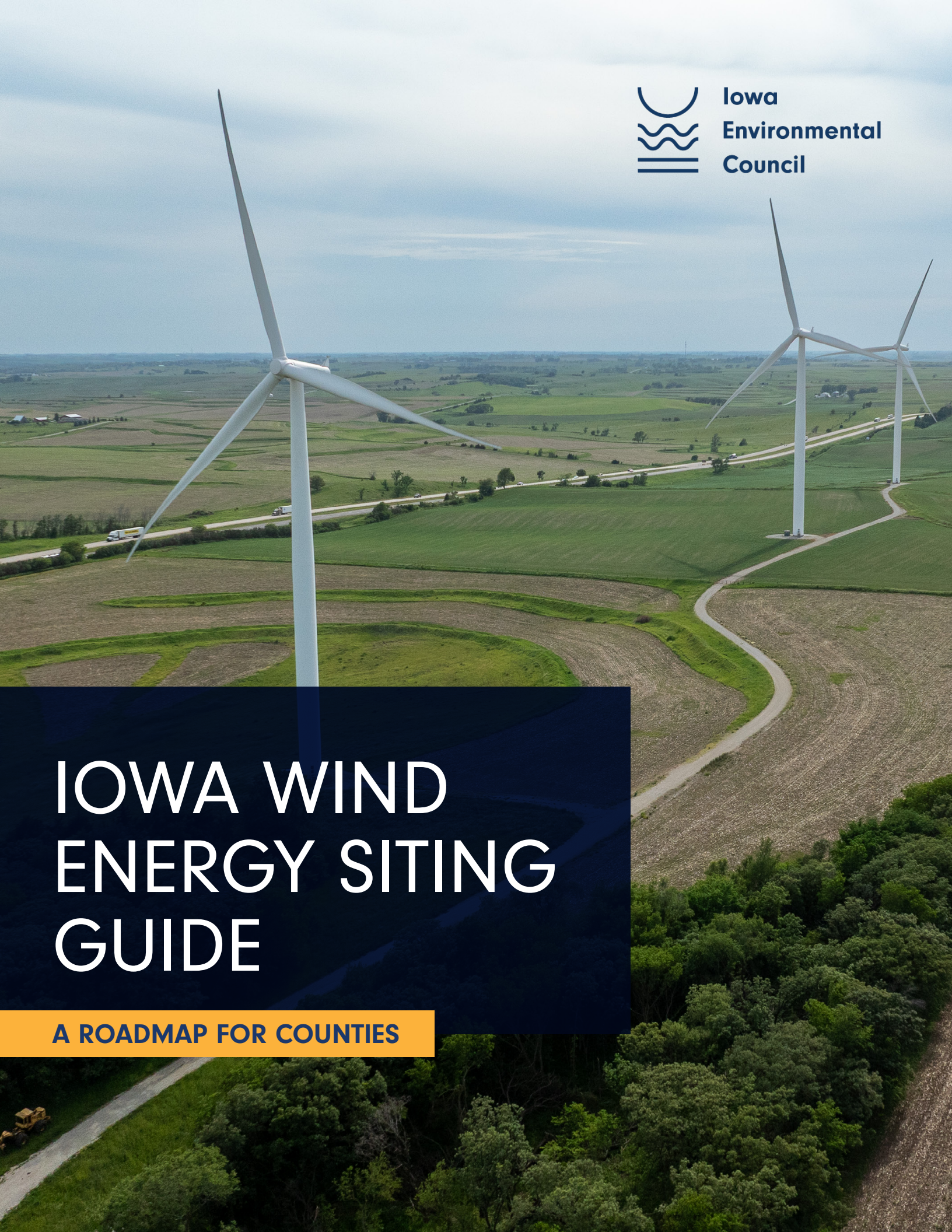

Iowa Environmental Council

IOWA WIND ENERGY SITING GUIDE

A ROADMAP FOR COUNTIES

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INTRODUCTION

Laurel Wind Farm in Marshall County, Iowa. Over half of Iowa's 99 counties have utility-scale wind projects in operation or in active development.

PURPOSE OF THIS GUIDE

This guide is intended to support Iowa county officials in developing or updating ordinances for utility-scale wind energy projects by providing a reference informed by successful practices across the state.

For counties interested in the benefits of utility-scale wind projects, a well-drafted ordinance will protect the health and safety of the county and its residents, while enabling developers to build workable, cost-effective wind projects.

Under Iowa's home rule policy, counties have adopted a wide range of ordinance provisions related to wind development. These county ordinances allow wind development but impose a variety of restrictions or requirements and establish processes for wind project approval.

Over half of Iowa's 99 counties have utility-scale wind projects in operation or in active development.[1] In 2024, Iowa generated 66% of statewide electricity from wind, a higher percentage than any other state.[2] Our research indicates that more than half of Iowa's counties have adopted some type of ordinance to guide wind development, using a wide variety of approaches over the past 15 to 20 years. We have reviewed many of these ordinances and identified specific provisions that can be viewed as successful practices, insofar as they address safety and other considerations while allowing for reasonable development.

ROLE OF COUNTIES IN THE SITING OF WIND ENERGY

County governments play an important role by reviewing and approving specific wind projects at the local level. County policies that guide the review and approval process must strike a balance between the needs of the county and cost-effective wind development.

We believe that this balance has been achieved in parts of Iowa already and is attainable in every Iowa county. A well-crafted ordinance is a large part of achieving this balance and enabling counties to realize the full benefits of wind energy generation.

HOW TO USE THIS DOCUMENT

We encourage county officials to use this document as a reference to support the development and adoption of a well-designed ordinance rooted in existing successful practices. This guide is not intended to serve as a one-size-fits-all model ordinance, but rather as a resource to inform local decision-making based on community priorities and conditions.

This is not legal advice, and users of this guide should consult an attorney with specific legal questions.

WHY WIND SITING MATTERS

Iowa is a national leader in wind energy, ranking first among states in the percentage of electricity generated from wind and third in total installed wind capacity.[3]

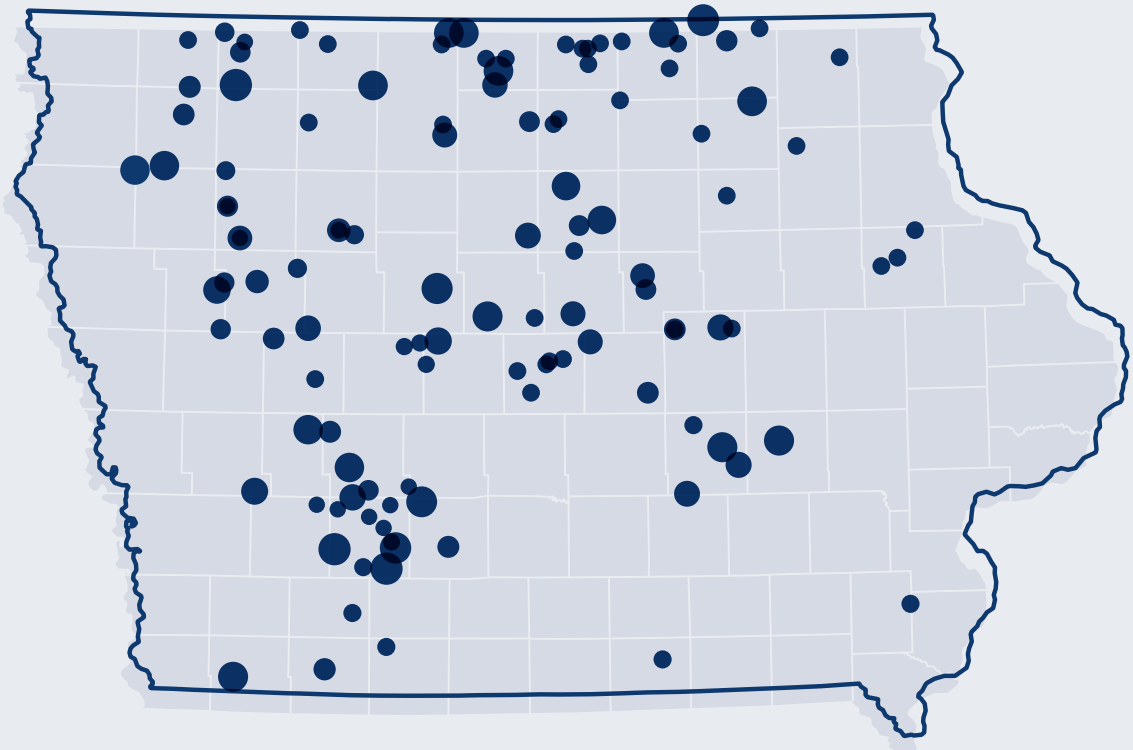
Iowa has significant potential for additional wind development, with studies providing a range of 276,000 MW to 570,000 MW of technical potential,[4] or the theoretical maximum amount of generation that could be produced by a certain generation source within a region.

