

# POWERING IOWA

## RURAL PERSPECTIVES ON IOWA'S RENEWABLE ENERGY TRANSFORMATION



a report by STEPHANIE ENLOE  
with assistance from KATIE ROCK  
and the CENTER *for* RURAL AFFAIRS

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Powering Iowa:  
Rural perspectives on Iowa's renewable energy transformation

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## I. INTRODUCTION

As the renewable electricity sector grows in Iowa and across the Midcontinent Independent System Operator (MISO) footprint, rural stakeholders increasingly experience both benefits and drawbacks from wind, solar, and electric transmission line development.

Renewable energy infrastructure and investment create jobs in rural communities, generate property tax dollars for rural counties, and provide landowners with annual or one-time payments. At the same time, renewable energy development raises concerns among rural stakeholders including: the use of eminent domain for transmission projects; fair treatment and compensation; and potential nuisance issues. Rural residents also wonder about their fair share of benefits, such as increased reliability and decreased electricity bills.

To better understand rural stakeholder beliefs and experiences with this changing energy economy, the Center for Rural Affairs surveyed elected county officials in all 99 Iowa counties as well as landowners and managers who recently were impacted by a

transmission line project in north central Iowa. We received 84 responses from elected officials and six responses from landowners or operators. Here, we present survey results and provide recommendations for transmission developers to further improve how they interface with rural communities.

We found that local elected leaders tend to support wind energy development, especially when they see local economic benefits. Survey responses also indicate strong support for solar energy, though respondents with positive attitudes toward wind are not necessarily more likely to support solar. A majority of county supervisors and auditors understand that transmission lines improve grid reliability, efficiency, and access to renewable energy. When deciding whether to support a transmission project, respondents' top priorities include fair treatment by developers, preservation of agricultural land, and provision of local economic benefits.

While we had a low response rate to our landowner survey, most respondents had a positive experience with the transmission developer. They also provided insight into how developers can further improve interactions with local stakeholders when negotiating an easement contract.

## II. BACKGROUND

The United States' energy economy is in the midst of a transition away from coal and oil. In recent years, this shift has been driven in large part by the decreasing cost of natural gas, biofuels, and renewable electricity technologies such as wind and solar. Policy incentives such as tax credits and consumer preference also play a role in this shift.

Wind energy is now one of the cheapest sources of electricity in the U.S. – the levelized<sup>1</sup> cost of a megawatt (MW) of wind costs about half that of a megawatt of coal, and in some scenarios, costs less than natural gas.<sup>2</sup> As technology improves and market competition increases, solar energy also continues to plummet in cost. In 2015, the cost of utility solar fell 11 percent and the cost of residential solar fell 26 percent.<sup>3</sup> Both the wind and solar industries are growing at an astounding rate in the U.S. According to the most recent Solar Jobs Census, in 2016, solar accounted for one out of every 50 new U.S. jobs.<sup>4</sup>

The declining cost of renewable energy bodes well for Iowa, which does not contain any fossil fuel resources. As of 2016, Iowa imported more than

THE LEVELIZED COST OF A MW OF:  
WIND ENERGY IS \$32 TO \$62,  
UTILITY SOLAR IS \$46 TO \$61,  
AND COAL IS \$60 TO \$143.

— LAZARD'S LEVELIZED COST OF ENERGY REPORT, V. 10.0

1 The levelized cost of energy is calculated by dividing all expected lifetime costs of an energy source by the estimated number of kilowatt hours of energy it will produce, then adjusting for inflation and other time-sensitive factors. Levelized cost of energy values included in this report reflect the unsubsidized cost of energy.

2 “Lazard’s Levelized Cost of Energy Version 10.0.” LAZARD, January 2016, <https://www.lazard.com/media/438038/levelized-cost-of-energy-v100.pdf>.

3 Ibid.

4 “The National Solar Jobs Census.” The Solar Foundation, 2016, <http://www.thesolarfoundation.org/national/>.

twice the energy it produced.<sup>5</sup> That imbalance is declining as Iowa invests in local wind and biofuel production. The Iowa Energy Plan<sup>6</sup> suggests Iowa’s economy will benefit from investing in energy efficiency and producing more of its electricity from locally available resources. These strategies will ensure more Iowa energy dollars stay in local economies to recirculate within the state. Analyses also demonstrate the need to upgrade our transmission system, a process that is already underway and will improve interconnectivity, security, and efficiency on our grid.<sup>7</sup>

## III. RENEWABLE ELECTRICITY GENERATION IN IOWA

Iowa ranks second in the U.S. for most installed wind power, in part because it was one of the first states to enact policies intended to drive investment in wind energy production and manufacturing.

The state passed the first Renewable Portfolio Standard in 1983 and now offers a suite of tax credits and incentives.<sup>8</sup> To help attract wind projects, cities and counties can use a special option property tax assessment process called the Special Assessment of Wind Energy Development. Using this policy, a city or county can charge a wind developer 0 percent property tax for the first year of operation, then increase the property tax 5 percent each year until they reach a maximum of 30 percent on the net acquisition cost of the wind project.<sup>9</sup> This process helps defray the up-front cost of wind energy development, but ensures local communities eventually benefit from property tax dollars that enable them

5 “Iowa Energy Plan Appendix C: Iowa’s Energy Profile: Energy Supply and Demand and Sector Employment Analysis.” TEconomy Partners, July 20, 2016, <http://www.iowaenergyplan.org/docs/IEPAppCEnergyPosition.pdf>.

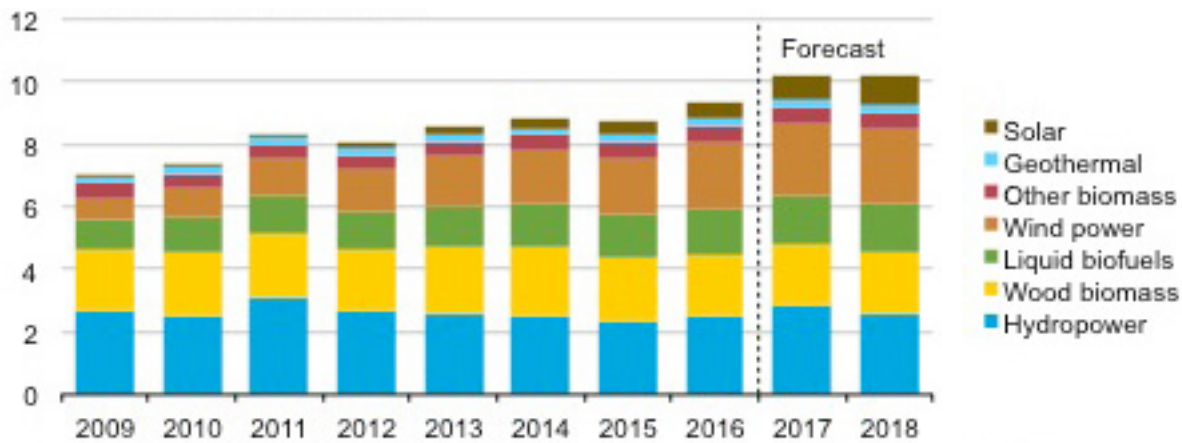
6 “Iowa Energy Plan.” Inova Energy Group, December 2016, <http://www.iowaenergyplan.org/docs/IowaEnergyPlan.pdf>.

