

Rural Michigan Views of Renewable Energy

Keweenaw Climate Community
November 14, 2017

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A little about me

- PhD in land use planning; specifically farmland preservation
 - Wind energy as farmland preservation?
- C.S. Mott Foundation grant
 - Understanding why some wind projects so contentious
 - Sharing lessons-learned to ensure future wind development respects local community values
- Manage National Survey on Energy & Environment
 - Ongoing since 2008

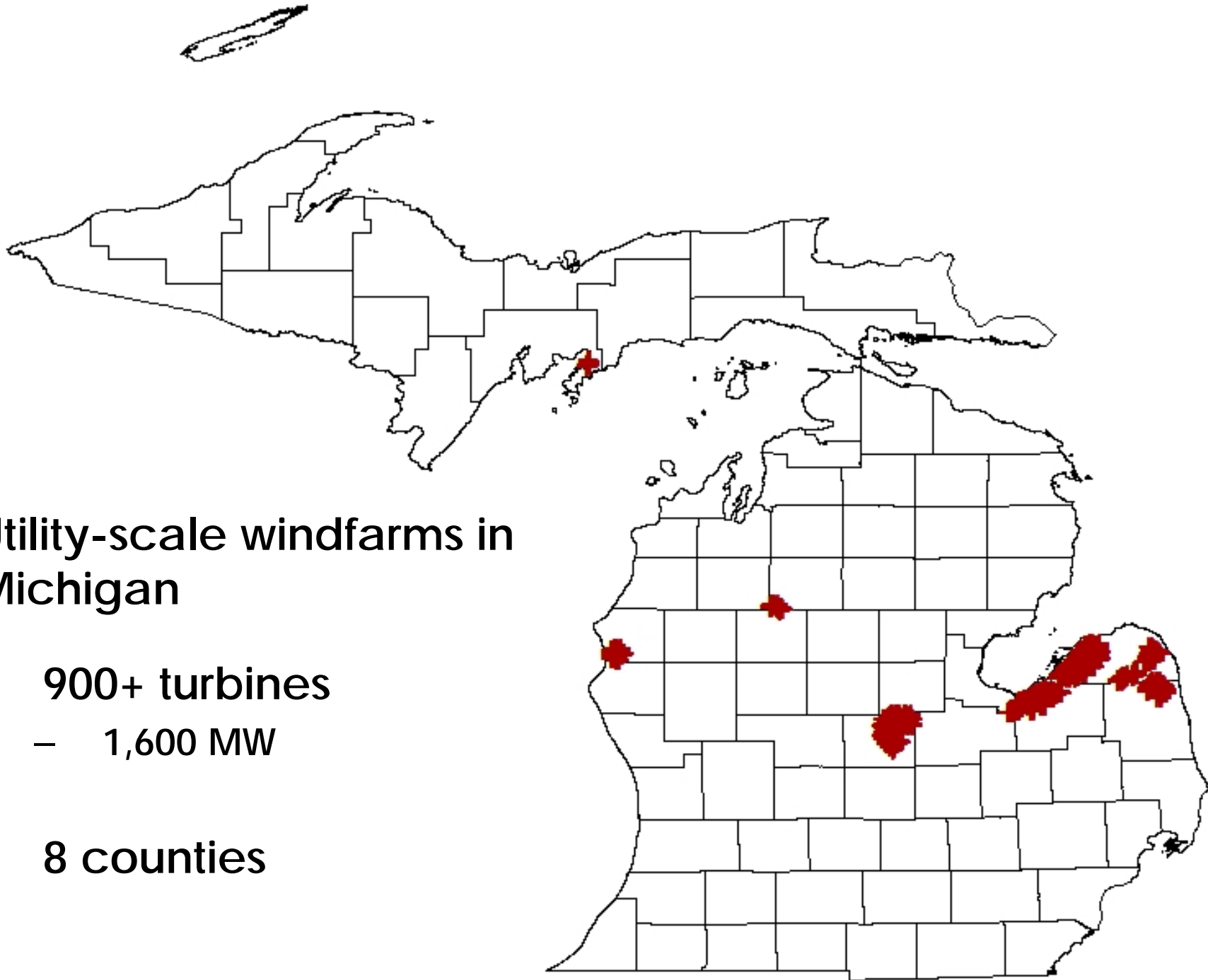
Plan for the evening

- Utility-scale Wind
 - Surveys of landowners
 - Lessons learned
- Off-shore Wind
 - Extrapolating lessons on-shore to off-shore
- Utility-scale Solar
 - From various perspectives

Utility-scale Wind

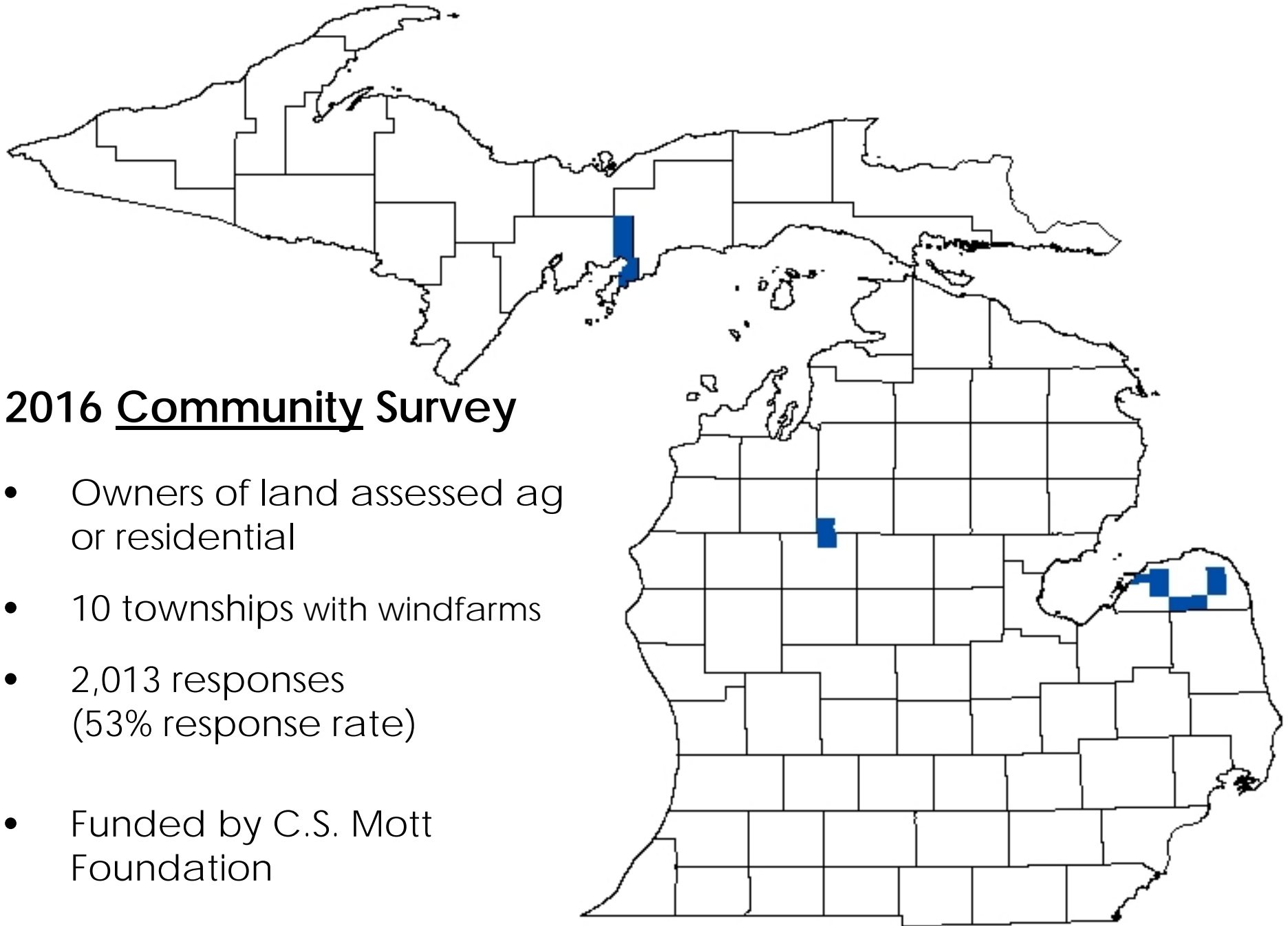
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The survey, the results, the lessons



