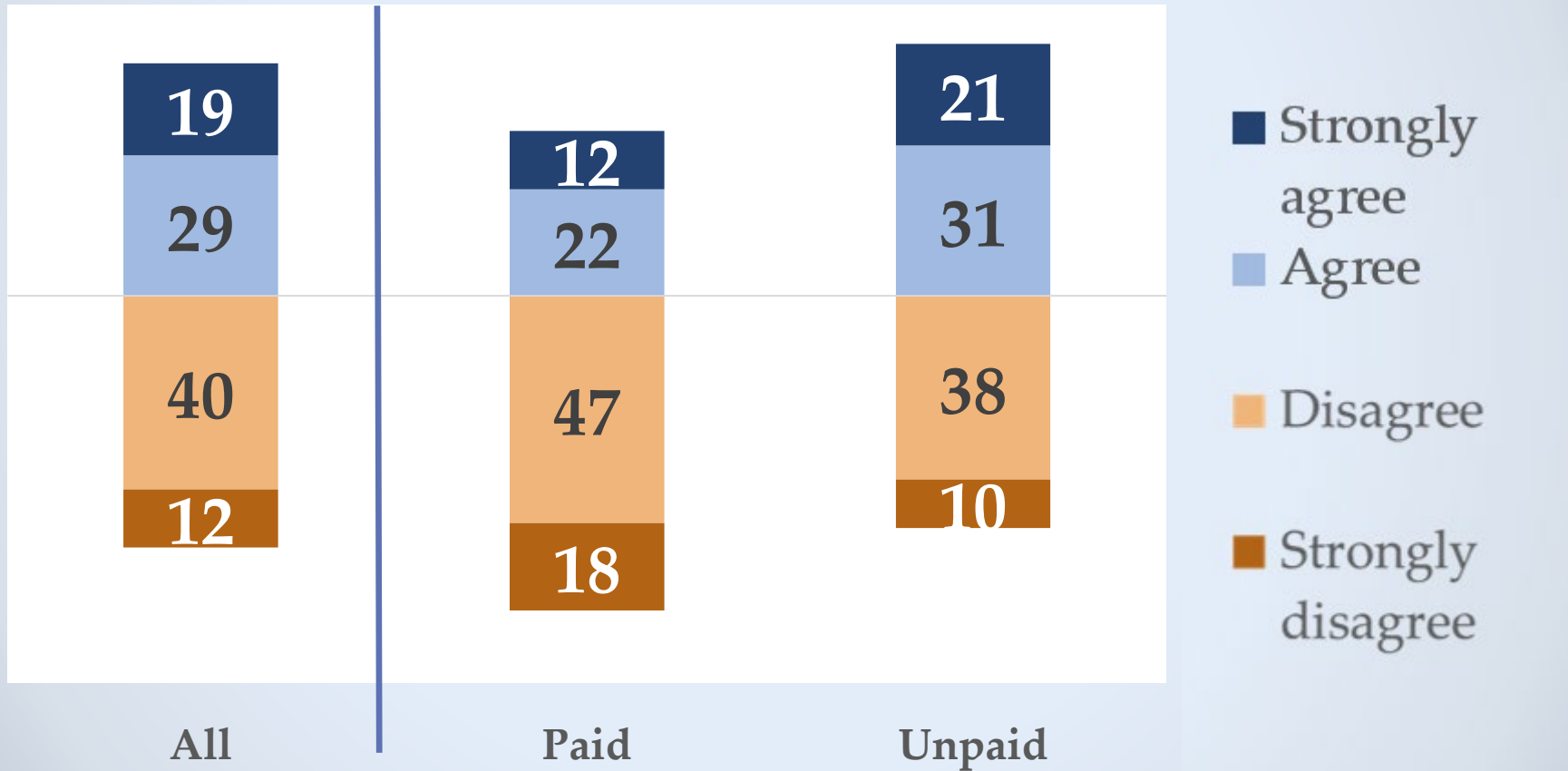
- Most peer-reviewed studies find no direct causal link
 - Research underway on annoyance/stress indirect links
 - Other research on power of suggestion
- Research on flicker finds low risk; flicker can be managed
- In Michigan, 72% of landowners perceive no health impacts
- **Medical research says no 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
 - WHO nighttime-standard, but not wind-specific
 - New WHO “conditional” recommendation, based on 10% ‘highly annoyed’ @ 45dBL_{den}
 - 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?**

