

INDIANA RENEWABLE ENERGY

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

Large Utility-scale Wind Ordinances in Indiana

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INTRODUCTION

Utility-scale wind has contributed to Indiana's electricity generation since 2008, when the first utility-scale wind development came into service in Benton County. Since then, Indiana has added 3,865 megawatts (MW) of wind generation across eight counties, with most of it built in Benton, Randolph, and White counties (SUFG, 2025b). Between 2015 and 2024, wind generation grew from 4.0% to 9.2% of the state's electric power generation (Indiana Utility Regulatory Commission, 2025).

Electricity demand is expected to continue to grow through 2042 in the state (SUFG, 2025a). While the One Big Beautiful Bill Act (OBBBA) removed the Inflation Reduction Act (IRA) tax credit for renewable resources that operationalize after 2027, electricity generation forecasts still show utility-scale wind generation growth over the coming decades (MISO, 2026; SUFG, 2025a).

Wind development has been more geographically clustered than solar, in part because of Indiana's wind resource variability across the state. More of the state has become suitable for utility-scale wind generation as turbines have grown larger and become able to take advantage of higher wind speeds at higher altitudes [U.S. Department of Energy(DOE), Wind Energy Technologies Office, 2024]. Zoning regulations have also shaped wind development patterns, with eight counties prohibiting wind in 2022 (Indiana Geological Survey, 2024; Ogle & Salazar, 2022).

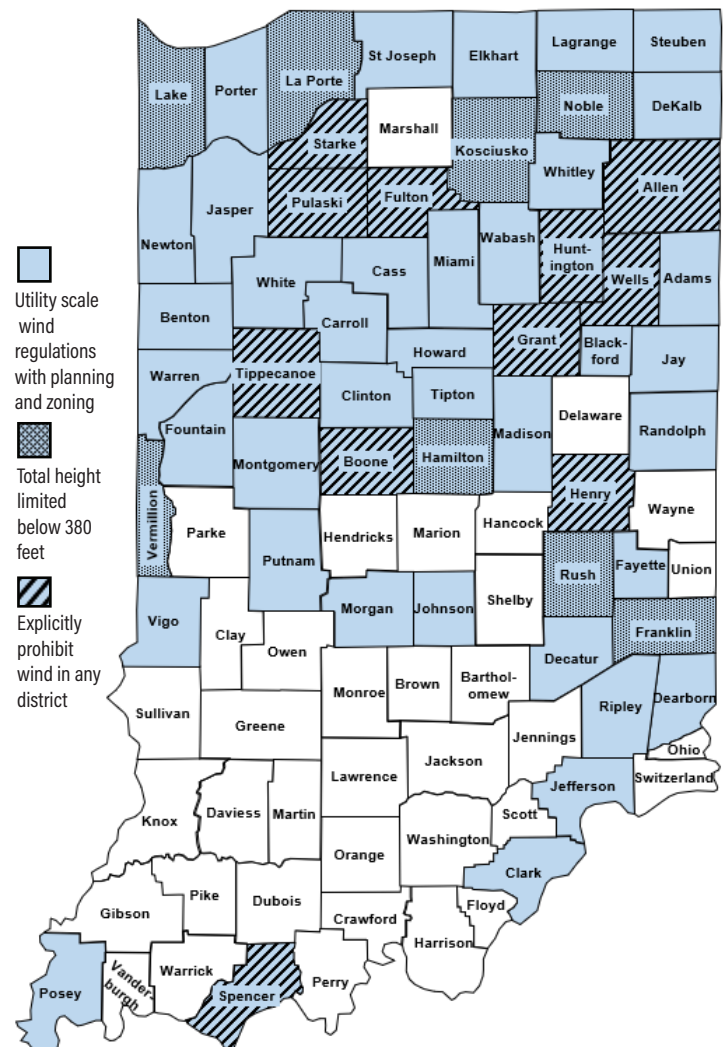


Figure 1: Counties with utility-scale wind regulations in their planning and zoning

Utility-scale wind projects are most often located on agricultural land with farming continuing around the turbines and related project elements. From 2009 to 2020, the USDA Economic Research Service (ERS) found that 93% of wind turbines installed in the Midwest were on cropland (2024), often leaving land use regulation to counties that plan for unincorporated areas. While counties have had more time to respond to utility-scale wind in their zoning ordinances than technologies like solar and battery, amendments or adoption of regulations can be driven by changes in technology, such as turbine height, repowering, and community needs.