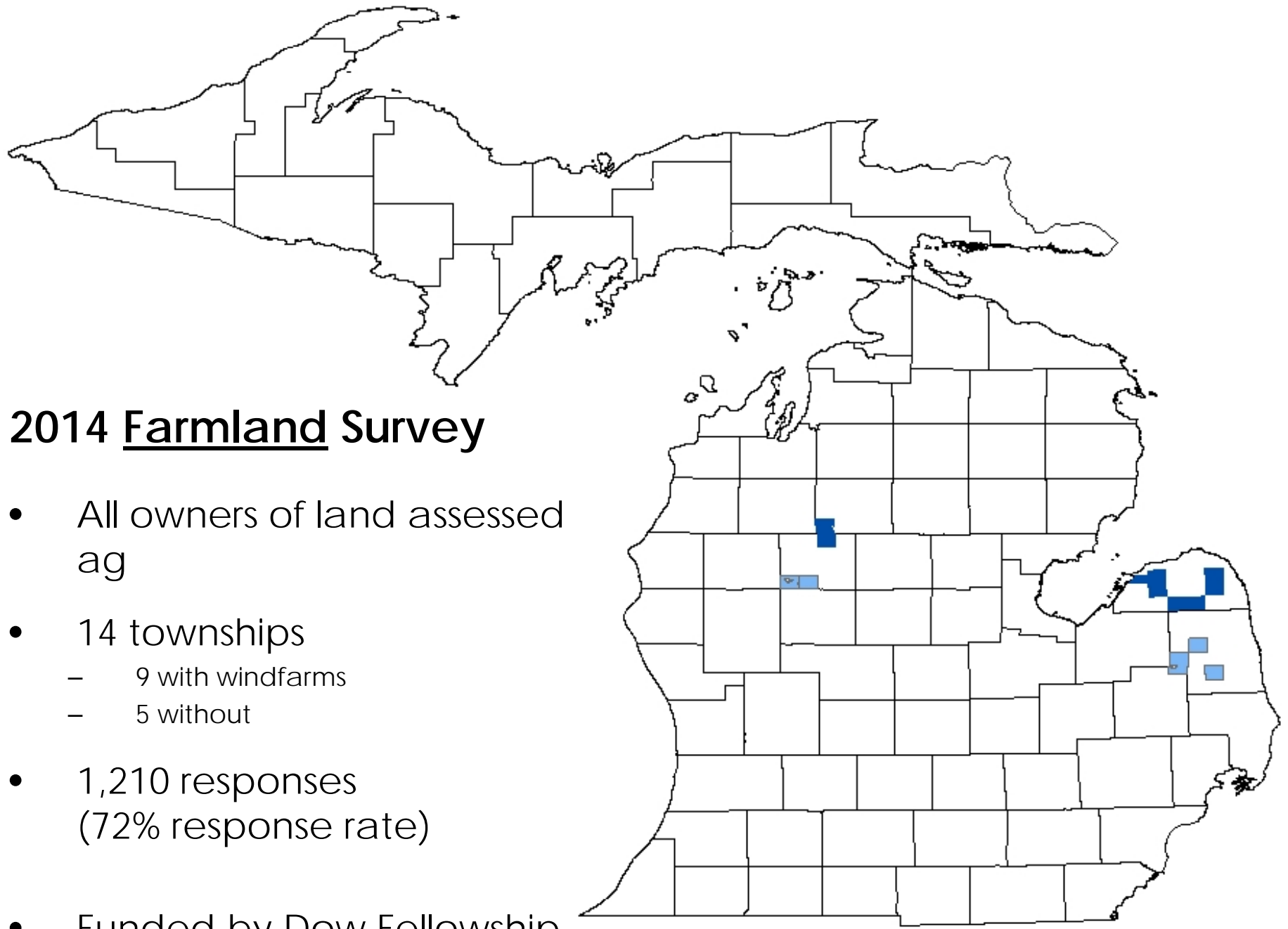
Utility-scale windfarms in Michigan

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



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

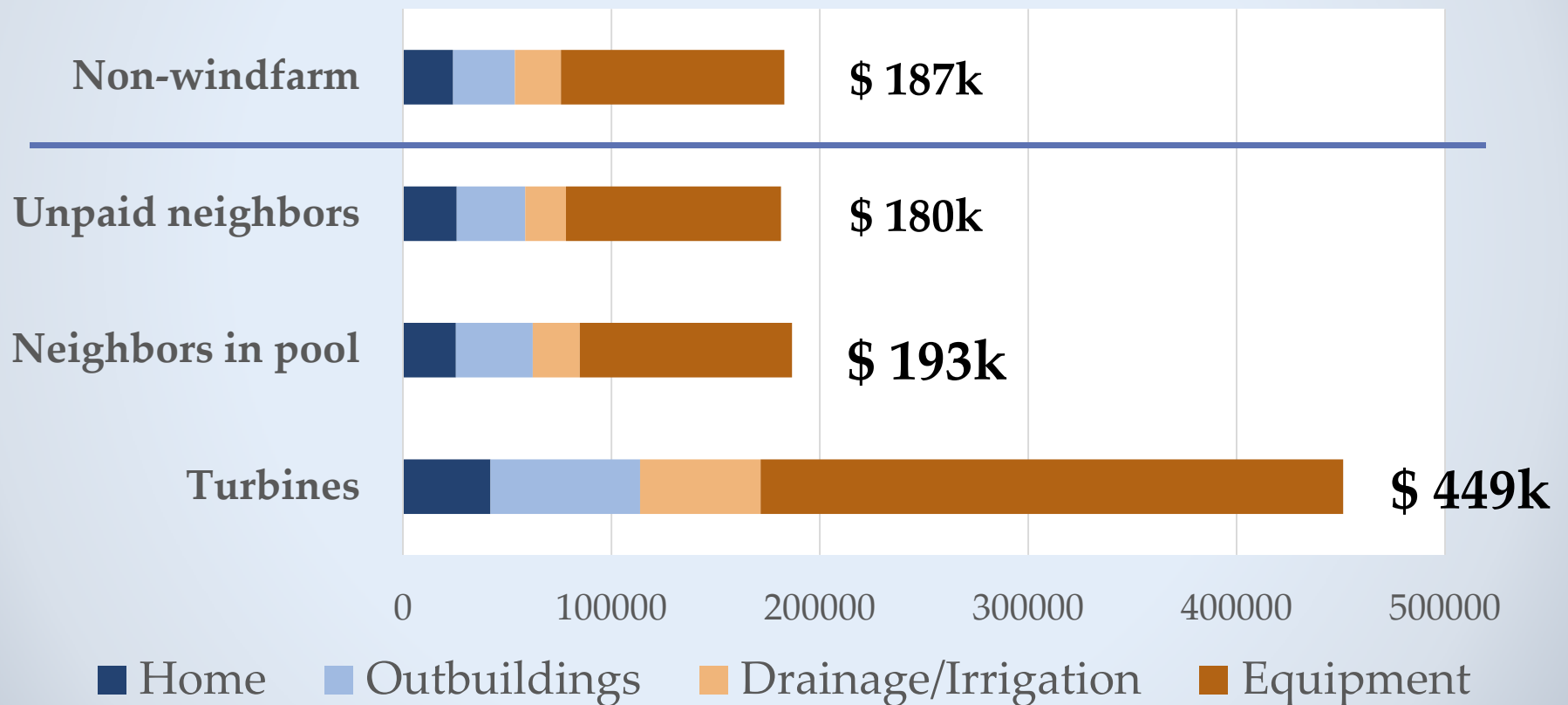
- Type of land owned
 - secondary vs. primary residence
 - farmland / rental property *only*
- Direct compensation
 - Some better than none
 - \$1,000 per year as key threshold
- Attitudes about process, wind developer

Garden Windfarm (Yooper Data)

- More secondary homeowners
 - 32% of respondents in Garden
 - 2-24% elsewhere
- Fewer farmers
 - 10% of respondents in Garden
 - 20-60% elsewhere
- Relatively few directly compensated
 - 15% of respondents in Garden
 - 12-62% elsewhere
 - Size of the township, location of windfarm
- Purposely chosen because of controversy, lakefront

