

# Is Wind Energy Right for your Community?

December 11, 2017

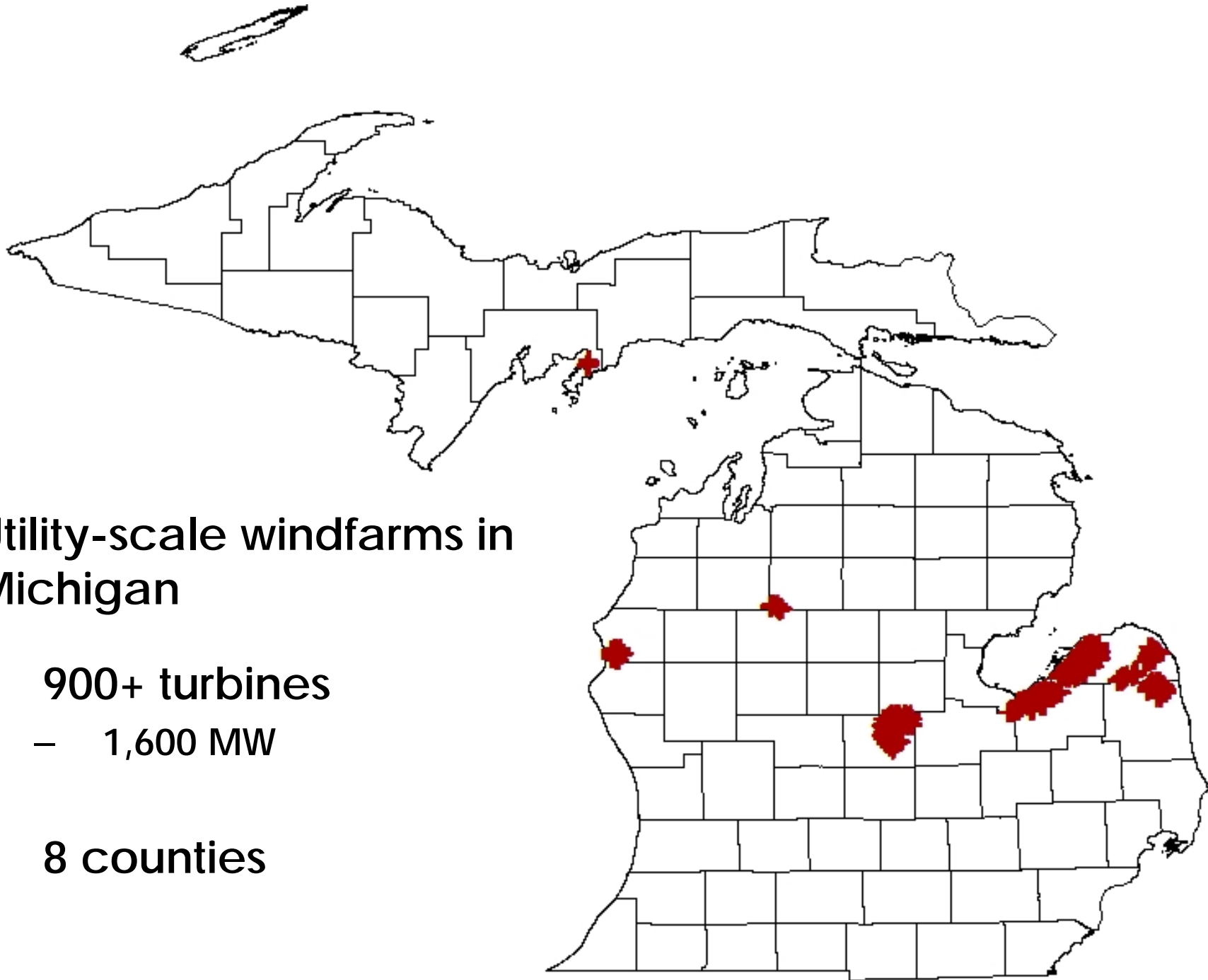
Sarah Mills, PhD

# What I'll cover

- Overview of wind development
- Surveys of landowners
  - Individual impacts
  - Community impacts
- What should you consider?
- Q&A

# Why this research?

- PhD in land use planning
  - Investigate Gratiot & Huron County claims of 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
  - Not relying on newspaper accounts
  - Give voice to the quiet folks



## Utility-scale windfarms in Michigan

- 900+ turbines
  - 1,600 MW
- 8 counties

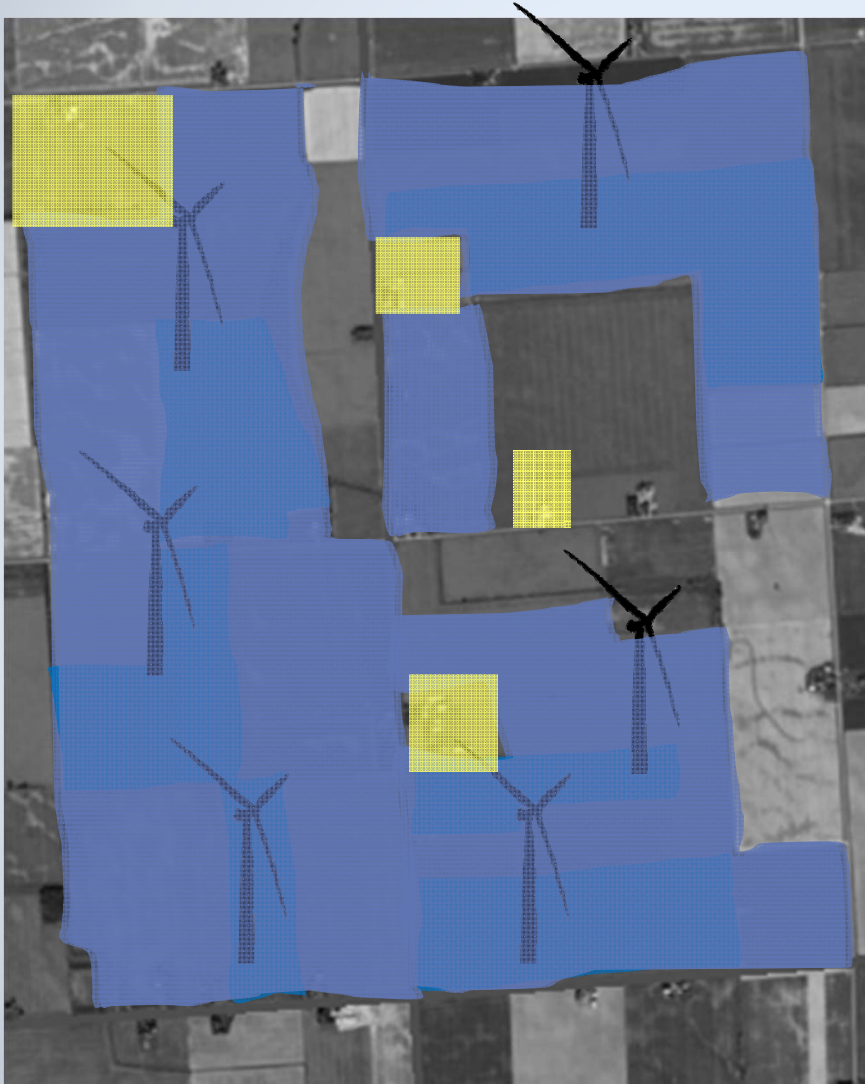


Credit: Heritage Sustainable Energy



Photo: JEFFREY M. SMITH, TIMES HERALD

# Wind Development 101



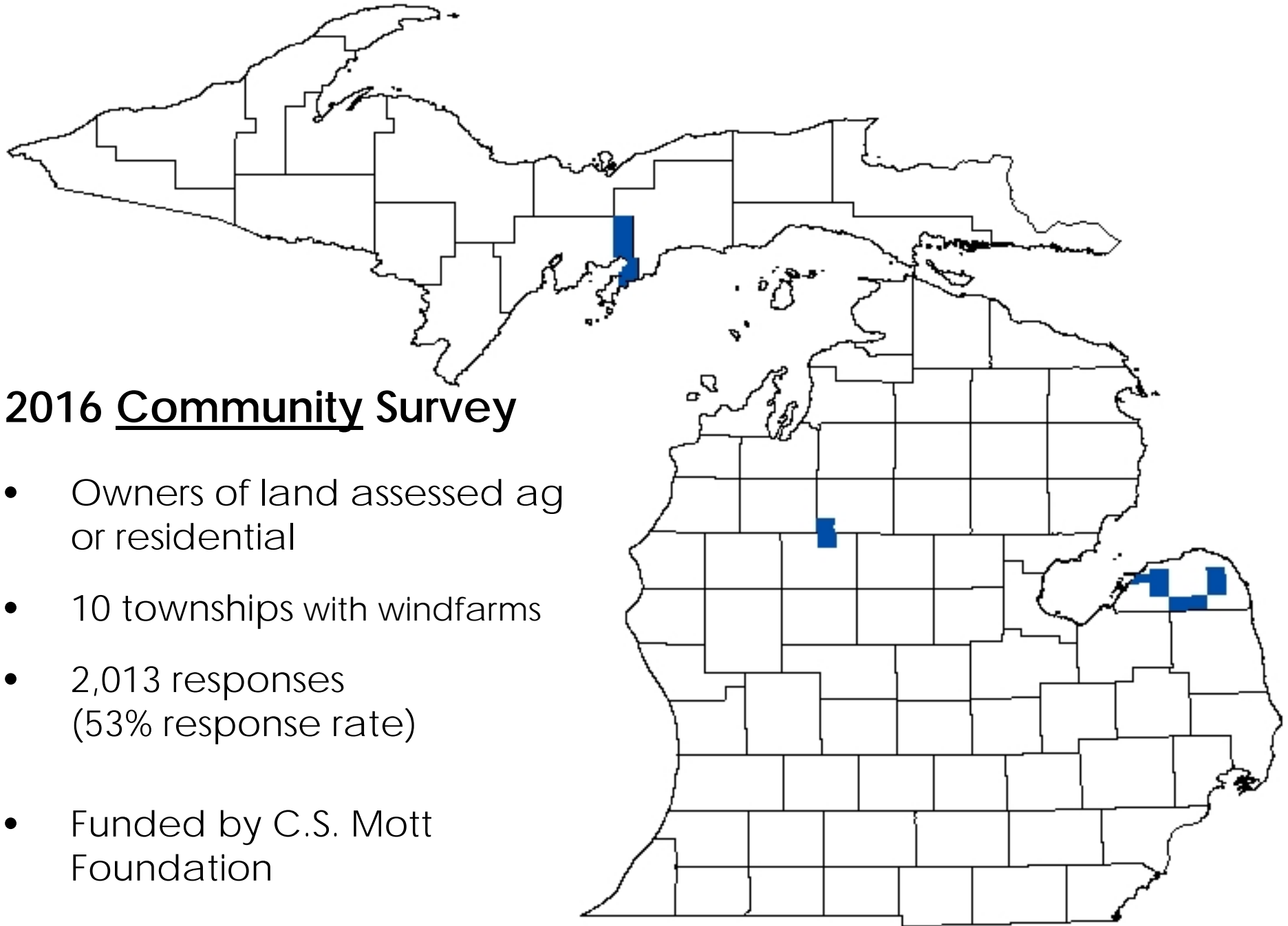
- Zoning constraints
- Landowner payments
  - Disturbance
  - Royalty
  - Participation/friendly neighbor
- Personal Property Tax
  - ~\$20M per year statewide
  - Turbine value + easement (~\$2.1M)
    - x 100% in year 1
    - x 30% in year 10+