7 “Multi-Value Project Portfolio Results and Analyses.” Midcontinent Independent System Operator, Jan. 10, 2012, <https://www.misoenergy.org/Library/Repository/Study/Candidate%20MVP%20Analysis/MVP%20Portfolio%20Analysis%20Full%20Report.pdf>.

8 “Iowa Energy Plan Appendix F: Energy Policy Inventory.” Elevate Energy and Inova Energy Group, Dec. 21, 2016, <http://www.iowaenergyplan.org/docs/IEPAppFPolicyInventory.pdf>.

9 Ibid.

**FIGURE 1. U.S. RENEWABLE ENERGY SUPPLY (QUADRILLION BRITISH THERMAL UNITS [BTU])**



Source: U.S. Department of Energy, Short-Term Energy Outlook, June 2017

to invest in infrastructure, schools, and other vital amenities. Both small- and large-scale wind developers can access state and federal tax credits that have helped launch this growing industry.

Wind energy now accounts for nearly 37 percent of Iowa’s electricity production, with 6,952 MW – enough to power 1.85 million homes – installed as of the end of 2016.<sup>10</sup> The wind industry supports 8,000 to 9,000 Iowa jobs, provides \$20 to \$25 million in annual land lease payments, and saves almost 4 billion gallons of water each year.

Iowa is the 16th best state for solar production potential<sup>11</sup> and ranks 34th in the U.S. for most installed megawatts of solar energy.<sup>12</sup> As of late 2016, 39 MW of solar were installed in Iowa. In 2016 alone, 12 MW of solar energy were installed. The industry currently supports more than 550 jobs, a number that is projected to grow as the industry continues to expand. The Solar Energy Industries Association estimates Iowans will install an additional 223 MW of solar energy during the next five years.<sup>13</sup>

10 “U.S. Wind Energy State Facts.” American Wind Energy Association, 2017, <http://www.awea.org/state-fact-sheets>.

11 Lopez, Anthony, Billy Roberts, Donna Heimiller, Nate Blair, and Gian Porro. “U.S. Renewable Energy Potentials: A GIS-Based Analysis.” National Renewable Energy Laboratory, July 2012, <http://www.nrel.gov/docs/fy12osti/51946.pdf>.

12 “Iowa Solar: Facts on the Iowa Solar Industry.” Solar Energy Industries Association, June 9, 2017, <http://www.seia.org/state-solar-policy/iowa>.

13 Ibid.

Policies that support Iowa’s solar industry include a federal investment tax credit, which will begin phasing out in 2020, and a state tax credit, which provides a 50 percent match with the federal credit. As of 2017, the state tax credit was capped at \$5 million per year. U.S. Department of Agriculture (USDA) programs, such as the Renewable Energy for America Program and Energy Efficiency Conservation Loan Program, offer additional support for rural solar projects in the form of loans and grants.

Local net metering programs, interconnection standards, and tariff structures also play a role in solar expansion. While rate-regulated utilities (MidAmerican and Alliant Energy) must seek approval through the Iowa Utilities Board to determine how they work

## THE WIND INDUSTRY

SUPPORTS 8,000 TO 9,000

IOWA JOBS; PROVIDES

\$20 TO \$25 MILLION

IN ANNUAL LAND LEASE PAYMENTS;

AND SAVES ALMOST

4 BILLION GALLONS

OF WATER EACH YEAR.

– AMERICAN WIND ENERGY ASSOCIATION

with solar customers and installers, municipal utilities and rural electric cooperatives are not subject to state oversight. As a result, policies vary widely across Iowa and either support or hinder solar development according to local utility policy.<sup>14</sup>

The Center for Rural Affairs has long supported wind and solar energy development for the economic and environmental benefits these technologies provide rural communities. As renewable energy industries grow, they create jobs in rural areas, help stabilize energy costs, and reduce air and water pollution. However, rural stakeholders can also experience drawbacks from energy development. The Center therefore works with communities and developers to understand these drawbacks and find solutions to common concerns.

For more information and recommendations for future development of wind energy systems, view our report, “Respect and Restore: Reassessing Local Wind Energy Standards.”<sup>15</sup> This report describes the typical elements in the wind turbine construction process, potential problems for landowners and communities, and common county regulations for commercial wind energy systems.

## IV. IOWA AND MIDWESTERN TRANSMISSION

In 2011, MISO finalized the analysis and approval process for 17 new transmission lines named “Multi-Value Projects” (MVP). These lines provide increased efficiency, reliability, security, and access to renewable energy resources.<sup>16</sup> Electricity customers within the MISO market share the cost of these lines, which will provide economic benefits that far exceed investment. Initial modeling suggests the average consumer in the MISO footprint will pay

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14 Tradish, Herman K. “War, Peace, and Innovation: Solar Policy in 2016.” *Utility Dive*, Feb. 16, 2017, <http://www.utilitydive.com/news/war-peace-and-innovation-solar-policy-in-2016/435991/>.

15 Nelsen, Lucas. “Respect and Restore: Reassessing Local Wind Energy Standards.” Center for Rural Affairs, May 2016, <http://www.cfra.org/respect-restore>.

16 “Multi-Value Project Portfolio Results and Analyses.” Midcontinent Independent System Operator, Jan. 10, 2012, <https://www.misoenergy.org/Library/Repository/Study/Candidate%20MVP%20Analysis/MVP%20Portfolio%20Analysis%20Full%20Report.pdf>.

## WHAT IS MISO?

The U.S. has three electric grids – the Eastern Interconnection, the Western Interconnection, and ERCOT (in Texas). Each of these grids is divided into different regional transmission systems.

Iowa is part of the Midcontinent Independent System Operator (MISO), a nonprofit entity that serves as a regional transmission organization.

MISO conducts long-term analyses to ensure this portion of the grid remains reliable and efficient. It also operates the real-time energy market where electricity is bought, sold, and delivered. In short, MISO ensures that electricity arrives where it is needed, when it is needed.

\$12 per year in return for \$32 per year in direct economic benefits.<sup>17</sup>

Portions of four MVP lines run or will run through Iowa. MVP 3, 4, 5, and 7 improve connectivity between Iowa and surrounding states such as Minnesota, Wisconsin, and Missouri. These lines ensure Iowa’s wind resources have a path to the grid so the state can more easily buy and sell electricity across state lines. When Iowa produces an excess of wind energy, the state can sell inexpensive electricity to consumers in other states. When surrounding states have excess renewable electricity, Iowans will benefit from improved access to that resource.

While transmission projects, and especially the MVP lines, provide benefits to our grid and energy market, they have a disproportionate impact on the rural communities where they are built. The Center believes transmission developers should work closely with landowners to negotiate voluntary easements and fair compensation, and should only use eminent domain when all other options are exhausted.