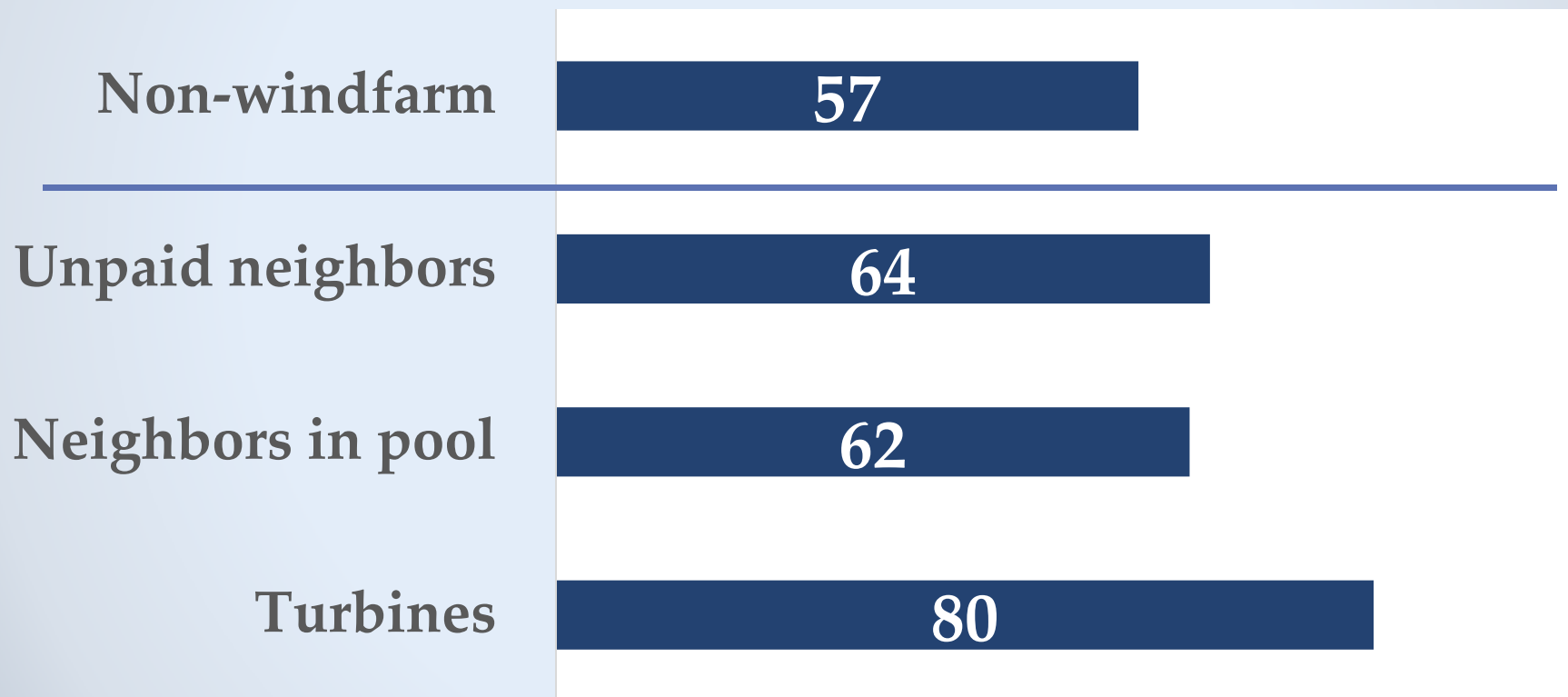
Farm Income

Investments over 5 years: 2009-2013

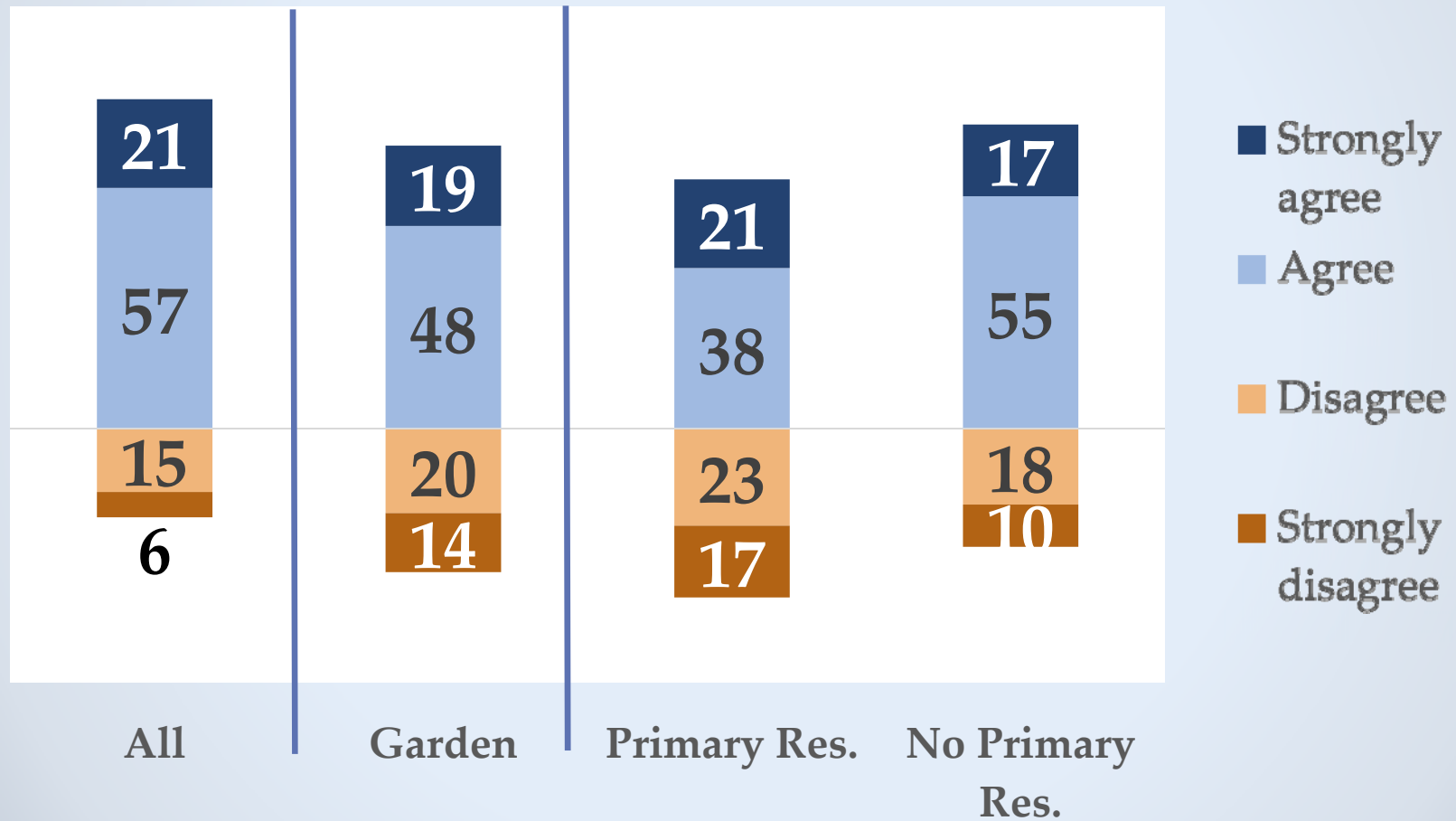


Farm Succession

