

# Economic Impacts of Utility-scale Wind Turbines: What Rural Arkansas Counties Need to Know<sup>1</sup>

**Dr. Andrew E. Anderson**  
Assistant Professor -  
Agricultural Economics and  
Agribusiness

**Dr. Megan N. Hughes**  
Assistant Professor -  
Agricultural Economics,  
Kansas State University

**Dr. Hunter P. Goodman**  
Assistant Professor -  
Community, Workforce, and  
Economic Development

## Background & Summary

Arkansas does not currently have utility-scale wind turbines, despite parts of the state having significant wind resources. Across the U.S., roughly 97% of wind turbines are installed in rural areas (Hoen et al., 2025; authors' calculations). Considering this statistic, if utility-scale wind energy were to be introduced in Arkansas, rural communities would bear the direct impacts. This fact sheet contains projections of these impacts. The broad economic tradeoffs over time are listed below:

### Benefits of Wind Development

- County GDP increases by about 4%.
- Farmland values increase by 7 - 8%.

### Costs of Wind Development

- Personal income falls by 0.5 - 0.8%.
- Employment declines by about 1%.
- Population drops by 0.7% - 0.8%.
- Residential home values fall by 1 - 1.5%.



## Wind Resources in Arkansas

The state of Arkansas has significant potential for wind energy development, in terms of available wind resources. Figure 1 maps wind resources across Arkansas, using estimated capacity factor. Polk County leads with a capacity factor of 0.54, which is in the 99th percentile nationally. Additionally, 18 of 75 Arkansas counties are at the

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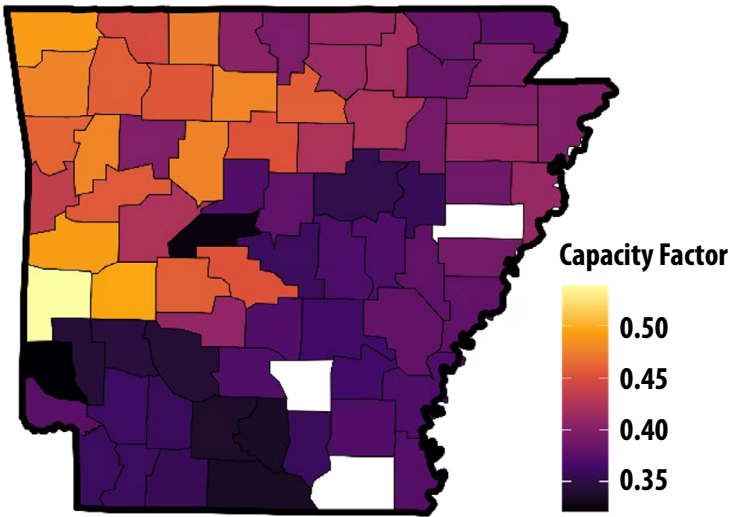
<sup>1</sup> This fact sheet is a summary of a longer report, which details the statistical analysis: Anderson, Hughes, & Goodman (2025) available at <https://fryar-risk-center.uada.edu/files/2025/10/Economic-Effects-of-Wind-Turbines-Extension-Report.pdf>.

80th percentile or greater nationally in wind resource rating (Draxl & Hodge, 2024; authors’ calculations). However, according to recent data, there are no utility-scale wind turbines in the state (Hoen et al., 2025; authors’ calculations).

Nonetheless, because of the relatively abundant resources in parts of the state, future development proposals are likely. Arkansans need to know the potential economic tradeoffs that would face rural communities.

### County-Level Impacts of a Wind Project

Table 1 below summarizes our statistical analysis of wind projects in rural counties across the United States. The statistical analysis utilized national data, but the results can help anticipate the potential impacts of wind energy development in Arkansas. Most effects happen in the short run over a period of 1-3 years, while the long-run effects are similar in size. Wind energy development does increase county-level real gross domestic product (GDP) and agricultural land values. This likely reflects the value of electricity newly generated in the county and the lease payments landowners receive for having wind turbines placed on their land. At



**Figure 1.** Wind Energy Potential Measured by Capacity Factor

*Note: Capacity factor is the share of a wind turbine’s rated capacity expected to be generated over time, based on local wind conditions and adjusted for the class of turbine suited to the site. Higher values indicate stronger wind resources. Source: Draxl & Hodge (2024); authors’ calculations.*

the same time, personal income, employment, population, and residential home values tend to decline. These negative effects likely reflect the impact of wind turbines on the aesthetics of rural counties, resulting in out-migration and fewer visitors, and subsequent economic impacts. More details are available in the full report (Anderson, Hughes, & Goodman, 2025).

