

Perspectives On Energy Development In The Wyandot County, OH Area

Community and Energy Series Technical Report 13-01



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

School of Environment and Natural Resources
Ohio State University Extension

December 2013

Project Team

Joe Campbell is a Research Associate with the Social Responsibility Initiative.

Miranda McClendon is an undergraduate Research Associate with the Social Responsibility Initiative.

Eric Romich is an Assistant Professor & OSU Extension Field Specialist, Energy Development.

Molly Bean is a Research Associate with the School of Environment and Natural Resources.

Jeff Sharp is a Professor in the School of Environment and Natural Resources and director for the Wyandot County Area Renewable Energy Survey.

Recommended Citation:

Campbell, J., McClendon, M., Romich, E., Bean, M., & Sharp, J. (2013). *Perspectives On Energy Development In The Wyandot County, OH Area*. Columbus: The Ohio State University.

Acknowledgements

The 2013 Wyandot County Survey of Renewable Energy and Environmental Issues Project was conducted by a team of Ohio State University faculty and staff with support from The Ohio State University's School of Environment & Natural Resources and the Department of Extension in the College of Food Agricultural and Environmental Sciences. The primary objective of the project was to assess local residents' current knowledge, attitudes, and opinions on emerging and potentially contentious energy and environmental issues.

This research was funded by a collaborative partnership between university, local government, and private industry resources. Specifically, funds which supported this study were acquired from the OSU Extension Community Development Unit, the Social Responsibility Initiative within the School of Environment and Natural Resources, Wyandot County Regional Planning Commission, Wyandot County Commissioners, and EDF Renewable Energy.

The project team approaches each research opportunity with the intention of leveraging knowledge and resources to identify and fill critical knowledge gaps through applied research that will ultimately enhance educational programs to strengthen lives and communities. To the extent possible, this project was approached from a neutral non-biased position to ensure the outcomes are research based and not influenced by funding sources and other support. A document that outlines ground rules for working together was signed by private industry partners prior to the start of this project and is included as Attachment A of this final report.



Study Highlights

This report examines the views and opinions of residents of Wyandot and surrounding counties utilizing data from the 2013 Survey of Renewable Energy.

- There is broad support for wind farm development in Wyandot County.
- Opposition to wind farms does exist among respondents, some of which stems from the loss of productive agricultural land.
- There is greater opposition in the proposed wind farm project zone than in other surrounding areas surveyed.
- Over two-thirds of respondents have observed a modern wind farm in operation.
- Less than ten percent of the respondents have been approached about leasing their property as part of a wind farm.
- More than one third of respondents indicated they were unsure if the benefits outweighed the concerns for wind energy development, or vice versa.



Introduction

According to the U.S. Energy Information Administration's 2013 Annual Energy Outlook (Reference Case AEO2013), renewable generating capacity will account for nearly one-fifth of total electricity generating capacity in 2040 and the non-hydroelectric renewable energy resources are estimated to grow by more than 150 percent from 2011 to 2040 (U.S. Energy Information Administration, 2013). Controversial social, economic, and environmental issues associated with energy development in recent years includes ongoing debates about: carbon dioxide emissions from electricity generation; climate change; energy policy; incentives for energy development; and the impact of alternative energy developments, such as the conversion of agricultural land to support renewable energy technologies.

To resolve or manage conflicts, stakeholders need to understand the social dimensions of such conflicts as well as the economic and environmental issues.

To resolve or manage conflicts, stakeholders need to understand the social dimensions of such conflicts as well as the economic and environmental issues. Public controversies associated with energy and environmental issues are often influenced as much by values, beliefs and the character of social interactions among stakeholders as by dollars and facts. Many times, controversies centered on energy and the environment are emotionally charged and have the potential to divide a community.

In Ohio, an increasing number of utility scale renewable energy projects are being proposed and county commissioners are faced with the important decision of approving or denying an alternative energy zone application. In the case of wind energy, this decision has the potential to generate millions of dollars in local tax revenue, yet will alter the landscape of the community for the next 25 to 30 years. In Wyandot County, Ohio, elected officials were interested in gathering data to better understand how local residents would respond to a proposed wind farm development in the western portion of the county. As a result, this project was designed to gather research-based data to measure knowledge, local support, attitudes and opinions of community residents. The research data will also serve as a needs assessment to guide future outreach and education programs to be delivered in the community.

Methodology

Study Background and Purpose

The Wyandot County, OH area renewable energy survey was designed by a team of faculty and staff at The Ohio State University. The primary objective of the survey is to assess local residents' current knowledge, attitudes and opinions on emerging and potentially contentious energy and environmental issues within the community. In addition, a proposed 100-megawatt wind farm in one of the county's townships makes a countywide study especially interesting because it allows consideration of differences between residents located in the development zone and those located elsewhere in the area.

The Questionnaire

Questionnaire construction began in January 2013. The final 11-page, 45-item questionnaire and mail-out correspondence was submitted to The Ohio State University Office of Responsible Research Practices in spring 2013 for review with an approval received on May 30, 2013.

Data Collection

Data were collected during summer 2013 using a mail survey. A countywide and area sample of 700 Ohio households was selected and stratified according to zip code status to differentiate between those residents living in the proposed wind farm development area and those that are not (See Appendix 2 for municipalities within each stratum). The sample list was generated by the private vendor, Experian, and acquired by the research team during May 2013.

**Table 1. Mailing Schedule for 2013
Wyandot County, OH Area Renewable
Energy Survey**

Mailing Item	Mailed
Pre-notification Letter	June 10, 2013
Initial Mail Survey	June 17, 2013
Reminder Postcard #1	June 26, 2013
Replacement Survey	July 12, 2013
Reminder Postcard #2	July 29, 2013

A modified version of Dillman's Tailored Design Method (Dillman, 2000) guided the data collection methodology. Participants were contacted up to five times (Table 1), including a pre-notification letter explaining the purpose of the study, the initial questionnaire mail out package, a reminder postcard, a replacement questionnaire mailing and a second reminder postcard.