% that have farm succession plan

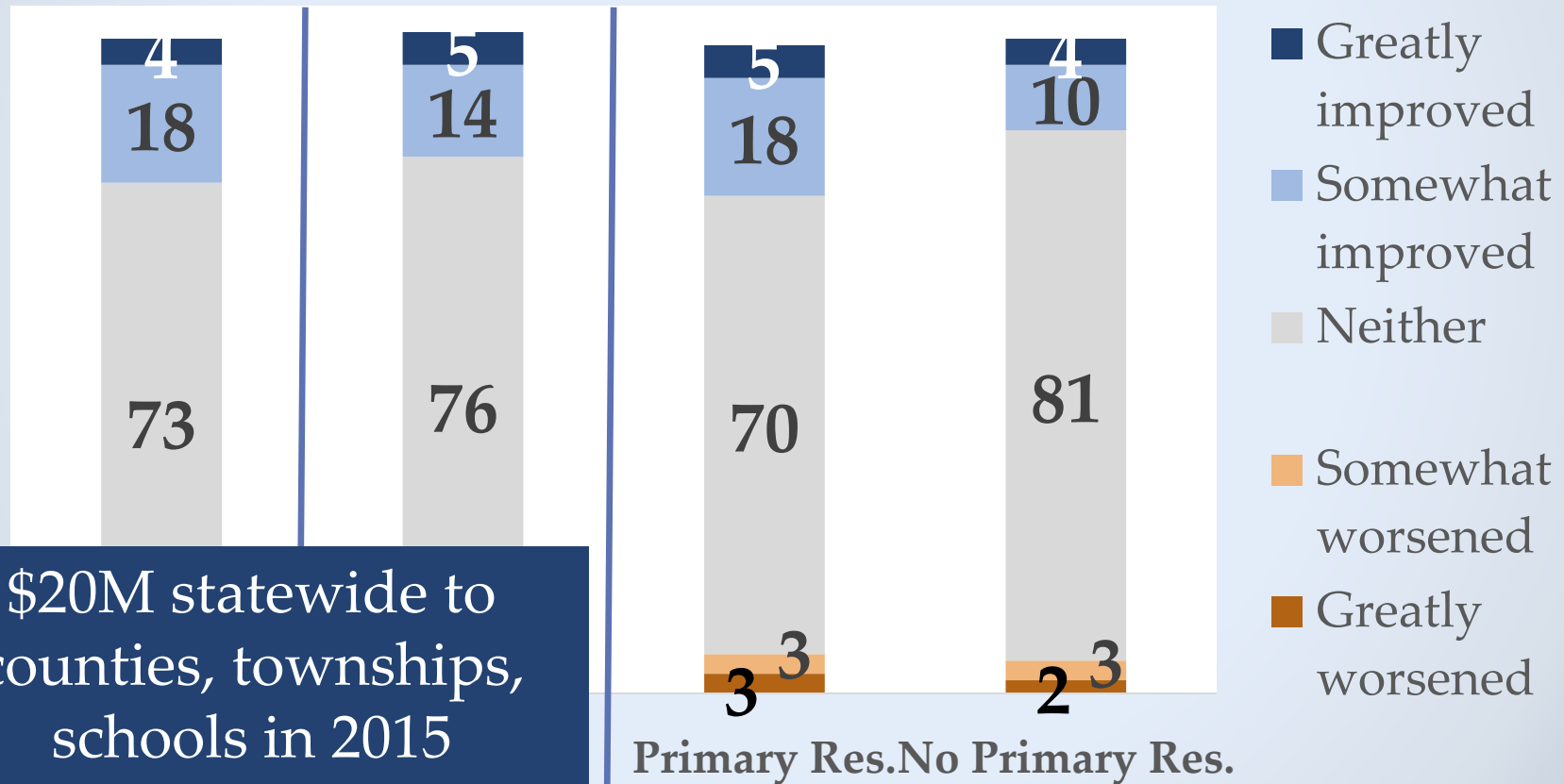


Turbines create jobs



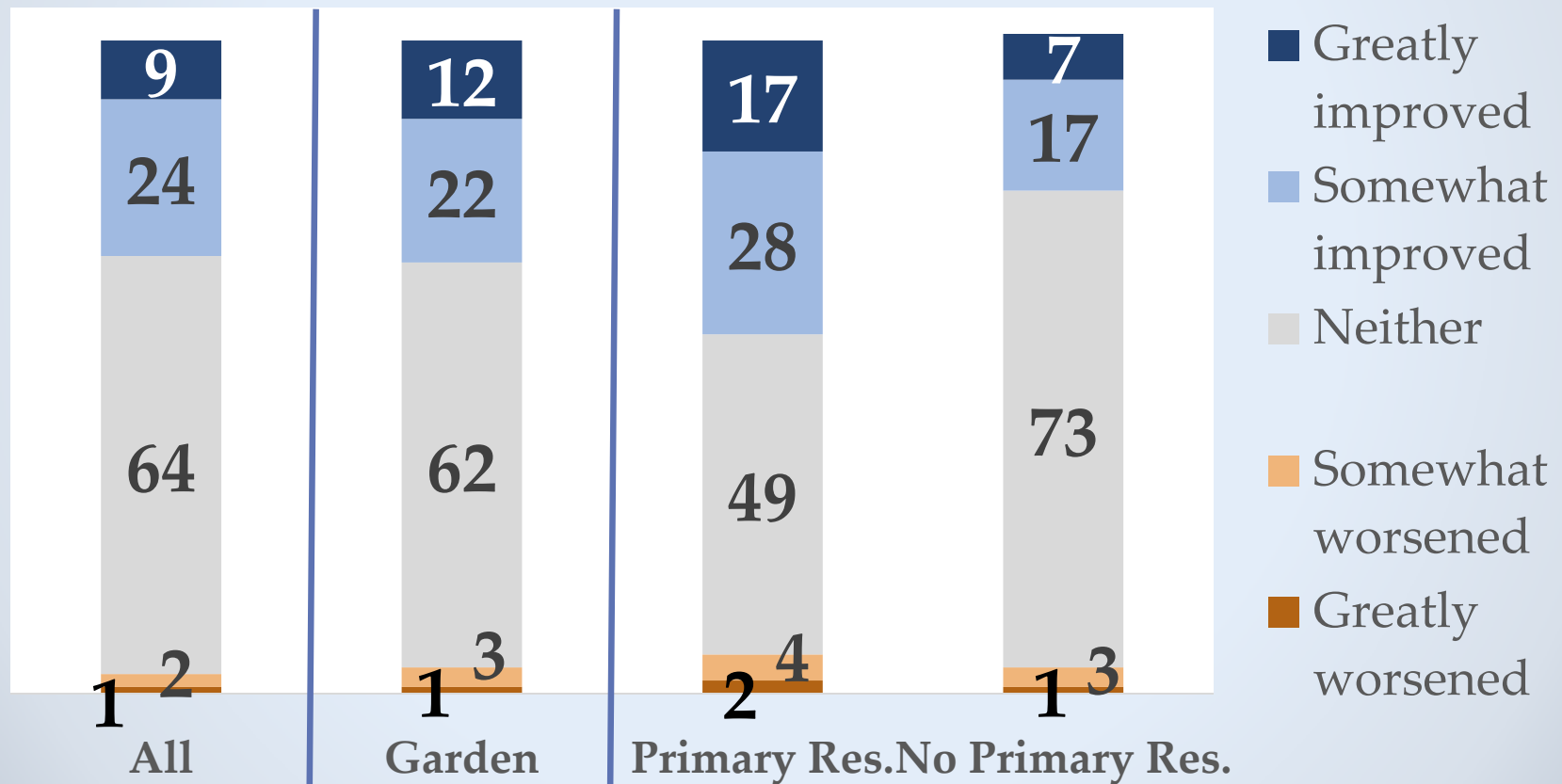
Tax benefits