# Survey Data

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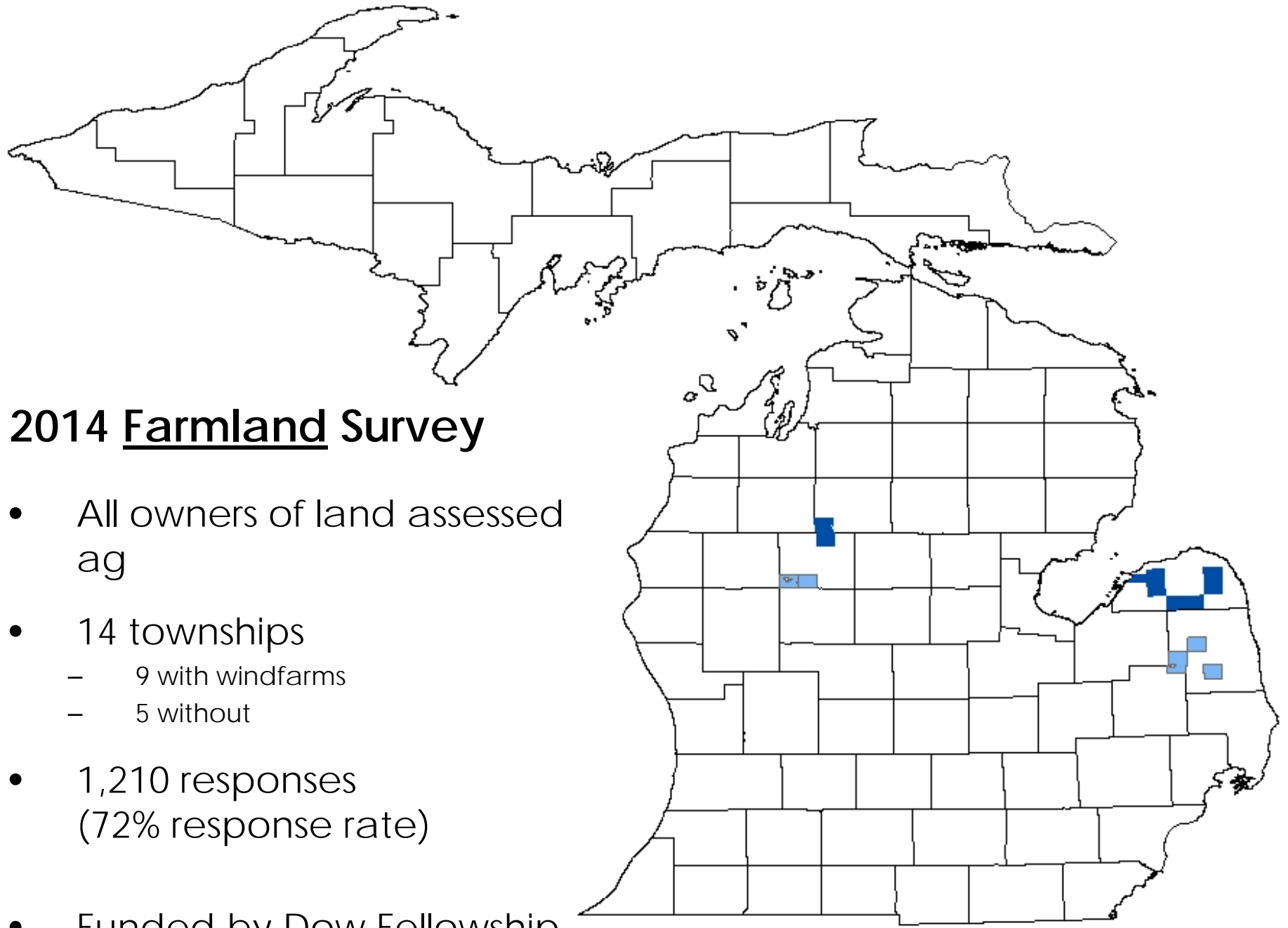
When, who, and where  
& what did I find?





## 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

# Overall drivers of attitudes

- Direct compensation
  - Some better than none
  - \$1,000 per year as key threshold
- Type of land owned
  - secondary vs. primary residence
  - farmland / rental property *only*
- Being within earshot of turbines
- Attitudes about process, wind developer

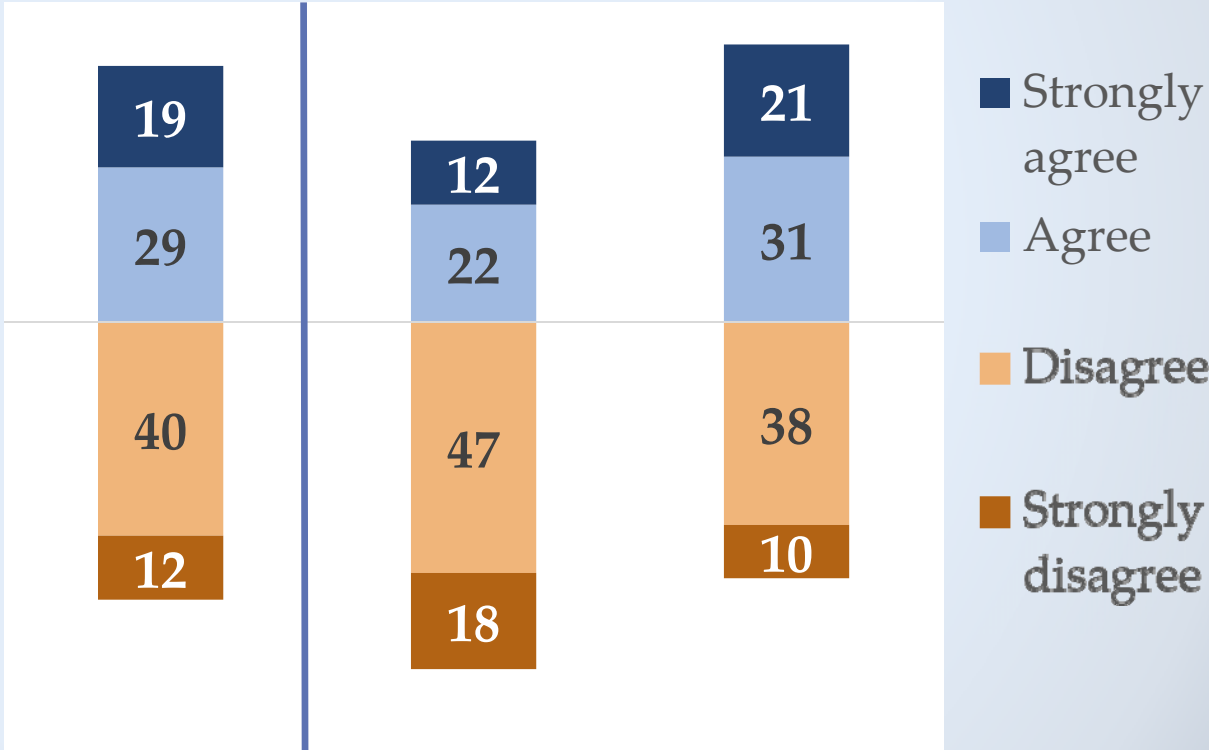
# Individual-level Impacts

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

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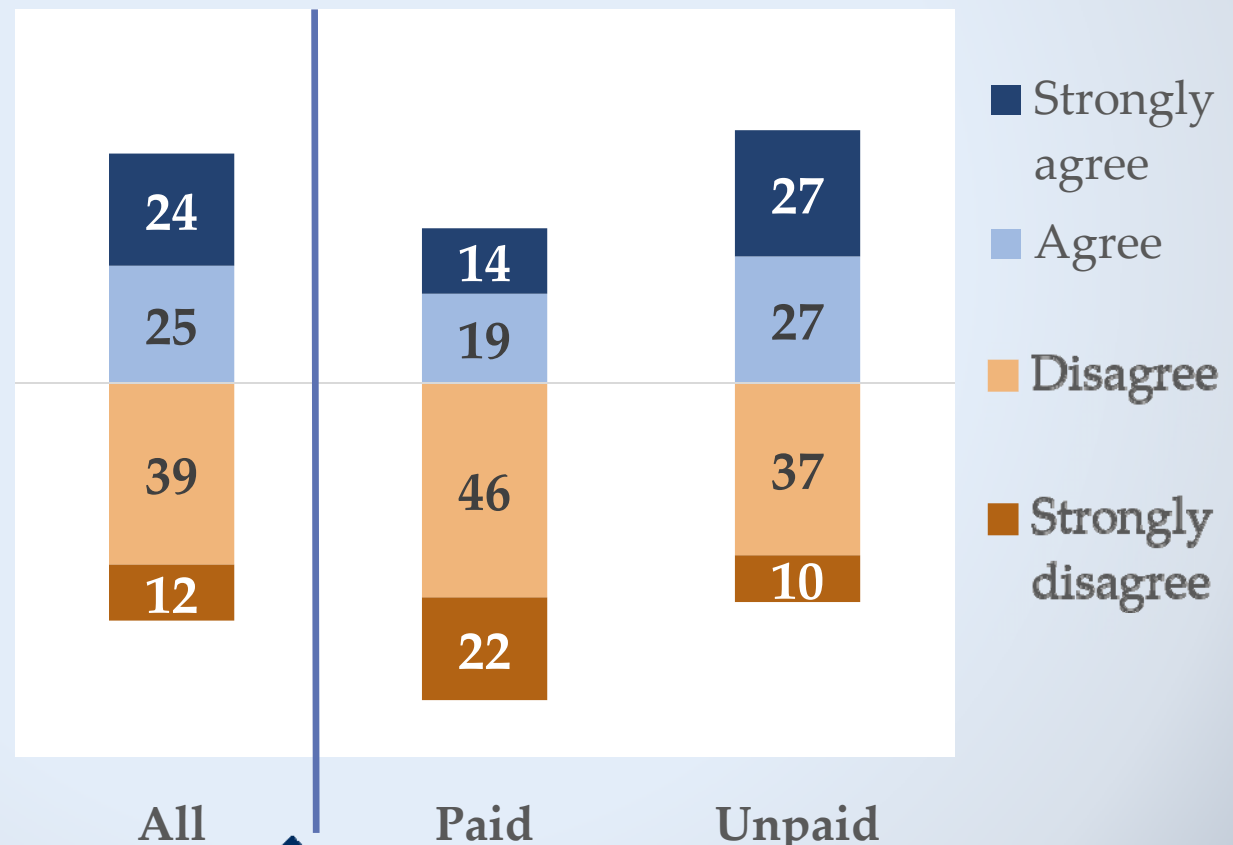
Turbines create noise pollution