Developers should be responsive to landowner concerns about where and when they access land, where to place poles, how they restore surrounding areas post-construction, and how to maintain easements. By working closely with local stakeholders, transmission developers can also ensure they avoid or properly mitigate any local environmental damage from the lines.

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17 Ibid.



## V. SURVEYING RURAL STAKEHOLDERS

To better understand how Iowans are responding to the shifting energy economy, we surveyed local elected officials and landowners about their experiences with and opinions toward renewable electricity infrastructure.

In spring 2017, we mailed surveys to 460 county auditors and supervisors. Potential respondents were located in each of Iowa's 99 counties. We chose to survey county supervisors and auditors because they create local policy and ordinances that can either spur or prevent renewable energy development. For example, the county board of supervisors plays a role in approving permits for transmission projects. Supervisors' perspectives on renewable energy therefore determine how a project development proceeds within their county. We asked these local elected officials to share their opinions on wind energy, solar energy, and transmission development.

We received 84 usable responses,<sup>18</sup> which was an 18.3 percent response rate.

During this time, we also sent surveys to landowners and operators who we believed were impacted by a newly-constructed transmission line in north central Iowa. We used publicly available data such as route maps and information from county assessor websites to compile a list of 90 people who were likely to own or manage land along the line route.<sup>19</sup>

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18 We used only survey responses which were filled out according to directions, with at least two of the three sections completed.

19 To find addresses along the transmission line route, we physically compared Google maps and county assessor maps to publicly available maps of the final transmission route. We then used county assessor webpages to find the names of owners associated with the addresses along the route of transmission lines. We mailed surveys to all addresses with land adjoining the route.



We received only six responses,<sup>20</sup> which was a 6.7 percent response rate.

Our response rates for the two surveys were not high enough to provide a statistically representative sample. However, we were able to identify some trends and recommendations which may provide useful guidance to elected leadership, energy project developers, advocates, and researchers.

## VI. ELECTED OFFICIALS' ATTITUDES TOWARD RENEWABLE ELECTRICITY INFRASTRUCTURE

### A. WIND ENERGY

We asked survey respondents to indicate whether a project had been built or proposed in their county. Of the 84 respondents, 44 replied "yes." We used this question to group respondents as "Yes Wind" or "No Wind" when we analyzed responses to the follow-up question.

20 We believe at least three factors may have contributed to the low response rate: 1) many of the addresses were located within an Amish community where residents may be less likely to participate in outside surveying, 2) the surveys were mailed during planting season when farmers may be too busy to respond, and 3) we did not have a list of people who had negotiated a transmission easement, but rather used publicly available data to make assumptions about which addresses should receive surveys.

OUT OF 84 RESPONDENTS,  
44 COUNTY SUPERVISORS &  
AUDITORS HAD A WIND ENERGY  
PROJECT BUILT OR PROPOSED  
IN THEIR COUNTY

Respondents were then asked to rate their level of agreement with the following statements:

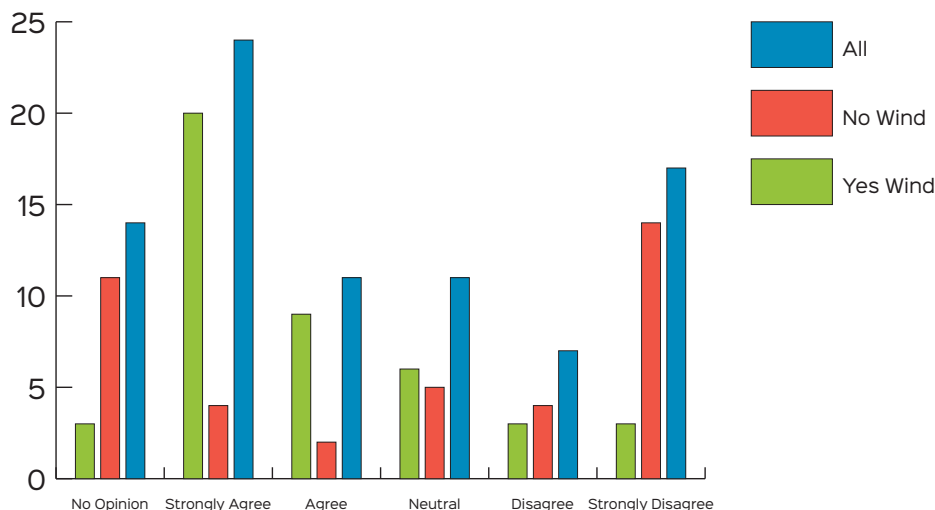
- Wind energy development has brought economic opportunity to my county.
- People in my county believe wind turbines represent a nuisance.
- People in my county believe wind developers have treated them fairly.
- I am generally supportive of wind energy development in my county.

We present respondent answers by group as well as in aggregate (Figures 2 to 5).

**Wind development has brought economic opportunity to my county:** A majority of county supervisors and auditors in the "Yes Wind" group agree or strongly agree the project has brought economic opportunity to their area. See Figure 2.

The majority of respondents in the "No Wind" group disagree or strongly disagree with the statement

FIGURE 2. COUNTY OFFICIAL LEVEL OF AGREEMENT WITH THE STATEMENT, "WIND DEVELOPMENT HAS BROUGHT ECONOMIC OPPORTUNITY TO MY COUNTY"



that wind energy has created economic opportunity in their county.

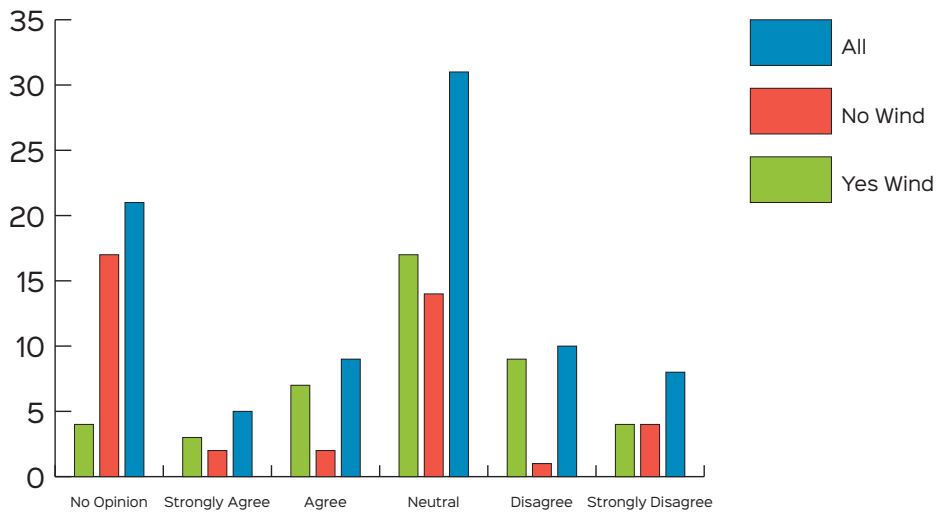
**People in my county believe wind turbines represent a nuisance:** The majority of respondents (n=52)<sup>21</sup> either have no opinion or a neutral attitude toward the statement, “People in my county believe wind turbines represent a nuisance.” See Figure 3. Respondents who indicated their county had a wind