Turbines' effect on township services

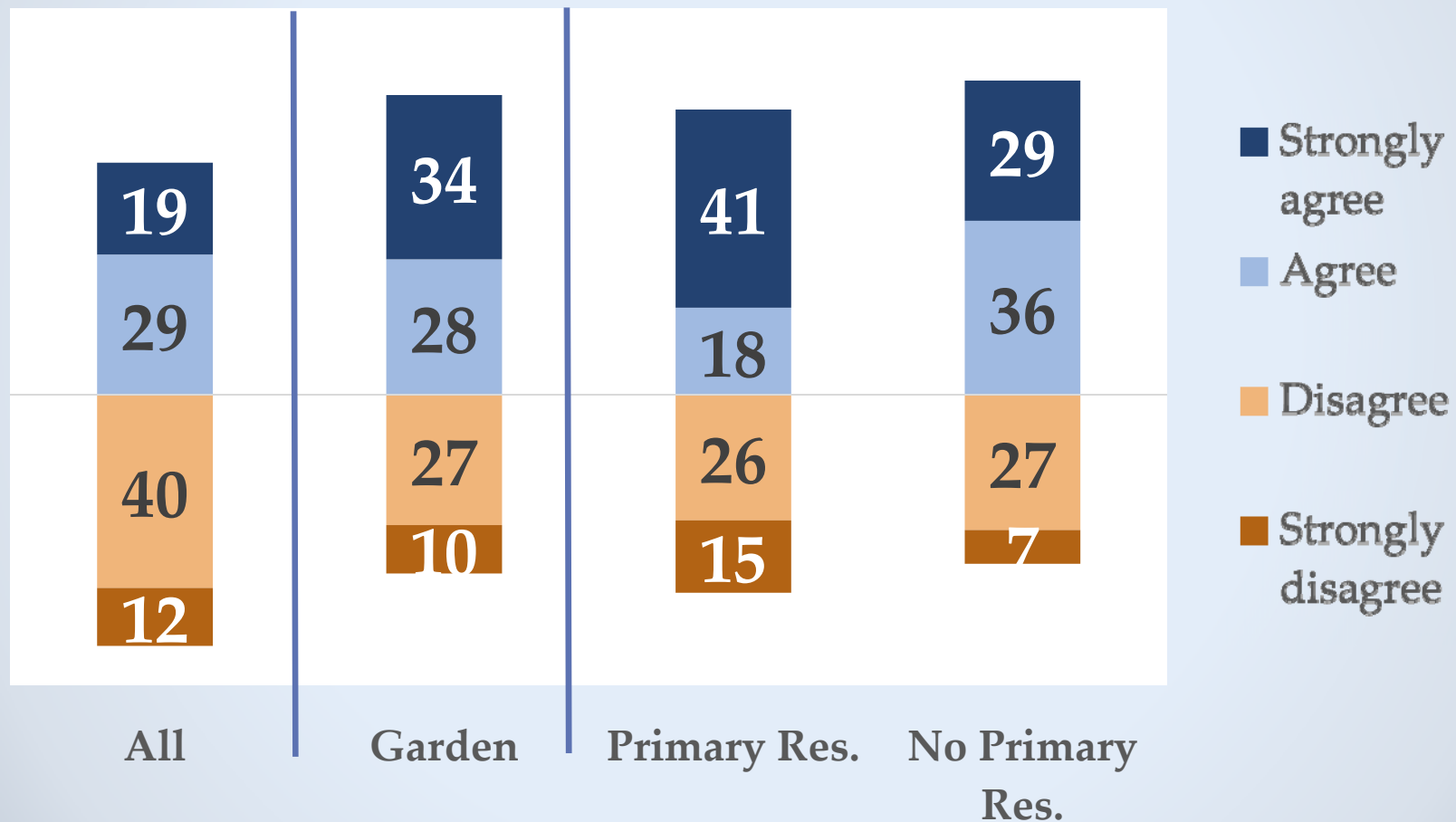


Tax benefits

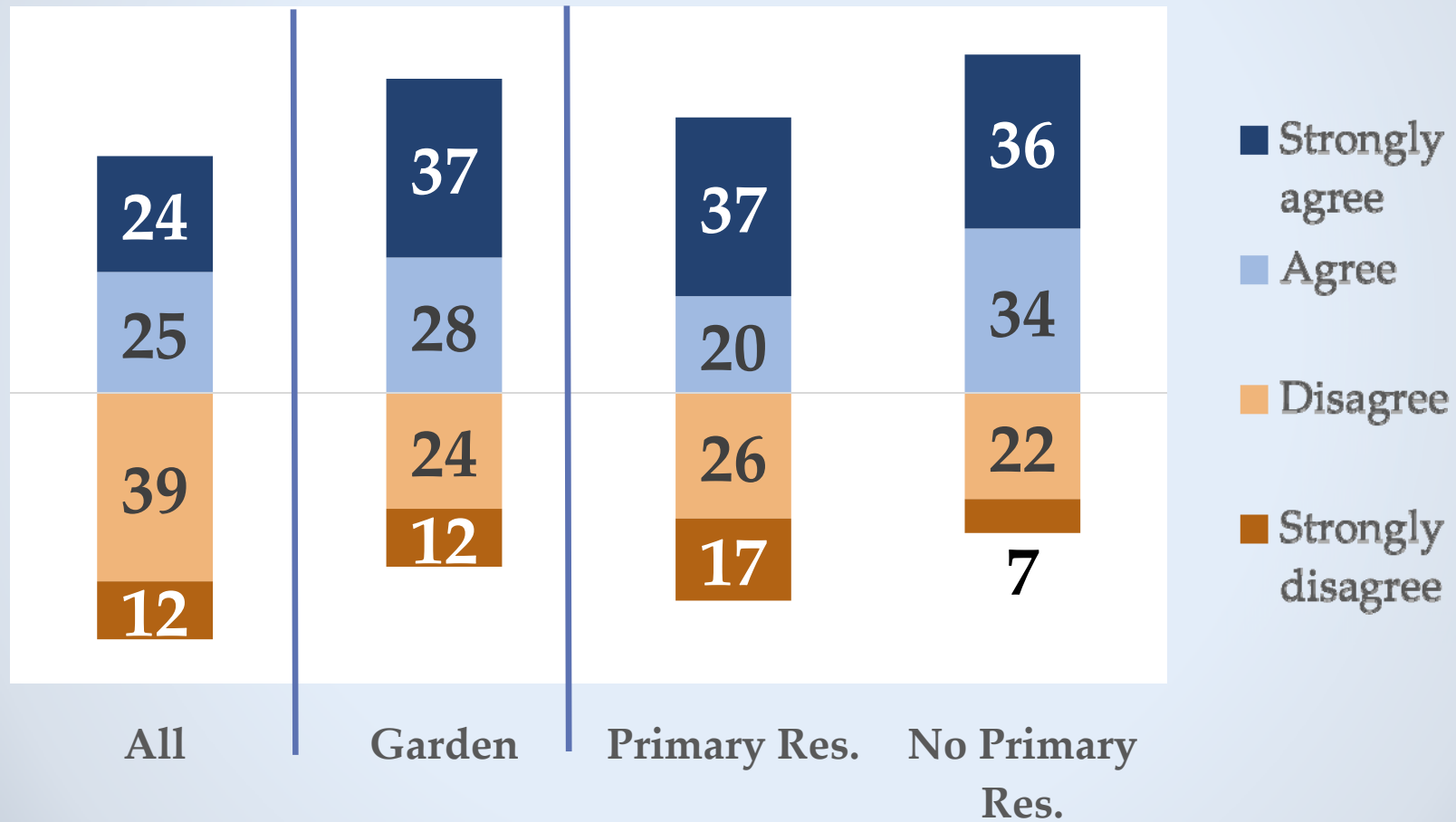
Turbines' effect on local schools