# Individual-level Impacts

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

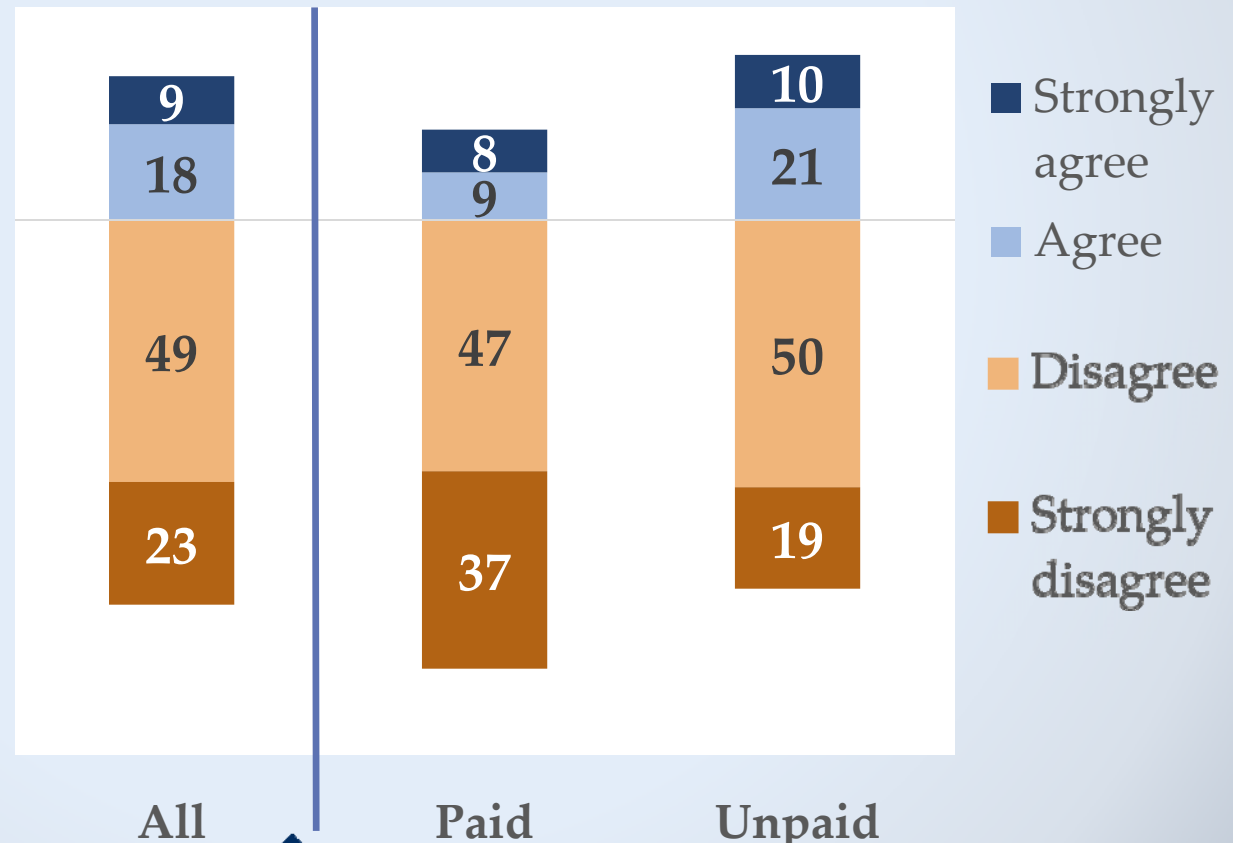
Turbines create visual/aesthetic problems



# Individual-level Impacts

- Noise
- Visual
- **Health**
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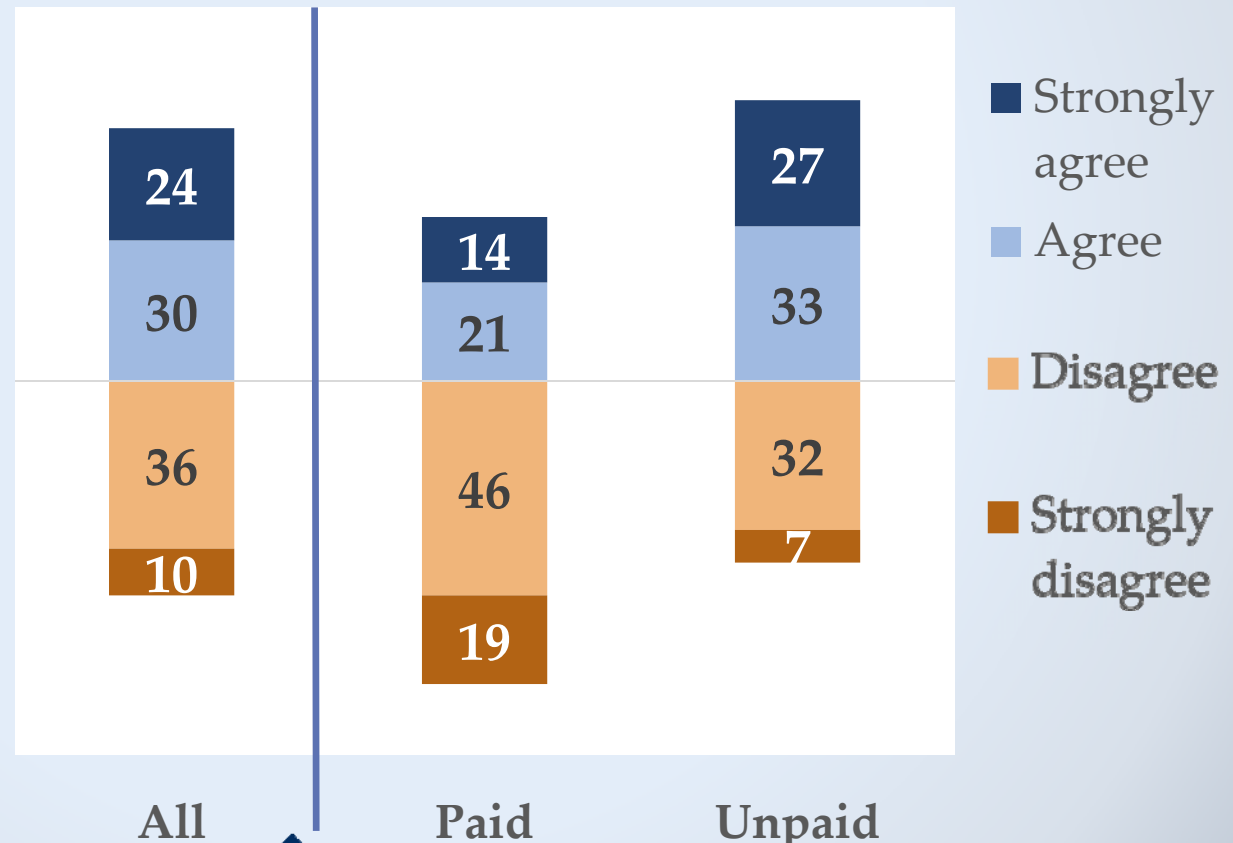
Turbines cause human health problems