In Indiana, counties can set land use policy for unincorporated areas by adopting planning and zoning (IC 36-7-4-202). Eighty-two counties (89.1%) in Indiana have implemented planning and zoning. Planning and zoning are implemented by planning department staff, the plan commission, the board of zoning appeals (BZA), and the local legislative body. The plan commission is primarily responsible for developing and amending the comprehensive plan and zoning and subdivision ordinances. The commission makes recommendations to the legislative body that adopts the plan, ordinances, and any amendments (Reitz & Ternet, 2017). The county commissioners serve as the legislative body for county government except for St. Joseph and Lake counties, where the county council serves as the legislative body.¹ The BZA is a quasi-judicial body that hears special exceptions,² variances and appeals from staff decisions (Burbrink, 2018). Planning department staff manage day-to-day planning operations, such as reviewing petitions and preparing staff reports (Reitz & Ternet, 2017).

METHODOLOGY

The study team collected utility-scale wind ordinances as part of the 2025 Renewable Energy Ordinance Inventory and Community Needs Assessment project that also included a review of zoning regulations for utility-scale solar and battery storage energy storage systems. This inventory and assessment updates a similar study conducted in 2022 (Ogle & Salazar).

In the summer of 2025, an electronic survey was sent to Indiana county planning departments. Respondents could submit their ordinances using a link or by uploading the file. Forty-five of the 82 contacts responded, resulting in a survey response rate of 54.9%. Following the survey, the study team collected additional ordinances through direct contact with county officials and a review of local websites through the spring of 2026. Seventy-six ordinances were collected through the survey and subsequent contacts represent 81.7% of the 82 counties with planning and zoning. Ordinances were collected for all counties with planning and zoning, unless county officials verified, by survey or direct contact, that the county does not have renewable energy standards in its ordinance.

This report focuses on utility-scale wind development. Figure 2 displays some of the common measurements used to describe the size of a wind turbine.

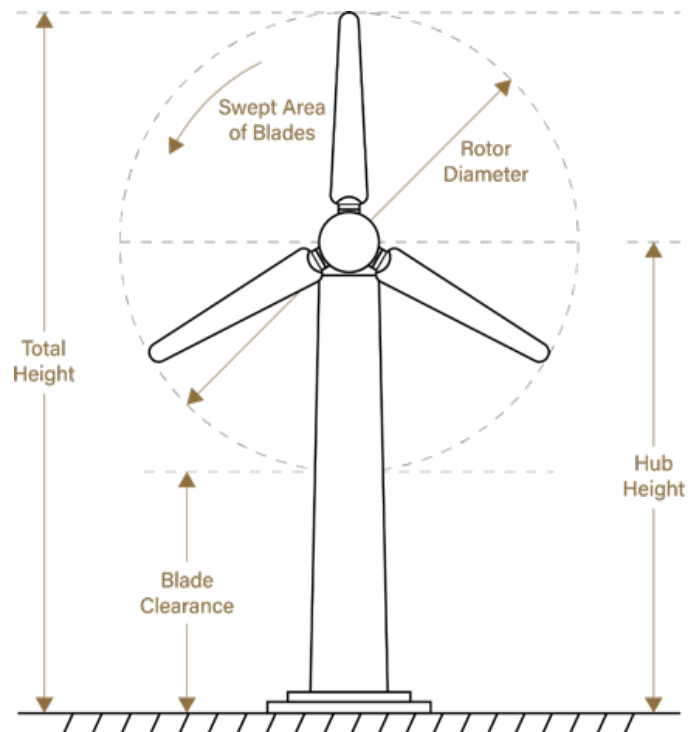


Figure 2: Wind turbine measurements diagram

While most zoning ordinances in Indiana measure height from the ground to the tip of the blade at its tallest position (total height), industry and research often refer to hub height and rotor diameter separately, with total tip height being the hub height + $\frac{1}{2}$ rotor diameter. Since 2022, around 98% of the land wind turbines built in the U.S. have had a rotor diameter of 115 meters (380 feet) or more (Wiser et al., 2024). Hub heights are more variable. To conservatively define a minimum total height for utility-scale wind turbines, this study will use 380 feet, understanding that 98% of turbines installed since 2022 have been larger than this.