Noise

Turbines create noise pollution



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
 - Plan
 - 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
 - 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

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Bottom Line

- Wind = economic development
- Figure out how it fits in your long-term plan
 - Ag-based?
 - Tourism / residential-based?
- Make zoning match your goal
 - Will not satisfy everyone
 - Will impact ability to develop wind (or not)
 - Doesn't have to be all or nothing

Example zoning ordinances

- MSU Extension
 - Sample Zoning for Wind Energy Systems (2017)
 - Michigan Land Use Guidelines for Siting Wind Energy Systems (2007)
- Dept. of Energy
 - Look for similar
 - Includes places
 - <https://windexchange.org/resources/peer-communities>
- Shiawassee County Planning
 - Comparison charts on height, noise, setback
 - <https://www.shiawassee.net/Departments/Community-Development/Wind-Energy-Conversion-Systems>
- My website (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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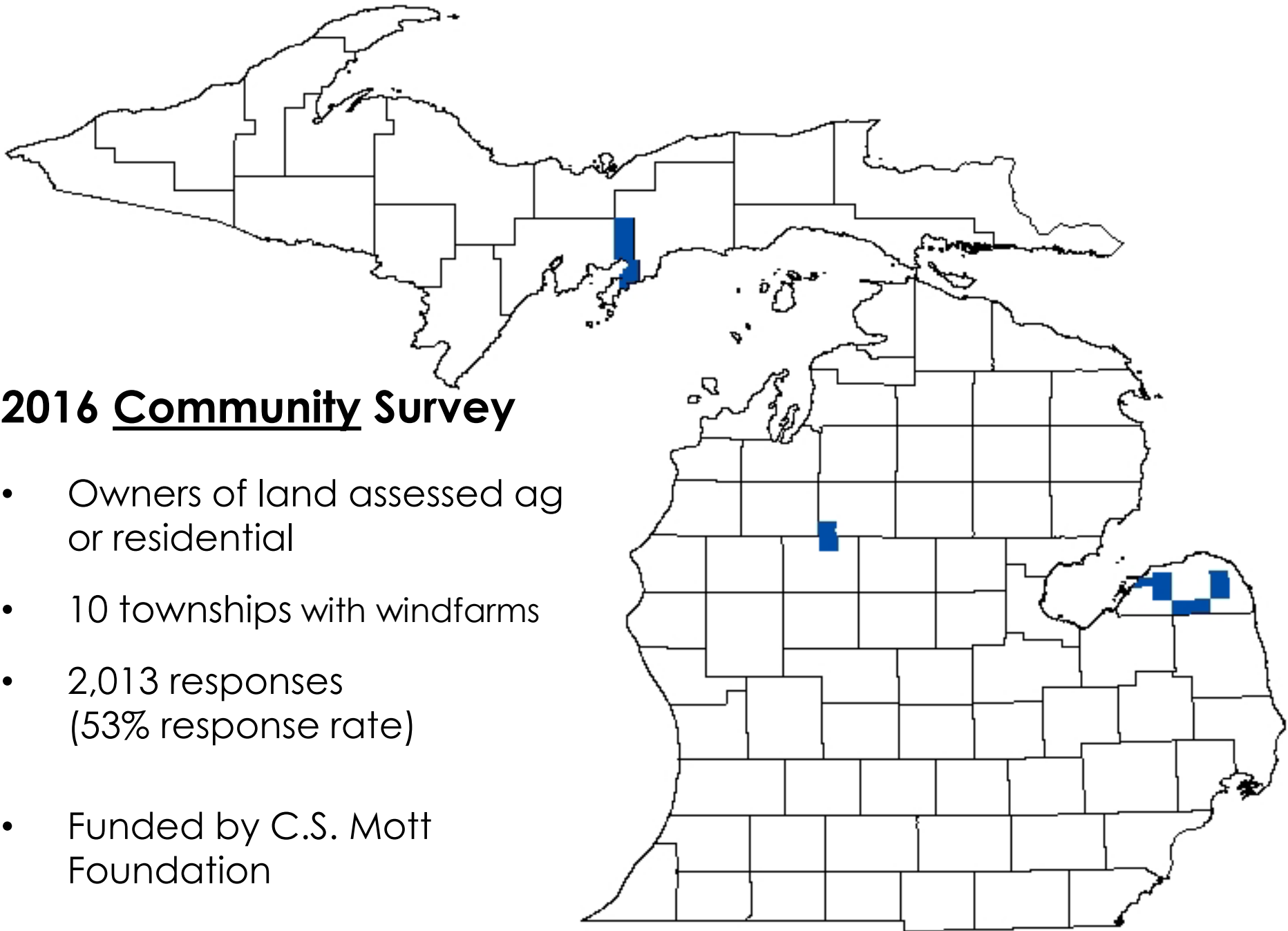
Email: sbmills@umich.edu