# Individual-level Impacts

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

Turbines decrease nearby property values

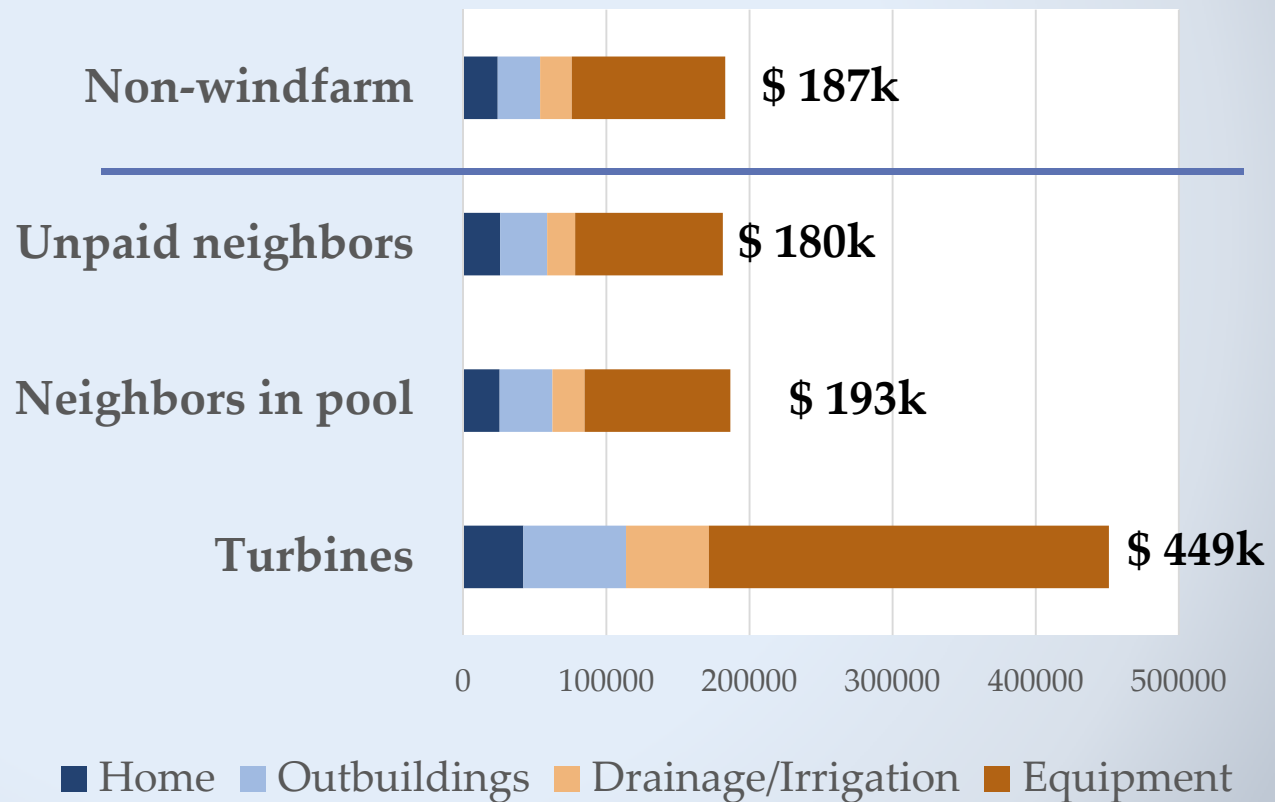




# Individual-level Impacts

Investments over 5 years: 2009-2013

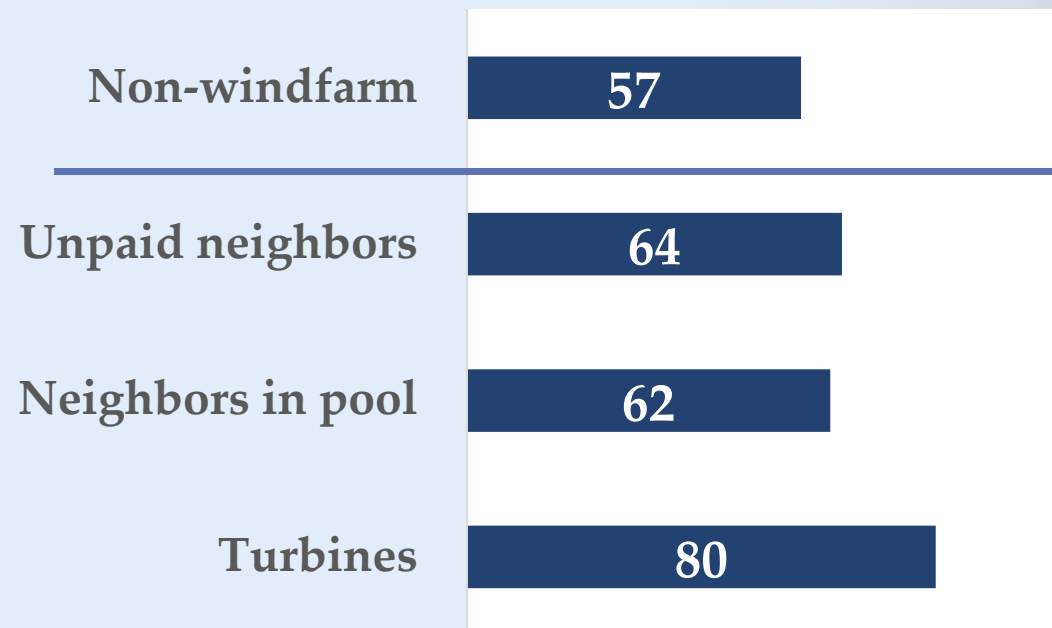
- Noise
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# Individual-level Impacts

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

% that have farm succession plan



# 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

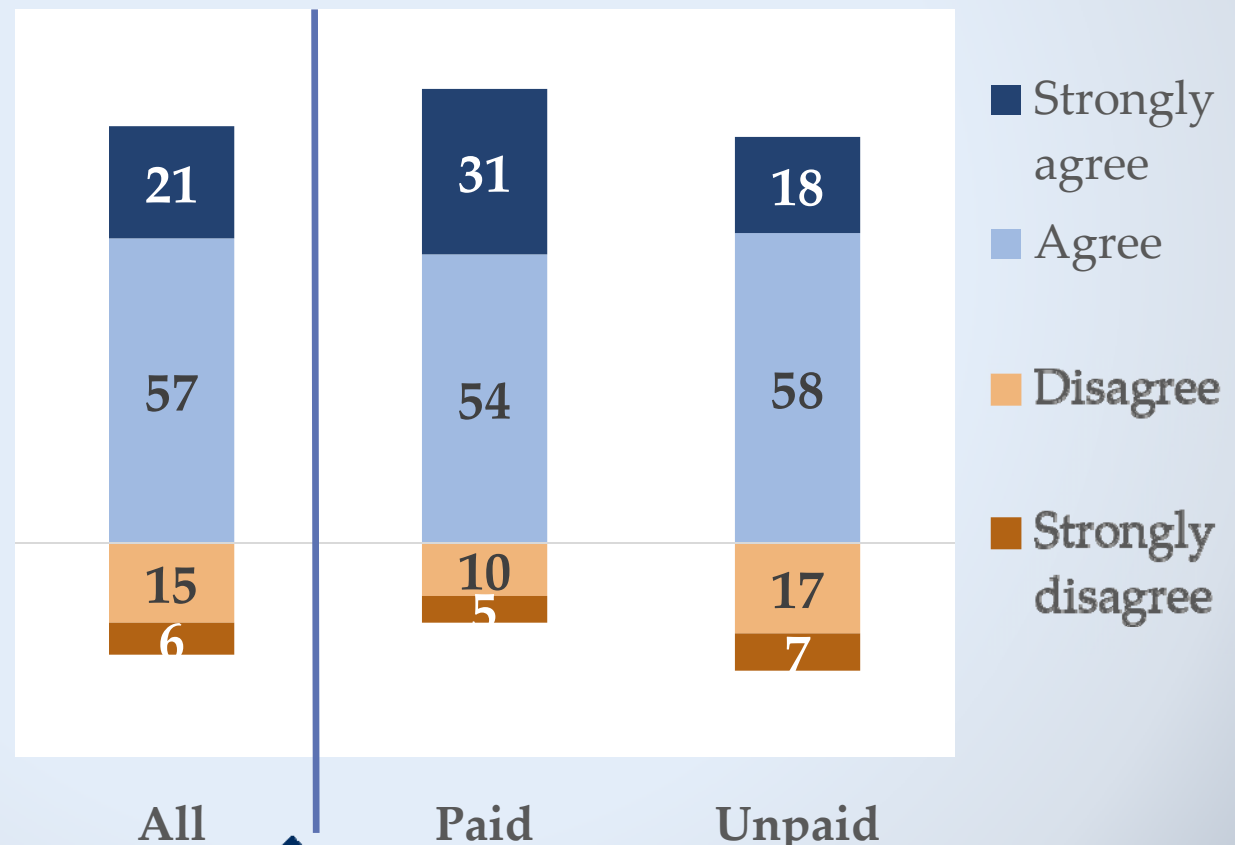
# Community-level Impacts

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

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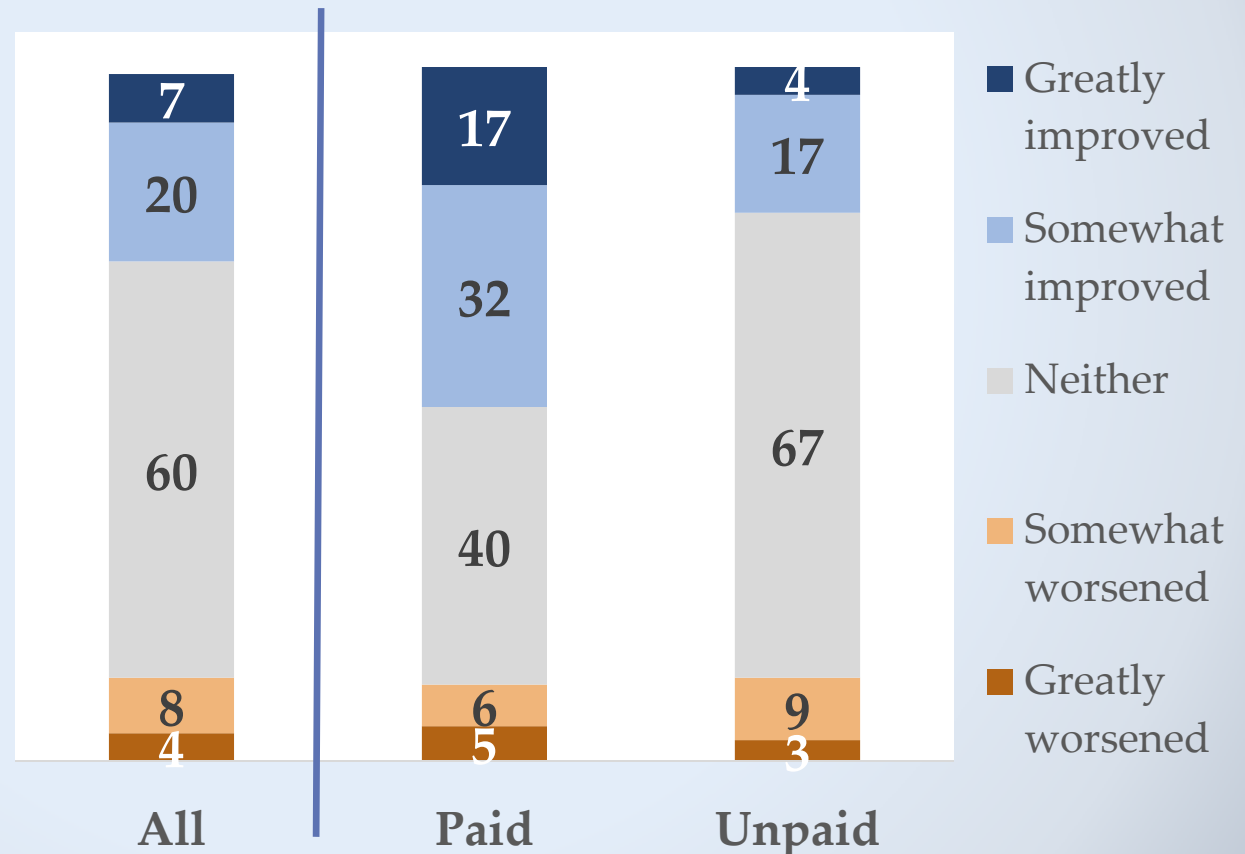
## Turbines create jobs



