

Wind Energy Conversion Systems (WECS) – Revised Regulations Discussion

December Mid Month

12/14/22

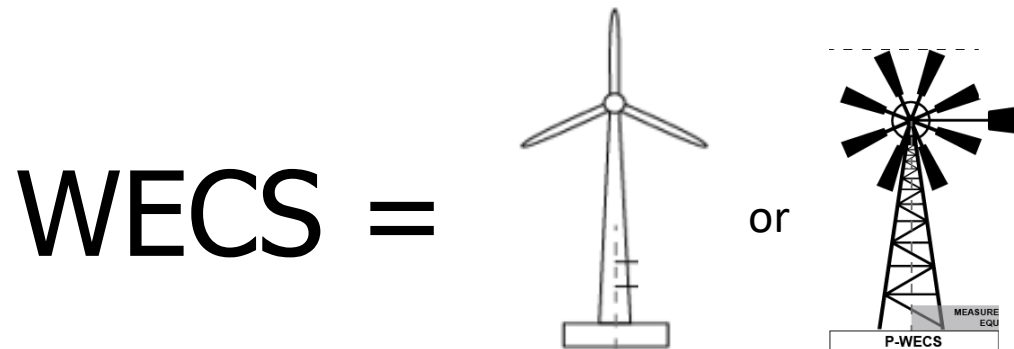
Quick Definition

WECS

A Wind Energy Conversion System is a system of wind-driven generators that convert wind energy into electrical power.

Individual machines are also referred to as a turbine, wind tower, windmill, or wind pump.

A WECS may be for personal or commercial use, these two varying uses are referred to as P-WECS and C-WECS, respectively.



History & Existing Regulations

The Lawrence Douglas County Planning Commission and County Commission approved the existing wind regulations in 2016 through Resolution No. 17-12. The existing regulations are in [Section 12-306-44](#) of the Douglas County Zoning and Land Use Regulations.

Prior to these regulations being adopted, the only zoning regulations governing this use (of commercial or personal wind turbines) would have been through assessing a WECS proposal as if it was a Wireless Communication Tower as a proxy.

These existing regulations include, but are not limited to:

- Five, brief definitions including regulations on “Small” Personal WECS
- Identify a CUP as being the process to establish the WECS
- Require a setback of 110% of the height of tower plus length of blade, and 1500’ from dwellings.
- No height standards
- A decommissioning plan to take place within 18 months of abandonment

Since the adoption of Section 12-306-44 there have been no proposals for a commercial- scale wind farm in the Unincorporated Territory of Douglas County.

Purpose

The intent of the revised regulations being discussed today is to update the County's existing wind regulations in order to provide clarity for both applicants and staff when reviewing Wind Farm proposals.

Amendments have been made to mirror the structure and depth of review to the recently adopted Solar Regulations (12-306-49)

Additionally, these revised regulations seek to:

- Provide conditions required of Personal/Small Scale (WECS) e.g., windmill, wind pump, etc.
- Create a thorough process to permit the development of a Commercial-Scale Wind Farms (C-WECS Projects);
- Provide a basis for public discussion and informed comment on the C-WECS Project; and
- Identify and mitigate significant environmental, social, and economic effects related to a proposed C-WECS Project.
- Ensure the land in the County remains viable for agricultural uses during the life of the C-WECS Project and following decommissioning.

Review and Approval Process

P-WECS; Personal - Wind Energy Conversion System

- Reviewed within a building permit similar to an accessory structure. Subject to County adopted building codes.
- Must meet the Conditions of approval listed within 12-306-44.02 e.g., maximum height, setbacks, power rating, etc.
- May not be converted into a commercial-scale wind farm without going through the C-WECS CUP process.

C-WECS; Commercial - Wind Energy Conversion System

- Reviewed through a modified Conditional Use Permit application. The CUP would be issued for the entire Wind Farm project area.
- Requirements of the CUP will include (but are not limited to) specific siting standards, extensive studies regarding visual, noise, infrastructure, and environmental impacts, and a formally executed Decommissioning and Reclamation plan.