¹ Marion County has a consolidated city-county government and is not included in this report.

² Special exceptions may also be called conditional uses or special uses.

The study team used a methodology comparable to Ebner et al. (2015) and Ogle & Salazar (2022) to categorize and analyze the collected ordinances. Zoning ordinance language was sorted into the following categories:

- Definitions
- Districts and approval process
- Acreage caps
- Setbacks
- Other use standards
- Plans and studies required

After categorizing the regulations, the study team analyzed renewable energy regulations to identify common standards.

WIND REGULATIONS

This study found utility-scale wind regulations in the 56 of the 82 Indiana counties with planning and zoning (68.3%) as shown in Figure 1. Ten counties adopted utility-scale wind regulations in their zoning ordinance since the 2022 study (Ogle & Salazar, 2022). Using the year of adoption or amendment when available, the study team determined that at least four counties with an existing wind ordinance had amended it since the previous study. Additionally, four counties repealed their utility-scale wind regulations.

Table 1: Counties excluded from analysis due to height restrictions below 377 feet for wind turbines

County	Height limit
Vermillion	District height limit applies (45-60 feet)
Noble	150 feet
Franklin	200 feet
La Porte	200 feet
Rush	200 feet
Hamilton	300 feet
Kosciusko	325 feet
Lake	350 feet

Of these counties that regulate utility-scale wind, 11 explicitly prohibit wind in any district as shown in Figure 1. Eight additional counties (Table 1) limit total height below 380 feet. For the purposes of this study, these nine counties were omitted from further analysis. This study includes only counties with turbine height restrictions above 380 feet. The

tools and regulations in the remaining 37 counties are included in the analysis below.

USE DEFINITIONS

Zoning ordinances use definitions for utility-scale wind to delineate the use being regulated. Counties use varied and, in some cases, multiple qualifiers to define utility-scale wind development. The most commonly used description is a “wind energy conversion system that delivers electricity to a utility’s transmission lines.” Twenty-three counties (62.2%) use this language, including 12 counties (32.4%) that use it as the only qualifier. The physical size of the project is used in nine counties’ definitions (24.3%). This may include height, swept area of turbines, or the total number of turbines in the project. Eight counties set a minimum kilowatt (KW) output per turbine to define utility-scale. Off-site consumption of the electricity is also a qualifier in eight of the counties’ definitions (21.7%).

ZONING DISTRICT AND APPROVAL METHODS

Zoning districts are specific geographic areas defined in the zoning ordinance. Counties define zoning districts and set land use regulations and development standards for each district that establish where and how different types of development occur. This includes what uses are permitted by right, by special exception or not permitted in the district. Uses permitted by right must meet the requirements of the zoning district and any development standards. Staff can approve these permits solely if all requirements are met. Uses that are permitted by special exception, conditional use, or special use are submitted to the BZA for consideration and approval and require a public hearing. The BZA considers the application against criteria established in the zoning ordinance and can add written commitments or conditions when approving the permit. Indiana Code does not establish any standards for these decisions.

When a use is not permitted in the specific zoning district that applies to the project site but is allowed in another district defined in the ordinance, the applicant can petition for an amendment to the zoning map, commonly referred to as a rezoning. In this process, the plan commission holds a public hearing and votes on whether or not to recommend

the amendment to the zoning map. The legislative body makes the final decision on the amendment. Overlay districts are also commonly used to regulate utility-scale renewable energy. A wind-energy overlay district can be placed over the existing (or base) district, allowing wind development with additional standards. Uses that are permitted in the base district would continue to be permitted under the base district standards. For wind projects, this allows agricultural operations and development to continue around turbines under the regulations of the agricultural zoning district. This process also requires an amendment to the zoning map.

Additionally, in counties with an advisory plan commission, an applicant can file for a use variance with the BZA, which can allow a land use that is not permitted, and would include a public hearing (IC 36-7-4-918.4).

Wind projects must meet the general standards of the zoning district in which they are proposed and any additional development standards specific to utility-scale wind. Some common development standards include setbacks and height restrictions. If a project cannot meet the established standards, they can petition the BZA for a variance from development standards. The BZA holds a public hearing and then approves or denies the variance petition based on whether it meets the criteria set by IC 36-7-4-918.5.