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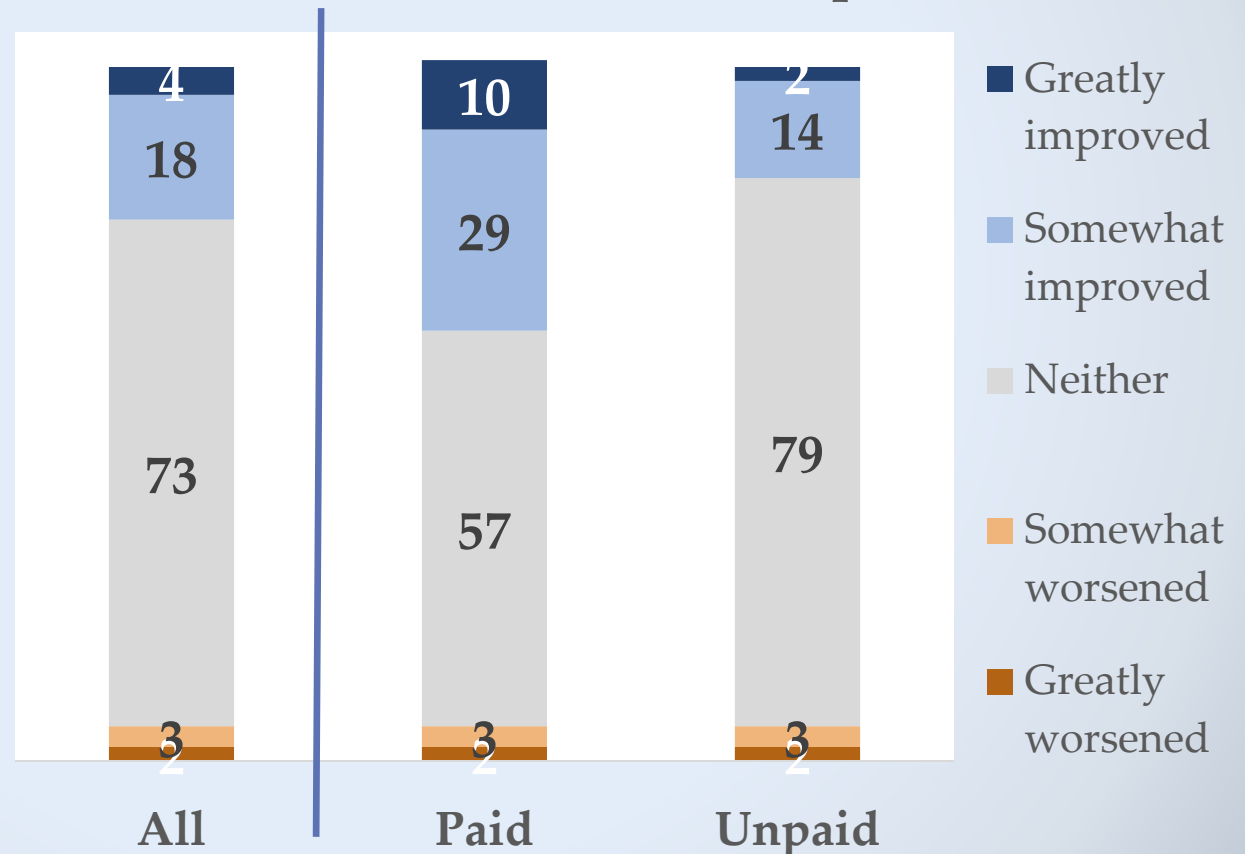
Turbines' effect on local roads



# Community-level Impacts

## Turbines' effect on township services

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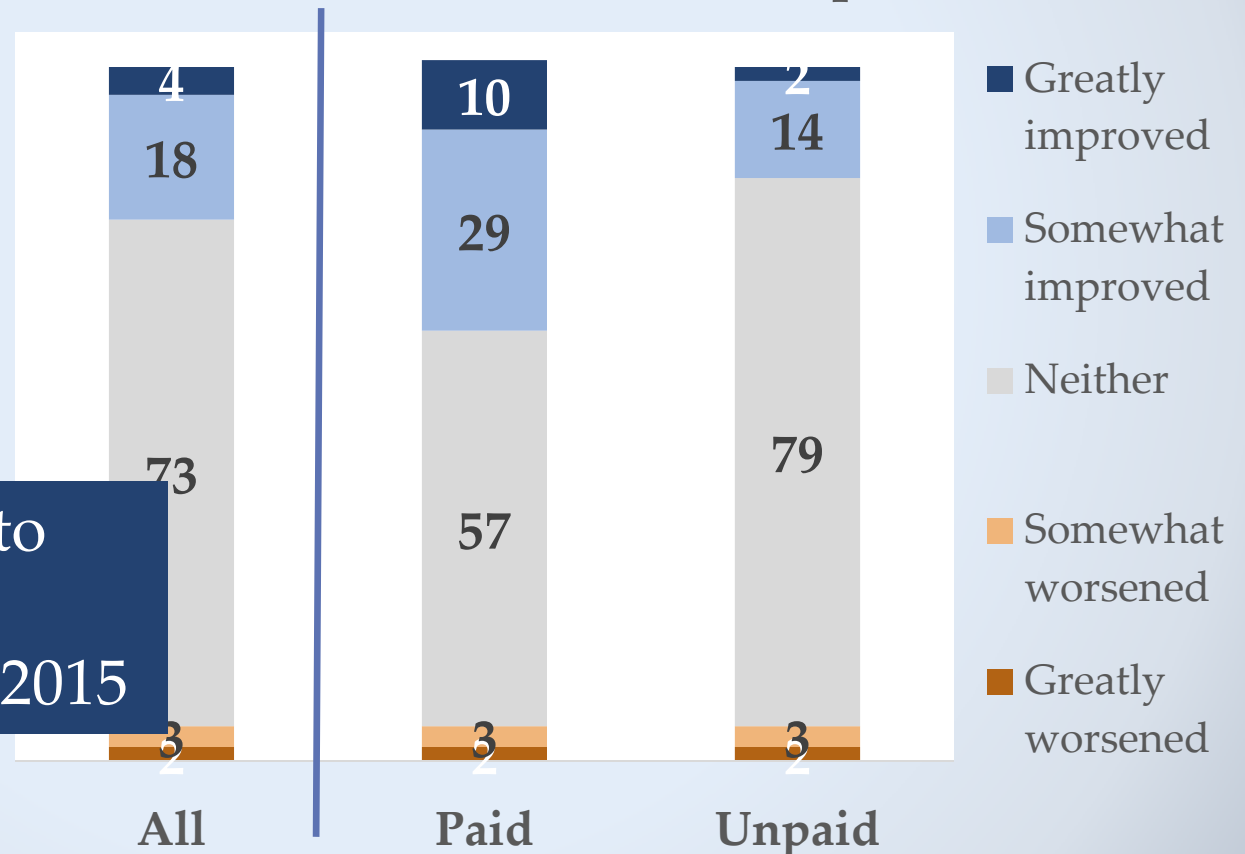


# Community-level Impacts

Turbines' effect on township services

- Job creation
- Roads
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- County services

