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INDIANA RENEWABLE ENERGY

Siting through Technical Engagement and Planning (R-STEP™)

IN R-STEP

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The Relationship between Utility-Scale Wind and Solar Farms and Property Values

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Total investment in Indiana

$6.78 billion (wind)

$1.7 billion (solar)

(IURC)

Wind Turbines (2008 – 2023):

1,684 turbines

7 counties

(LBNL)

Utility-Scale Solar (2012 – 2023):

77 projects

3,000 Acres

38 counties

(LBNL)

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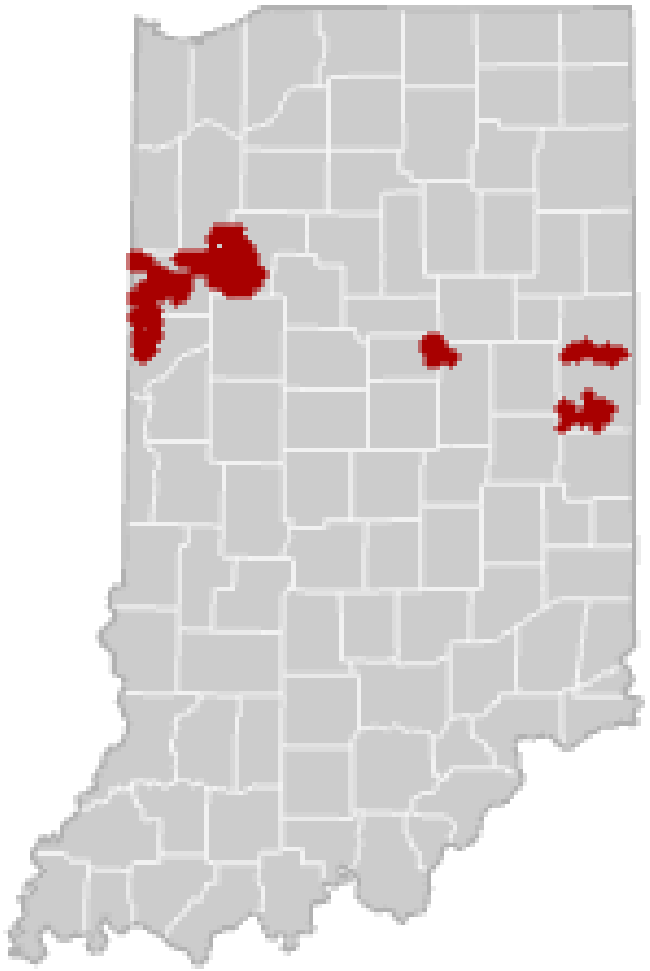
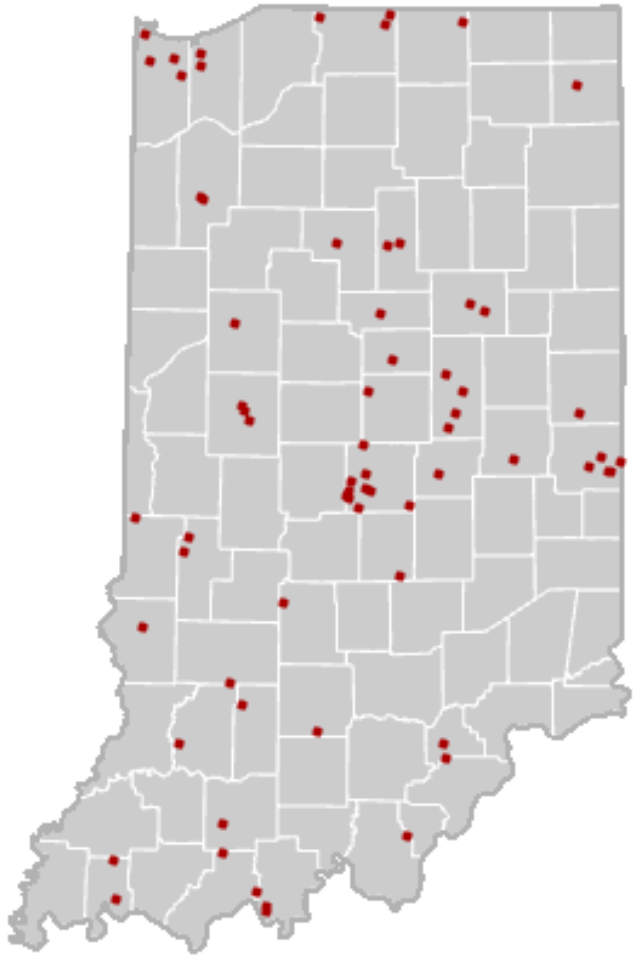
Location of Utility-Scale Wind and Solar Projects

Wind



Solar



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Externalities

Textbook Definition: An externality is an effect of an economic actor(s) activities on other economic actor(s) well being that is not taken into account by the normal operations of the price system.