The total response rate for this survey was 26 percent. Table 2 presents the number of surveys received, undeliverable, and those refusing to participate. Response rates by stratum are shown in Table 3.

Data Entry

Tracking and pre-coding of surveys was conducted as surveys were returned. Data entry was completed in early September 2013. To verify the accuracy of the data entry, the research team examined frequencies and descriptive data for each of the variables.

Characteristics of Respondents

The characteristics of survey respondents compare favorably to U.S. Census Bureau statistics from the 2010 American Community Survey (ACS). The demographics of survey respondents are similar to the Wyandot County adult population in terms of educational attainment, employment status, and household income (Table 4).

There were some differences between respondents and Wyandot County's population as determined by the ACS. A larger proportion of survey respondents were male and most respondents were married. There was also a difference in median age as compared to the

**Table 2. Wyandot County, OH
Response Rate**

	Number
Total initial sample size	700
Surveys dropped (undeliverables)	83
Surveys returned	160
Refusals to participate	14

**Table 3. Wyandot County, OH Response
Rate by Zip Code**

Zip Code ¹	Effective Sample	Responses	Response Rate (%)
43359 ²	116	35	30
43316	123	32	26
43323	11	4	36
43351	167	46	28
44844	16	4	25
44849	47	14	30
44882	54	11	20
45843	83	14	17

¹See Appendix 1 for municipal areas within each Zip Code

²Potential Development Site

county population, likely a result of the exclusion of residents younger than 18 from the survey. The most substantial difference was that a larger proportion of sample respondents reported residing in owner-occupied housing units compared to the county population.

Table 4. Wyandot County, Ohio population characteristics compared with sample

	Wyandot County, OH (%)	Respondents (%)
Sex		
Male	49	57
Female	51	43
Race		
African American	0.2	0
Asian	0.6	0
Hispanic/Latino	2	1
Native Am./Am. Indian	0.2	0
White	97	98
Other	1	1
Educational Attainment		
% high school grad or higher	87	99
% with some post-secondary education	40	50
Married-couple family households	57	73
Median age (years)	41	58
Households with individuals under 18 years old	33	27
Owner-occupied housing units	74	92
Renter-occupied housing units	26	6
Household Income		
LT \$10,000	5	3
\$10,000 to \$49,999	47	38
\$50,000 to \$99,999	38	43
\$100,000 or more	10	15
Employment Status		
Employed	62	61
Unemployed	6	3

Results

Knowledge of Wind Farms

To understand their knowledge and experience with modern wind farms, residents were asked if they had: seen a modern wind farm in operation; attended a public meeting about wind farms in their county; and, have been approached to lease their property as part of a wind farm (Figure 1). Over two-thirds of respondents indicated they have seen a modern wind farm in operation. On the other hand, less than one-tenth of respondents have attended a public meeting or have been approached to lease their property as part of a wind farm.

Respondents were asked to either agree or disagree with five statements saying, “wind farms are good for:” the environment; agriculture; job creation; rural economic development; and whether large-scale wind development is an appropriate use of agricultural land. The average score of 1 (strongly disagree) to 5 (strongly agree) was calculated for each statement. As a whole, respondents generally agree that wind farms are good for the environment, and are more likely to be neutral about wind farms’ impact on job creation, rural economic development, and agriculture overall (Figure 2). On the other hand, they generally disagree that wind farms are an appropriate use of agricultural land.

In addition, we asked respondents to reflect on the values they see associated with wind development. Most respondents view wind farms as having a positive impact on the environment (while only 15 percent view wind farms as having a negative or very negative impact on the environment).

Figure 1. Respondents’ Experience With Wind Farms

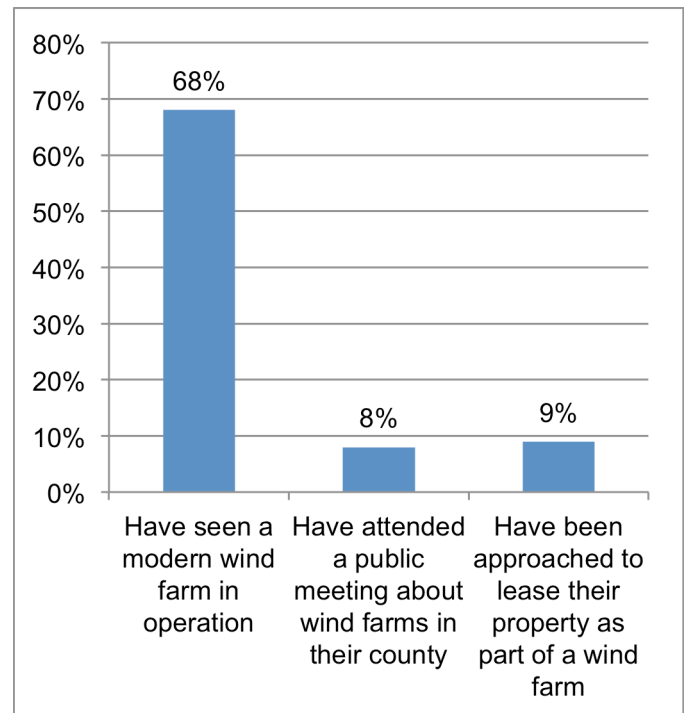
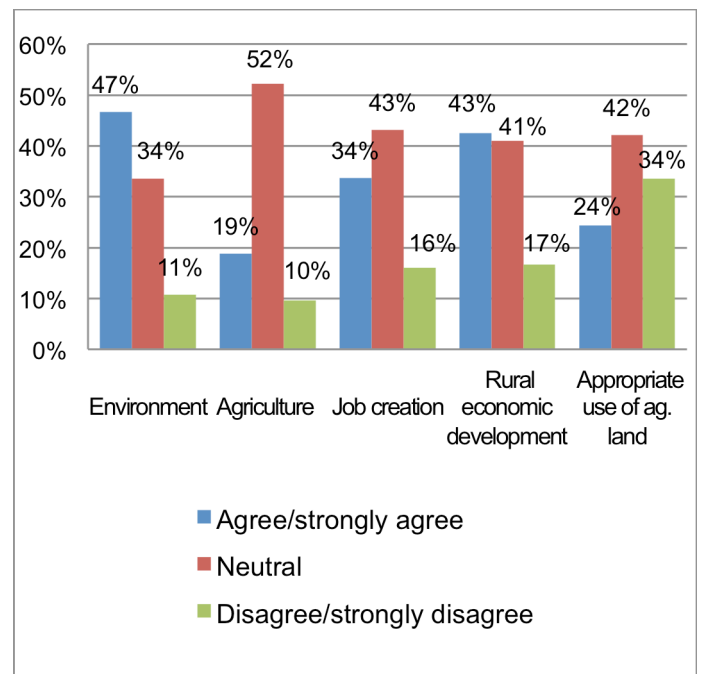