With about 13,411 MW installed as of April 2026, Iowa has just begun to tap this potential.[5] While parts of Iowa have some of the best wind resources in the U.S., improvements in wind turbine technology are enabling successful development in less windy areas, meaning that most Iowa counties could benefit from utility-scale wind development.

Wind energy in wind-rich states like Iowa has become one of the lowest-cost sources of new electricity

Installed Wind Energy Projects in Iowa

Marker size reflects capacity — only facilities with reported capacity data are shown.



Source: https://cleanview.co/power-projects/operating/wind-farms/iowa
See Appendix B for a list of wind energy projects and their locations.

generation even without considering tax incentives such as the federal production tax credit, with only utility-scale solar energy having a lower cost over the life of a project.[6] These favorable economics, combined with strong development potential, suggest that Iowa can and should see continued wind development in the years ahead.

In addition, growing electricity demand driven by factors such as economic development, electrification, and increased energy use is expected to place significant additional pressure on the energy system in the coming years.[7] As a result, demand for new generation resources, including wind energy, is likely to continue increasing. This trend underscores the importance of counties having clear, well-designed ordinances in place to guide wind development.

Wind development offers a number of benefits to county residents and the county itself. These benefits include:

- **Lease or easement payments to landowners.** In 2025 alone, MidAmerican Energy paid approximately $60 million in landowner payments to more than 4,000 property owners and their neighbors across the state.[8] For landowners, wind turbines lease payments today range from $5,000 to $10,000 per turbine annually over a 20- to 30-year lease.[9]
- **Property tax revenue to counties.** Wind turbines generate property tax revenue that supports public services such as roads and bridges, health services, schools, and debt service, while reducing the need to grow tax revenue through other means. In counties with significant wind development, wind projects are among the largest sources of property tax revenue. In 2025, MidAmerican Energy paid approximately $60 million in property taxes across 35 counties.[10]
- **Clean energy resources.** Unlike fossil fuel fired plants, wind turbines do not produce air pollutants such as sulfur dioxide, nitrogen oxides, greenhouse gases, particulate matter, or mercury. They therefore do not contribute to acid rain, smog, or associated public health impacts such as pulmonary and heart disease and asthma. Wind turbines also do not use water for electricity generation or produce hazardous waste.

Arbor Hills Wind and Solar Projects in Stuart, Iowa.

- **Local economic development.** According to Clean Jobs Midwest, 12,017 Iowans worked in the renewable energy sector in 2024, including 3,895 specifically in wind energy generation.[11] Wind development supports jobs across manufacturing, construction, operations, and maintenance, and attracts businesses in the wind supply chain. Access to low-cost renewable energy also helps attract companies with clean energy goals to Iowa.

POLICY CONTEXT: LOCAL AUTHORITY AND STATEWIDE SITING PRESSURES

Under Iowa's home rule policy, counties have primary authority over wind siting decisions. However, in recent years there has been an increasingly urgent push at the state legislature to shift renewable energy siting authority from counties to the state.

Inconsistent county ordinances and moratoria have created uncertainty for developers, utilities, and local officials, and in some cases have prevented projects from moving forward. These inconsistencies can make it more difficult for communities to navigate land-use decisions and may ultimately shift investment to other states.

As a result, there has been a growing effort to advance statewide wind siting legislation, with 2026 marking the first time such bills have passed out of committee.[12] For counties to maintain local control, adopting clear and workable ordinances is important.

Additionally, in the *River City Energy Final Order (GCU-2025-0004)* of April 2026, the Iowa Utilities Commission demonstrated a willingness to approve renewable energy projects notwithstanding county ordinances that ban or effectively ban such development and conflict with state legislative intent.[13] This ruling, along with the increasing momentum for legislators to adopt statewide wind siting standards, emphasizes the importance of having a workable ordinance for counties that value home rule and want a say in their land use decisions. While the order did not create a new approval pathway, it clarified the Commission's existing authority and reduced uncertainty around how projects may proceed without county approval when local regulations function as prohibitions.

Workable ordinances can reflect local values and concerns while also allowing renewable energy development that aligns with broader state and market trends. The best practices and recommendations outlined in this guide are intended to support counties in achieving that balance.

PLANNING ALIGNMENT: COMPREHENSIVE PLANS

Comprehensive plans are documents developed by county officials to provide a foundation for land use regulation in a county for decades to come. Iowa Code specifies that zoning ordinances and decisions "shall be made in accordance with a comprehensive plan..." (Iowa Code § 335.5).[14] Iowa Code also specifies that "it is the intent of the general assembly to encourage the development of renewable electric power generation. It is also the intent of the general assembly to encourage the use of renewable power to meet local electric needs..." (Iowa Code § 476.53A).[15]

For this reason, we recommend counties encourage renewable energy development by adopting ordinances that align a comprehensive plan with the state's and county's intentions to attract such development.

EXAMPLE: COMPREHENSIVE PLAN ENCOURAGING RENEWABLES

Goal 3. Encourage the creation and use of alternative and renewable energy sources.
Objective 1: Increase alternative and renewable energy sources in the county.
Strategies:

- Modify the zoning ordinance and other relevant county regulations as necessary to remove barriers to the use of renewable energy systems such as solar, wind, and geothermal.
- Promote the use of renewable and inexhaustible energy sources over non-renewable energy sources...

DEFINITION OF TERMS

Like other areas of regulation that involve technology, wind siting ordinances rely on terminology with precise definitions. The list of terms provided here is not exhaustive but includes many terms and recommended definitions counties should consider adding to the definitions section of a wind siting ordinance.

Utility-scale wind energy system. A wind energy system above a certain capacity that is intended to produce electricity to sell into the market, not to directly supply end-use customers. These systems are larger than small-scale residential or business wind installations and many community systems, often covering more land area.

Applicant: The owner, operator, and/or developer seeking to permit a utility-scale wind energy system.

Commercial Wind Energy Conversion System (C-WECS): A combination of wind turbines as part of a utility-scale project.

Easement: A legal agreement for the use of property for a specified purpose.

Fall zone: The area defined as the furthest distance from a tower base, in which a guyed tower or self-supporting tower will collapse in the event of a structural failure. This area includes the total height of the structure plus 10%.

Feeder circuit/lines: A power line or network of lines used as a collection system that carries energy produced by a wind energy system to an interconnection point like a substation. Feeder circuits are typically placed underground.

Interconnection: Link between a generator of electricity and the electric grid. Interconnection typically requires connection via infrastructure such as power lines and a substation, as well as a legal agreement for the project to be connected to the grid.

Lease: A contract between two parties where one party, the lessor, allows the other party, the lessee, use of its property for a period of time in exchange for consideration, usually a quarterly or annual sum of money. The original landowner ultimately retains possession of the property.

Meteorological tower: Towers erected primarily to measure wind speed and direction and other data relevant to siting WECS.

Non-participating landowner: Any landowner that has not signed a lease agreement for an easement with the project owner or developer, often adjacent to or near the project.

Operator: The entity or individual that operates a wind energy system.

Owner: The entity or individual that has ownership over a wind energy system.

Participating landowner: A landowner who has signed a lease agreement for an easement with a project owner.

Repowering: The process of upgrading or modifying an existing wind energy system. It may include replacing blades, nacelles, or towers, and in some cases may involve installing new turbines at existing sites.

Rotor diameter: The diameter of the circle described by the moving rotor blades of a wind turbine.

Shadow flicker: The alternating pattern of sun and shade caused by the wind tower blades casting a shadow onto a residence or human-occupied building.

Structure: Anything constructed or erected on the ground or attached to the ground, including but not limited to, antennas, buildings, sheds, cabins, dwellings (built on-site or factory-built homes), signs, storage tanks, towers, or windmills.

Substation: A facility that converts electricity produced by a generator like a wind turbine system to a higher voltage, allowing for interconnection to high-voltage transmission lines.