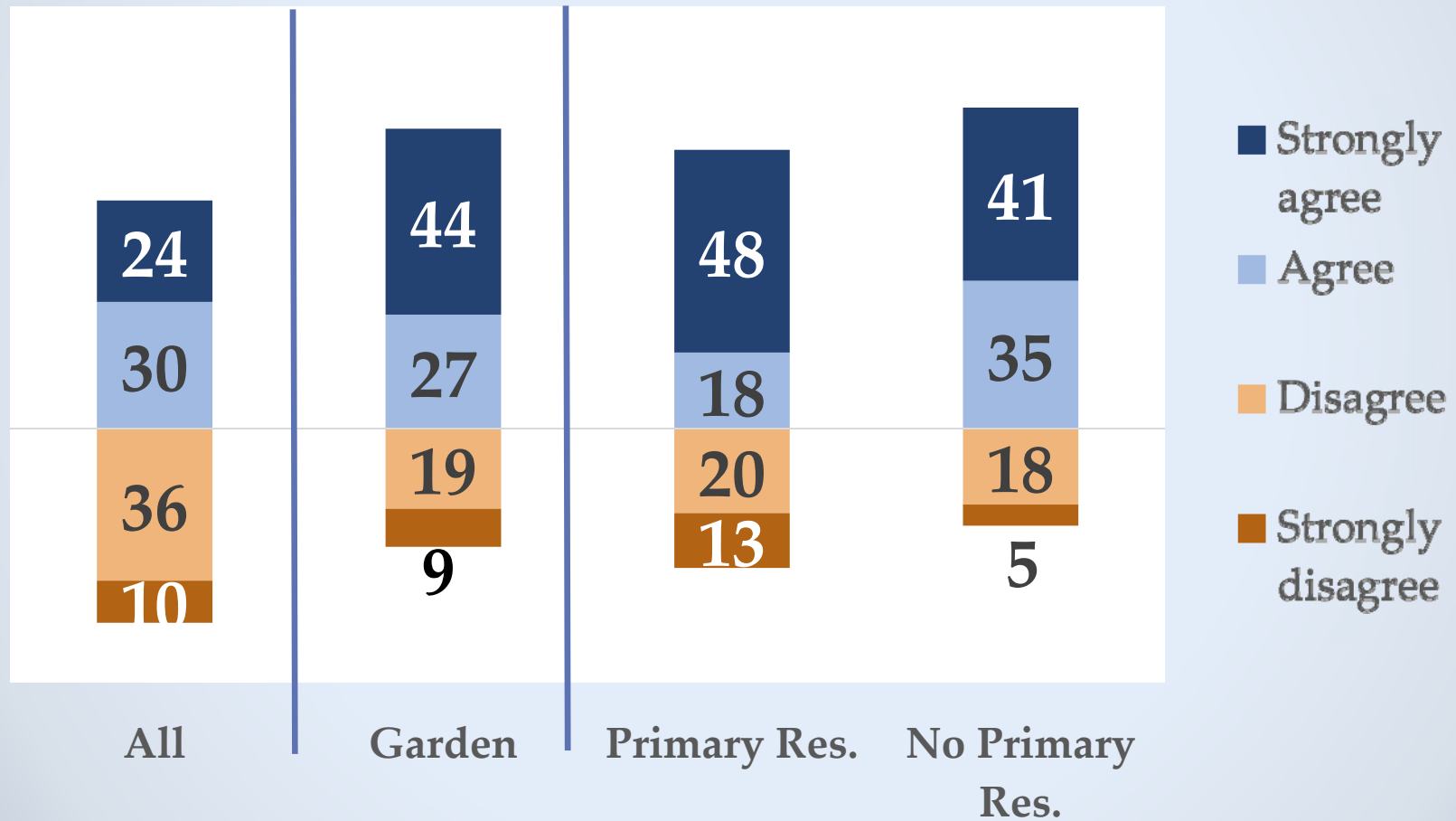
Turbines create noise pollution



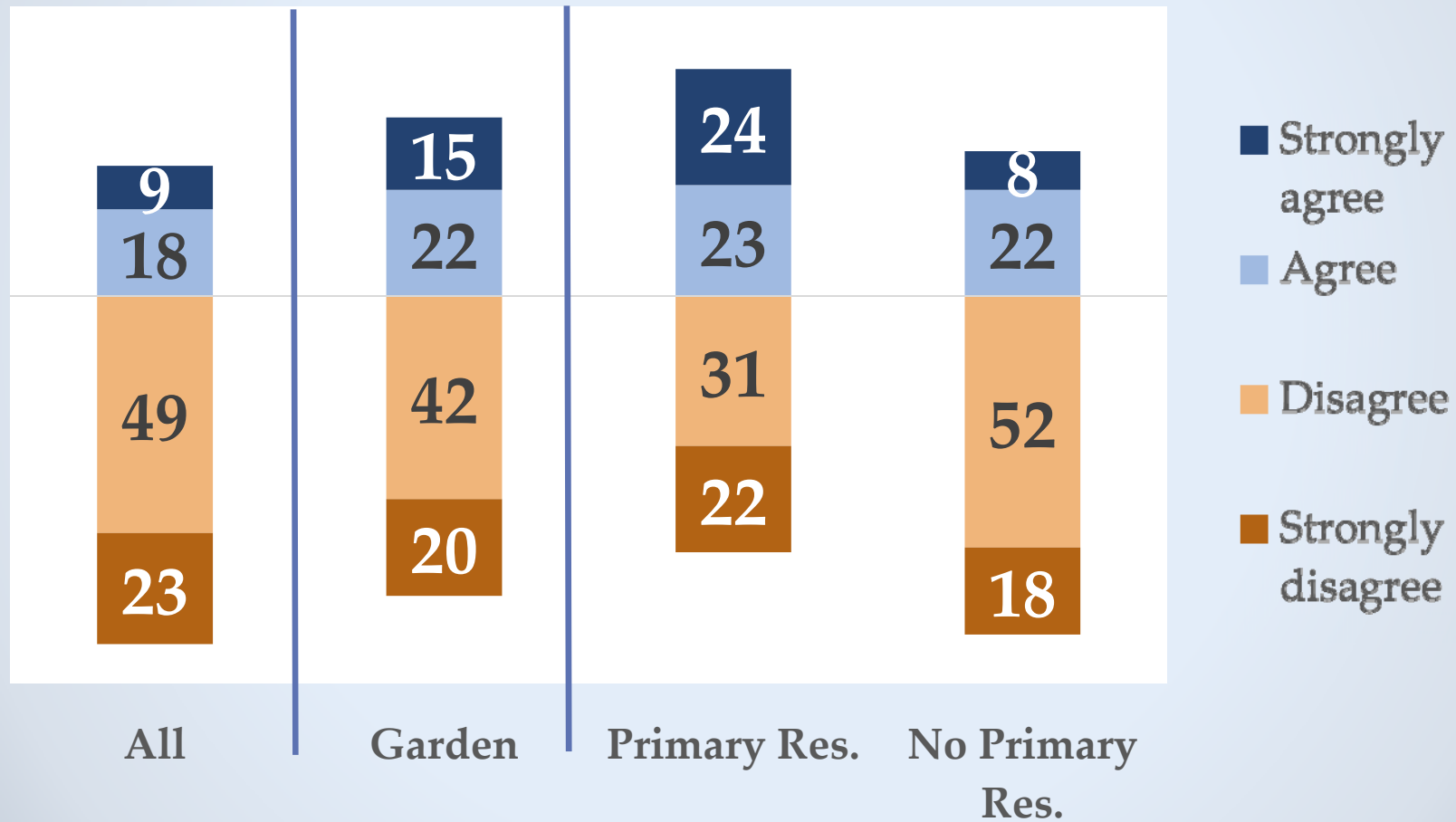
Turbines create visual/aesthetic problems