Externalities and Property Values: Externalities may negatively or positively impact nearby property values.

Examples:

Negative	Positive
Pollution	Greenway Trails & Parks
Traffic Congestion	High Performing Schools
Noise	Infrastructure Improvements

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Measuring Property Value Impacts of Externalities:
Common Methods of Analysis

Matched Pair Analysis – Direct comparison of sale prices of similar properties that are closer and farther away from amenities or (dis)amenities.

Hedonic Analysis – Econometric model separating the price of a house into the value of each characteristic (e.g., number of bedrooms, square footage, basement, and certain location characteristics).

These models estimate the impact on the average property at multiple locations, or distances, from (dis)amenities.

Hedonic Difference-in-Difference Analysis – An econometric approach using the base hedonic approach, but defines treatment and control (or multiple spatial treatment groups) before and after a certain event.

Studies Examining the Impact of Utility-Scale Solar Projects

Author(s)	Geography	Unit of Analysis (Method) Years	Sample Size, Distance, Number of Solar Projects	Key Findings
CohnReznick, LLP *Valuation Advisory Services*	IN, IL, MN, MI	Farmland and homes (Matched pair, Interviews, review of other studies)	26 adjoining properties and 93 comparable sales over 6 solar farms	"… no measurable and consistent difference in property values…"
Elmallah et al. (2023)	CA, CT, MA, MN, NC, NJ	Residential property sales (Hedonic DiD, Event study) 6 years before and after first year of operation	Over 1.8 million property transactions within four miles of 1,500 solar projects	Negative impact of 0.82 to 2.26% depending on distance to solar project. No measurable impact on homes > 1 mile from solar project.
Gaur and Lang (2023)	MA, RI	Residential property sales (Hedonic DiD, Event study) 2005-2019	Over 107,000 property transactions within 2 miles of 282 solar projects	Negative impact of 1.5-3.6% on sale prices within 0.6 miles of solar project. Stronger effects in rural areas (2.5-5.8%)
Hao & Michaud (2024)	IL, IN, IA, KS, MI, MN, MO, NE, OH, WI	Avg. house value of 3-BR houses in zip codes (DiD) 2009-2022	Over 20,000 zip code obs. containing or adjacent to 35 solar projects	Solar project increased average house values 0.5-2.0%. Smaller solar projects had a larger positive impact on avg. house value.

Studies Examining the Impact of Utility-Scale Wind Projects

Author(s)	Geography	Unit of Analysis (Method) Years	Sample Size, Distance, Number of Wind Projects/Turbines	Key Findings
Brunner et al. (2024)	687 US counties with wind energy installations (34 states)	Residential property sales (Hedonic DiD, Event study) 2005-2020	Over 496,000 property transactions within 5 miles of 428 wind projects	Avg home within one mile of turbine experienced 11% sales price decline at announcement, became smaller after construction and then insignificant at 9 years. Homes located 1-2 miles experienced smaller impact that dissipated after 5 years. No impact on properties > 2miles from turbine. Impact limited to urban areas. No impact in rural areas.
Dong et al. (2023)	MA, RI	Residential property sales (Hedonic DiD, Event study) 2000-2019	Over 369,000 transactions within 10 km of 119 wind turbines	Only properties in the Cape Cod and Nantucket region (urban area) within 1 km of wind farm experienced decline in sale prices of 7%-10.8% and started to recover within a few years. Small to no impact in other regions.

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Conclusions

Recent studies find mixed results regarding wind and solar project impacts on nearby property.

Location of wind and solar projects matters, and **distance** of sale property from wind and solar project matters.

Generally, Indiana wind and solar projects are placed in low impact areas. Studies find that projects in low impact areas have low or no significant impact.

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