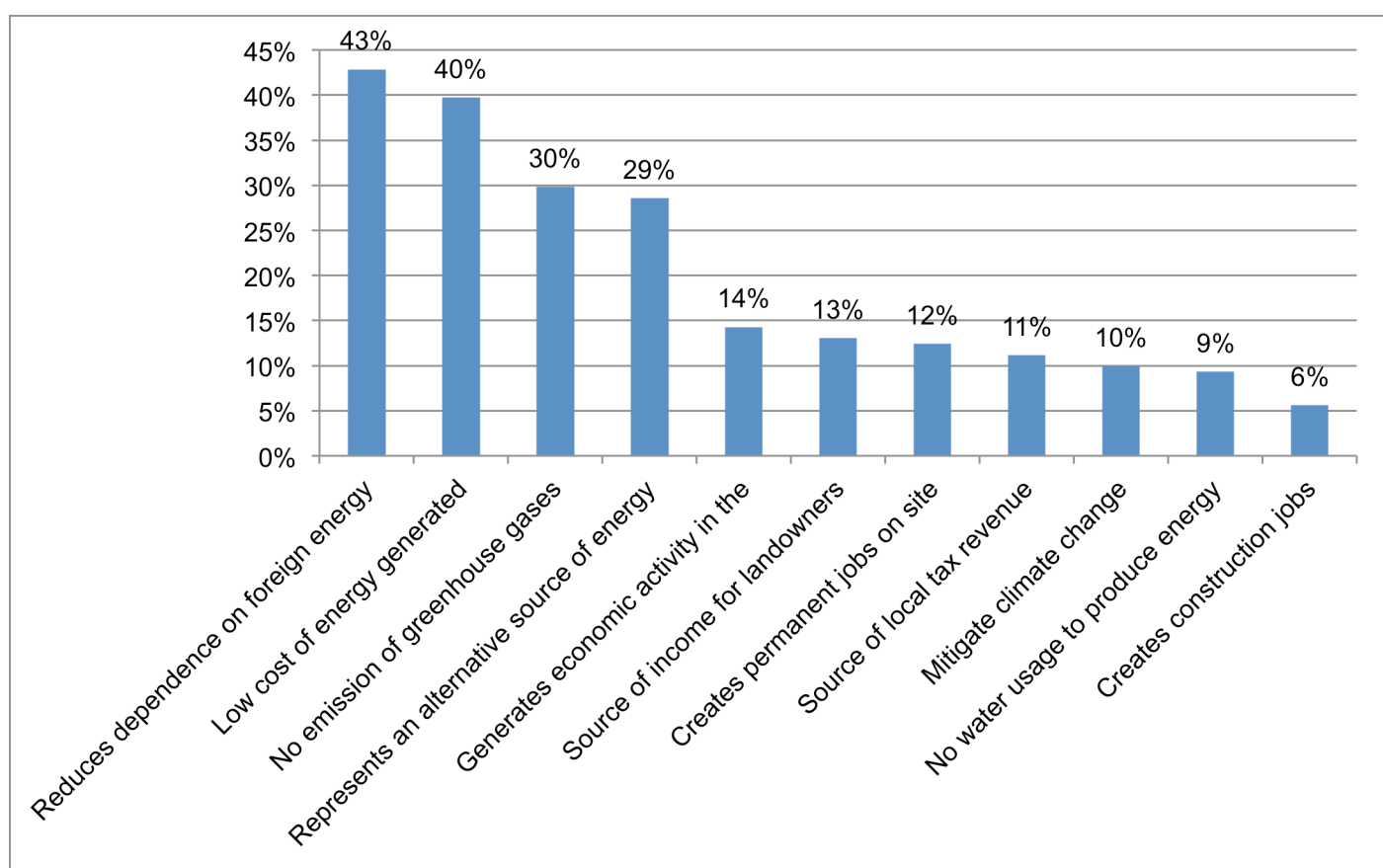
Figure 2. Wind Farms are Good For....