21 Where n is the number of respondents.

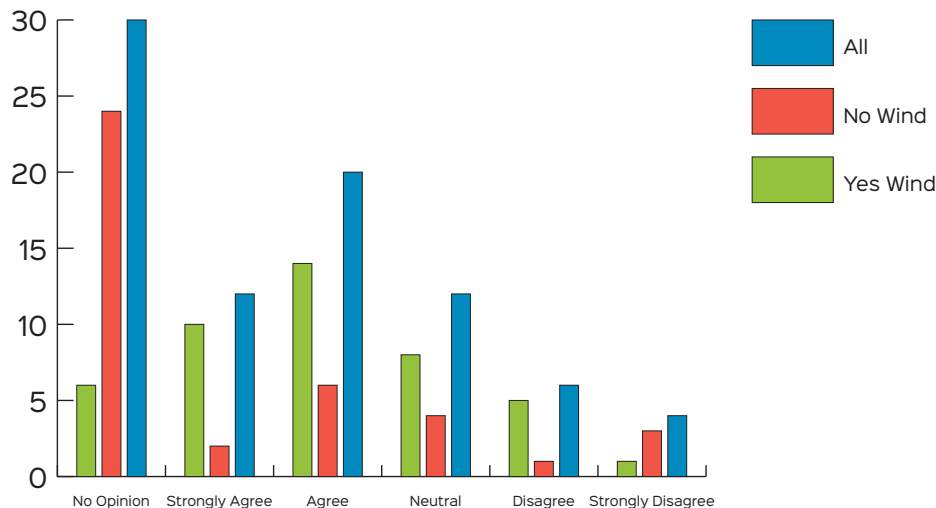
project were almost equally likely to agree or strongly agree (n=10) as they were to disagree or strongly disagree (n=13) with the statement.

**People in my county believe wind developers have treated them fairly:** Of the respondents who indicated the presence of wind turbines in their county, more than half (n=24) agree or strongly agree with the statement regarding fair treatment. See Figure 4. Only 6 of the 44 respondents with wind in their county disagree or strongly disagree with the statement.

**FIGURE 3. COUNTY OFFICIAL LEVEL OF AGREEMENT WITH THE STATEMENT, “PEOPLE IN MY COUNTY BELIEVE WIND TURBINES REPRESENT A NUISANCE”**



**FIGURE 4. COUNTY OFFICIAL LEVEL OF AGREEMENT WITH THE STATEMENT, “PEOPLE IN MY COUNTY BELIEVE WIND DEVELOPERS HAVE TREATED THEM FAIRLY”**



The majority of respondents who did not indicate the existence of a wind project in their county either have no opinion or a neutral opinion on the statement (n=28).

**I am generally supportive of wind energy development in my county:** A strong majority of respondents are supportive of local wind energy development. See Figure 5.

Fifty-eight respondents said they agree or strongly agree with the statement, “I am generally supportive of wind development in my county.” Only eight respondents disagree or strongly disagree with the statement. Responses were fairly consistent between groups (Yes Wind/No Wind).

**Are respondents who believe wind has economic benefits more likely to support wind energy development?** We were interested to learn whether support for local wind energy development correlated with beliefs about the economic benefits of wind projects, especially among respondents who indicated the presence of a wind project in their county.

To answer this question, we examined responses from those who 1) answered “yes” to the question

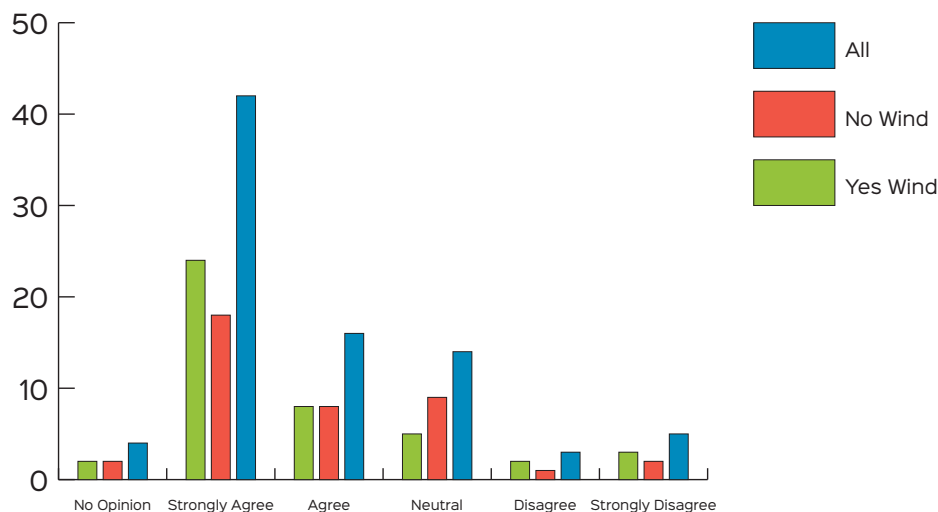
about whether they have a wind project in their county and 2) registered an opinion on both statements (“Wind energy has brought economic opportunity to my county” and “I am generally supportive of wind energy development in my county”). See Figure 6 on the next page.

Again, our response rate was not high enough to provide a statistically representative sample. However, using Pearson’s correlation coefficient<sup>22</sup> ( $r = .5$ ), we see a positive correlation between belief of economic benefits and general support for wind energy development.