**\$2.630 Million to townships in Huron County in 2015**

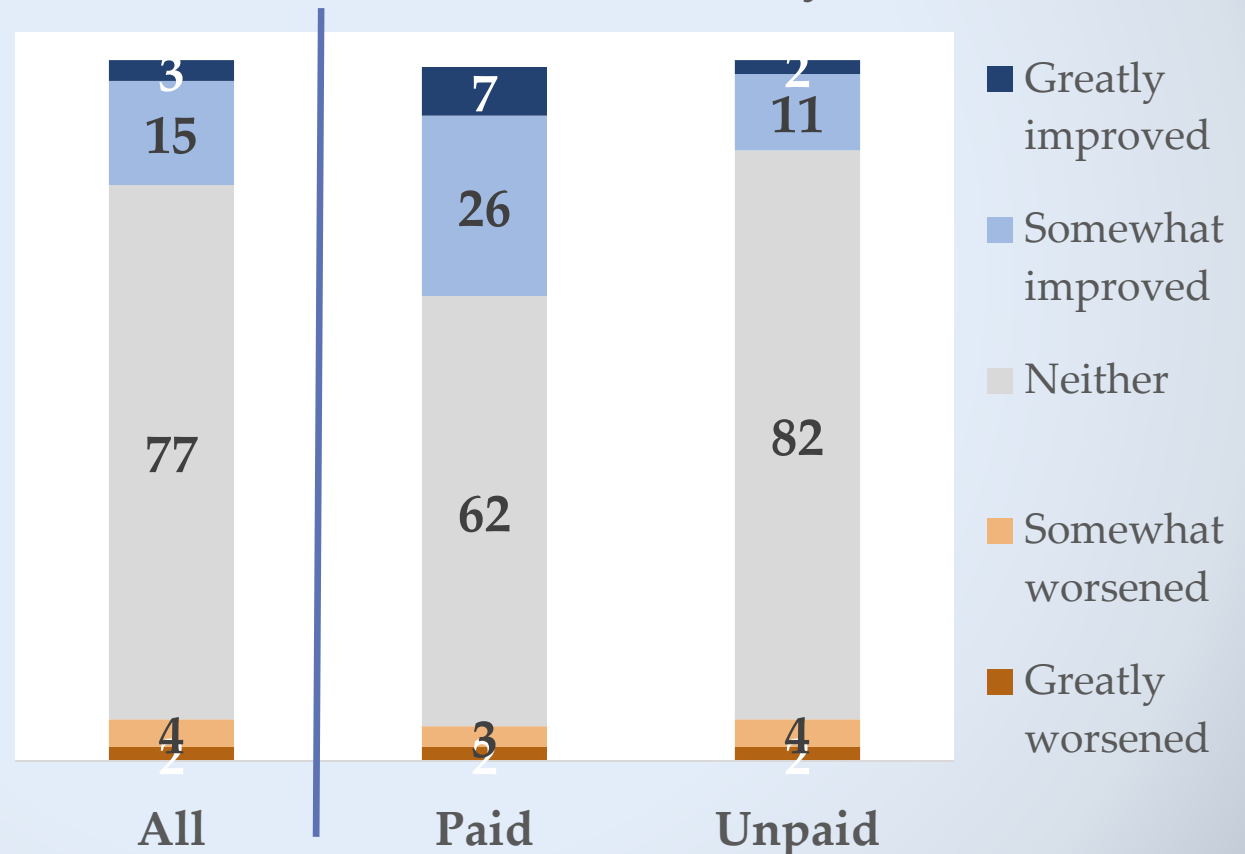




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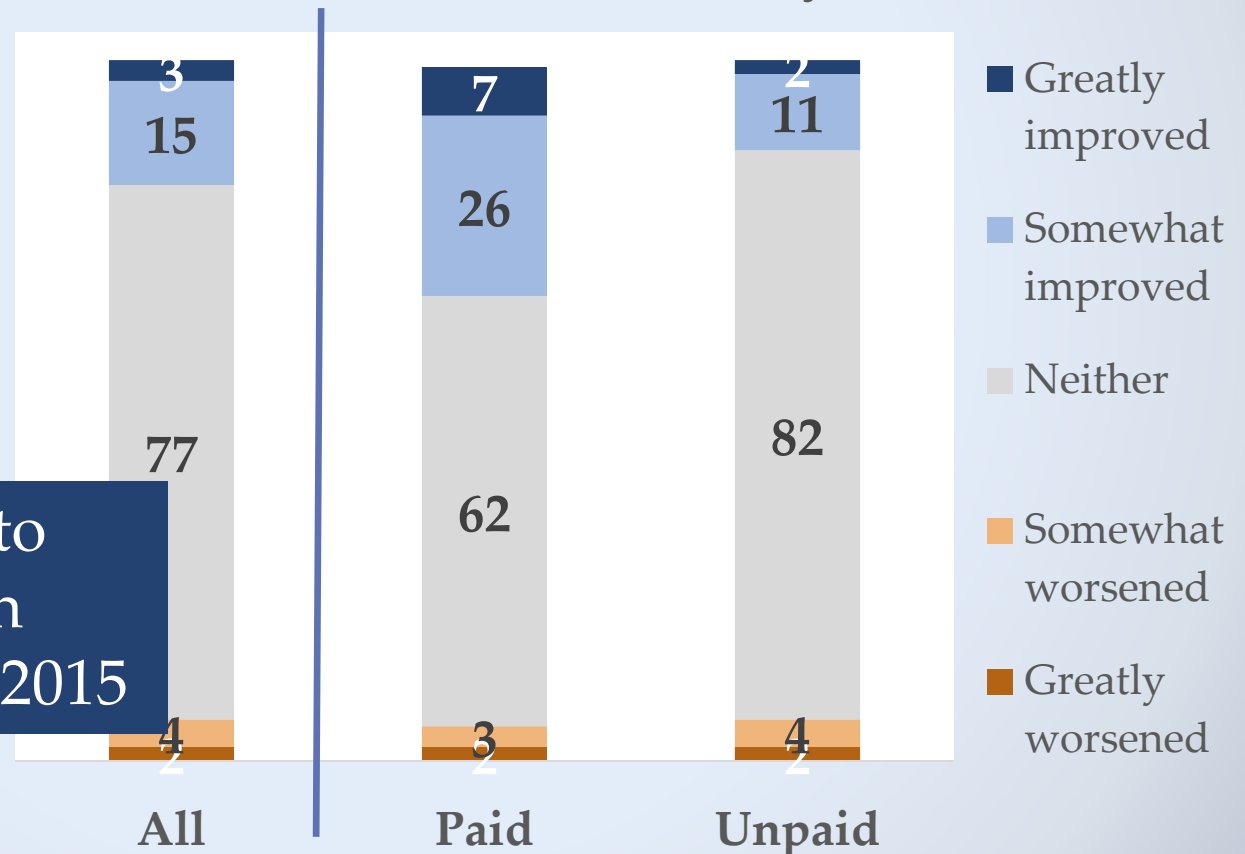


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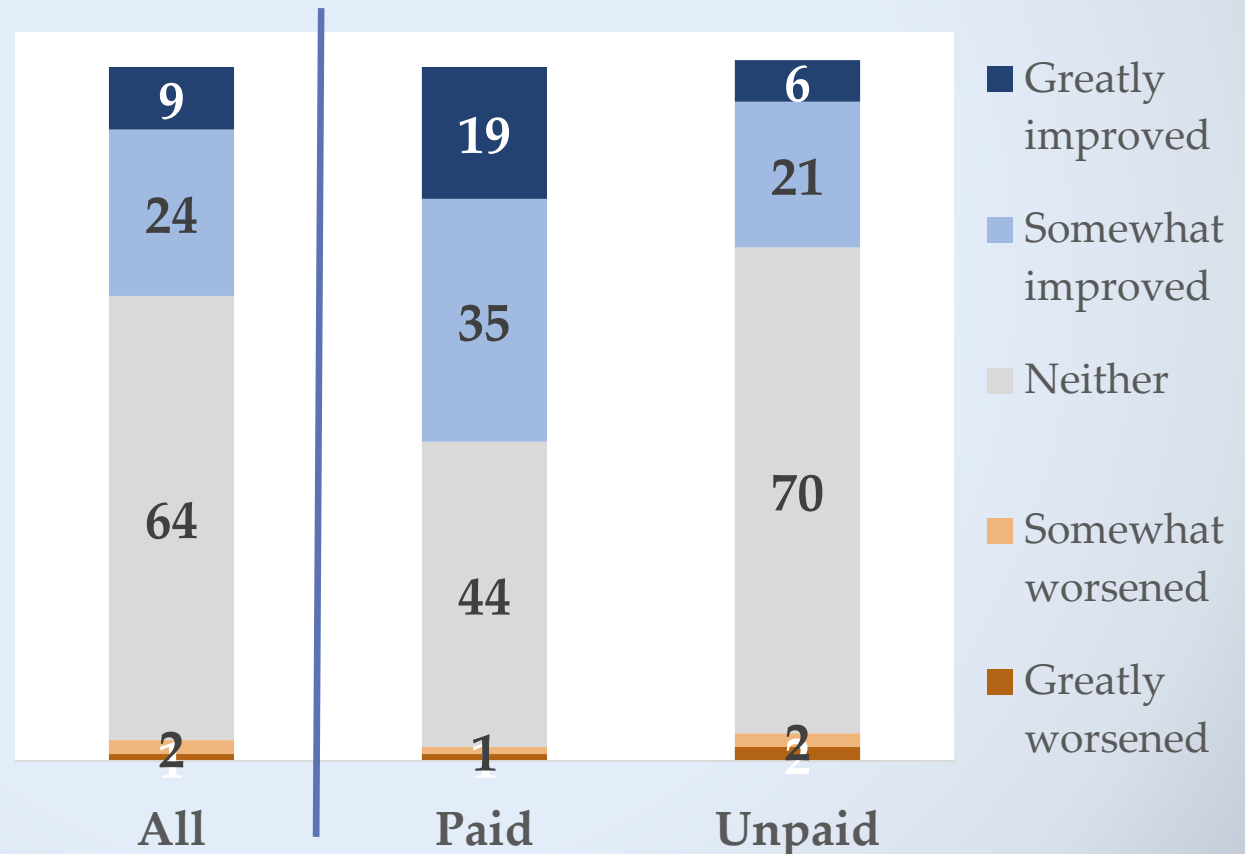
**\$2.749 Million to county gov't in Huron County in 2015**



# Community-level Impacts

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- **Schools**
- Relationships with neighbors

Turbines' effect on local schools

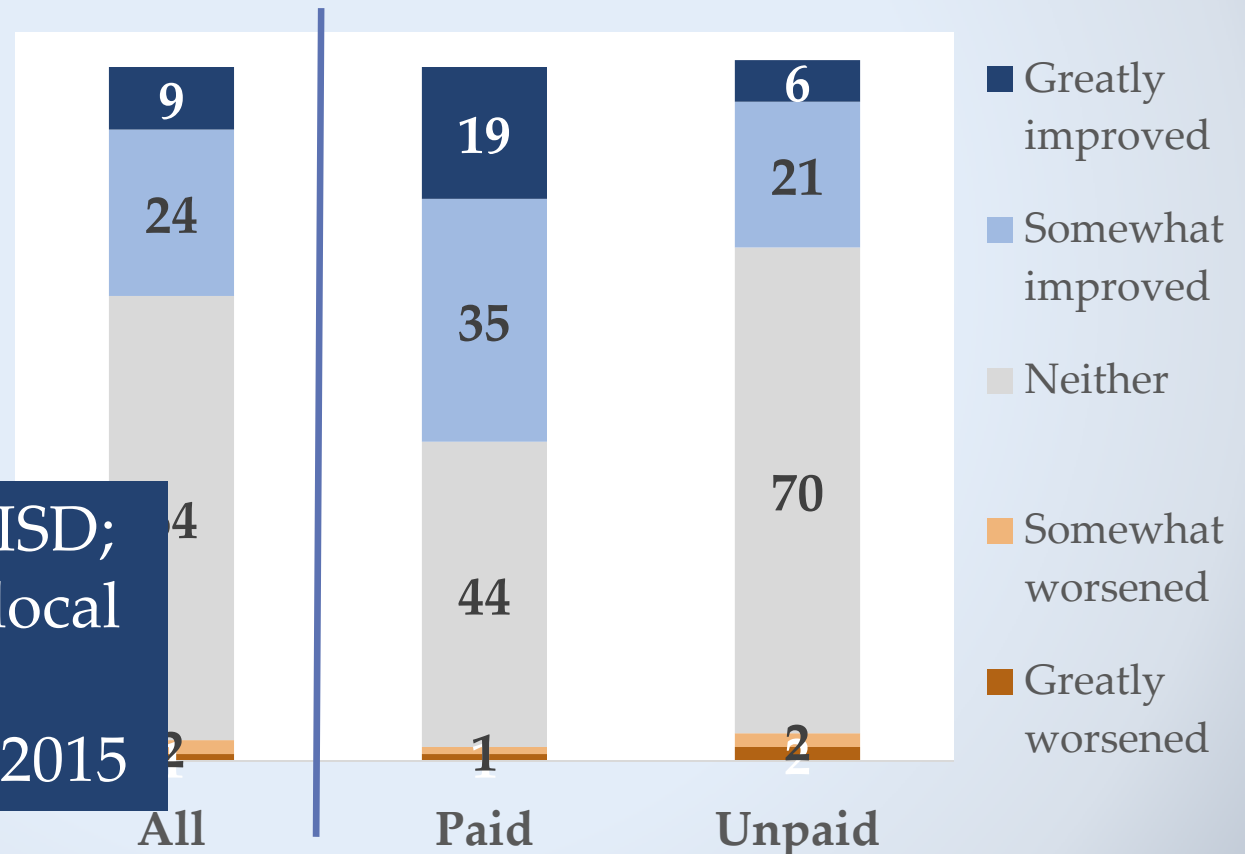


# Community-level Impacts

- Job creation
- Roads
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**\$2.083 Million to ISD;  
\$2.074 Million to local schools in  
Huron County in 2015**