Table 2 describes the approval methods Indiana counties use for utility-scale wind in a general agricultural district. Five counties permit utility-scale by right in a general agricultural district for projects that meet all use and development standards. These projects also must secure a permit from the planning office, but do not require any additional review of zoning by the plan commission, BZA, or legislative body.

Over half of the counties permit utility-scale wind as a special exception (21 counties, 56.8%). In these counties, wind projects must appear before the BZA. For the remaining 11 counties, an amendment to the zoning map is necessary; three require a traditional rezoning, and eight require rezoning to an overlay district. Of the counties that require a rezoning process, utility-scale wind would be permitted by right in the new district or overlay district in seven counties, but in three counties a project would have to also get a special exception. In Vigo County, projects most likely require rezoning, but the ordinance does not specify whether utility-scale is then permitted by right or by special exception in their Wind Ready Community district. In addition to these permitting processes, 13 counties (35.1%) require utility-scale wind projects to undergo a development plan process as regulated by Indiana Code (IC 36-7-4-1402).

Table 2: Counties excluded from analysis due to height restrictions below 377 feet for wind turbines

	Permitted by right	Special exception	Overlay district-permitted use	Rezoning to another district-permitted use	Overlay district-special exception	Rezoning with special exception
Number^ of counties	5	21	6	1	2	1
Approving body	Staff*	Board of Zoning Appeals	Plan Commission votes on recommendation Legislative body has final approval		Plan Commission votes on recommendation Legislative body has final approval Board of Zoning Appeals	

^Vigo County is not included.
*Must follow district and use standards to be approved. Staff decisions can be appealed to the BZA.

DEVELOPMENT STANDARDS

Setbacks

Setbacks are a commonly used development standard delineating a distance between a use and the property line, right-of-way, or another use. Setbacks can be used to reduce conflict between land uses, ensure visibility along roads or preserve space for emergency access. In Indiana, 34 counties (91.9%) establish one or more setbacks for utility-scale wind development. These setbacks are often set as a factor of the turbine's total height. The most frequently used factor is 1.1 times the total turbine height for setbacks from a property line or right-of-way. Setbacks that use this method may also establish a minimum setback. For comparison, the study team calculated setbacks for a 600-foot turbine, as Ogle and Salazar did in the 2022 report. This analysis describes the varied setback standards and calculation methods used for utility-scale wind in Indiana counties.

The most common setback for utility-scale wind in Indiana is from the property line required in 33 counties (89.2%). Twenty-eight of these counties establish setbacks as a factor of the turbine height, and ten use both a factor of turbine height and a minimum distance. Using a tower height of 600 feet, property-line setbacks range from 50 to 3,960 feet with an average of 1,247 feet and a median of 660 feet. Setbacks from rights-of-way are also common, occurring in 30 counties (81.1%). All but two of these counties base setbacks on a factor of tower height, and 14 counties use a factor of turbine height and a minimum distance. Right-of-way setbacks range from 120 to 3,960 feet with an average of 1,058 feet and a median of 660 feet. Montgomery and Fountain counties both require setbacks from the rights-of-way and property lines of five times the total tower height with a minimum of 2,640 feet. However, both counties allow the BZA to increase the setbacks up to 3,200 feet during the special exception process.

The most common setback from a use is from residences, with 26 counties including a setback for utility-scale wind from residences whose owners are not participating in the project. Setbacks from non-participating residences range from 200 to 3,960 feet with an average of 1,440 feet and a median of 1,225 feet. Nine counties require a setback from residences of property owners participating in the utility-

scale wind project. Setbacks from participating residences range from 660 to 3,900 feet with an average of 1,411 feet and a median of 1,000 feet.

Fifteen counties establish setbacks for utility-scale wind from schools. Using the same 600-foot tower height, these range from 900 to 12,000 feet with an average of 3,483 feet and a median of 1,520 feet. Carroll and Posey counties require substantially higher setbacks than the remaining counties at 12,000 and 10,560 feet, respectively. Both measure their setbacks from the school-owned property line instead of from the building. Setbacks for the remaining 13 counties from schools are 5,280 feet or less. In 12 counties, setbacks from churches or religious institutions range from 900 to 3,900 feet with an average of 1,793 feet and a median of 1,500 feet.