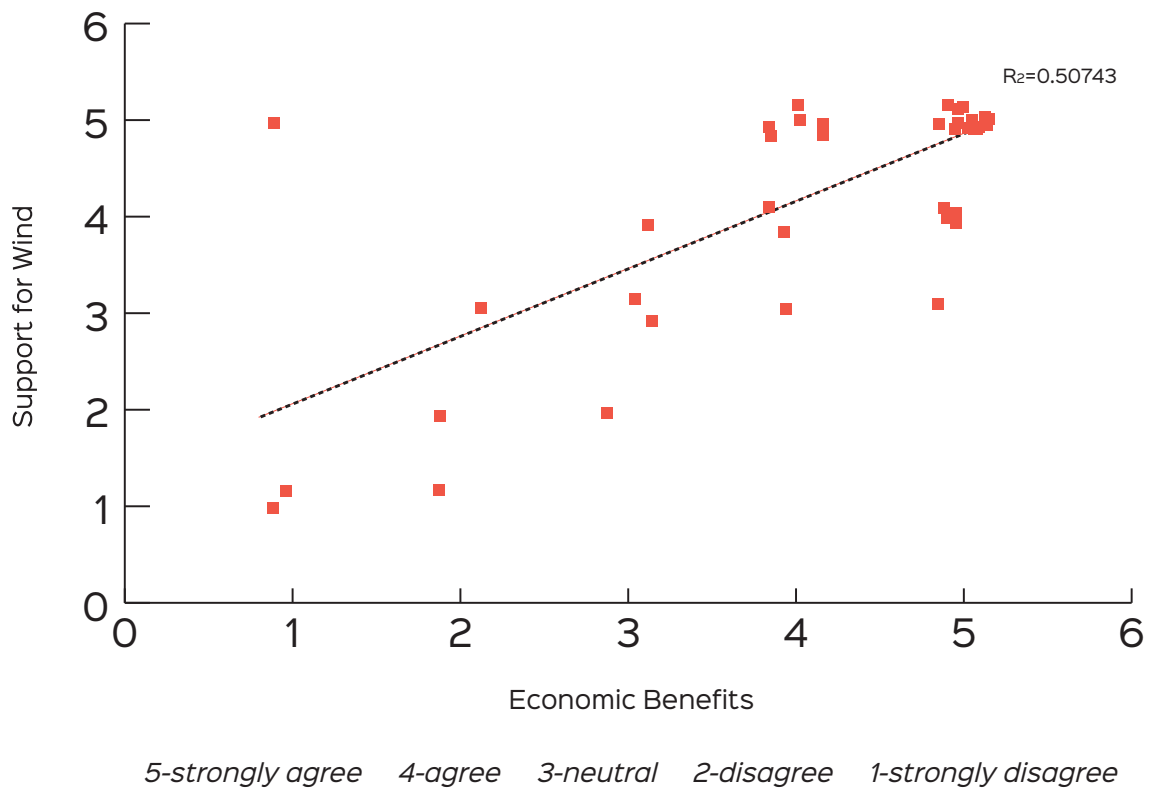
Further research is needed to gain a more representative sample and understand the strength of this correlation, but in practical terms, it may mean that county supervisors who see clear, local economic benefits from a proposed wind project are more likely to support the project.

22 The Pearson’s coefficient is a measure of linear correlation between two variables. An r value of -1 indicates a direct negative relationship. An r value of 1 indicates a direct positive relationship.

**FIGURE 5. COUNTY OFFICIAL LEVEL OF AGREEMENT WITH THE STATEMENT, “I AM GENERALLY SUPPORTIVE OF WIND DEVELOPMENT IN MY COUNTY”**



**FIGURE 6. CORRELATION BETWEEN BELIEF OF WIND'S ECONOMIC BENEFITS AND LEVEL OF SUPPORT FOR LOCAL WIND ENERGY DEVELOPMENT**



## B. SOLAR ENERGY

We asked respondents to rate their level of agreement with the following statements:

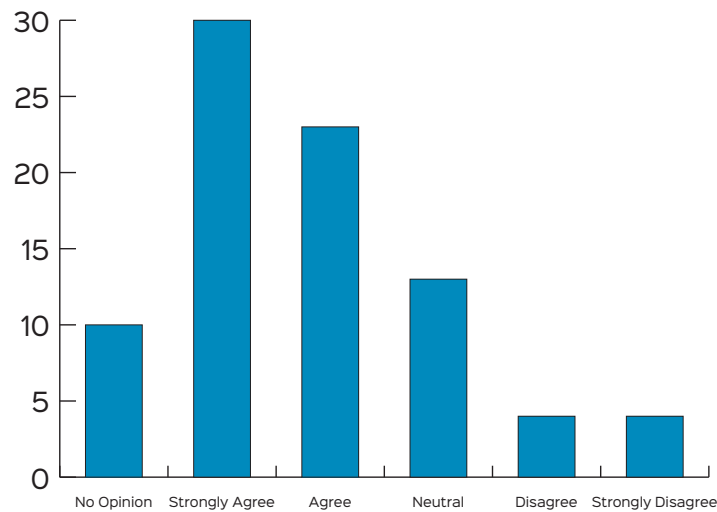
- Solar energy has benefits for rural economic development.
- My local electric utility works well with customers who want to install solar.
- I would like to see more solar energy used in my county.

We did not ask respondents to indicate whether they use solar or how much solar is in use within their county, so all responses are aggregated (Figures 7 to 9).

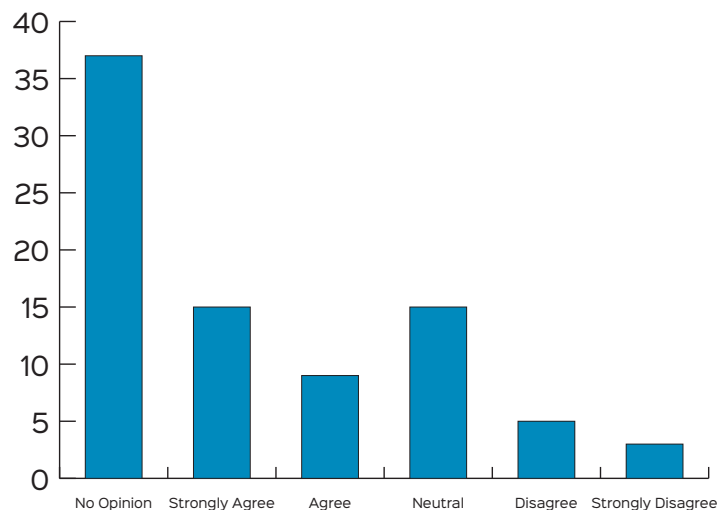
**Solar energy has benefits for rural economic development:** A majority of respondents (n=53) agree or strongly agree that solar energy provides benefits for rural economic development. See Figure 7. Only eight respondents disagree or strongly disagree with the statement.

**My local electric utility works well with customers who want to install solar:** We did not find a strong trend among responses to this statement. See Figure 8. Nearly half of respondents (n=37) have no opinion. More respondents agree or strongly agree with the statement (n=24) than disagree or strongly disagree (n=8).

**FIGURE 7. ELECTED OFFICIAL RESPONSES TO THE STATEMENT, “SOLAR ENERGY HAS BENEFITS FOR RURAL ECONOMIC DEVELOPMENT”**



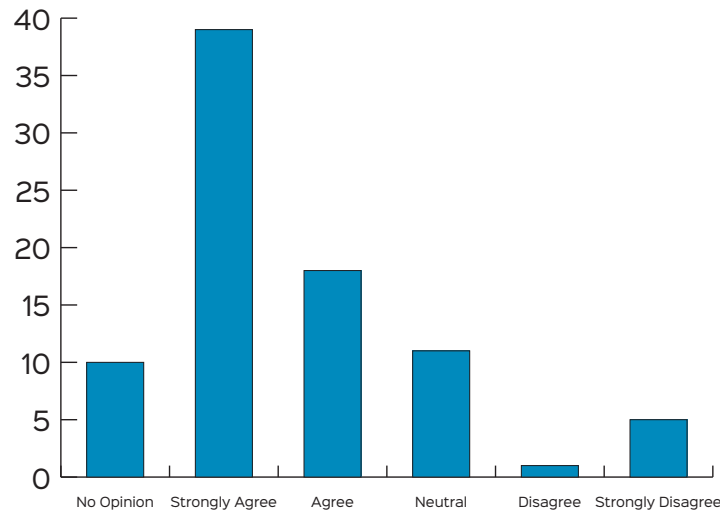
**FIGURE 8. ELECTED OFFICIAL RESPONSES TO THE STATEMENT, “MY LOCAL ELECTRIC UTILITY WORKS WELL WITH CUSTOMERS WHO WANT TO INSTALL SOLAR”**