Total height: The distance between the ground and the highest point of the turbine reached by the rotor blades when operating.

Tower: The vertical structure that supports the electrical generator, nacelle, rotor blades, or meteorological equipment.

Tower height: The total height of the WECS tower inclusive of the rotor blades.

Transmission lines: Power lines used to carry electricity from collection systems or substations over long distances.

Wind Energy Conversion System (WECS): All necessary devices that together convert wind energy into electricity, including the rotor, nacelle, generator, WECS tower, electrical components, WECS foundation, transformers, electrical cabling, and meteorological towers from the WECS tower to the substation(s).

WECS project: The collection of WECS(s) and substations as specified in the siting approval application.

WECS emergency: A condition or situation at a WECS that presents a significant threat of physical danger to human life or a significant threat to property, including natural events that cause damage.

Wind turbine: Any piece of electrical generating equipment that converts the kinetic energy of blowing wind into electrical energy using airfoils or similar devices to capture wind.

SUMMARY OF KEY ORDINANCE COMPONENTS

The following considerations that wind ordinances should address are discussed in greater detail in the next sections of the guide.

Application and approval process. We recommend that counties establish a clear and well-defined application process and a set of known application requirements. Wind turbines should be treated as a permitted use or as a conditional use in established zoning districts. If the application and associated wind development meet the clearly identified conditions, the application and project should be approved.

Setbacks. Counties should ensure that setbacks balance multiple interests and support cost-effective wind development. We recommend setbacks from residential dwellings or community buildings be two times the total turbine height. Setbacks for property lines on any non-participating property or other rights of way should be approximately 1.1 times the turbine height. Counties can consider longer setbacks, three times the total turbine height, for a limited number of sensitive sites predetermined prior to ordinance adoption. Counties should also provide a process for voluntary reductions in setbacks via waivers.

Decommissioning. Counties may require a decommissioning plan to support potential decommissioning as part of the application and approval process.

Infrastructure. Counties may require a pre-construction plan for mitigating potential impacts to roads and other infrastructure from wind project construction, as well as a post-construction review to identify impacts and make repairs.

Safety. There are basic safety provisions for wind projects, which are practical for counties to include in an ordinance.

Optional standards for shadow flicker and noise. We do not recommend adopting dedicated standards for shadow flicker or noise. We discuss the provisions that some counties have adopted and why setbacks and other requirements should sufficiently address these issues without adding specific, separate provisions for noise or shadow flicker.

APPROVAL PROCESS OPTIONS

The procedural requirements for owners and developers seeking county approval to build a commercial wind project vary significantly across Iowa. Some counties require a lengthy and detailed application process (or even pre-application process), while others have few requirements beyond submitting a site plan and application materials for review.

Most counties require a public hearing before the permitting authority decides whether to approve the project. Home rule places boundaries around a county's procedural options, and the best practices recommended below apply primarily to counties that have adopted zoning and may not apply to counties without zoning.

RECOMMENDATIONS

We recommend that county officials prioritize creating a clear application and review process with well-defined steps and conditions for approval. This approach allows a wind developer to clearly identify the application requirements for a wind project which, if met, will result in county approval of the application. The setback and additional provisions discussed below (e.g., decommissioning, road and infrastructure use plan, etc.) can promote transparency and predictability in the approval process for wind developers.

OPTIONS FOR WIND SITING

Counties can use various processes to govern wind siting. The two most straightforward options are to make wind a permitted use (also sometimes called an "allowed" or "principal" use) in specific zones or designate wind as a conditional use (also called a "special exception"). In the case of a conditional use permit, the supervisors should clearly define the conditions that the project must meet to be approved.

Permitted Use

If a county ordinance designates wind as a permitted use, county staff review projects to determine compliance with objective ordinance requirements. County staff would be able to determine if a project meets required setbacks but would not be able to decide on subjective requirements — for example, asking if a particular project "fits the area." If the project complies with the ordinance, it can move forward. County staff typically issue a building or construction permit under this approach. Sample language of designating wind as a permitted use is below.

EXAMPLE: PERMITTED USE LANGUAGE

Wind Energy Conversion Systems (WECS) may be permitted as a Principal Permitted Use in the "A-2" Agricultural District, as set forth in Section X of this ordinance, so long as bulk requirements and setback requirements are addressed.

Conditional Use

The term "conditional use" in a zoning code usually means that a use may be allowed or permitted in a specified district (or districts) on condition that certain requirements are met. Conditional use permitting decisions depend upon the applicant's compliance with the standards specified in the zoning code as conditions for permit approval. These conditions may be more subjective, but the decision criteria must be included in the ordinance. Conditional uses can only be permitted subject to review and approval of a county Zoning Board of Adjustment (ZBA) after a public hearing. The ZBA must base its decision on evidence presented in the public meeting and evaluate the project based on its compliance with the conditions in the ordinance. If the conditions are met, the conditional use permit will be issued.

Uses permitted on this basis are generally those that a county considers not generally adverse to the public interest but requiring some special review and precautions, as well as an opportunity for public input. Example language that has been used in practice to permit utility-scale wind projects as a conditional use is on the following page.

Counties may wish to include detailed plans for items such as road repair and emergency management as conditions for approval. This consideration is described in more detail below.

If a county opts for conditional use permitting through the ZBA, we recommend providing applicants with the opportunity for a preliminary review and pre-application process. Iowa law stipulates any appeals made to a ZBA's final zoning decision are reviewed by an Iowa District Court. Allowing preliminary review and a pre-application process helps provide applicants with a more predictable process and can minimize the potential for time-consuming or expensive judicial review. Example language of how counties have done this in practice is on the following page.

EXAMPLE: CONDITIONAL USE LANGUAGE

In considering whether to approve an application for a conditional use permit, the Zoning Board of Adjustment shall proceed according to the following format:

1. The Zoning Board of Adjustment shall establish findings of fact based upon information contained in the application, the staff report and information gathered at the Zoning Board of Adjustment hearings.
2. The Board shall consider such reasonable requirements or conditions to the permit as will ensure the development will satisfy the requirements of this chapter...
3. If the Zoning Board of Adjustment concludes that all such criteria have been met, the application shall be approved unless it adopts a motion that the application fails to meet any of the approval standard set for in [standard section]...

Without limiting the foregoing, the Zoning Board of Adjustment may attach to a permit conditions it deems necessary to protect the health, safety, and general welfare of the public.

EXAMPLE: PRE-APPLICATION REVIEW LANGUAGE

A Conditional Use Permit applicant may submit preliminary matters to the Board of Adjustment for review prior to making application for a permit. The review must occur no more than 60 days prior to the submission of the application.

General Requirements

County ordinances may include a number of site and structure requirements, many of which are discussed in further detail within this document. Some counties may ask for this information as part of a "site plan." Items required in an application for a utility-scale wind system may include:

1) Name of applicant.

2) Name of project owner.

3) Description of the project.

4) Legal description of the property line where the wind energy system will be located.

5) Map of the project location and the surrounding area.

6) A decommissioning plan outlining the process for system removal and property restoration.

7) Evidence of a power purchase agreement or interconnection application for the project.

8) Consultation with or notifications from relevant state and federal agencies showing the project will not be a hazard to wildlife, communications, air traffic, etc.

9) Documentation of easement locations acquired for wind energy systems and associated facilities.

SYSTEM DESIGN RECOMMENDATIONS

Nearly all counties that have adopted a wind ordinance have included provisions that set minimum distances between wind turbines and residential dwellings. Most counties have also adopted such setbacks for certain types of occupied buildings or public buildings, such as schools and hospitals. Many ordinances specify setbacks for a range of other categories such as property lines, roads and other rights of way, municipal town limits, and natural areas. A range of required setback distances in these various categories across Iowa and industry best practices are discussed below.

Appropriate setbacks should strike a balance between enabling cost-effective wind development and the additional interests of the county and its residents, including non-participating landowners.

Very large setbacks from homes, property lines, and other types of properties or areas will restrict the number of sites available for wind development. These restrictions can therefore raise the cost of wind development by eliminating the windiest sites, limiting the total investment in wind power a county can attract. Setbacks that are particularly restrictive can go so far as eliminating any opportunity for wind development.

Conversely, setbacks that are too small may not successfully minimize sound or visual impacts on nearby properties. Setbacks are a primary regulatory tool that counties use both for safety considerations and for sound or visual impacts, which are also discussed later in this guide.