Counties often establish setbacks from conservation areas with varied definitions and methods. Eleven counties have a setback from conservation land or parks. Seven counties require a "setback from rivers, most often 2,640 feet. Jasper County also has a "no turbine zone" around Jasper-Pulaski Fish and Wildlife Area. While three counties have a small setback from waterways and ditches of 75 to 150 feet, Carroll County requires a setback from wind developments of 6.5 times the total tower height with a minimum of 3,960 feet.

Six counties require a setback from overhead transmission lines. Most of these counties use a factor between 1.1 and 1.2 of total height. Cass County uses a factor of three times total height. Five counties have a specified distance between turbines of 1.1 times the total height.

Twenty-two counties require setbacks from municipal boundaries. These range from 1,500 to 15,380 feet, with an average of 3,713 feet and a median of 2,320 feet. Seventeen counties also have setbacks from platted communities and subdivisions or residential districts in unincorporated areas. Specific setbacks vary across counties depending on the size of the subdivision or for different types of residential districts. For example, White County requires a 5,280-foot setback from Idaville and Buffalo, two of its larger unincorporated platted communities, while Morgan County requires a 1,000-foot setback from a residentially zoned parcel and a 1,500-foot setback from a platted subdivision.

Height and Blade Clearance

Figure 2 is a diagram showing turbine measurements, including height and blade clearance. Counties can regulate both measurements in their zoning ordinances. While maximum height can restrict utility-scale wind generally, five counties (13.5%) also use height as a development standard. Porter County limits total turbine height to 500 feet; Jasper County limits to 575 feet; and Cass, Fountain, and Montgomery limit to 600 feet.

Blade clearance is the area between the ground and the tip of the blade at its lowest point in rotation (Figure 1). When counties set a minimum blade clearance, they may be considering emergency or farm equipment that might travel under that area. They may also be regulating total height indirectly, since a large blade clearance requires a shorter rotor diameter if the hub height stays the same. Twenty-nine counties (78.4%) regulate blade clearance. Two counties, Montgomery and Fountain, require the blade clearance to be at least one-third of the tower height with a minimum of 50 feet. The remaining 27 counties required blade clearances ranging from 15 to 75 feet with an average of 25 feet and a median of 15 feet.

Noise Limit

Utility-scale wind projects create noise from the generator and blades moving through the air, which could conflict with surrounding land uses. The sound from an average utility-scale turbine is about 35 to 45 decibels (dB) at about 1,000 feet away (DOE, 2025b). Counties can reduce conflict with surrounding uses by setting noise limits. Noise limits typically include three components: the decibel limit, duration, time measurement (i.e., 90% of each hour, hourly average), and the place of measurement.

Noise limits are the second most common standard used by Indiana counties after setbacks (32 counties, 86.5%). Elkhart County requires “no audible noise”. Decibel limits in the remaining 31 counties range from 32 to 75 dB. Four counties use a sliding scale for their decibel limit based on hertz (Hz). Adams, LaGrange, and Posey counties have a decibel limit with an allowance of no more than 5 dB over the ambient noise level in the case that the ambient noise level in the area is above their limit. Most counties with a noise limit (23 of 32, 71.9%) measure it at a building or at the property line of a residential or occupied building. Eleven counties measure

the noise limit at the property line. Four counties have different noise limits for different places of measurement or neighboring uses.

Shadow Flicker

Shadow flicker is the shadow the rotating blades of a wind turbine cast when the sun is low on the horizon (DOE, 2025a). Setbacks help reduce shadow flicker on nearby residences, but shadow flicker standards can also set expectations and ensure mitigation when needed. In Indiana, 20 counties (54.1%) have shadow flicker standards. Carroll, Miami and Montgomery counties have the most stringent of these standards, prohibiting any shadow flicker on properties that do not have a participating owner. Six counties prohibit shadow flicker on occupied buildings or for specific uses, such as residential. Seven counties limit shadow flicker on protected uses to 30 hours per year, with a daily limit of 30 minutes in some cases. A few counties have more ambiguous standards, like Putnam County, which requires reasonable efforts to minimize shadow flicker on occupied buildings.