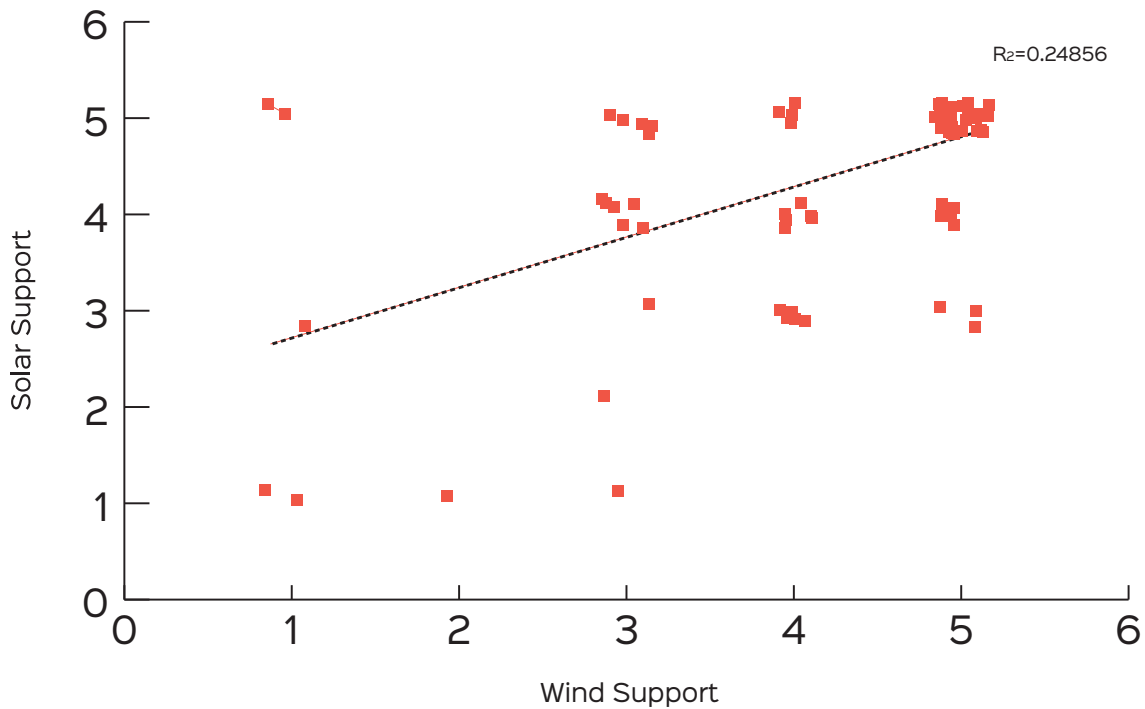
**I would like to see more solar energy used in my county:** A strong majority of respondents agree or strongly agree they would like to see more solar energy in their county (n=57). Only six respondents disagree or strongly disagree with the statement See Figure 9.

**Do respondents who express support for solar development also express support for wind development?** We expected to see a strong correlation between general support for wind energy development and general support for solar development. See Figure 10. However, we found only a weak correlation ( $r=.25$ ) within our dataset.

**FIGURE 9. ELECTED OFFICIAL RESPONSES TO THE STATEMENT, “I WOULD LIKE TO SEE MORE SOLAR ENERGY USED IN MY COUNTY”**



**FIGURE 10. RESPONDENT LEVEL OF SUPPORT FOR WIND ENERGY DEVELOPMENT AND SOLAR ENERGY DEVELOPMENT**



5-strongly agree    4-agree    3-neutral    2-disagree    1-strongly disagree

## C. TRANSMISSION LINE DEVELOPMENT

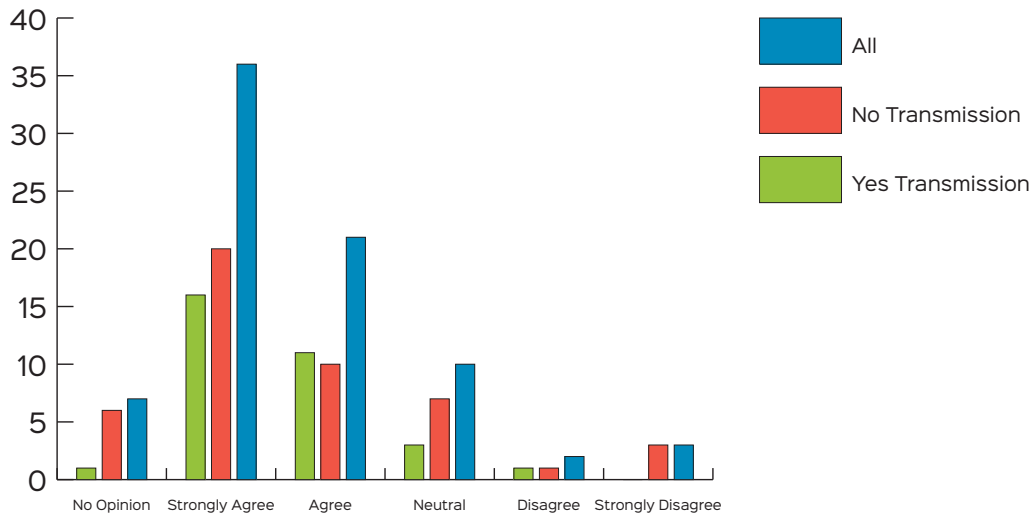
We received 79 usable responses to our transmission line development questions. We asked survey respondents to indicate whether a transmission line project recently had been built or proposed in their county. During analysis, respondents who indicated “yes” (n=32) were placed in the “Yes Transmission” group, and those who indicated “no” (n=47) were placed in the “No Transmission” group.

Respondents were then asked to rate their level of agreement with the following statements:

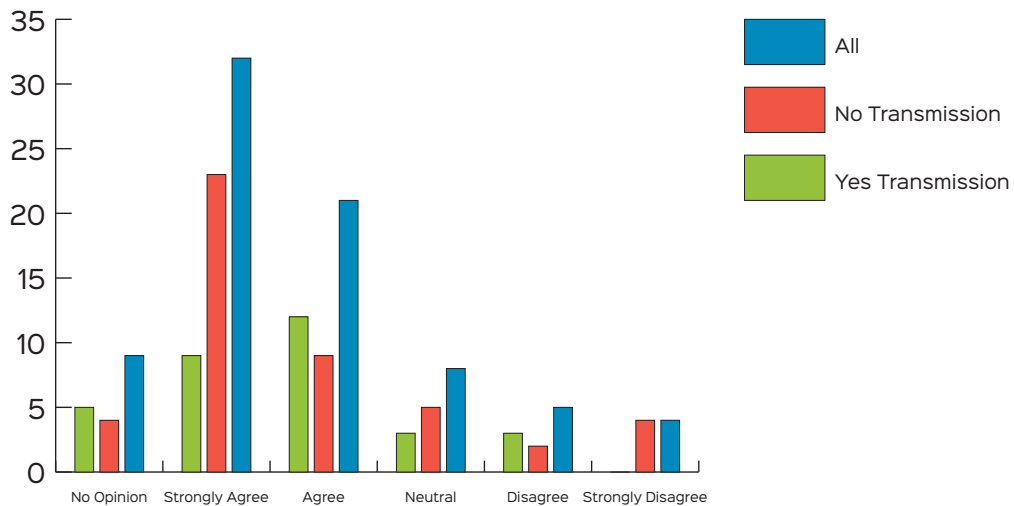
- Transmission line development is important for grid reliability and efficiency (Question 5a).
- Transmission development creates new opportunities for wind and solar energy (Question 5b).
- Transmission line developers should not be able to use eminent domain (Question 5c).