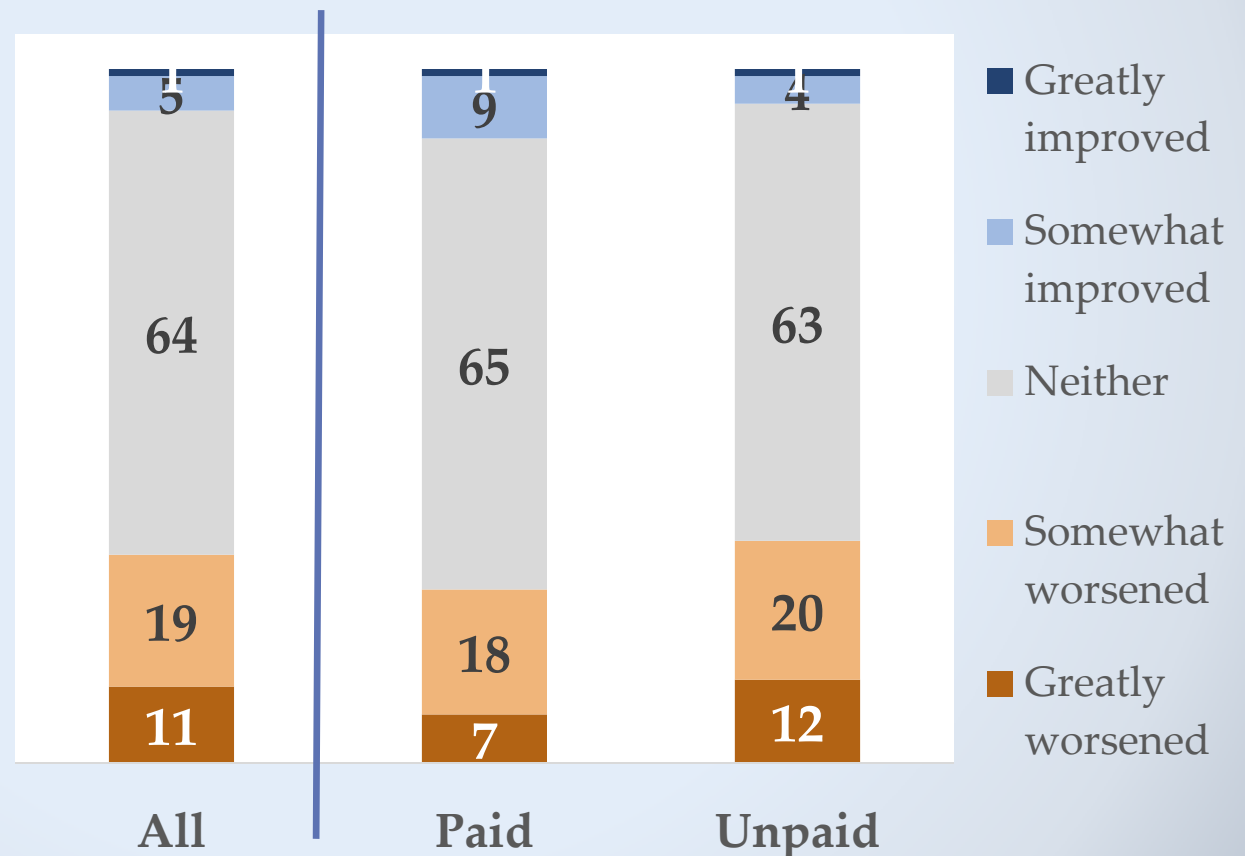
Turbines' effect on local schools



# Community-level Impacts

- Job creation
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- Relationships with neighbors

Turbines' effect on relationships with neighbors



# 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

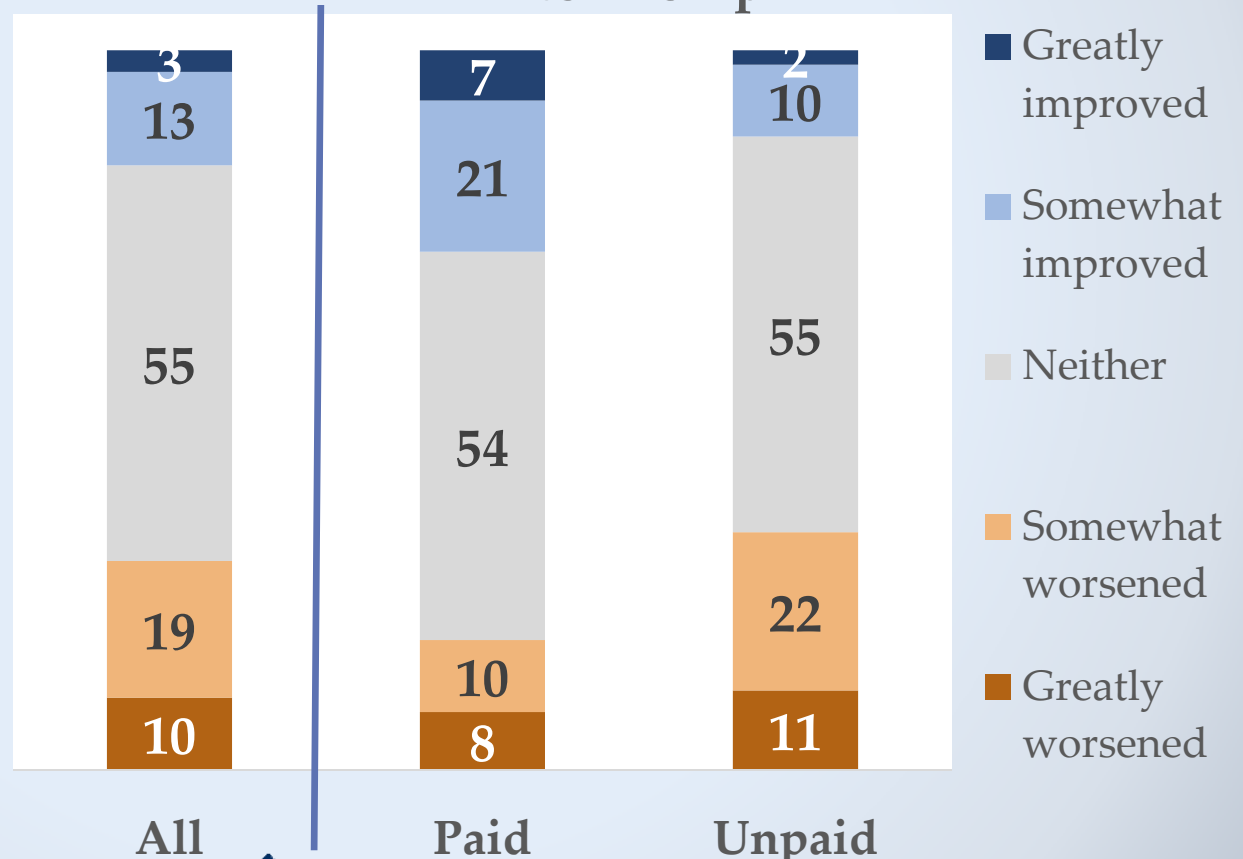
# Would they welcome more wind development?

- Quality of life
- Willingness to accept new turbines

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Turbines' effect on overall quality of life in township

- Quality of life
- Willingness to accept new turbines

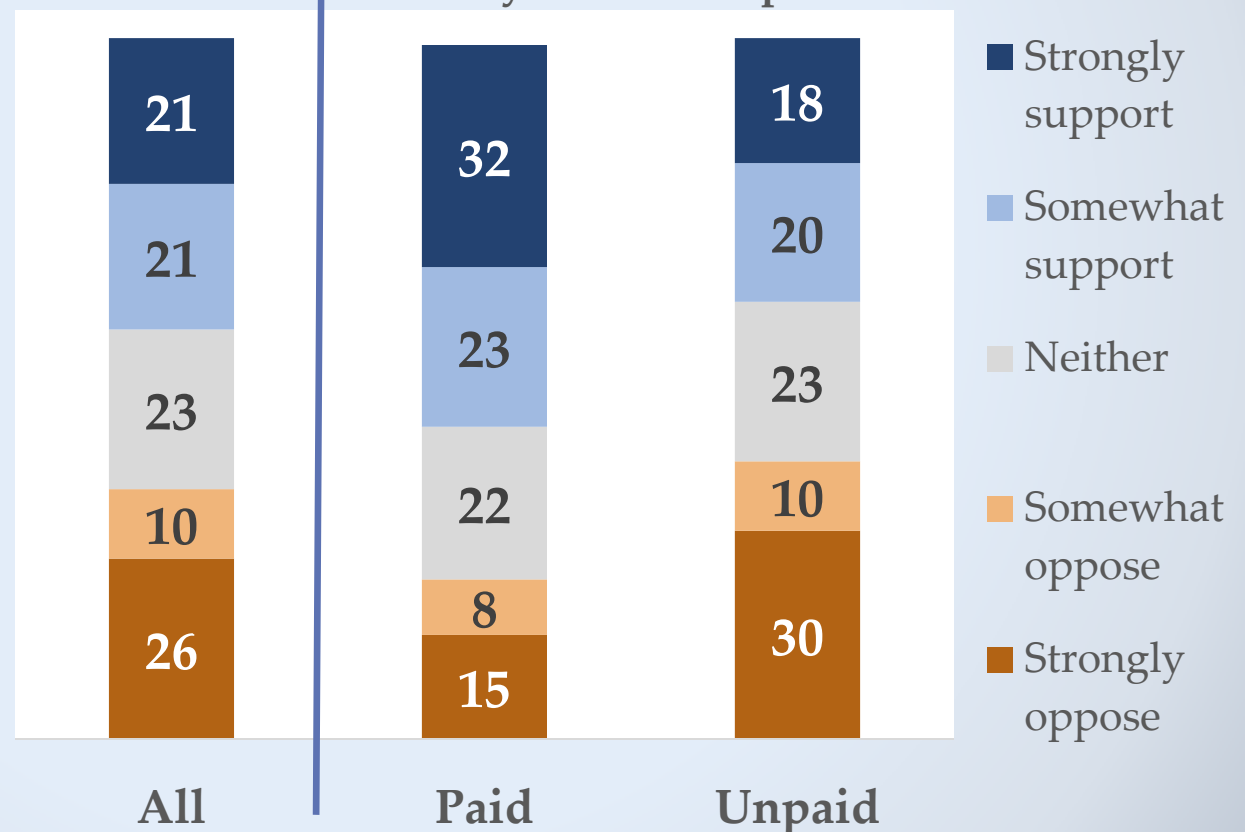




# Would they welcome more wind development?

Willingness to host additional turbines in your township

- Quality of life
- Willingness to accept new turbines



# What should you consider?

...