Color Standards

The Federal Aviation Administration (FAA) requires turbines to be pure white or light grey (RAL 9010 or RAL 7035, respectively) for effective daytime visibility. Shades of white between these two specifications are recommended for turbines under 499 feet, but pure white is required for those over 499 feet (FAA, 2024). Thirty-one counties (83.8%) set color standards, all of which are the same or allow more colors than FAA requirements. Nearly all of these counties require turbines to be non-reflective, and white or grey. A few counties allow black blades for de-icing, which appears to conflict with FAA rules. Steuben County requires all turbines within a distance of four times the turbine height to have a similar appearance.

Other Standards

The FAA also regulates turbine lighting (FAA, 2024). Thirty-two counties (86.5%) have lighting standards. These requirements vary across counties but generally defer to FAA requirements for approved light mitigation technology. Other common standards include warning signage (30 counties, 81.1%), fencing or anti-climbing devices (29 counties, 78.4%), interference with radar and communication signals (28 counties, 75.7%), and braking systems (25 counties, 67.6%).

REQUIRED PLANS, AGREEMENTS, AND STUDIES

Counties may require plans, agreements, or studies to ensure that zoning standards are met, provide additional information for permit decisions, and confirm public services can be provided for the new development without negative impact. These plans and agreements also assist coordination between county departments and other regulatory processes. In Indiana, Clark, Johnson, and Ripley counties do not require any plans, agreements, or studies for utility-scale wind in their ordinances. The remaining 34 counties (91.9%) require at least one as shown in Figure 3.

Decommissioning plans are the most commonly required plan for utility-scale wind occurring in 33 county ordinances (89.2%). As compared with solar, requirements for these plans often include financial assurances, time limits, decommissioning triggers, and standards.

Counties generally require the decommissioning plan to be updated regularly during the life of the project. Road use agreements are required in 29 counties (78.4%). Utility-scale wind construction involves transporting large components like blades and towers to principally rural sites where roads are designed and built for oversized or overweight loads (Levine & Cook, 2016). Road use agreements can dictate transportation routes to protect bridges, reduce traffic conflict, and limit road degradation, while also providing a mechanism for the developer to pay for road repair.

While construction is an intense period of road use, road use agreements are useful for the life of the project as general maintenance and blade replacement occur. Drainage and erosion control plans (29 counties, 78.4%) and emergency/fire safety plans (20 counties, 54.1%) also serve to protect public infrastructure and services.

Counties also require sound studies (15 counties, 40.5%), revegetation plans (10 counties, 27%), shadow flicker analysis (8 counties, 21.6%), and telecommunications studies (5 counties, 13.5%) to ensure compliance with ordinance standards. For example, a county might require a shadow flicker study to make sure that the shadow flicker will not exceed the limit set by its development standards. Liability insurance is required in 27 counties (73%), and maintenance plans or reports are required in 17 counties (45.9%).

Economic development agreements (EDAs) are required by 13 counties (35.1%). These agreements are legal contracts between the legislative body and a developer or utility. Planning staff, plan commissions, or BZAs typically do not make decisions about what is in the EDA but can require an agreement as a condition for permitting. Other less common agreements or studies required include property value protection plans (6 counties, 16.2%) and environmental assessments (6 counties, 16.2%).