Turbines decrease nearby property values



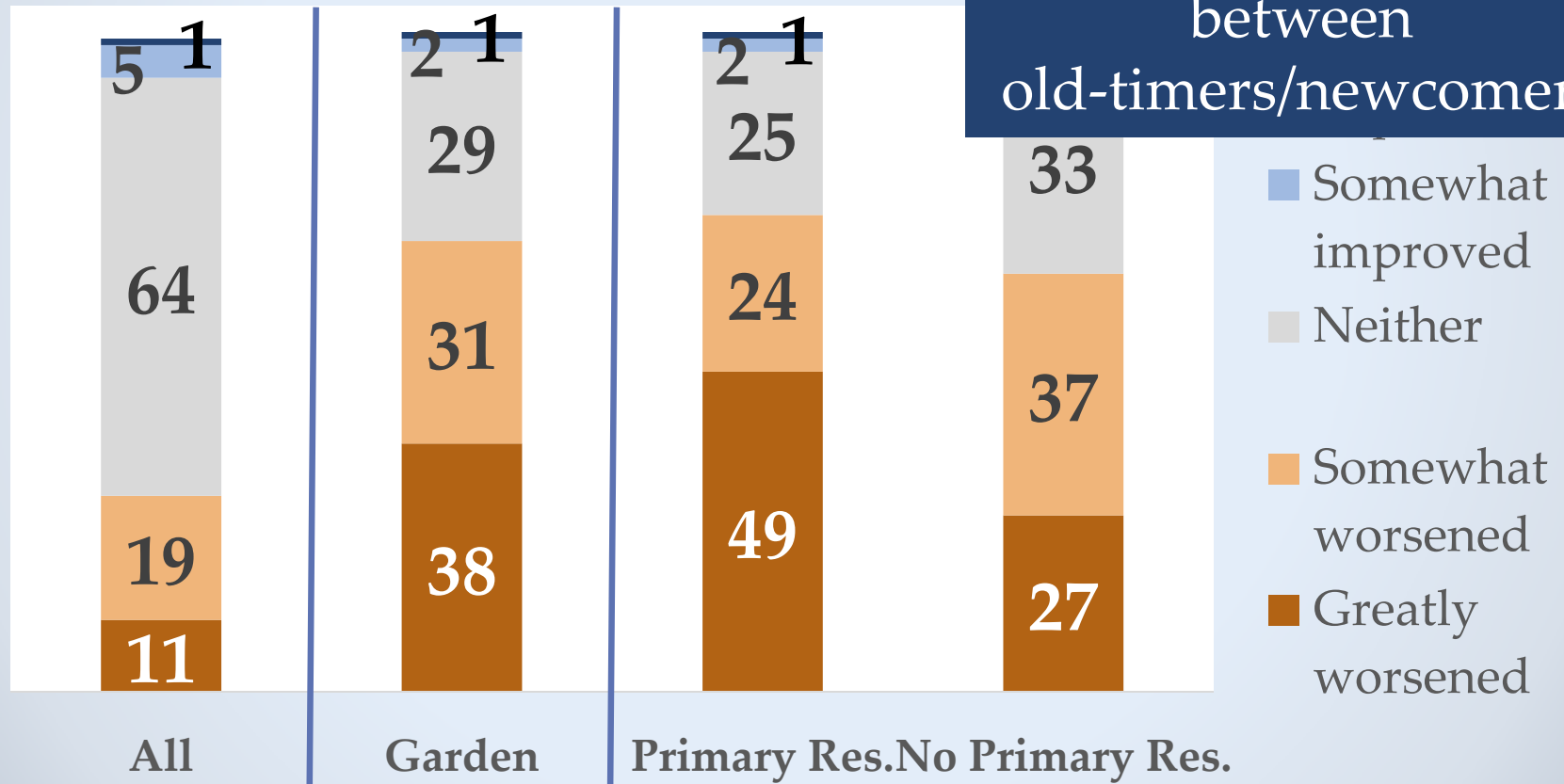
Turbines cause human health problems



Relationships with Neighbors

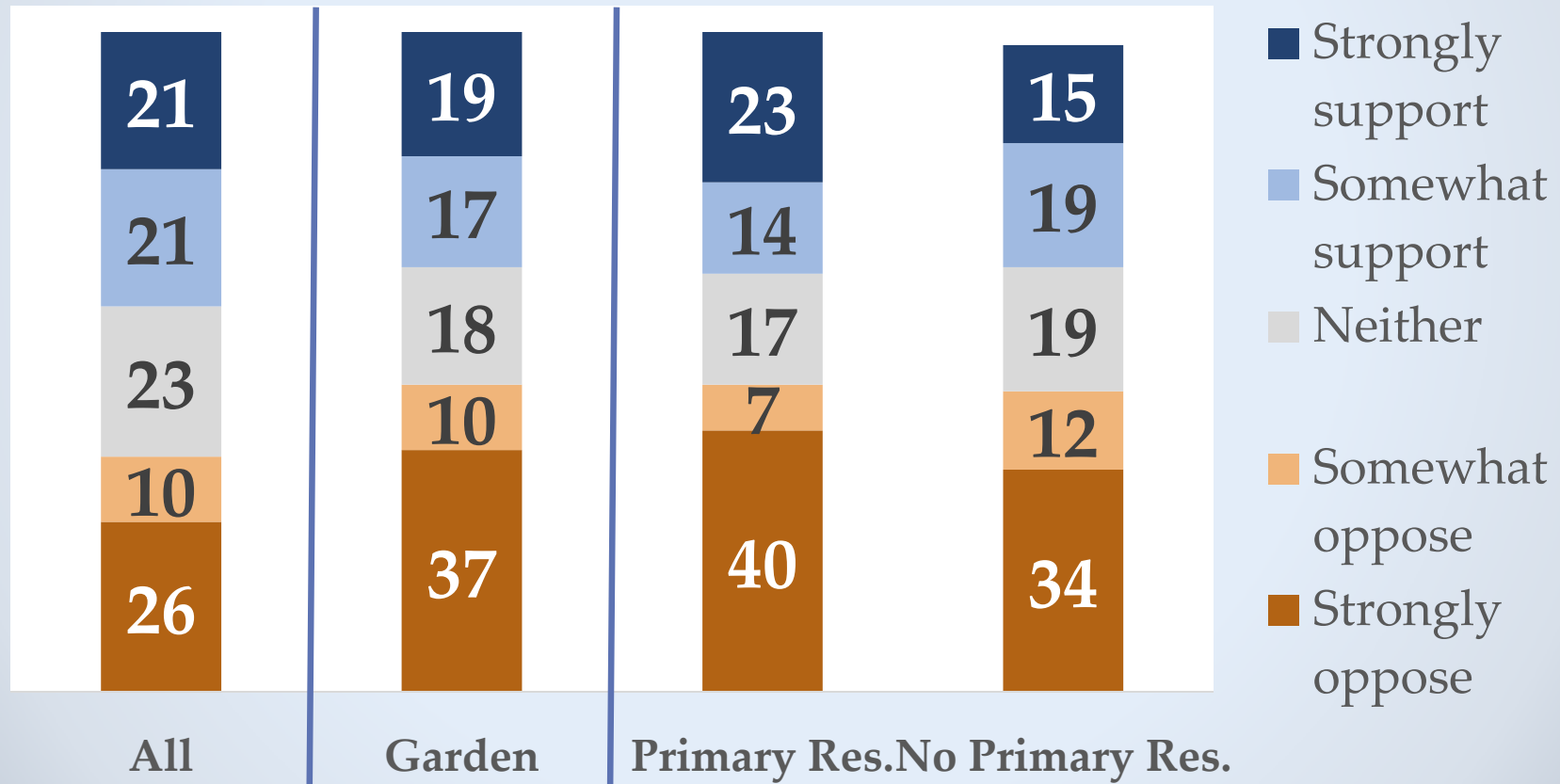
Turbines' effect on relationships

See similar tensions in rural communities between old-timers/newcomers



Willingness to accept new turbines

Support for additional turbines in township



So what are my take-aways
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Key Research Takeaways

- Economic impacts generally positive
- But lots of split opinions on localized quality of life impacts

My advice to most communities

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

Wind =
Economic development
opportunity,
but not for all counties

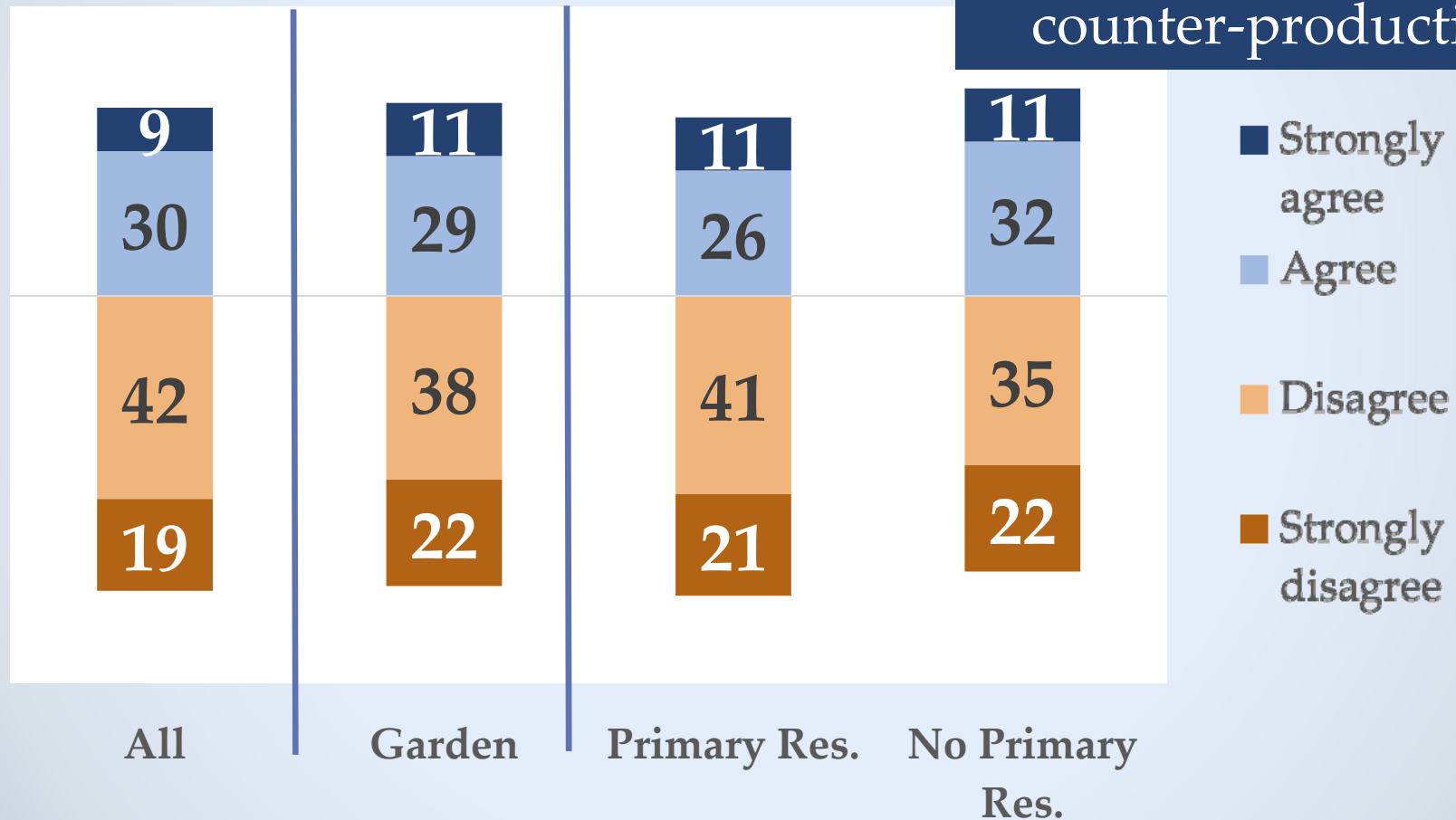
Aren't I Missing Something?