Perceived Benefits and Problematic Issues of Wind Energy

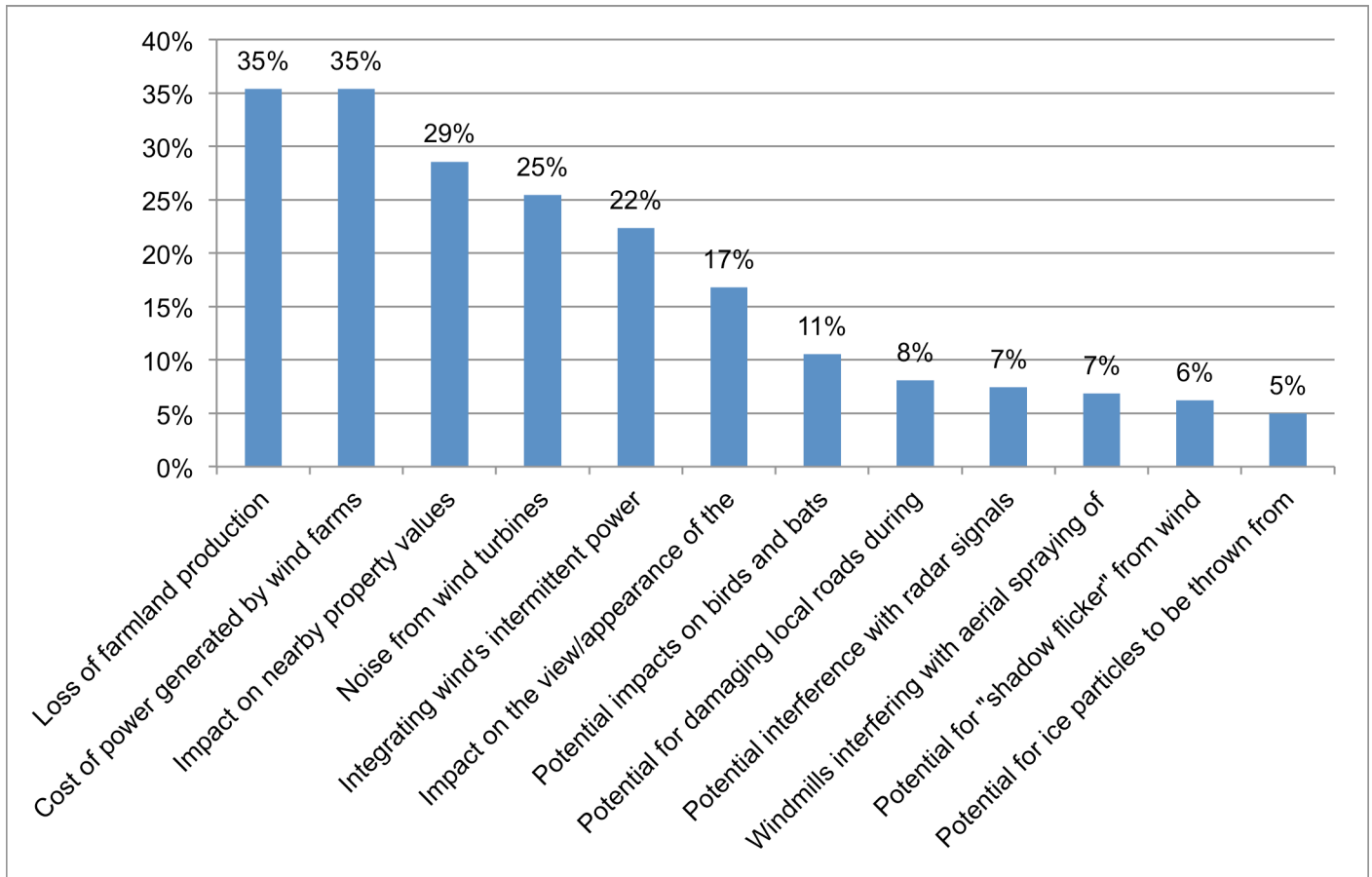
We asked respondents to rank a set of beneficial and problematic issues associated with wind development. Respondents most commonly selected “reduces dependence on foreign energy sources,” “low cost of energy generated,” “no emission of greenhouse gases,” and “represents an alternative source of energy” as the most important benefits of wind energy development (these issues were selected by at least 29 percent of respondents as a “top three” of most important benefit) (Figure 3).

Figure 3. Ranking of Most Important Benefits of Wind Energy Development



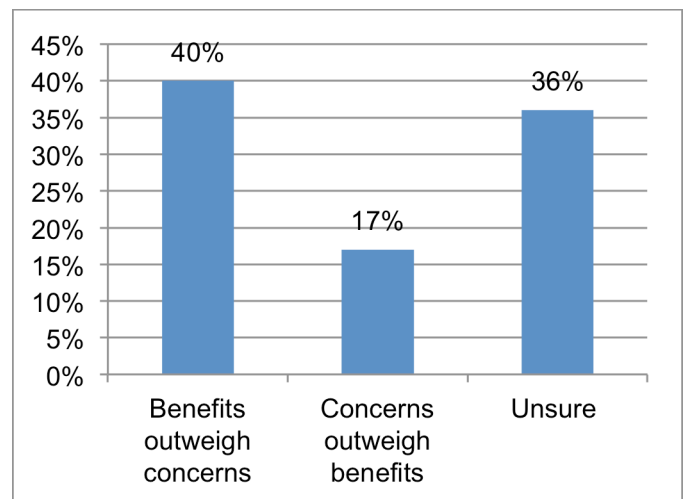
On the other hand, respondents expressed concerns about wind farm energy including the “loss of farmland production due to land dedicated to windmill infrastructure,” “cost of power generated by wind farms,” “impact of windmills on residential property values,” and “noise from wind turbines” as the most important concerns toward wind energy development (these issues were selected by at least 25 percent of respondents as a “top three” most important concern) (Figure 4).

Figure 4. Ranking of Most Important Concerns Associated With Wind Energy Development



Respondents were then asked whether they thought the benefits outweighed the concerns for wind energy development, or vice versa. A large percentage of respondents either felt the benefits of wind development outweighed the costs (about 40 percent) or were unsure (slightly above 35 percent) (Figure 5). This illustrates the degree of uncertainty surrounding the impacts of wind development in and around Wyandot County. Slightly above 15 percent of respondents indicated they believe that the concerns of wind development outweigh the benefits.

Figure 5. Benefits Versus Concerns of Wind Energy Development



Who Favors or Opposes Local Wind Development?

To better understand who favors or opposes wind development, we explored support for wind development based on a variety of factors, including individual demographics and place of residence.

Our study found that the majority of respondents in and around Wyandot County support having wind turbines in their area (Figure 6). Respondents were more likely to rate the issue as “neutral” than be in opposition of it.

Breaking this question down further, we looked at support and opposition for wind farms based on a number of factors. First, those who have seen a modern wind farm in operation were more likely to support their development, while those that haven’t seen one were more likely to be neutral.

Females were more likely to be supportive than males (over three fourths of women sampled indicated they strongly support or support wind turbines in the county, while slightly less than two thirds of men fell in this category). Respondents who were more conservative politically, older, and had less formal education were more likely to be in the small group of opposition to wind development in their community. However, with the small number of respondents in opposition in this sample, a strong demographic profile is difficult to identify.