Web: www.closup.umich.edu/wind

Survey Data

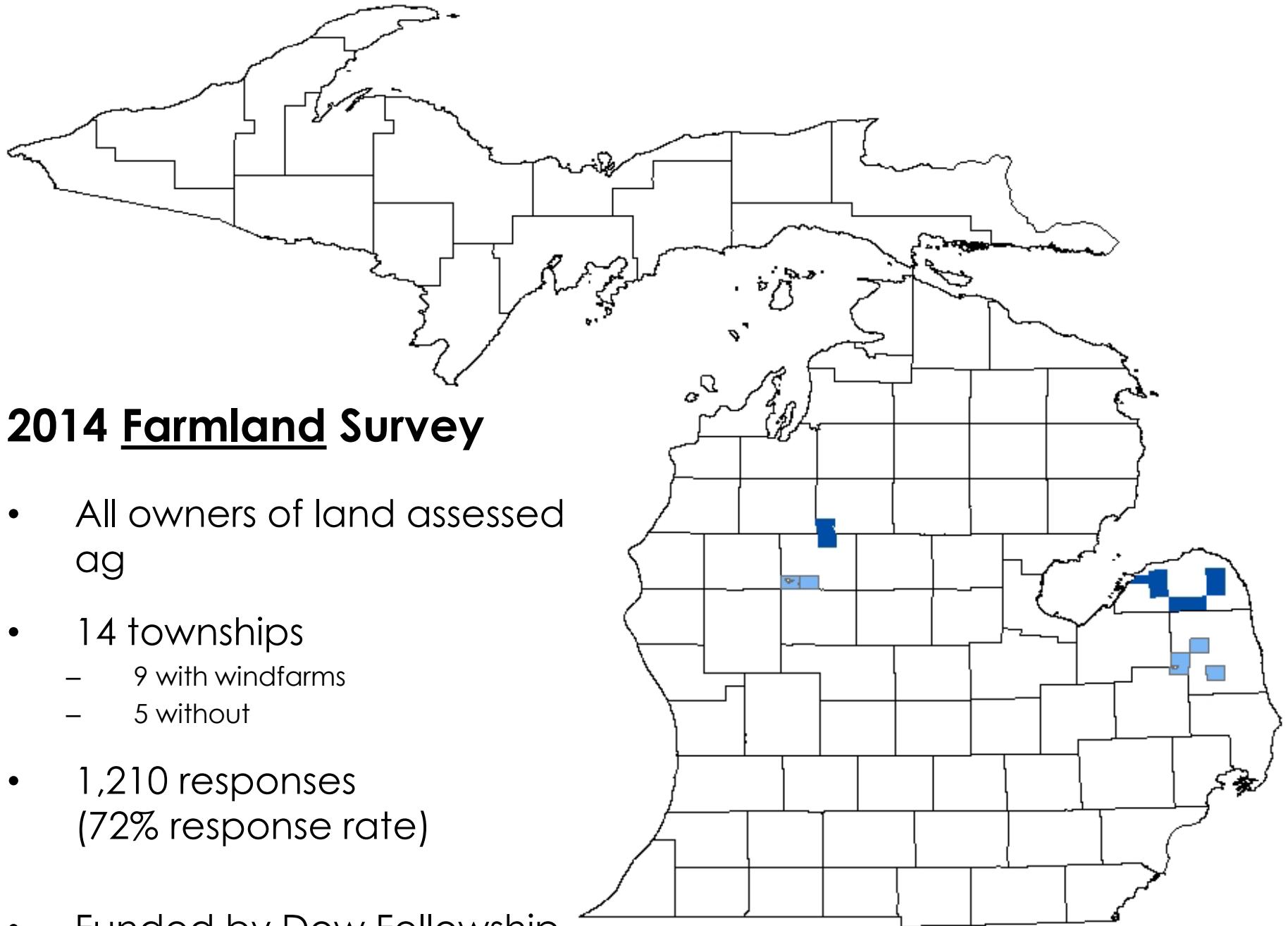
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When, who, and where
& what did I find?



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