Our review of existing ordinances indicates that this balance is possible and has been achieved in many county ordinances. As discussed in greater detail below, it is important for counties to provide flexibility in setbacks by allowing voluntary waiver negotiation below the setbacks included in an ordinance.

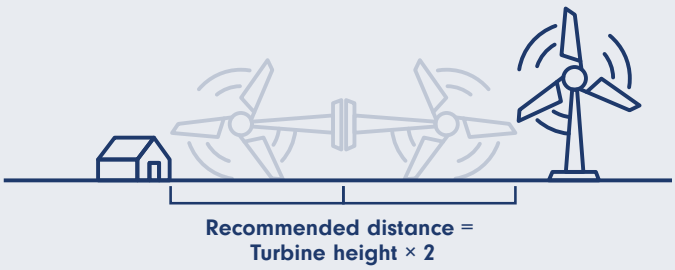
SETBACKS FROM RESIDENCES AND HUMAN-OCCUPIED BUILDINGS

Counties require the largest setback distances for turbines from residential dwellings and human-occupied buildings (e.g., schools and hospitals). These setbacks are intended to protect occupants from unlikely but hazardous events such as the collapse of a turbine or the "throwing" of a turbine blade.

There is now sufficient operating history to understand the risks associated with these events. While the probability of injury or property damage is extremely small, the residual risk can be minimized through reasonable setbacks.

Poweshiek County Wind Farm, near I-80 in Malcolm, Iowa.

We recommend that counties establish setbacks from residential dwellings and other human-occupied buildings of two times the total height of the turbine.



Establishing setbacks that are tied to the total height of a turbine helps ensure that these protections remain effective over time as turbine technology evolves. A turbine's total height is generally defined as the vertical distance from the ground to the tip of the turbine blade when at its highest point.

Unlike setbacks expressed as a fixed distance in feet, setbacks based on multiples of turbine height scale automatically as turbines become taller and more advanced. This approach helps prevent ordinances from becoming outdated and maintains a consistent margin of safety.

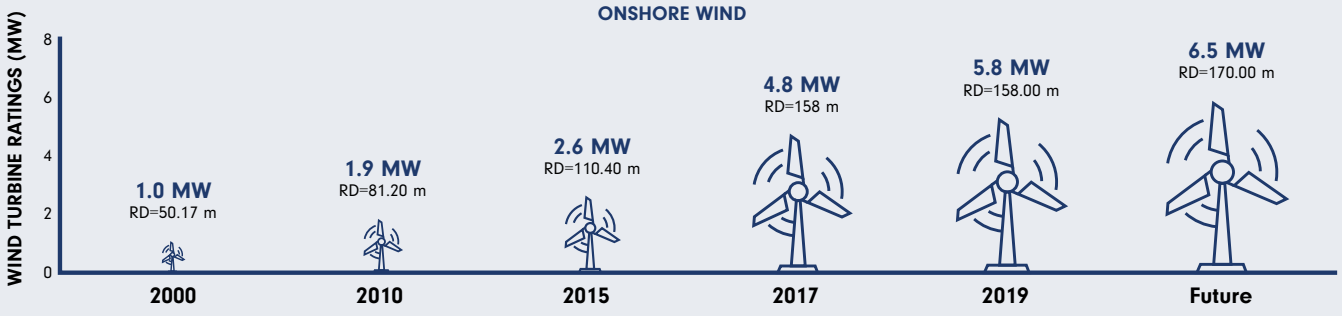
RECOMMENDATION: We recommend that counties establish setbacks from residential dwellings and other human-occupied buildings of two times the total height of the turbine. This approach protects public safety and the quality of life of residents while allowing for continued advances in turbine technology.

PROPERTY LINES

Similar to the best practices for setback distances for residential dwellings based on multiples, most counties also specify minimum setbacks from neighboring property lines. These setback distances are also often expressed in terms of height multiples of a wind turbine.

RECOMMENDATION: We recommend that counties establish setbacks from property lines of 1.1 times the total height of a turbine. This standard provides a reasonable buffer while maintaining flexibility for project design and siting.

Setback requirements based on multipliers of turbine height are flexible to the evolution of turbine technology.



UNOCCUPIED STRUCTURES AND RIGHT OF WAYS

Most counties also specify minimum setbacks for unoccupied structures (such as animal confinement buildings), roads, utility lines, and other public rights of way. Mandated setbacks for these categories are generally comparable to those for property lines. As with other setback categories, using a multiplier tied to turbine height ensures that these requirements scale appropriately as turbine dimensions change over time.

RECOMMENDATION: We recommend that counties establish setbacks of 1.1 times the total height of a turbine for unoccupied structures, roads, and other rights of way.

NATURAL AREAS AND SENSITIVE SITES

Some counties require minimum setback distances from specified natural resources and/or public lands, which can vary widely depending on local conditions. These areas may include conservation lands, waterways, wildlife habitats, or other sites that are known and identified as particularly sensitive by the county prior to ordinance adoption.

Adequate setback distances for protecting these resources will necessarily vary depending on site-specific factors such as the type of resource being protected and the ecological sensitivity of the area. Some counties address these considerations through defined setback standards, while others take a project-by-project approach, such as requiring consultation with the Iowa Department of Natural Resources prior to permit application and incorporating its recommendations into project siting.

Establishing a clear standard for known and predetermined sensitive sites can provide additional protection while maintaining consistency and predictability in the ordinance.

RECOMMENDATION: For known and predetermined sensitive sites identified by the county, we recommend setbacks of three times the total height of the turbine. This approach provides an additional margin of protection while maintaining a scalable framework that adapts to changes in turbine technology.

WAIVERS OR NEGOTIATED SETBACKS

Many county ordinances include waiver provisions allowing either the property owner or the controlling governmental authority to waive the mandated setback distance for that property type. Written waiver agreements must be executed pursuant to the specific requirements set forth in the ordinance. Some counties require waiver agreements to be approved by the county permitting authority, and a few ordinances only allow waivers in certain setback categories.

Waivers are an important tool to improve flexibility and allow for the potential for additional land area to become available for wind development. However, providing a waiver option is not a substitute for a strong setback policy in enabling cost-effective development.

RECOMMENDATION: We recommend counties include a process for waivers to reduce setbacks when appropriate, in addition to establishing setback distances.

SUMMARY OF SETBACK RECOMMENDATIONS

Using multiples of turbine height as the basis for setback requirements allows counties to establish clear and consistent standards that remain effective as turbine technology evolves. This approach helps ensure that setback requirements and ordinances do not become outdated and continue to balance public safety, protection of local resources, and workable wind project design.

Setback reference by property type:

- Residential dwellings and human occupied buildings: 2x total height
- Property lines: 1.1x total height
- Unoccupied structures and rights of way: 1.1x total height
- Known and predetermined sensitive sites: 3x total height

LAND ACREAGE AND TURBINE CAPS

We recommend counties do not impose caps on the total land area, turbine count, or overall footprint available for utility-scale wind projects. Placing such limits on wind development restricts Iowa's ability to meet clean energy goals and discourages the local economic development associated with wind energy investment.

Utility-scale wind projects require sufficient geographic flexibility to optimize turbine placement based on wind resources, topography, setbacks, and transmission access. Development caps can force inefficient layouts, limit project scale, or require developers to piece together multiple smaller sites, increasing costs, complicating permitting, and in some cases, rendering projects economically unviable. As a result, developers may choose to invest in jurisdictions with more predictable and scalable siting frameworks.

If projects become infeasible due to land, turbine, or capacity caps, counties risk losing the substantial economic benefits associated with utility-scale wind, including increased property tax revenues, construction and operations jobs, local spending, and long-term lease payments to landowners. In Iowa, wind energy has proven particularly compatible with agriculture. Turbines typically occupy no more than one acre per turbine, allowing the surrounding land to remain in full agricultural production, including row crops and grazing. Restrictive caps can limit the scale of these shared land-use benefits or eliminate them altogether by diverting investment to other regions. By avoiding arbitrary limits on wind development, counties can support continued agricultural productivity while maximizing clean energy generation and economic opportunity.

Utility-scale wind projects require sufficient geographic flexibility to optimize turbine placement based on wind resources, topography, setbacks, and transmission access.