How to reap the benefits without the heartburn

# How does this fit with your long-term plan?

Economic development opportunity,  
but not a good fit for all communities

# How does this fit with your long-term plan?

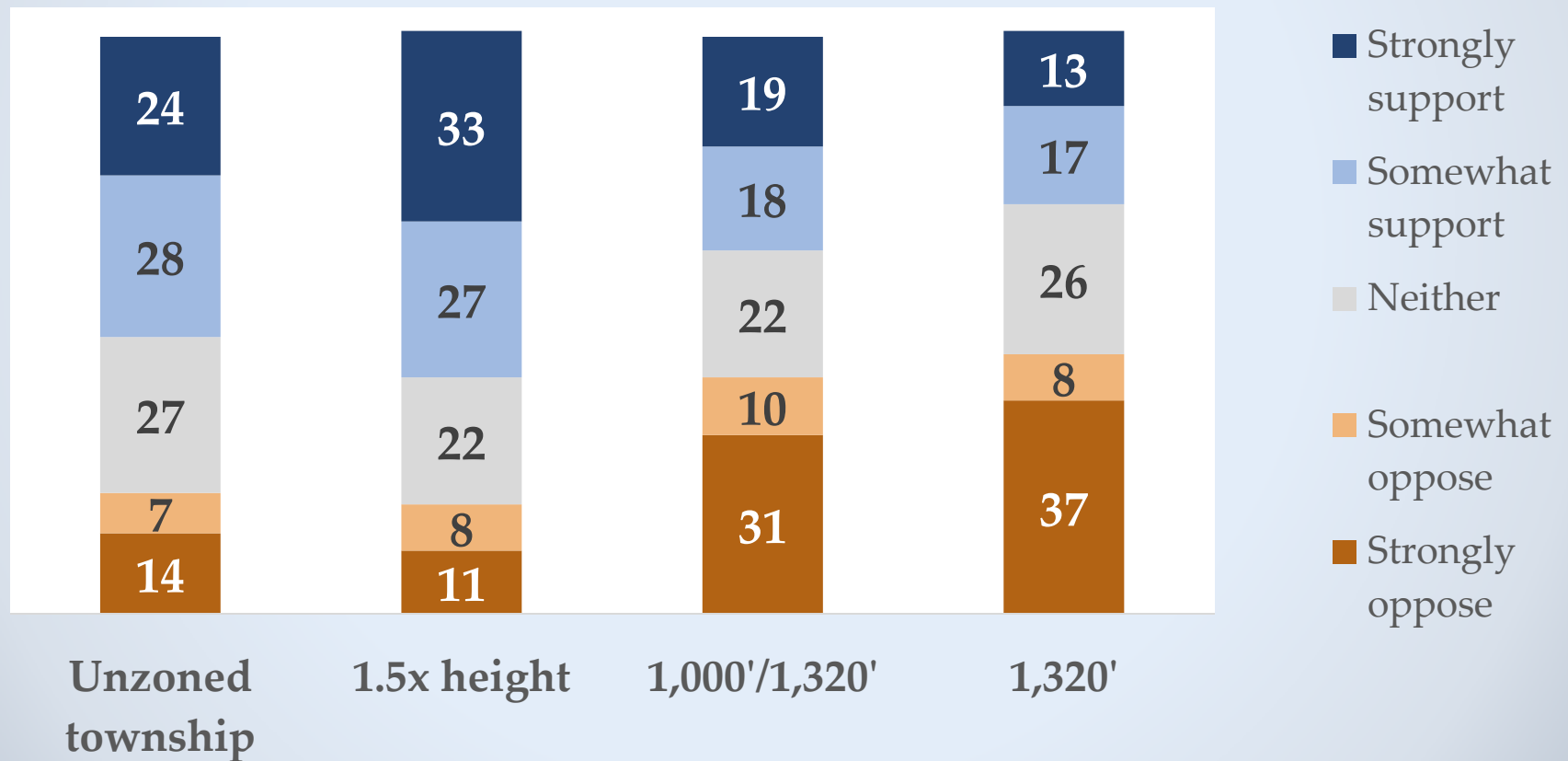
- If goal is for substantial residential development or growth of tourism, wind may not be right
  - These landowners less likely to directly benefit
  - Some may be deterred from building
- If goal is to sustain agriculture, wind can fit
  - Farm income diversification & succession planning
    - May stabilize population, add to tax base
  - Siting on property lines takes little land out of production
    - Compatible with PA 116

# Your zoning should match your goal

- Possible to create a legitimate zoning ordinance that minimizes or maximizes opportunities for turbines
  - Setbacks, noise, other requirements
- Your zoning ordinance can send a message
  - Open for business
  - Not interested

# The ideal zoning ordinance?

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



# 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://windexc...ntives>
- 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](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

# 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 database
  - Look for similar types of communities
  - Includes places both with/without wind
  - <https://windexchange.energy.gov/policies-incentives>
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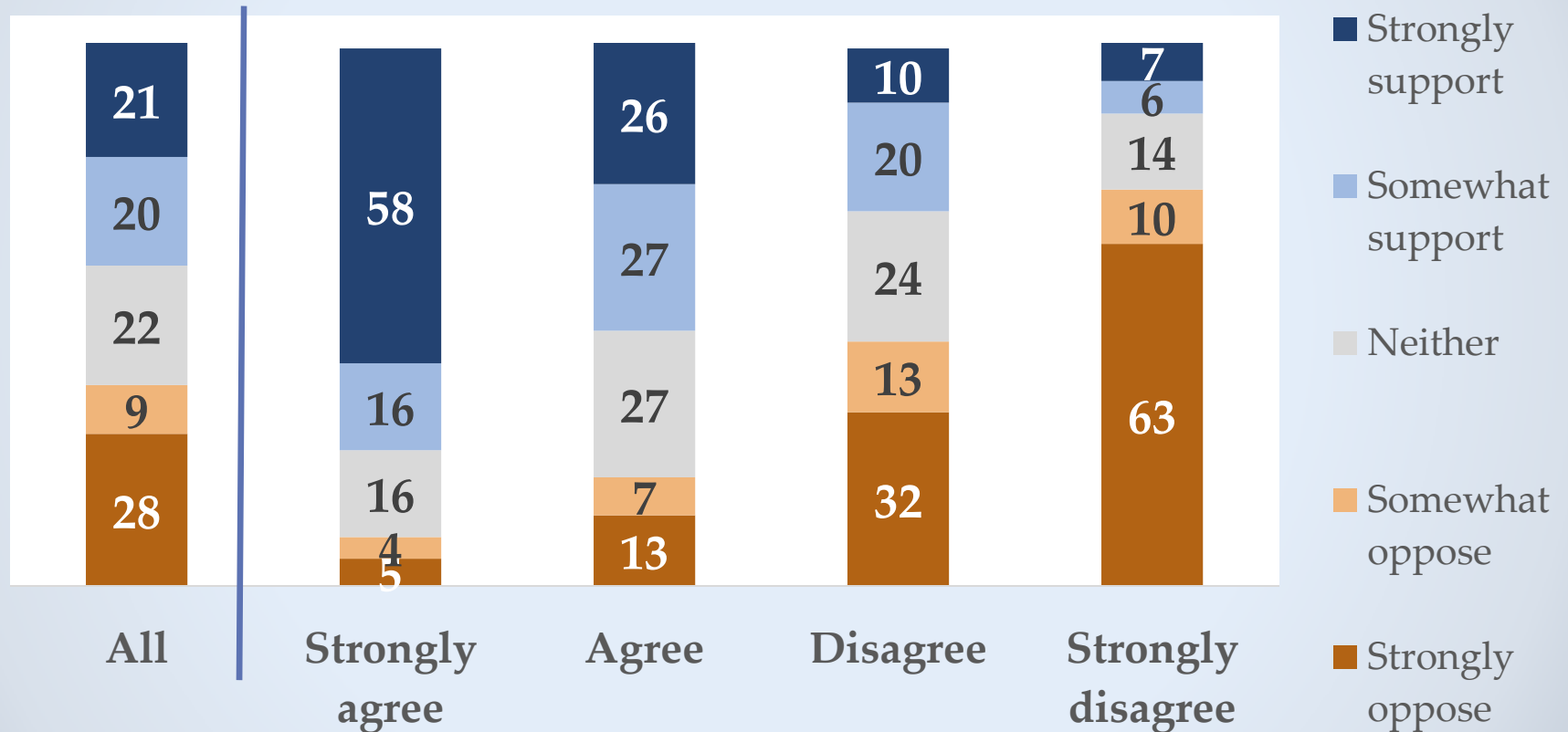


# What my research suggests on zoning

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

# The importance of process

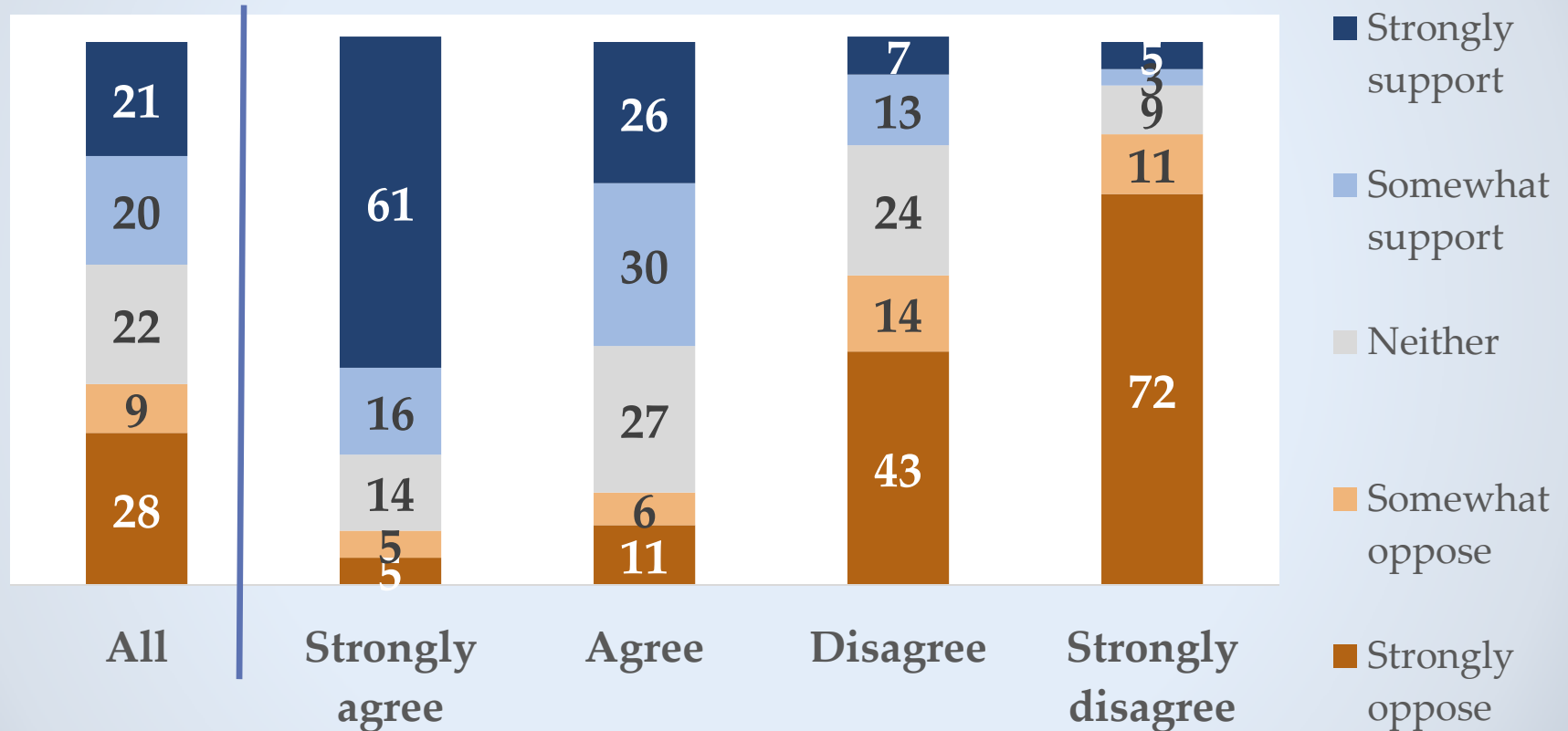
Support/oppose additional turbines in township,  
by agree/disagree opportunity to participate in planning



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

# 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

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