There was generally more strong support or support for having wind turbines in their county among respondents living in a small town or the countryside (but not residing on a farm) than farmers (Figure 7). Also, slightly less than 30

Figure 6. Current Support for Having Wind Turbines in Their County

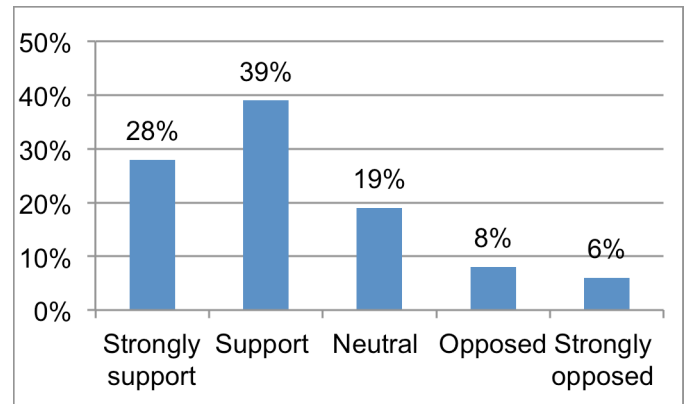
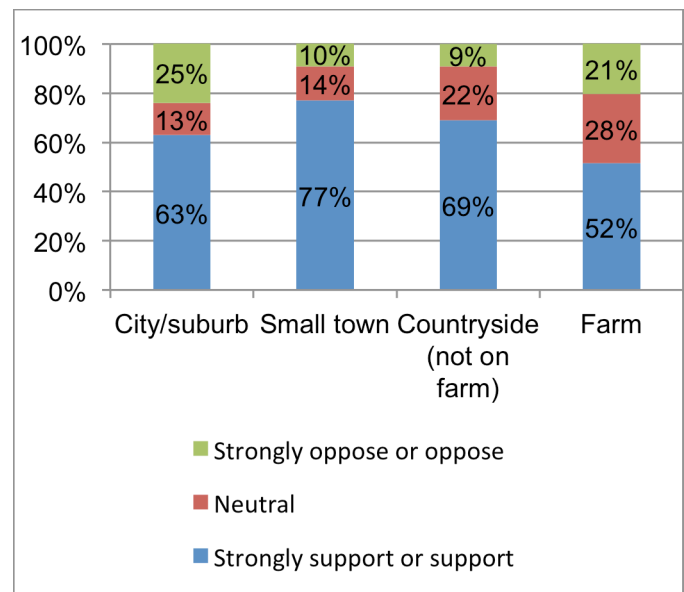


Figure 7. Support for Wind Turbines in Their County by Place of Residence



percent of farm and 22 percent of countryside (non-farm) respondents claimed to be “neutral” on the issue.

Last, there was more support for local wind energy development among respondents who feel that government should have a role in advancing energy production from renewable sources (Figure 8). On the other hand, the less than one-third of respondents who indicated they believe government should not have a role in supporting renewable energy were more likely to oppose or strongly oppose wind turbines in the county.

Residents Approached to Lease and Wind Development Area Perspectives

When asked if they would allow a wind turbine on their property if there were space for it most respondents indicated they would allow it (Figure 9). Sixty-three percent of respondents indicated they would allow it, 31 percent would not, while 6 percent chose to write into the survey that they don’t know (as this response choice was not originally provided).

While the majority of respondents stated they would allow a turbine on their property if adequate space existed, this varied by place of residence. Those who reside on farms are more likely to say, “no” to placing a wind turbine on their property (Figure 10).

More specifically, a proposed 100-megawatt wind farm is currently being considered in one of the county’s townships. We compared the respondents’ views of wind energy in the proposed-development zip code with those who

Figure 8. Support for Wind Turbines Based on View of Government Support of Renewable Energy

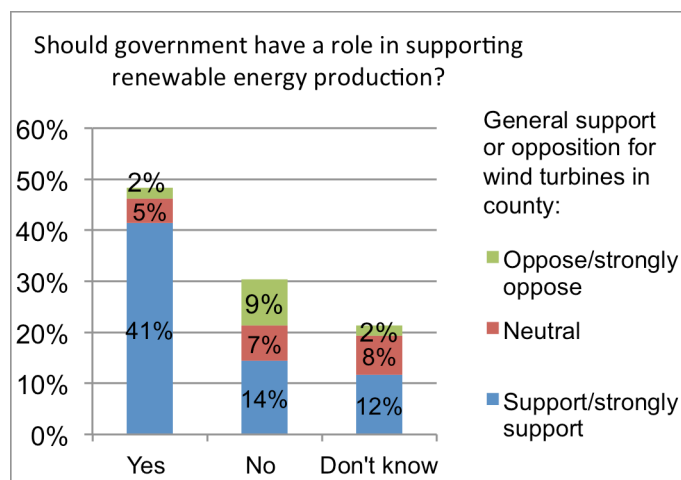


Figure 9. Placement of Wind Turbine on Own Property if Adequate Space

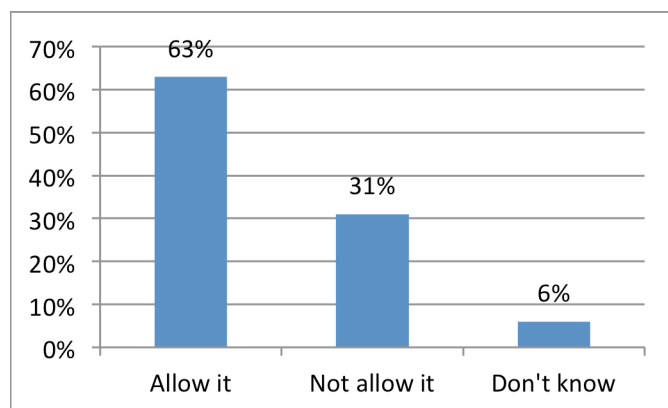
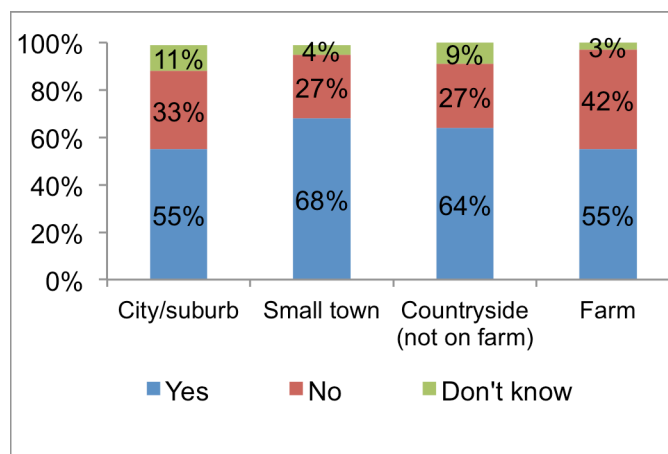