SAFETY AND SIGNAGE

While setbacks and other provisions above are intended to improve safety, utility-scale wind projects present officials with an additional and unique set of safety concerns not typically encountered with other building structures. A commonly recommended list of safety precautions has emerged to address these issues.[16] These include:

- Posting of emergency contact information at various locations throughout the project.
- Locking turbine doors to prevent unauthorized access.
- Avoid constructing nearby structures that could provide unauthorized individuals with access to climb turbines.

Many of the counties in Iowa with wind ordinances have similarly worded provisions addressing these common safety concerns. Standard ordinance language regarding safety and signage is shown at right.

Several counties also address the potential hazard posed to pilots of low-flying crop-dusting planes by temporary meteorological towers, or "met" towers. These towers, used to gather data that helps wind developers site turbines, are typically just under 200 feet high, and are not currently subject to Federal Aviation Administration (FAA) regulations. The thin metal towers and their guy-wires are difficult for pilots to spot and fatal collisions have occurred in the U.S., prompting the National Transportation Safety Board to recommend that the FAA adopt new regulations requiring markings to improve safety.[17]

As of this writing, no such federal regulations have been adopted, although in 2015 the FAA issued new voluntary guidelines for met tower markings.[18] Additionally, in 2024 the FAA proposed new rules to improve aviation safety by requiring notice, marking, and lighting for certain met towers.[19] A public comment period for the proposed new rules ended in January 2025, but there has been no update on the matter since.

In the absence of state or federally mandated markings for met towers, we recommend that counties include a requirement similar to the example at right. This approach is consistent with practices adopted by some wind developers who use large plastic orange balls on the guy-wires.

SOUND

Adequate setbacks can protect property owners from experiencing nuisance level noise from turbines. The American Planning Association (APA) recommends a setback of at least 1,000 feet to

EXAMPLE: SAFETY AND SIGNAGE LANGUAGE

SAFETY

1. All wiring between wind turbines and the C-WECS substation shall be underground. If the developer can demonstrate the need for an overhead line and the acceptance of landowners for this line, such option may be approved conditionally by the Zoning Board of Adjustment.
2. Wind turbines and meteorological towers shall not be climbable up to 15 feet above ground level.
3. All access doors to wind turbines and meteorological towers and electrical equipment shall be locked when not being serviced.
4. Appropriate warning signage shall be placed on wind turbine towers, electrical equipment, and C-WECS entrances.
5. For all C-WECS, the manufacturer's engineer or another qualified engineer shall certify that the turbine, foundation and tower design of the C-WECS is within accepted professional standards, given local soil and climate conditions.

EXAMPLE: METEOROLOGICAL TOWER LANGUAGE

For all guyed towers, visible and reflective objects, such as plastic sleeves, reflectors or tape, shall be placed on the guy wire anchor points and along the outer and innermost guy wires up to a height of eight (8) feet above the ground. Visible fencing shall be installed around anchor points of guy wires.

address sound issues, which is within the range of residential setback distances common in Iowa with successful wind projects.[20]

Some Iowa counties have also included sound level limits in their standards for wind turbines aimed at keeping sound from turbines at nearby properties within acceptable levels. These limits, based on specific sound pressure levels measured in decibels, range from 50 dBA to 60 dBA when measured from the affected property.

Wind developers can perform a sound impact analysis for wind turbines using computer-based mapping and modeling and sound level data provided by turbine manufacturers. These models are useful in helping to ensure that turbine placement complies with local sound level limits. However, while such models often reflect conservative assumptions, they may not always be able to take all of the nuances of a particular situation into account, particularly in project locations with complex terrain.[21]

Furthermore, establishing adequate residential setbacks from turbines will typically address sound issues.[22]

RECOMMENDATION: We recommend minimum setbacks from residential properties of two times total turbine height (see the "Setbacks" section of this guide). As the APA explains in its planning guidelines for commercial wind, the options for effectively mitigating sound levels after the fact (once a project has been built) are limited, so addressing sound impacts upfront with appropriate setbacks is prudent. If a decibel limit for turbine sound levels is also included in an ordinance, we recommend a standard no lower than 50 dBA, in keeping with the 50 dBA to 60 dBA range that has proven workable in counties that have successfully developed wind projects.

SHADOW FLICKER

Shadow flicker is an effect that can appear on neighboring properties due to the movement of wind turbine blades between the sun and the property. Setback requirements are typically sufficient to minimize such undesirable aesthetic impacts. According to the APA, "With reasonable setbacks, shadow flicker occurs only when the sun is low in the sky and for relatively few hours a year — typically a tiny fraction of daylight hours."[23]

A few counties have incorporated specific standards for shadow flicker into their ordinances by adopting planning and/or operational requirements that set a minimum allowable threshold of shadow flicker caused at neighboring residences. As a planning requirement, some counties have required applicants to submit computer modeling that demonstrates that shadow flicker impacts will be below the specified limit. Example text that requires the owner or developer to submit such modeling is below:

EXAMPLE: SHADOW FLICKER COMPUTER MODELING REQUIREMENT LANGUAGE

A report prepared by a qualified third party using the most current modeling software available establishing that no Occupied Residence will experience more than thirty (30) hours per year, or more than thirty (30) minutes per day of shadow flicker at the nearest external wall based on real world or adjusted case assessment modeling. The report must show the locations and estimated amount of shadow flicker to be experienced at all Occupied Residences as a result of the individual Turbines in the Project.

Such a requirement has the advantage of including a specified limit and method of demonstrating

compliance with that limit; the requirement is clear and does not allow for subjective discretion of the permitting authority. This approach is preferable over more ambiguous provisions requiring owners to "minimize" shadow flicker for those counties seeking to reduce such impacts to acceptable levels.

RECOMMENDATION: We do not recommend that counties adopt a separate shadow flicker requirement as a standard practice, which is consistent with the approach in the majority of county ordinances we have reviewed. However, if a county does adopt such a requirement, the requirement should enable wind development and provide a clear condition that wind developers can meet in the application process, such as the approach taken in the example on the previous page. Additionally, if such a requirement is adopted, counties should allow for a waiver process through which landowners can waive the standard as it applies to their property.

HEIGHT RESTRICTIONS

Few of the county ordinances we reviewed include a limit for a specified number of feet for the total height of turbines. Many counties do require that wind developers ensure that turbine heights do not extend into approach zones and other restricted air space, and/or that the project complies with any applicable FAA requirements. (Several ordinances specify that a copy of any FAA permit or approval must be included in the list of application materials submitted to the county's permitting authority.) Such a requirement, along with appropriate setback distances from residences and other structures at ground level, addresses any potential concerns posed by the height of a commercial wind turbine.

RECOMMENDATION: We do not recommend establishing a separate, distinct height restriction.

LIGHTING

Utility-scale wind turbines are subject to federal aviation safety requirements, which typically include obstruction lighting to ensure visibility to aircraft. These requirements are administered by the FAA and are intended to promote aviation safety, particularly in low-visibility conditions and at night.

Traditional lighting systems require turbines to be continuously illuminated, which can create concerns for nearby residents related to nighttime light visibility. In recent years, Aircraft Detection Lighting Systems (ADLS) have emerged as an alternative approach that maintains aviation safety while reducing unnecessary lighting impacts.

ADLS uses radar or other detection technologies to monitor for approaching aircraft. When no aircraft are detected within a defined radius, the obstruction lights remain off. When an aircraft is detected, the lights activate to ensure visibility. This technology allows wind projects to meet federal safety requirements while significantly reducing the duration of nighttime lighting. The use of ADLS has increased in recent years, including in Iowa. For example, in 2024, MidAmerican Energy has indicated that it will voluntarily implement ADLS as part of certain wind turbine repowering projects.[24] The utility company's commitment reflects broader industry trends toward adopting technologies that reduce community impacts while maintaining compliance with aviation safety requirements.

As with some other aspects of wind project design, the use of ADLS is subject to federal review and approval, including by the FAA and other regulatory bodies.

RECOMMENDATION: Counties can require the use of Aircraft Detection Lighting Systems (ADLS) for wind energy projects, provided that such systems are in compliance and approved by all applicable

regulatory authorities. ADLS can reduce lighting impacts for nearby residents while maintaining required aviation safety standards.

REPOWERING

Over time, wind energy systems may be upgraded or modified through a process commonly referred to as "repowering." Repowering can include replacing turbine components such as blades, nacelles, or towers, and in some cases may involve installing new turbines at existing sites. These changes are often made to improve efficiency, increase energy production, and extend the operational life of a project.