Overview of Revised WECS Regulations

12-306-44.01 Definitions

12-306-44.02 Personal - Wind Energy Conversion System (P-WECS)

12-306-44.03 Commercial - Wind Energy Conversion System (C-WECS)

12-306-44.03.01 Key Considerations

12-306-44.03.02 Contents of Application

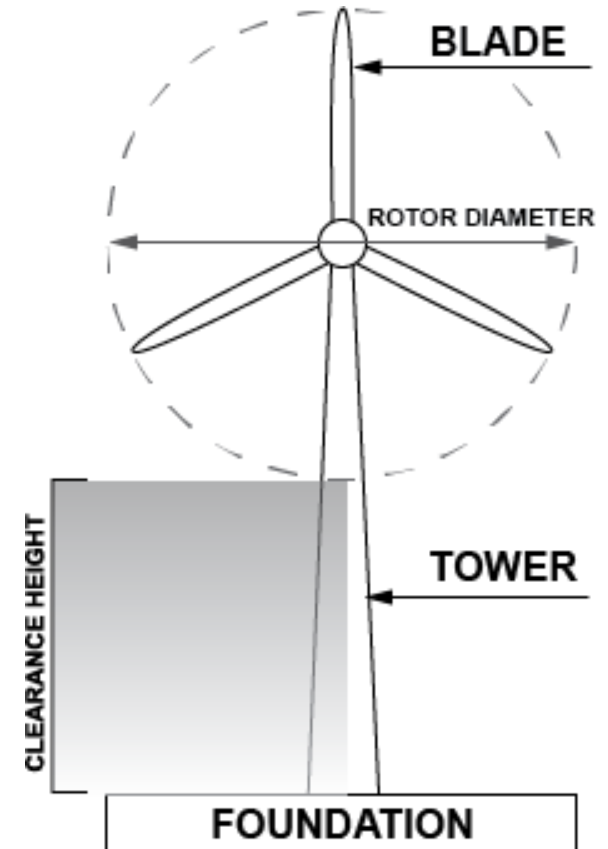
12-306-44.03.03 Design Standard

12-306-44.03.04 Performance Standards

12-306-44.03.05 Building Permit Issuance

12-306-44.03.06 Revisions to Approved Plan

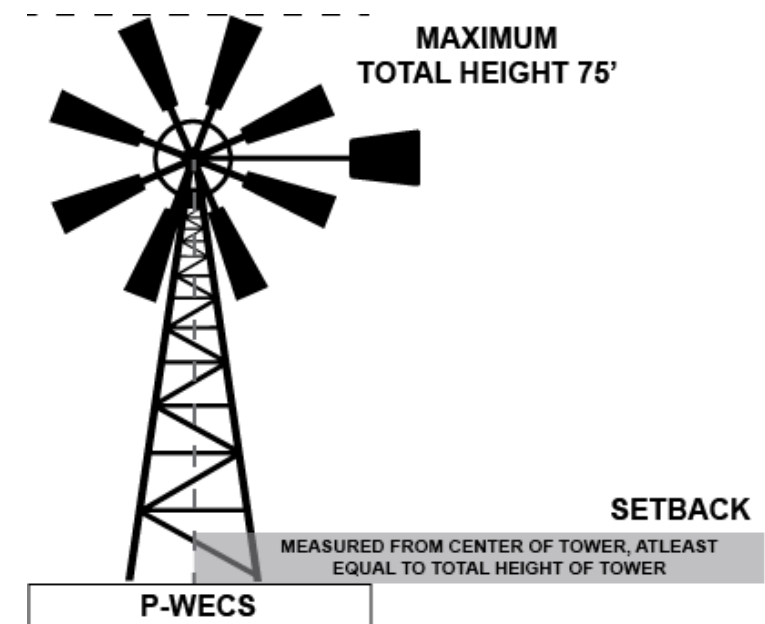
12-306-44.03.07 Abandonment, Decommissioning and Reclamation Plan



Overview of Revised WECS Regulations

12-306-44.02 Personal - Wind Energy Conversion System (P-WECS)

- Cumulative maximum power rating of 50 kilowatts of electrical power on site.
- Total height shall not exceed 75 feet.
- Setback from the nearest property line: Total height of the P-WECS, measured from the center of the tower.
- Setback from roadways: dimensional standards of the zoning district.
- Subject to appropriate building permits and site plan requirements.
- P-WECS sited on industrially-zoned or business-zoned properties are subject to site plan requirements.
- A small, personal-use wind energy conversion system shall be subject to Chapter 13 of the Douglas County Code for original approval, periodic review, and standards associated with an accessory structure.