Figure 10. Placement of Wind Turbine on Own Property if Adequate Space



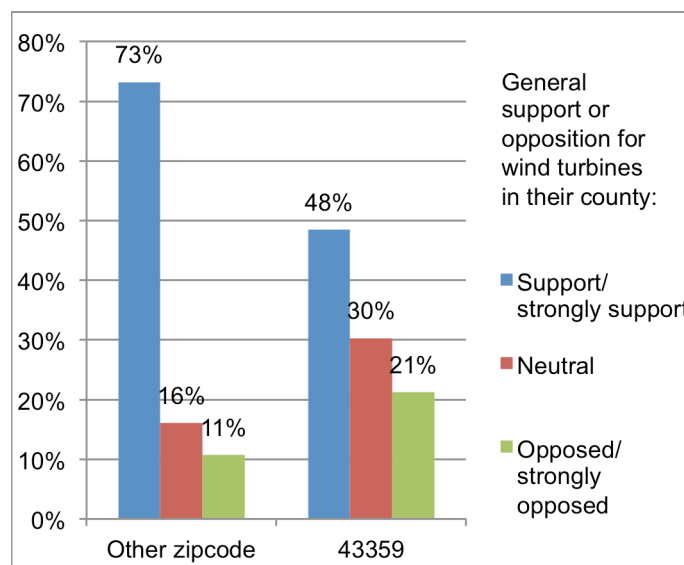
reside outside of that area. First, those who reside in the potential development area were more likely than others surveyed to live in the countryside either on a farm (43 percent) or not on a farm (46 percent), while 11 percent live in a small town. In addition, these respondents were more likely to have seen a modern wind farm in operation (83 percent of respondents in proposed development area, in comparison to 64 percent in the non-development area). These respondents were more likely to have attended a public meeting about wind farms in their county (20 percent in development area versus 4 percent outside) and to have been approached to lease property as part of a wind farm (17 percent compared to 6 percent). Last, respondents in this zip code indicated that they were generally in

more opposition to government involvement in wind energy development than those residing in other zip codes in the area. A much greater percentage of respondents in the proposed development area indicated sentiments against government supporting the advancement of energy production from renewable sources (40 percent to 29 percent), or whether the State government (43 percent to 30 percent) or Federal government (50 percent to 37 percent) should require that a portion of energy production come from renewable sources.

In addition, respondents in the proposed development zone were significantly more likely to oppose wind development in their county. Respondents in the proposed area of development indicated less support and more opposition for wind turbines in their county than those residing outside of that area (Figure 11). For example, only 18 percent of respondents in the development area (those who reside in the 43359 zip code) “strongly support” wind turbines in their county, compared to 31 percent from respondents residing outside the development zone. 12 percent of respondents in the development zone “strongly oppose” wind turbines in contrast to only 4 percent in other communities. Last, a greater percentage of development area respondents were “neutral” on this issue (31 percent) than those in other zip codes (16 percent).

Last, Figures 8 and 9 demonstrate that while most survey respondents would be willing to lease their property for a wind turbine if adequate space existed, this differed slightly by whether they lived on a farm, in the countryside (not on a farm), town, or city/suburb. In a similar vein, respondents who live in the area proposed for wind development were more likely to state that they would not allow a turbine placed on their land (47 percent) as opposed to those in surrounding areas (27 percent) (Figure 12). Again, there is a greater degree of uncertainty and/or neutrality in

Figure 11. Support for Wind Turbines Based on Residents' Zip Code of Renewable Energy



the area for proposed development as 12 percent of respondents don't know whether they'd lease land for a wind turbine (as opposed to 4 percent).

Views on Renewable Energy and Energy Sources and Standards

On average, respondents indicated that energy development issues are important at the local level in the Wyandot County area (respondents scored a 5.1 average between 1 (not at all important) and 7 (very important)).

Respondents were asked which sources of electrical production they would prefer to be expanded in Ohio and their community. Respondents either support or strongly support the development of solar, wind and natural gas electrical sources in Ohio and their own communities (Figure 13). Solar and wind energy were more preferred to be expanded at home than outside the community, unlike the other sources of electricity. There was a significantly high rate of neutrality around biomass energy.

We asked respondents to express their opinions about whether government should support the development of renewable energy. Nearly half of respondents (49 percent) felt that the government should have some role in supporting the advancement of energy production, while slightly less than one third (31 percent) disagreed (nearly 19 percent selected "don't know"). These statistics are very similar to responses regarding State and Federal government requirements that a portion of energy production comes from renewable sources. In general, there is more support for State than Federal standards; however these differences are not significantly different (Figure 14).