Repowering is a common and expected part of utility-scale development. It allows existing projects to take advantage of advances in turbine technology and can support continued generation at established sites without the need to develop entirely new project areas.

Repowering does not necessarily require an increase in turbine height, but in some cases newer turbine models may be taller or have longer blades than those originally installed. Since some counties have, and we recommend, setbacks based on multiples of total turbine height, changes in turbine dimensions can affect whether a repowered wind energy system continues to comply with applicable setback requirements.

Setbacks are intended to protect public health and safety and to provide a consistent buffer between wind energy systems and surrounding land uses. Establishing setbacks as a function of turbine height ensures that these protections scale appropriately as turbine technology evolves, as described in the "Setbacks" section of this guide. Allowing exceptions to setback requirements for repowered turbines would undermine this approach and the underlying purpose of setbacks.

Repowering allows existing projects to take advantage of advances in turbine technology.

At the same time, the presence of setback requirements does not necessarily mean that turbines are sited at the minimum allowable distance. In many cases, turbines are located well within project boundaries and exceed minimum setback requirements, which may provide flexibility within existing sites.

RECOMMENDATION: We recommend that wind farm owners are required to comply with all applicable setback requirements in a county's ordinance at the time of repowering, including those based on total turbine height. Maintaining consistent application of setback standards supports the intent of these requirements while allowing for continued investment in and operation of existing wind projects.

CONSTRUCTION, OPERATION, MAINTENANCE, AND DECOMMISSIONING

INFRASTRUCTURE AND ROAD USE

The transportation of turbine components and heavy equipment during the construction phase of a wind development project can cause impacts on county roads and other infrastructure. To address these potential impacts, many counties have adopted requirements similar to the language in the following example. This provision requires both a pre-construction and post-construction survey of roads used, and a post-construction meeting to address impacts.

Putting such a process in place before construction begins helps clarify for all parties what specific impacts a developer will be held responsible for and what steps must be taken to mitigate damages to roads and other infrastructure.

SITE MAINTENANCE PLANNING

Emergency Response Plan

The APA recommends the development of a written emergency plan covering all reasonable scenarios, as local emergency response crews will likely not have plans in place for dealing with emergencies at wind turbines, or tall structures generally.[25] Counties can require an emergency response plan as part of the application.

Decommissioning and Site Restoration

Wind ordinances often include a provision requiring the project owner to take responsibility for and bear the costs of decommissioning at the end of a wind project's useful life. These provisions ensure safety for turbines that are no longer operational and ensure

Adair County Wind Farm, near I-80 in Adair, Iowa.

the county and landowner do not bear the cost of removing the turbines. The lifespan for early wind projects in Iowa (e.g., built between 2000 and 2005) was typically 20 to 25 years. New wind projects being built now are projected to have a 40-year useful life. In addition, many of Iowa's early projects are being repowered, which extends the operating life by up to 20 years. As a result of longer lives and repowering, few wind turbines in Iowa have been decommissioned in practice. Planning for the responsibility and cost of decommissioning, however, is a prudent step for a county ordinance.

Ordinance provisions related to decommissioning tend to be substantively similar across most counties. The example below is representative of standard language used.

EXAMPLE: INFRASTRUCTURE AND ROAD USE LANGUAGE

1. **Roads.** Applicants shall identify all roads to be used for the purposes of transporting C-WECS, substation parts, cement, and/or equipment for construction, operation, or maintenance of the C-WECS and obtain applicable weight and size permits from the impacts road authority(ies) prior to construction.
2. **Existing Road Conditions.** Applicant shall conduct a pre-construction survey, in coordination with the impacted local road authority(ies), to determine existing condition of roads identified pursuant to subparagraph 1, above. The survey shall include photographs or video of written documentation of the condition of the identified road facilities. The applicant is responsible for ongoing road maintenance and dust control measures identified by the County Engineer during all phases of construction.
3. **Drainage System**. The applicant shall be responsible for immediate repair of damage to public drainage systems stemming from construction, operation or maintenance of C-WECS.
4. **Post Completion Survey.** Applicant and the County Engineer will meet upon completion of the project and agree as to the necessary action needed to return roads to the existing road conditions as identified in subparagraph 2, above.
5. **Required Financial Security.** The applicant shall be responsible for restoring or paying damages as agreed to by the applicable road authority(ies) sufficient to restore the identified road(s), bridge(s), and associated infrastructure to preconstruction conditions. Financial security in a manner approved by the County Attorney shall be submitted covering 130% of the costs of all required improvements. This requirement may be waived or modified by the Board of Adjustment upon recommendation from the County Engineer.

CONCLUSION

For counties interested in attracting the local benefits that come with wind energy generation, a well-drafted and balanced wind siting ordinance is an important initial step. We have not identified a single model ordinance in any particular county that we recommend in total. Instead, we have identified the strongest parts of different ordinances to include in this guide through example language. Most county ordinances have additional provisions in the adopted ordinances. We have focused on the major provisions critical to the success of an ordinance.

We do note that several Iowa counties in the past have attracted wind development without adopting a specific ordinance. Those include Howard, Mitchell, and Adair counties. While this approach has worked in the past, we believe the clarity and predictability that comes from adopting a wind ordinance is beneficial for the county, its residents, and wind developers, as is evidenced by the successes of counties with wind siting ordinances.

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The clarity and predictability that comes from adopting a wind ordinance is beneficial for counties.

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APPENDIX A

COUNTY	RESIDENTIAL DWELLING SETBACK	PROPERTY LINE SETBACK	TYPE OF PERMITTING PROCESS/USE	PERMITTING AUTHORITY	DATE ADOPTED OR AMENDED
APPANOOSE	Greater of 2x turbine height or 1,000 ft	1.1x turbine height	Principal use	Zoning Commission	2020
https://appanoosecounty.iowa.gov/wp-content/uploads/2020/08/Zoning-Ordinance-Revised-2020.pdf					
BUCHANAN	1,200 ft	1.25x total height	Principal Use	Board of Supervisors	2024
https://buenavistacounty.iowa.gov/wp-content/uploads/2024/12/Buena-Vista-County-Wind-Energy-Conversion-System-Ordinance-6.9.pdf					
BUENA VISTA	Greater of 1,200 ft or 1.5x turbine height	1.1x total height	Special Use	Board of Adjustment	2024
https://buenavistacounty.iowa.gov/wp-content/uploads/2024/12/Buena-Vista-County-Wind-Energy-Conversion-System-Ordinance-6.9.pdf					
CARROLL	1,000 ft	No less than rotor radius	Conditional Use	County Zoning Administrator	Amended 2018
https://www.carrollcountyiowa.gov/files/documents/Ordinance14ZoningRegulationsAmended5-14-181593043951050819PM.pdf					
CHEROKEE	1,250 ft	1.1x total height	Special Exemption Use	Board of Adjustment	2023
https://cedarcounty.iowa.gov/files/county_ordinances/47_an_ordinance_regulating_the_placement_of_wind_energy_conversion_systems_on_property_located_in_the_unincorporated_areas_of_cedar_county_nty.pdf					
CHICKASAW	1,200 ft or 2x total height	1.1x total height	Permitted Use	Board of Supervisors	2020
https://www.chickasawcounty.iowa.gov/files/county_ordinances/VI-6_placement_operation_and_removal_of_commercial_wind_energy_conversion_systems_360.pdf					
IDA	1,250 ft	1.1x total height	Conditional Use	Board of Adjustment	2015
https://idacounty.iowa.gov/wp-content/uploads/2018/10/Ordinance-27-Wind.pdf					
JASPER	Greater of 2x total height or 1,000 ft	Shall not overhang an adjoining property w/o securing easement	Conditional Use	Board of Supervisors	Updated May 2025
https://www.jasperia.org/files/county_ordinances/04F_jasper_county_zoning_ordinance_375.pdf					
MARSHALL	Greater of 2x total height or 1,000 ft	Shall not overhang w/o easements	Special Use	Board of Adjustment	*
https://www.marshallcountyia.gov/DocumentCenter/View/1478/Ordinance-No-32–Assessment-of-Wind-Energy-Conversion-Property—adopted-05-25-2010					
O'BRIEN	1,200 ft	1.2x total height	Building Permit	Board of Supervisors	Amended 2025
https://obriencounty.iowa.gov/wp-content/uploads/2025/07/DOC071525-07152025125442.pdf					
OSCEOLA	1,250 ft	1.1x total height	Conditional Use	Board of Adjustment	2013
https://osceolacountyia.gov/wp-content/uploads/2023/09/Osceola-zoning-ordinance-with-amendments.pdf					
POWESHIEK	Greater of 2x total height or 1,000 ft	1.1x total height	Conditional Use	Board of Adjustment	2017
https://poweshiekcountyiowa.gov/files/sanitarian_zoning/zoning_ordinance_of_2011_23226.pdf					
STORY	Greater of 2x total height or 1,000 ft	Shall not overhang w/o easements	Conditional Use	Board of Adjustment	*
https://codelibrary.amlegal.com/codes/storycounty/latest/storycount_ia/0-0-0-3309					

*N/A. These counties have adopted language about wind siting into their zoning code and do not have separate wind siting ordinances.