Key Changes

12-306-44.03.02 Contents of Application

- A Concept Plan
- A Lighting Plan
- Visual Impact Assessment – [Example](#)
- Noise Impact Assessment – [Example](#)
- Environmental Impact Assessment – [Example](#)
- Stormwater Management Plan (Proposed and Reviewed by County Engineer)
- Traffic Study and Road Maintenance Agreement (Proposed and Reviewed by County Engineer)
- Operation and Maintenance Assessment
- FAA Requirement Acknowledgement
- Emergency Mitigation Plan (Reviewed by Chief Baxter)
- Decommissioning Plan (Reviewed by County Legal and NRCS + County Extension Office + Do. County Conservation)
- Costs / Fees
- Public Notice (extraordinary, 2-mile boundary of notice)
- Provisions (Includes right to enter, not cause undue interference, transfer rules, prescribed burning, etc.)



C-WECS

Key Changes

12-306-44.03.03 Design Standard

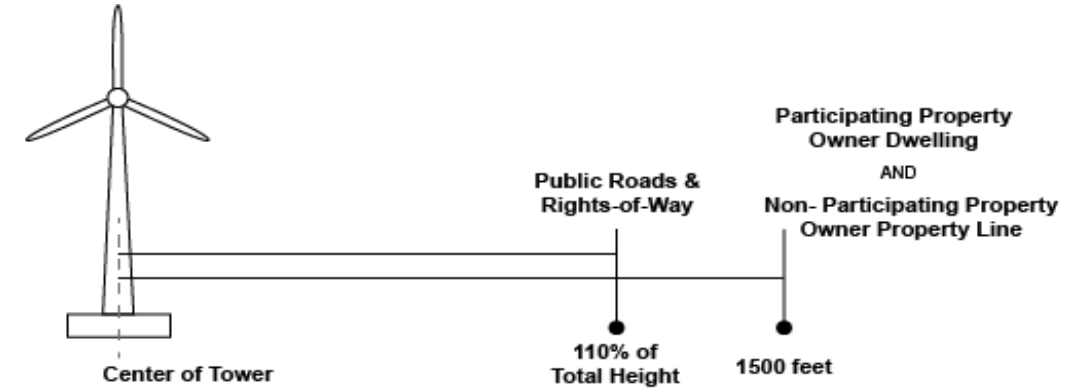
Staff Proposed Setbacks

- **1,500 feet** to the participating landowner's residence and any other occupied structures.
- **1,500 feet** from the property line of non-participating property owners.
- **110%** of the total height of the turbine from public roads and rights-of-way.

Additional or reduced setback requirements may be imposed by Board of County Commissioners as conditions of approval to the project

Definition:

Participating Landowner; Property owners who have entered into leases or other monetary arrangements with an Applicant or Operator whereby they have reasonable expectation to benefit from approval, construction, and operation of a C-WECS Project. Any person(s) who is not a Participating Landowner shall be referred to as a non-participating landowner.