Figure 12. Placement of Wind Turbine on Own Property if Adequate Space

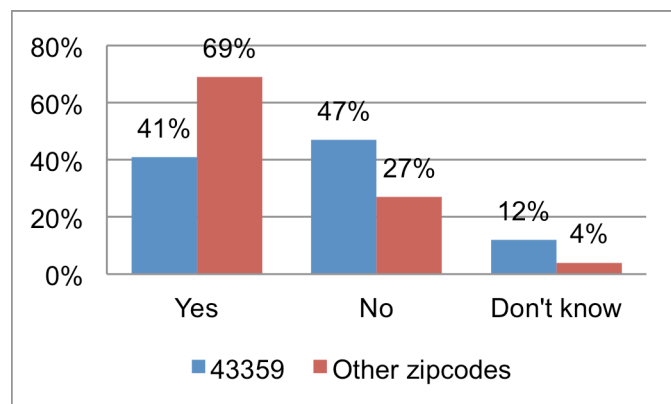


Figure 13. Residents' Support for Expanded Electrical Production by Source

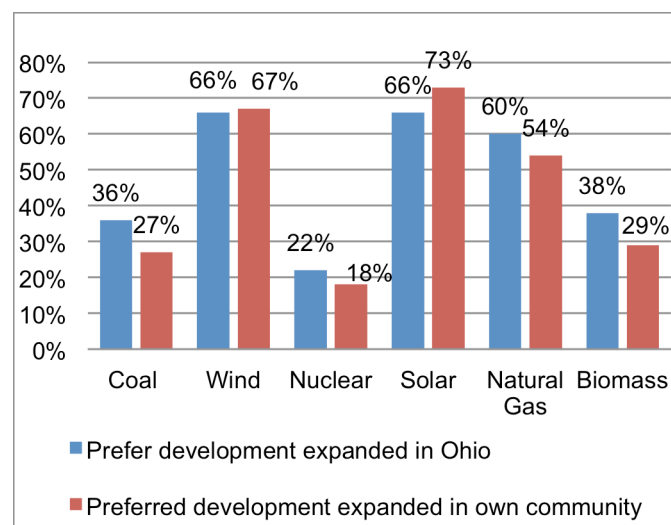
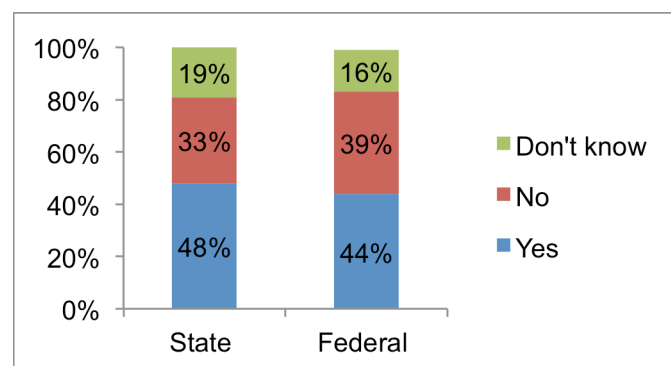


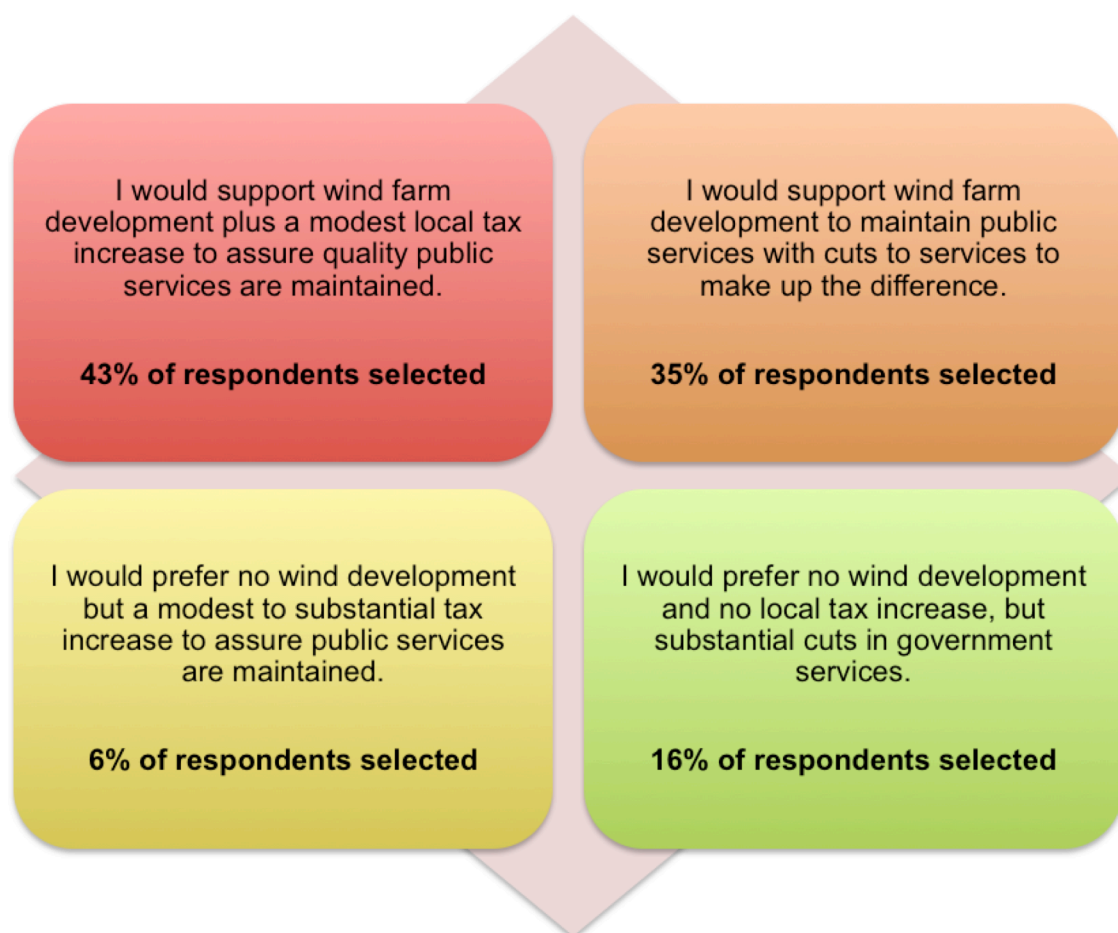
Figure 14. Support for State and/or Federal Government Renewable Energy Standards



State of the County Area and Local Policy Decisions

To gauge residents' views on local policy decisions, they were provided information related to wind farms and reduced local government funding as well as an example from Van Wert County. Then survey respondents were asked to select one statement from a list of four related to wind farm development, local taxes, and public services that they felt best represented their views. Similar to data presented above, respondents generally were supportive of wind farm development, with the greatest number (43 percent) in support of wind and a modest tax raise to maintain quality public services, while a lesser number illustrated they would support wind farm development alongside cuts in services (35 percent) (Figure 15). A much smaller percentage preferred no wind development, whether it is alongside cuts in government services (16 percent) or with tax increases (6 percent).