APPENDIX B

PROJECT	COUNTY/COUNTIES	UTILITY/OWNER	CAPACITY (MW)	YEAR ONLINE
ROLLING HILLS WIND FARM	Adair, Adams, Cass	MidAmerican Energy Company	484.2	2011
SOUTHERN HILLS EXPANSION	Adair, Adams, Union	MidAmerican Energy Company	122.8	2020
ADAIR WIND FARM	Adair, Cass	MidAmerican Energy Company	174.8	2008
ARBOR HILL (WIND XI)	Adair	MidAmerican Energy Company	264.55	2018
ARBOR HILL (WIND XI)	Adair	MidAmerican Energy Company	61.4	2020
BULLDOG WIND	Adair	Bulldog LLC	1.5	2010
CARSTEN FARMS	Adair	Carsten Farms	0.2	2009
CUMBERLAND ROSE	Adair	Cumberland Rose Wind Energy LLC	1.6	2012
FORWARD FONTANELLE	Adair	Forward Fontanelle Power LLC	1.6	2012
GREENFIELD WIND	Adair	Greenfield Wind Power LLC	1.6	2012
MEADOW RIDGE	Adair	Meadow Ridge Wind Energy LLC	1.6	2012
MORNING LIGHT	Adair	MidAmerican Energy Company	110.16	2012
ORIENT (WIND XI)	Adair	MidAmerican Energy Company	106.4	2018
ORIENT (WIND XI)	Adair	MidAmerican Energy Company	414.45	2019
SKY VOLT	Adair	Sky Volt LLC	1.68	2012
STUART	Adair	Stuart Municipal Utilities	0.66	2005
WIND GEM	Adair	Wind GEM LLC	1.85	2015
WOLVERINE	Adair	Wolverine LLC	1.5	2010
SOUTHERN HILLS (WIND XII)	Adams, Union	MidAmerican Energy Company	131.3	2020
ADAMS	Adams	MidAmerican Energy Company	154.284	2016
PRESCOTT WIND FARM	Adams	RPM Access Wind Development	38.7	2024
CED CENTERVILLE WIND PROJECT	Appanoose	Consolidated Edison Development Inc.	5.6	2021
ECLIPSE	Audubon, Guthrie	MidAmerican Energy Company	207.06	2012
HEARTLAND DIVIDE	Audubon	NextEra Energy Resources	103.5	2018
HEARTLAND DIVIDE WIND II	Audubon	NextEra Energy Resources	199.4	2022
BEAVER CREEK (WIND XI)	Boone, Greene	MidAmerican Energy Company	175.65	2017
GREAT PATHFINDER WIND	Boone, Hamilton	ERG Group | Apex Clean Energy Inc.	224.4	2023
30 MW IOWA DG PORTFOLIO	Boone, Hardin, Poweshiek, Story	Building Energy	30	2017
CANNON	Bremer	Waverly Light & Power Company	0.9	2009
CANNON	Bremer	Waverly Light & Power Company	0.9	2012
WAVERLY WIND	Bremer	Waverly Light & Power Company	0.9	2001
BURCO FARM & FEED	Buchanan	Burco Farm & Feed	0.1	2010

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PROJECT	COUNTY/COUNTIES	UTILITY/OWNER	CAPACITY (MW)	YEAR ONLINE
STORM LAKE I	Buena Vista, Cherokee	ALLETE	108	1999
STORM LAKE II	Buena Vista, Cherokee	ALLETE	76.5	1999
INTREPID	Buena Vista, Sac	MidAmerican Energy Company	175.5	2004
POMEROY WIND FARM	Calhoun, Pocahontas	MidAmerican Energy Company	33.73	2011
VICTORY	Carroll, Crawford	MidAmerican Energy Company	105	2006
CARROLL AREA	Carroll	NJR Clean Energy Ventures Corporation	20	2015
CARROLL WIND FARM	Carroll	MidAmerican Energy Company	159.12	2008
GREEN ENERGY MACHINE	Cass	Unknown	1.79	2016
ROSEMAN ENERGY LLC	Cass	Roseman Energy LLC	1.79	2017
WIOTA WIND	Cass	Wiota Wind Energy, LLC	1.6	2012
PIONEER GROVE	Cedar	Acciona Energy USA Global LLC	6	2012
CERRO GORDO	Cerro Gordo	NextEra Energy Resources	36.8	2020
MASON CITY WIND	Cerro Gordo	Consolidated Edison Development Inc.	7.94	2020
MASON WIND LLC MASON CITY	Cerro Gordo	Mason Wind LLC	10	2017
GLACIERS EDGE	Cherokee	PGGM Infrastructure Fund | EDF Invest	212.04	2019
CHICKASAW COUNTY WIND ENERGY CENTER	Chickasaw	MidAmerican Energy Company	202.36	2023
UPLAND PRAIRIE	Clay, Dickinson	Interstate Power and Light Co	299.3	2019
CROSSWINDS	Clay, Palo Alto	Unknown	21	2007
NEW HARVEST	Crawford	Avangrid	100	2012
MASON WIND LLC PERRY	Dallas	Mason Wind LLC	6	2017
CED MANCHESTER WIND	Delaware	Con Edison Solutions	7.9	2022
ELK	Delaware	Greenbacker Renewable Energy Company | RPM Access Wind Development	42.5	2011
INDEPENDENCE WIND FARM	Delaware	BHE Renewables	55.36	2021
MASON WIND LLC DYERSVILLE	Delaware	Mason Wind LLC	6	2017
FLYING CLOUD	Dickinson	Avangrid	43.5	2003
IOWA LAKES SUPERIOR WIND	Dickinson	Iowa Lakes Electric Cooperative	10.5	2009
LOST LAKES	Dickinson	EDP Renewables North America LLC	100.65	2009
SPIRIT LAKE SCHOOLS	Dickinson	Spirit Lake School District | Community School District	1	1992
IOWA LAKES COMMUNITY COLLEGE	Emmet	Iowa Lakes Community College	1.65	2005
NEPPEL WIND POWER PROJECT	Emmet	Unknown	1.5	2004
HAWKEYE	Fayette	Greenbacker Renewable Energy Company | RPM Access Wind Development	37.5	2012