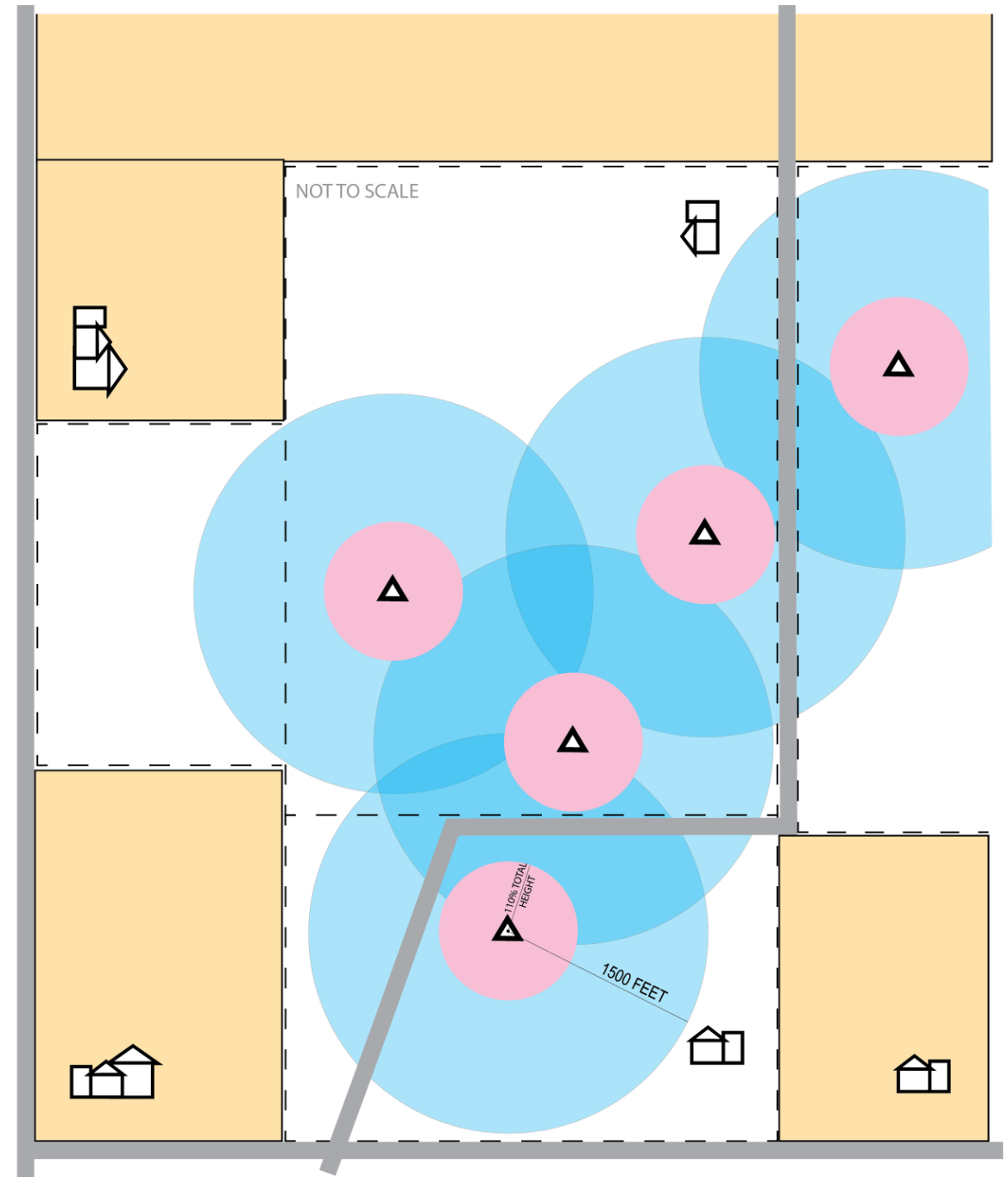
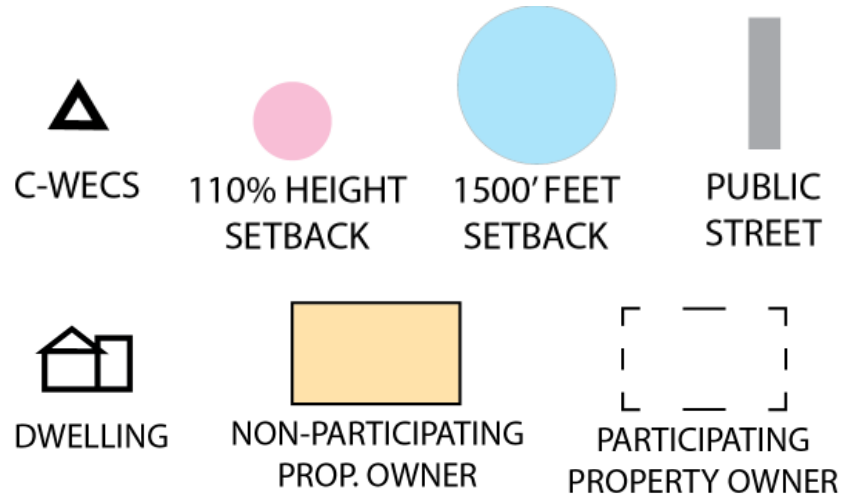
C-WECS

Key Changes

12-306-44.03.03 Design Standard

Setbacks (continued)

Not to scale, example



Key Changes

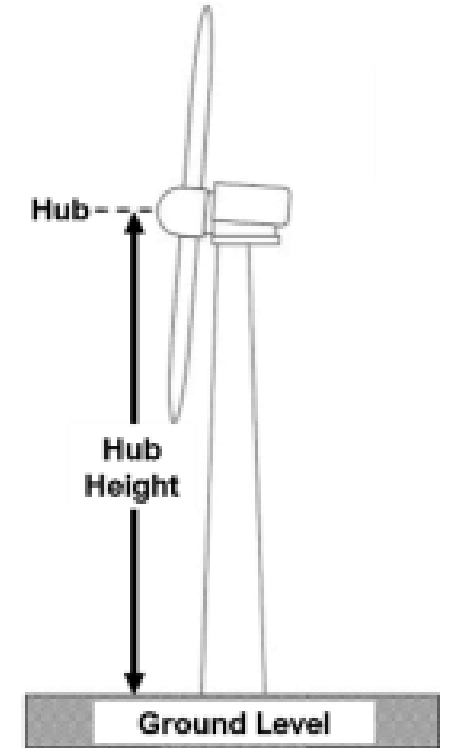
12-306-44.03.03 Design Standard

Staff Proposed Permitted Height

Permitted height shall be determined by the hub height for each individual turbine. The maximum hub height shall be **80 meters**, as measured by manufacturer specifications.