Figure 15. Wind Farm Development, Local Taxes, and Public Service Statements



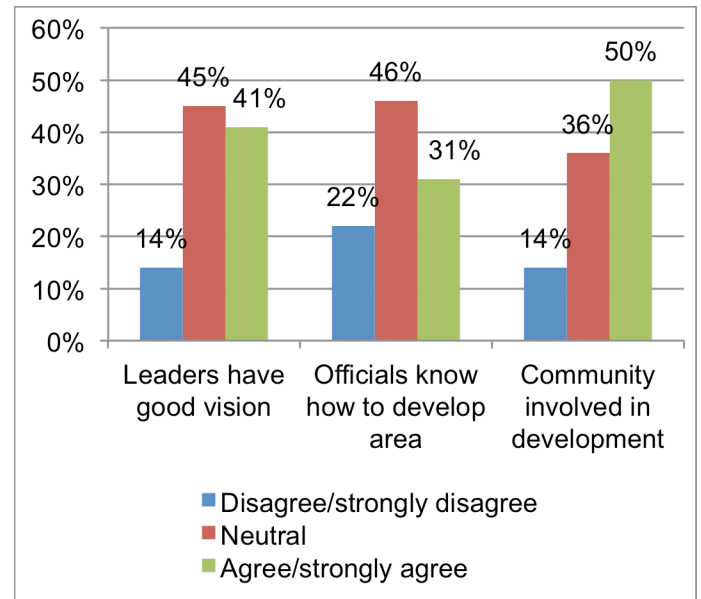
We wanted to gauge how residents felt regarding the direction of the economy and their community. Provided with a series of statements; ranking them 1 (strongly disagree) to 5 (strongly agree), regarding; “the leaders of my community have a good vision and sense of direction for the future;” “local officials in my community understand how to develop the area’s economy;” and “my local community is actively involved in local community improvement/economic development efforts.”

There was generally more strong support and/or support for the quality of leadership and direction of the community development, compared to a much smaller percentage of respondents who indicated they disagree or strongly disagree.

Also, respondents that claimed to be “neutral” on the issue ranged between 36 and 45 percent.

Last, about one-fourth of respondents (26 percent) feel that they were currently worse off than they were two years ago, in contrast to 21 percent who feel they are better off. Nearly half of respondents felt that they are about the same as they were two years ago.

Figure 16. Residents Opinion on the Direction of the Economy and Their Community



Summary

This report was developed to provide an overview of respondents’ attitudes regarding important energy and environmental issues in the county. Results indicated that there is broad support for wind farm development in Wyandot County. While 67 percent of respondents support or strongly support having wind turbines in their county, 36 percent indicated they were unsure if the benefits outweighed the concerns for wind energy development, or vice versa. This data suggest that there is still a lot of uncertainty surrounding the impacts of wind development in and around Wyandot County and residents are still seeking information to formulate their opinions.

References

Dillman, D.A. 2000. Mail and Internet Surveys: The Tailored Design Method. New York: John Wiley & Sons.

U.S. Energy Information Administration. 2013. Energy Information Administration Annual Energy Outlook 2013 with Projections to 2040. Online at: eia.gov/forecasts/aeo/index.cfm.

APPENDIX 1. Ground Rules for Working Together

Ground Rules for Working Together

Parties involved: Ohio State University Extension and EDF Renewable Energy

Name of project or effort: *Wyandot County Survey of Renewable Energy and Environmental Issues*

I. Introduction

Extension Programs and public Land-Grant Universities have experienced a reduction in funding from state and federal funding that has traditionally supported development and applied research and projects. As a result, many universities and communities have begun to establish working relationships with private industry to help financially support critical Extension research projects. While there are clear opportunities for such multi-sector collaboration, such efforts have the potential to present both actual and perceived conflicts of interest at the institutional and individual levels.

II. Purpose and Scope

OSU Extension approaches each opportunity with the intention of leveraging knowledge and resources to identify and fill critical knowledge gaps through applied research that ultimately will enhance educational programs to strengthen lives and communities of Ohioans. These Ground Rules are intended to:

1. Protect and maintain the integrity of OSU Extension
2. Protect and maintain the credibility of research methodology and findings.

OSU Extension will:

1. Approach this project, to the extent possible, from a neutral non-biased position to ensure the outcomes are research based and not influenced by funding sources and other support.
2. Own any data generated from this research project and will have the authority to publish the results regardless of the findings.
3. Include in the final project report a list of all funding and other support for this research project.
4. Attach a copy of these Ground Rules to the final project report

III. Acceptance

The undersigned accepts and agrees to abide by these Ground Rules.

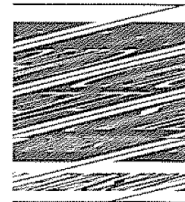
Name (Printed) *Kate O'Hair*

Title *Director, Central Region*

Company *EDF Renewable Energy*

Signature *Katherine L O'Hair*

Date *2/26/13*



APPENDIX 2. Zip Codes Represented

Zip Code	Municipality	County
43359	Wharton	Wyandot
43316	Carey	Hancock/Seneca/Wyandot
43323	Harpster	Marion/Wyandot
43351	Upper Sandusky	Wyandot
44844	McCutchenville	Seneca/Wyandot
44849	Nevada	Crawford/Wyandot
44882	Sycamore	Crawford/Seneca/Wyandot
45843	Forest	Hancock/Hardin/ Wyandot

Notes

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

Ohio State University Extension
Maynard Hall, Room 200
1461 Mount Vernon Ave.
Marion, OH 43302

740-725-6317
energizeohio.osu.edu

CFAES provides research and related educational programs to clientele on a nondiscriminatory basis.
For more information: <http://go.osu.edu/cfaesdiversity>.