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PROJECT	COUNTY/COUNTIES	UTILITY/OWNER	CAPACITY (MW)	YEAR ONLINE
CHARLES CITY	Floyd	MidAmerican Energy Company	80.04	2008
TJADEN FARMS	Floyd	Tjaden Farms Inc	0.45	2006
FRANKLIN COUNTY	Franklin	Interstate Power and Light Co	99	2012
WHISPERING WILLOW EAST	Franklin	Interstate Power and Light Co	199.65	2009
WHISPERING WILLOW NORTH	Franklin	Interstate Power and Light Co	201.26	2020
BEAVER CREEK (WIND XI)	Greene	MidAmerican Energy Company	175.65	2018
HARDIN HILLTOP WIND	Greene	Unknown	14.7	2007
JUNCTION HILLTOP WIND	Greene	Junction Hilltop Wind, LLC	8	2012
RIPPEY	Greene	RPM Access Wind Development	50	2012
IVESTER (WIND XI)	Grundy	MidAmerican Energy Company	90.825	2018
WELLSBURG	Grundy	MidAmerican Energy Company	140.76	2014
CENTURY	Hamilton, Wright	MidAmerican Energy Company	201.2	2005
AG LAND 5	Hamilton	AG Land Energy LLC	1.6	2012
AG LAND 6	Hamilton	AG Land Energy LLC	1.6	2012
CRYSTAL LAKE WIND ENERGY CENTER	Hancock	NextEra Energy Resources	150	2008
HANCOCK COUNTY WIND	Hancock	NextEra Energy Resources	100.048	2002
STORY COUNTY WIND	Hardin, Story	NextEra Energy Resources	150	2008
STORY COUNTY WIND II	Hardin, Story	NextEra Energy Partners	150	2009
ELDORA-NEW PROVIDENCE SCHOOLS	Hardin	Eldora-New Providence Schools	0.75	2002
NEW LONDON	Henry	New London Municipal Utilities	1.5	2011
PIONEER PRAIRIE	Howard, Mitchell	EDP Renewables North America LLC | Axium Infrastructure	198	2008
CRANE CREEK	Howard	Wisconsin Public Service Corporation	99	2009
SARATOGA	Howard	Madison Gas & Electric Co.	66	2019
IDA GROVE (WIND XI)	Ida	MidAmerican Energy Company	301.06	2016
IDA GROVE (WIND XI)	Ida	MidAmerican Energy Company	202.36	2019
DIAMOND TRAIL (WIND XII)	Iowa	MidAmerican Energy Company	168.8	2020
DIAMOND TRAIL EXPANSION	Iowa	MidAmerican Energy Company	83.7	2020
GOLDEN PLAINS	Kossuth, Winnebago	Interstate Power and Light Co	199.82	2020
IDWGP (IOWA DISTRIBUTED WIND GENERATION PROJECT)	Kossuth	Cedar Falls Utilities | Montezuma Municipal Light and Power | City of Algona | City of Ellsworth, IA | City of Estherville, IA | City of Fonda | City of Westfield	2.25	1998
KOSSUTH	Kossuth	Wisconsin Power and Light Company	152.2	2020

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PROJECT	COUNTY/COUNTIES	UTILITY/OWNER	CAPACITY (MW)	YEAR ONLINE
KOSSUTH COUNTY WIND	Kossuth	NextEra Energy Resources	69.6	2022
LEDYARD WINDPOWER	Kossuth	Deriva Energy	207	2022
SENTRAL SCHOOL	Kossuth	School	0.065	1995
SOUTHERN MINNESOTA HILLS	Kossuth	Iowa Lakes Electric Cooperative	10.5	2009
KIRKWOOD COMMUNITY COLLEGE	Linn	Kirkwood Community College	2.5	2012
MACKSBURG	Madison	MidAmerican Energy Company	119.646	2014
PRAIRIE (WIND XI)	Mahaska	MidAmerican Energy Company	174.65	2017
VIENNA	Marshall, Tama	MidAmerican Energy Company	2.346	2012
VIENNA	Marshall, Tama	MidAmerican Energy Company	152.25	2024
LAUREL WIND FARM	Marshall	MidAmerican Energy Company	123.36	2011
VIENNA	Marshall	MidAmerican Energy Company	7.038	2013
LITTLE CEDAR	Mitchell	Buffalo Center Wind LLC	1.5	2011
OSAGE UTILITIES	Mitchell	Osage Utilities	1.5	2009
PIONEER PRAIRIE	Mitchell	EDP Renewables North America LLC | Axium Infrastructure	102.3	2008
TURTLE CREEK	Mitchell	EDP Renewables North America LLC	199.2	2018
WIND VISION	Mitchell	Wind Vision	0.9	2008
HIGHLAND	O'Brien	MidAmerican Energy Company	495.006	2015
HIGHLAND	O'Brien	MidAmerican Energy Company	7.038	2015
O'BRIEN	O'Brien	MidAmerican Energy Company	250.263	2016
ENDEAVOR WIND	Osceola	NextEra Energy Resources	98.2	2007
ENDEAVOR WIND	Osceola	NextEra Energy Resources	49.6	2008
SIBLEY HILLS	Osceola	Northern Alternative Energy Inc.	0.66	2003
SIBLEY WIND FARM	Osceola	Northern Alternative Energy Inc.	1.2	1997
PALO ALTO (WIND XI)	Palo Alto	MidAmerican Energy Company	250	2019
PALO ALTO (WIND XI)	Palo Alto	MidAmerican Energy Company	90	2020
PLYMOUTH WIND	Plymouth	MidAmerican Energy Company	202.74	2021
POCAHONTAS PRAIRIE	Pocahontas	MidAmerican Energy Company	83.2	2012
POMEROY WIND FARM	Pocahontas	MidAmerican Energy Company	125.88	2007
POMEROY WIND FARM	Pocahontas	MidAmerican Energy Company	78	2007
POMEROY WIND FARM	Pocahontas	MidAmerican Energy Company	62.22	2008
STATE FAIR WIND TURBINE	Polk	MidAmerican Energy Company	0.5	2007
WALNUT WIND FARM	Pottawattamie	MidAmerican Energy Company	165.24	2008

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PROJECT	COUNTY/COUNTIES	UTILITY/OWNER	CAPACITY (MW)	YEAR ONLINE
ENGLISH FARMS	Poweshiek	Interstate Power and Light Co	170.3	2019
NORTH ENGLISH (WIND XI)	Poweshiek	MidAmerican Energy Company	203.95	2018
NORTH ENGLISH (WIND XI)	Poweshiek	MidAmerican Energy Company	143.85	2019
RICHLAND (IA)	Sac	Interstate Power and Light Co	130.92	2020
SAC COUNTY WIND (RICHLAND WIND)	Sac	NextEra Energy Resources	81.4	2021
WALL LAKE MUNICIPAL UTILITIES	Sac	Wall Lake Municipal Utilities	0.66	2003
AG LAND 1	Story	AG Land Energy LLC	1.6	2012
AG LAND 2	Story	AG Land Energy LLC	1.6	2012
AG LAND 3	Story	AG Land Energy LLC	1.6	2012
AG LAND 4	Story	AG Land Energy LLC	1.6	2012
GWE, LLC	Story	Goodwind Energy Inc	4	2012
STORY CITY WIND PROJECT	Story	Hamilton Wind Energy LLC	1.5	2011
TRAER WIND PROJECT	Tama	Norsemen Wind Energy LLC	1.5	2011
AUGUST WIND ENERGY LLC	Taylor	August Wind Energy LLC	1.79	2017
BIRCH POWER LLC	Taylor	Birch Power LLC	1.79	2017
CONTRAIL	Taylor	MidAmerican Energy Company	112.42	2020
LENOX MUNICIPAL UTILITIES	Taylor	Lenox Municipal Utilities	0.75	2003
CRYSTAL LAKE WIND ENERGY CENTER	Winnebago	NextEra Energy Resources	198.8	2008
CRYSTAL LAKE WIND ENERGY CENTER	Winnebago	NextEra Energy Resources	66	2009
FOREST CITY HIGH SCHOOL	Winnebago	Forest City Community School District	0.6	1999
WINNEBAGO WIND FARM	Winnebago	Avangrid	20	2008
LUTHER COLLEGE WIND TURBINE	Winneshiek	Luther College	1.6	2011
BARTON WINDPOWER	Worth	Avangrid	160	2009
ROEDER FARMS	Worth	Consolidated Edison Development Inc.	1.6	2011
TOP OF IOWA II	Worth	Avangrid	80	2008
TOP OF IOWA III	Worth	Madison Gas & Electric Co.	29.7	2008
TOP OF IOWA WIND FARM I	Worth	Blue Marlin Energy Holdings LLC	80.1	2001
WINDWALKERS	Worth	Consolidated Edison Development Inc.	1.6	2011

ENDNOTES

[1] Wind Energy Production Tax Credits Study Report, Dec 4, 2024, pg. 28, https://www.legis.iowa.gov/docs/publications/DF/1518062.pdf.

[2] Iowa Environmental Council, Iowa Electric Generation Condition of the State 2025, pg. 7, https://www.iaenvironment.org/webres/File/2025%20Iowa%20Electric%20Generation%20Condition%20of%20the%20State%20Report%20-%20Digital.pdf.

[3] Electric Power Monthly - U.S. Energy Information Administration (EIA); https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=table_6_02_b.

[4] Studies by DOE and NREL including 20% by 2030 Wind (2008); Wind Vision (2015); and Renewable Energy Futures (2012).

[5] U.S. Department of the Interior, U.S. Geological Survey, The U.S. Wind Turbine Database, https://energy.usgs.gov/uswtdb/.; Iowa Wind Farm Map & Project List, https://cleanview.co/power-projects/operating/wind-farms/iowa.

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