The Board of County Commissioners may approve greater height for individual turbines, but not greater than 110 meters hub heights, if increased tower height better aligns with the purpose and intent of this section.

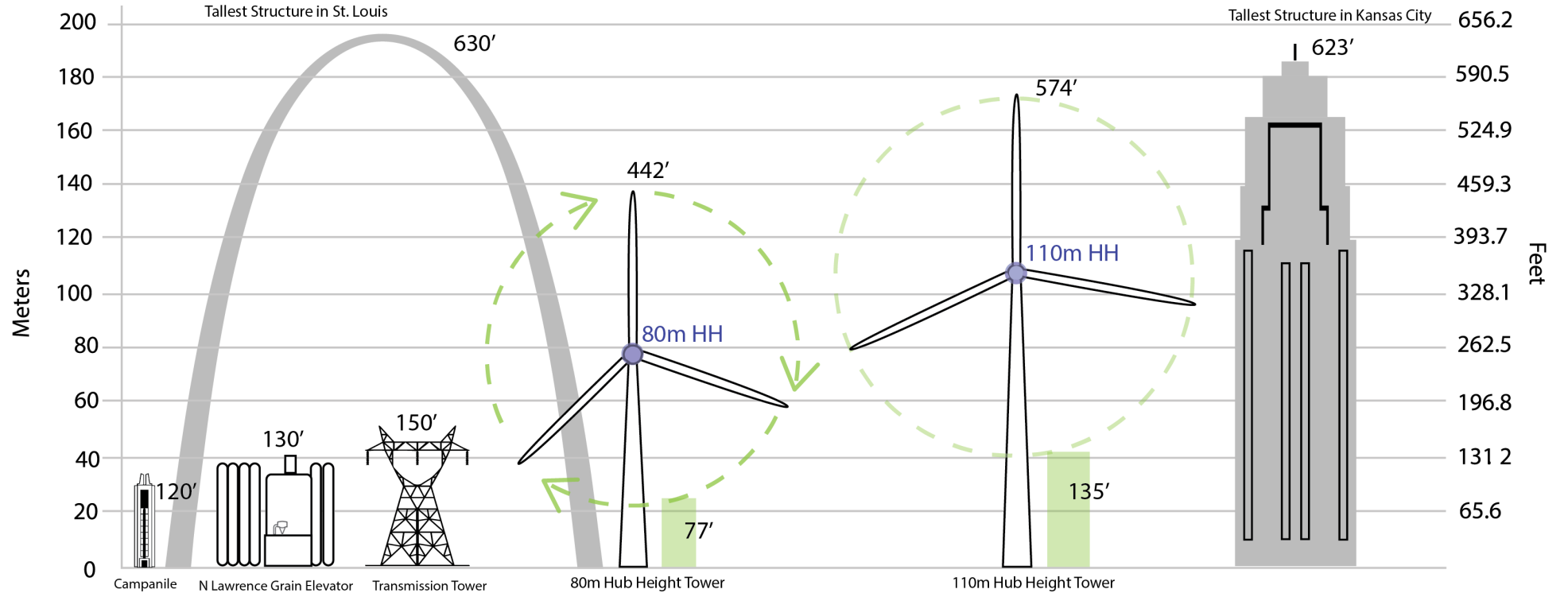
Staff's recommendation is based on the balance between maintaining the character of Douglas County, reviewing nearby existing turbines, and industry standards and equipment. A report written by the U.S. Department of Energy Office of Energy Efficiency & Renewable Energy makes recommendations which was used to make staff's determination. That report is titled, "[Increasing Wind Turbine Tower Heights: Opportunities and Challenges](#)"



C-WECS

Key Changes


Permitted Height (continued)



Campanile, 120'
N Lawrence Grain Elevator, 130'
Non-Specific Transmission Tower, 150'