### Role of Local Rules

Table 2 illustrates the role of local siting restrictions in reducing negative outcomes from wind energy development. These rules—such as setbacks from homes, turbine height limits, or

**Table 1:** Projected Effects of a Wind Project on County-Level Outcomes

| Economic Variable        | Short-Run Effect (1-3 years) | Long-Run Effect (~10 years) |
|--------------------------|------------------------------|-----------------------------|
| Real GDP                 | 3.84%                        | 4.11%                       |
| Personal Income          | -0.82%                       | -0.55%                      |
| Employment               | -0.69%                       | -0.96%                      |
| Population               | -0.69%                       | -0.82%                      |
| Single-Family Home Value | -1.23%                       | -1.51%                      |
| Agricultural Land Value  | 8.36%                        | 6.72%                       |

*Notes: The projected effects assume a county of 689 square miles (Arkansas average) and a wind project of 95 turbines (national median). These effects are an average across all counties with utility-scale wind turbines, each having various siting restrictions or none at all.*

**Table 2:** Siting Restrictions and Economic Outcomes in the Long-Run

| Economic Variable        | Without Siting Restrictions | With Siting Restrictions |
|--------------------------|-----------------------------|--------------------------|
| Real GDP                 | 2.06%                       | 3.98%                    |
| Personal Income          | -1.65%                      | -1.65%                   |
| Employment               | -3.15%                      | -0.41%                   |
| Population               | -1.51%                      | -0.55%                   |
| Single-Family Home Value | -3.43%                      | -1.37%                   |
| Agricultural Land Value  | 6.58%                       | 6.58%                    |

*Notes: The projected effects assume a county of 689 square miles (Arkansas average) and a wind project of 95 turbines (national median). These effects are estimated on all data points (except year of construction), with an average duration of about 10 years.*

sound controls—mitigate many of the negative impacts without compromising the benefits. For example, counties *without* restrictions are estimated to experience a 3.4% decline in home values and a 3.2% decline in employment—compared to counties *with* restrictions where home values declined 1.4% and employment declined by only 0.4%. Similar patterns hold across other economic outcomes in Table 2. While local siting restrictions and zoning ordinances do not eliminate the negative effects of wind energy development, they do help reduce the downsides.

## Key Takeaways

Landowners leasing land for turbines see clear benefits, while the community may face fewer jobs, net out-migration, and lower local housing demand. Increases in GDP reflect the value of increased electricity production, but that value accrues to the wind energy company and not the local community. Importantly, siting restrictions and zoning ordinances have been shown to soften the downsides while preserving the benefits. Counties should consider these tradeoffs and policies that can balance gains and losses when making decisions about wind energy.

## References

- Anderson, A. E., Hughes, M., Goodman, H. (2025). Economic Impacts of Utility-scale Wind Turbine Generators on Rural Counties in the U.S.: Implications for Arkansas. URL: <https://fryar-risk-center.uada.edu/files/2025/10/Economic-Effects-of-Wind-Turbines-Extension-Report.pdf>
- Draxl, C., & Mathias-Hodge, B. (2024). WIND Toolkit Power Data Site Index. NREL Data Catalog. Golden, CO: National Renewable Energy Laboratory. Last updated: December 18, 2024. <https://doi.org/10.7799/1329290>
- Hoen, B. D., Diffendorfer, J. E., Rand, J. T., Kramer, L. A., Garrity, C. P., & Hunt, H. E. (2025). United States Wind Turbine Database V8.1 (May 22, 2025) [Data set]. U.S. Geological Survey, American Clean Power Association, and Lawrence Berkeley National Laboratory. <https://doi.org/10.5066/F7TX3DN0>

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**DR. ANDREW E. ANDERSON** is assistant professor - agricultural economics and agribusiness at the University of Arkansas, Fayetteville, AR. **DR. MEGAN N. HUGHES** is assistant professor - agricultural economics at Kansas State University, Manhattan, KS. **DR. HUNTER P. GOODMAN** is assistant professor - community, workforce, and economic development the University of Arkansas System Division of Agriculture Cooperative Extension, Little Rock, AR.

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