We present respondent answers by group as well as in aggregate (Figures 11 to 13).

**FIGURE 11. LEVEL OF AGREEMENT WITH THE STATEMENT, “TRANSMISSION LINE DEVELOPMENT IS IMPORTANT FOR GRID RELIABILITY AND EFFICIENCY”**



**FIGURE 12. RESPONDENT LEVEL OF AGREEMENT WITH THE STATEMENT, “TRANSMISSION DEVELOPMENT CREATES NEW OPPORTUNITIES FOR WIND AND SOLAR ENERGY”**





**Transmission line development is important for grid reliability and efficiency:** A majority of respondents from both groups (n=57) agree or strongly agree transmission is important to grid reliability and efficiency. Only five respondents disagree or strongly disagree with the statement. See Figure 11 on the previous page.

**Transmission development creates new opportunities for wind and solar energy:** A majority of respondents (n=53) agree or strongly agree that transmission development creates opportunities for wind and solar development. See Figure 12 on the previous page. Only nine respondents disagree or strongly disagree with the statement.

**Transmission line developers should not be able to use eminent domain:** Respondents were almost evenly split in their responses to this statement. See Figure 13. Twenty-six respondents agree or strongly agree with the statement, and 24 respondents disagree or strongly disagree. Eighteen respondents remain neutral, while 11 preferred not to state an opinion.

**When considering whether to support a transmission line in your area, what are the top three most important considerations?** We asked respondents to choose their top three considerations when determining whether to approve a transmission line in their county.

The available choices and corresponding number of responses are included in Table 1. Respondents' top three considerations are 1) fair treatment from developers, 2) preservation of agricultural land, and

**TABLE 1. TOP CONSIDERATIONS AMONG ELECTED OFFICIALS WHEN DETERMINING WHETHER TO APPROVE A TRANSMISSION PROJECT**

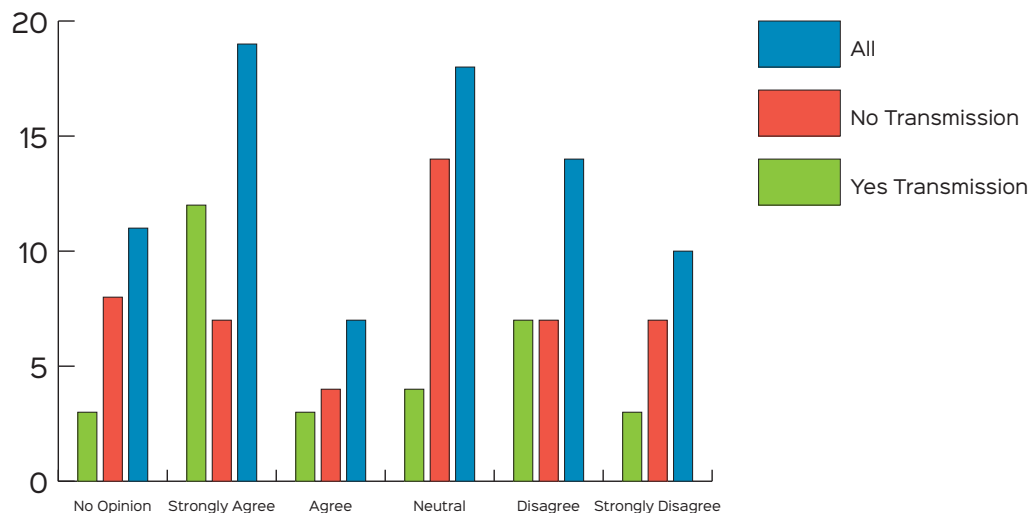
|                                   |    |
|-----------------------------------|----|
| Fair treatment from developers    | 40 |
| Preservation of agricultural land | 36 |
| Potential economic benefits       | 32 |
| Local environmental impacts       | 25 |
| Increased use of renewables       | 21 |
| Potential nuisance concerns       | 17 |
| Tax benefits                      | 16 |
| Other                             | 2  |

3) potential economic benefits. Responses to "Other" included: "eminent domain" (n=1) and "cost increases within the energy market" (n=1).

**Were respondents who support wind more likely to have a favorable attitude toward transmission?** We were interested to learn whether respondents who are more supportive of wind development have a more favorable response toward transmission.

We inverted scores from questions 5a and 5b so responses to questions 5a through 5c would run the same direction along a favorability scale. We then averaged responses from questions 5a through 5c to find an aggregated transmission score.

**FIGURE 13. RESPONDENT LEVEL OF AGREEMENT WITH THE STATEMENT, "TRANSMISSION LINE DEVELOPERS SHOULD NOT BE ABLE TO USE EMINENT DOMAIN"**



We found a very weak correlation between support for wind development and a favorable view of transmission ( $r=.23$ ). See Figure 14. This finding indicates that support for wind development does not necessarily correlate with a favorable response to transmission line development, although more research is needed to collect a representative sample.

## VII. LANDOWNER AND LAND OPERATOR EXPERIENCES WITH TRANSMISSION DEVELOPMENT

Of the 90 surveys we sent to addresses we believe were impacted by a recent transmission line project in Iowa, we received only six responses.