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You are the Keweenaw Climate Community

Turbines help limit climate change

I've found talking about climate to be counter-productive



For Discussion

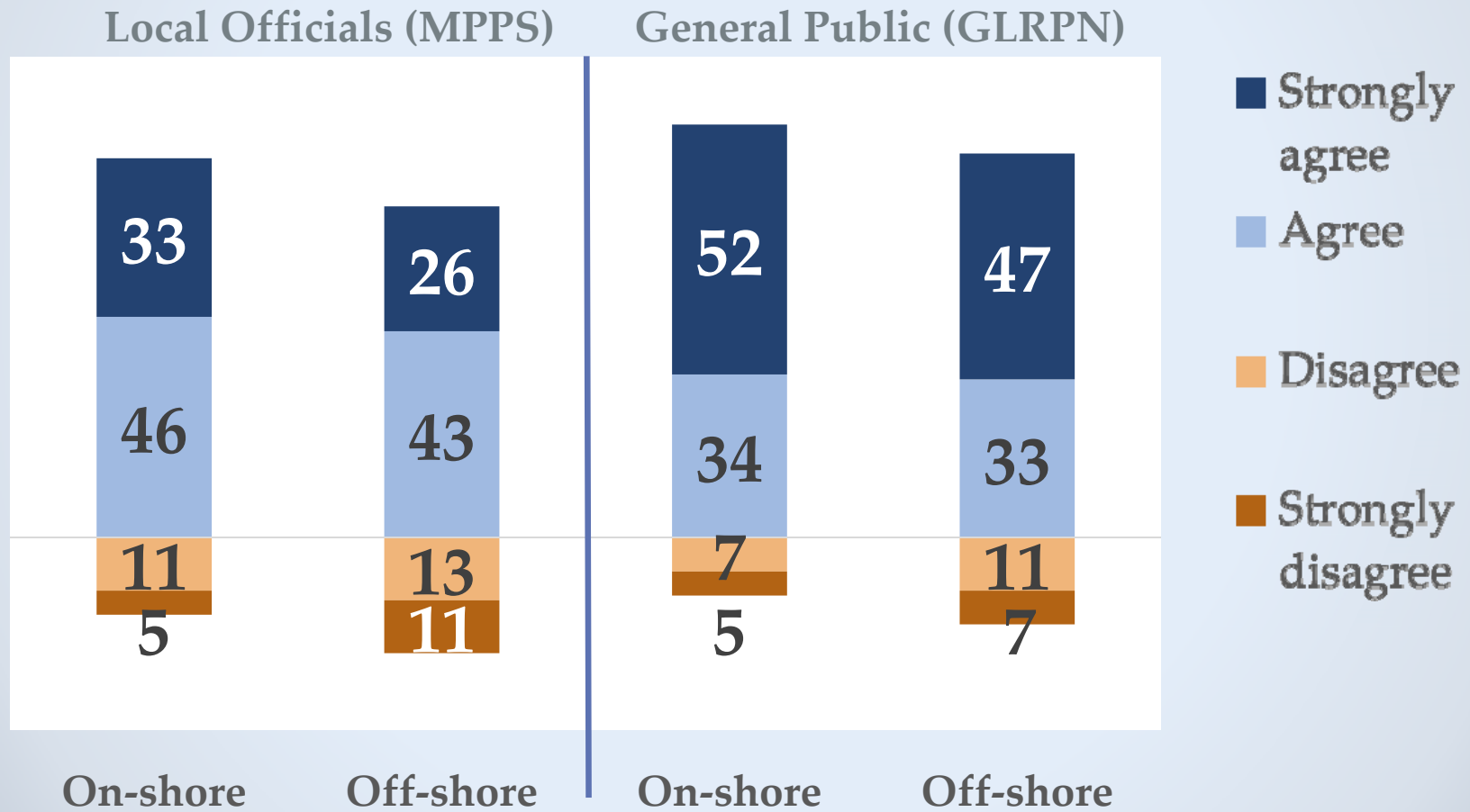
- What do you do when the most viable places are unenthusiastic (or say no)?
- How does this square with your experience?
- Does this change the way you talk about wind development—to each other? To those in rural areas?

Off-shore Wind

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Extrapolating lessons to off-shore

Support for On- vs. Off-shore Wind Surveys of Michiganders



My thoughts

- Anticipate strong reaction among lakefront homeowners
 - My research, experience with Cape Wind
- Less opportunity for direct economic benefits
 - State holds lakebed in trust
 - If shoreline landowners paid, really is hush-money
- Not sure about state political will

Learn from Icebreaker Wind

- 6 turbines off shore near Cleveland
 - 3-4 MW each
- Pilot for freshwater engineering
- Social science perspective: anticipate Lake Erie not same as Lake Michigan, Superior



For Discussion

- What do you think?
 - How do Yoopers feel about lake vs. land?

Utility-scale solar

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From various perspectives

Public support for solar

- Overall, 89% support more solar in their state
 - Compared to 83% for wind
 - From Spring 2017 [NSEE](#) survey
- Can't see "intermittency" of solar like you can with wind
- Visual impacts much more limited (drive-by)
 - Screening possible



Source:
https://www.youtube.com/watch?v=E6p7hp_cbwU

Where does solar best fit?

- No-brainers
 - Brownfield sites (urban and rural)
 - Marginal lands
 - Flat roofs, parking garages

- Trickier
 - Forested areas
 - Prime agricultural land

From a Farmland Preservation Perspective

- If I had to choose, utility-scale wind far better option
 - Deters more residential development (which is also why it's so controversial)
 - In Michigan, involves far more landowners in direct payment
 - Takes less land out of production per MW
- If wind isn't an option, solar is...
 - Good option for economic development and for rendering some land "unbuildable" for residential uses
 - But does take more land out of production in the short-term (~4 acres / MW) and long-term impacts on farmability are unknown.

From other perspectives

- Renewable energy
 - We need everything we can get
 - If there's solar potential in your area, go for it!

- Economic development
 - We need everything we can get
 - If there's solar potential in your area, go for it!

Experience in Ann Arbor (Smaller-scale systems)

- Should front-yard solar be allowed?
 - Maximize solar use; Climate Action Plan, Sustainability goals
 - Force to backyard; but what about tree cover?
 - But what about the aesthetics, home values?
- Urban small-scale solar similarities with rural utility-scale wind
 - Energy infrastructure challenging notions of landscape aesthetics
 - Early engagement, forethought important to prevent backlash

For Discussion

- How are you thinking about solar?
- What role should aesthetics play in light of climate change imperative?
- What are the promises and pitfalls of local control?



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