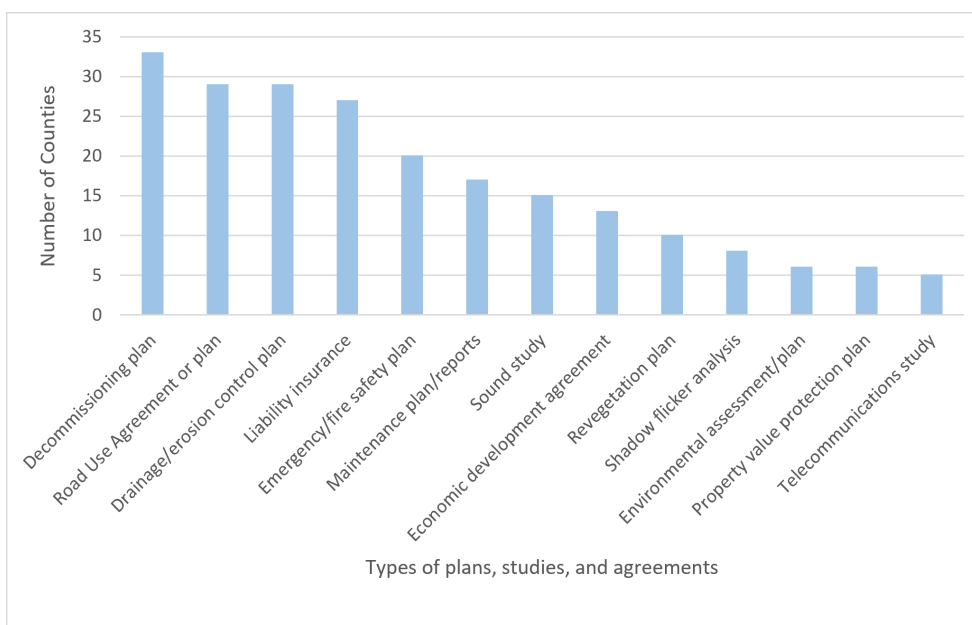


Figure 3: Plans, agreements or studies required for utility-scale wind projects in county zoning ordinances for

STUDY COMPARISON — 2022 AND 2026

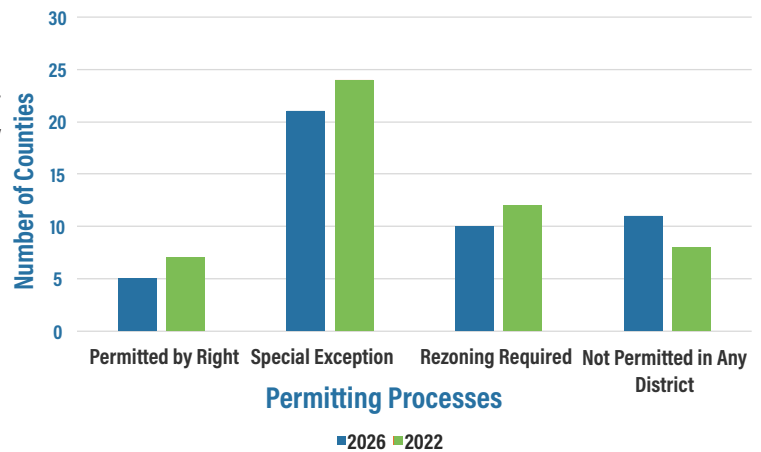
This study did not directly compare utility-scale wind regulations by county to those found in the 2022 study (Ogle & Salazar, 2022). The general trends for the local regulation of wind development are less clear than for solar regulation. Restrictions seem more likely to take the form of explicitly prohibiting or severely limiting height, with fewer changes to development standards and approval processes in the remaining counties. While 11 counties explicitly do not permit utility-scale wind in any district in 2026 compared to 8 counties in 2022 (37.5% increase), four counties repealed their wind regulations during the same time. In some cases, when counties repealed specific wind development regulations, these uses may be regulated under a more general use, such as a power generation plant, or it may be left up to staff interpretation. In 2022, four counties had a maximum height standard below this threshold, compared to the eight found in this study.

As shown in Figure 4 permitting processes remained similar. Setbacks also did not trend in a specific direction. The median setback from property lines (660 feet) was the same for both the 2022 and 2026 studies. Less development pressure may contribute to less amendments to existing ordinances.

SUMMARY

Since 2008, Indiana has added 3,865 MW of wind generation. This increase has impacted county ordinances, reflected in the 2025 Renewable Energy Ordinance Inventory conducted by Indiana R-STEP. 56 counties have utility-scale wind ordinances, but eleven of these counties explicitly do not permit wind in any district. This leaves 37 counties that permit utility-scale wind development. The majority of these counties permit wind projects on agricultural land either through special exception or by right, allowing continued farming around turbines.

Figure 4: Permitting process for utility-scale wind in a general agricultural district, 2026 & 2022 comparison



Wind setbacks are often established as a factor of the turbine's total height. This analysis found that the most common setbacks for utility-scale wind in Indiana are from the property lines and residences. Other common setback standards found are from rights-of-way, schools, churches or conservation lands. Setbacks from municipalities are also common. Other frequent development standards include shadow flicker and noise limits serving to reduce negative externalities for neighbors. Fencing or anti-climbing devices, interference, color, lighting, and braking systems are common use standards for security and safety. Common plans or agreements required across the state for wind are decommissioning, road use, and drainage to protect the community from negative externalities. While utility-scale wind development is a more mature land use than other types of renewable energy projects, Indiana counties will continue to consider how they want to regulate this land use.

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