All respondents had a voluntary transmission easement on property they own or rent. Five respondents own the land and negotiated the easement themselves, and one respondent rents the land and the landlord was in charge of negotiating the easement. No respondent indicated that they or a family mem-

ber has had land seized through eminent domain. We know from speaking to the developer that more than 97 percent of easements were negotiated voluntarily for the transmission line of interest in this report.<sup>23</sup>

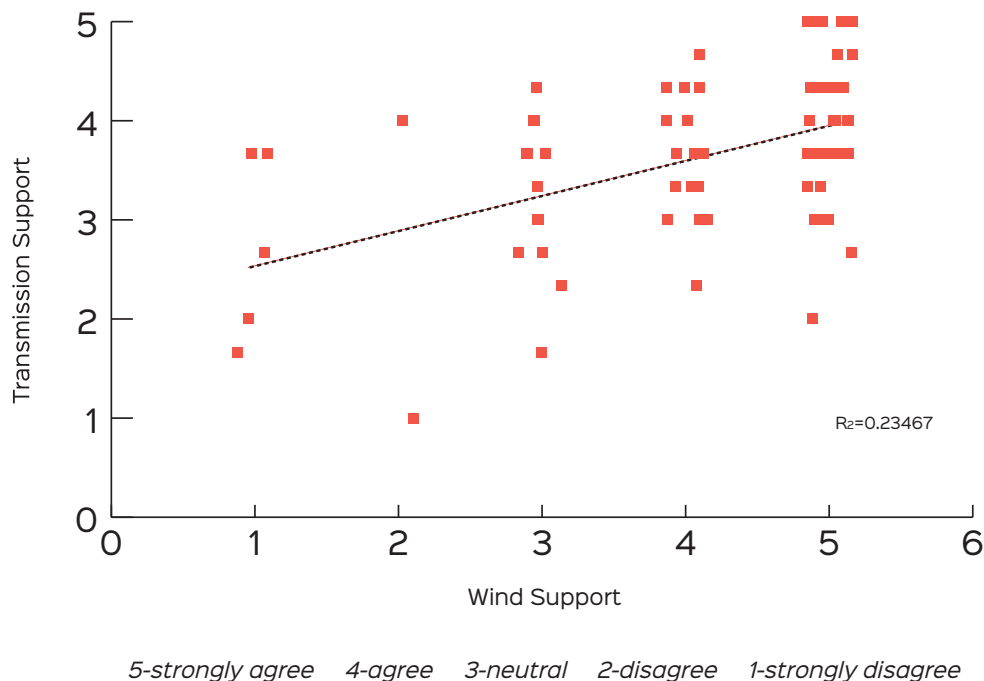
We asked respondents to rate their level of agreement with a series of statements about the transmission development process, where 1 = strongly disagree and 10 = strongly agree. The statements and corresponding frequency tables<sup>24</sup> are illustrated in Table 2 on the next page.

We also asked landowners and operators for input on 1) how transmission developers could improve their practices in the future and 2) questions that landowners/operators should ask a transmission developer when negotiating an easement. Responses are summarized.

23 Independent communication. ITC. 2017.

24 A frequency table illustrates how many times a particular data value, or answer, occurs within a data set.

**FIGURE 14. RESPONDENT LEVEL OF SUPPORT FOR WIND ENERGY DEVELOPMENT AND TRANSMISSION DEVELOPMENT**



**How could the transmission developer you worked with improve their practices in the future?** Respondents provided four suggestions for how developers could improve their practices in the future:

- Ensure a pole is not placed outside a picture window or other valued view from the home.
- Talk to the landowner/operator before starting work on the land.
- Start with a higher price rather than trying to obtain an easement at the lowest possible cost.
- Discuss the impact of compaction on farm ground.

**What questions would you encourage a landowner or operator to ask a transmission developer before they start negotiating an easement?** Respondents encouraged other landowners/operators to ask these questions before or

- during the process of negotiating an easement:
- Ask to be taken out to see where the pole will be placed.
- Ask how much compaction you should expect.

Although our response rate was low, the surveys provide useful input on how developers should work with landowners and operators. Transmission developers should communicate clearly with stakeholders to ensure they provide fair compensation; issue fair warning before beginning construction; avoid or compensate for soil compaction; and protect aesthetic value.

Overall, most respondents had favorable experiences with the transmission developer. See Table 3. We asked respondents to rate their experience, where 1 = very negative and 10 = very positive.

**TABLE 2. LANDOWNER EXPERIENCES WITH NEGOTIATING A TRANSMISSION LINE EASEMENT**

|                                                                                               |   |   |   |   |   |   |   |   |   |    |     |
|-----------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|----|-----|
| The transmission developer communicated clearly about the proposed transmission project.      |   |   |   |   |   |   |   |   |   |    |     |
| Scale                                                                                         | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | N/A |
| Frequency                                                                                     |   |   |   |   |   |   | 1 | 1 |   | 4  |     |
| The developer was easy to work with when negotiating terms of the easement.                   |   |   |   |   |   |   |   |   |   |    |     |
| Scale                                                                                         | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | N/A |
| Frequency                                                                                     |   |   |   |   | 1 | 1 |   |   | 1 | 3  |     |
| The developer took my preferences into account when determining how to place poles.           |   |   |   |   |   |   |   |   |   |    |     |
| Scale                                                                                         | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | N/A |
| Frequency                                                                                     |   |   | 1 |   |   |   |   |   | 1 | 2  | 2   |
| During construction, the developer was respectful of my land, time and farm management needs. |   |   |   |   |   |   |   |   |   |    |     |
| Scale                                                                                         | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | N/A |
| Frequency                                                                                     |   |   |   |   | 2 |   |   | 1 | 2 | 1  |     |
| I believe I received fair compensation for the easement.                                      |   |   |   |   |   |   |   |   |   |    |     |
| Scale                                                                                         | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | N/A |
| Frequency                                                                                     |   |   | 1 |   |   |   |   | 3 | 1 | 1  |     |

**TABLE 3. LANDOWNER/OPERATOR EXPERIENCES WITH THE TRANSMISSION LINE DEVELOPER**

|                                                                                                                                                     |   |   |   |   |   |   |   |   |   |    |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|----|-----|
| Overall, please rate your experience working with the transmission line development company with whom you or your landlord negotiated the easement. |   |   |   |   |   |   |   |   |   |    |     |
| Scale                                                                                                                                               | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | N/A |
| Frequency                                                                                                                                           |   |   |   |   | 1 |   | 1 | 1 | 1 | 2  |     |

## VIII. CONCLUSION

As the U.S. grid continues to evolve, electric generation and transmission resources will provide both benefits and drawbacks across the rural landscape. Project developers must work closely with rural stakeholders to ensure they prioritize their preferences and avoid unintended harm.

Our surveys suggest rural leaders are open to and supportive of wind, solar, and transmission development, but they expect fair treatment, minimal impacts to agricultural land, and a share of the resulting economic benefits. Survey respondents tend to believe both wind and solar can create economic opportunity in rural areas, and those who see the economic benefits of wind energy tend to be more supportive of project development in their county.

Our data did not indicate that support for one type of renewable energy source is strongly correlated with support for other renewable sources or for transmission infrastructure. Rural stakeholders who were recently impacted by transmission upgrades advise developers to ensure transmission poles do not interrupt valued views; to openly discuss and mitigate potential soil compaction; to pay fair compensation; and to inform a landowner before they begin the construction process.

We strongly encourage project developers to take stakeholder advice into account and to conduct evaluative research that enables them to continually improve the methods they use to communicate and negotiate with rural stakeholders. Such research will further inform the trends identified in this report and ensure rural voices have a say in our evolving energy economy.

### ABOUT THE CENTER FOR RURAL AFFAIRS

Established in 1973, the Center for Rural Affairs is a private, nonprofit organization with a mission to establish strong rural communities, social and economic justice, environmental stewardship, and genuine opportunity for all while engaging people in decisions that affect the quality of their lives and the future of their communities.