Tallest Structures in KC/ STL:
One Kansas City Place, 623'
St. Louis Arch, 630'

 Clearance height

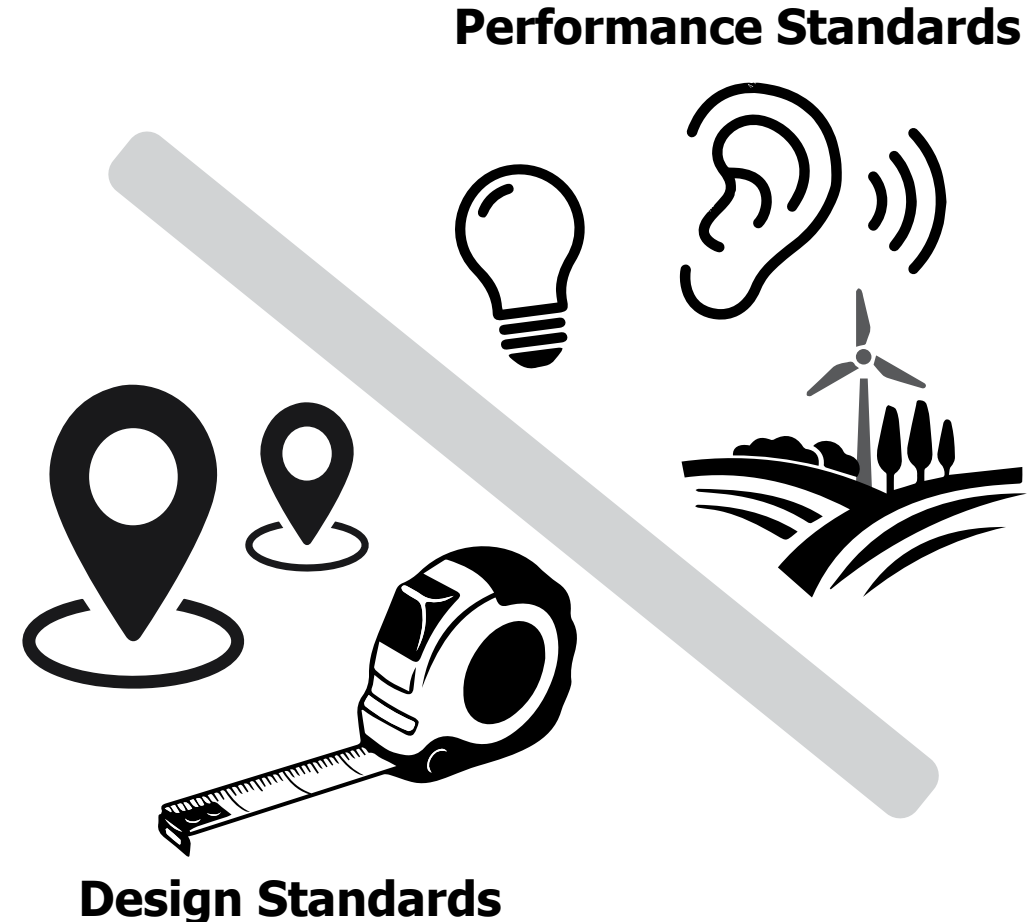
 HH = Hub Height, The distance measured from the ground immediately adjacent to the tower foundation to the center of the rotor hub.

Key Changes

12-306-44.03.04 Performance Standard

The difference between **Design Standards** and **Performance Standards** is that design standards are more-so applicable during the siting phase. Performance standards are applicable throughout the life of the project and must be in continued compliance.

Failure to comply with Performance Standards may be grounds for suspension, amendment, or revocation of CUP as determined by the Board of County Commissioners.

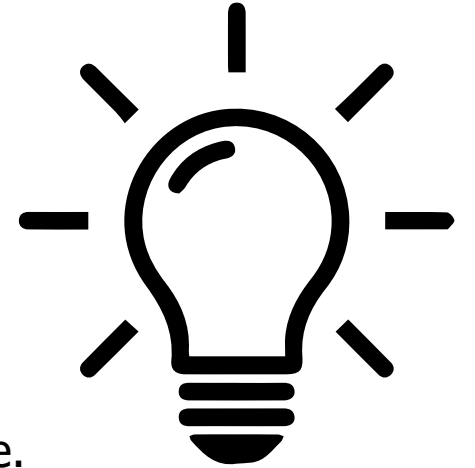


Key Changes

12-306-44.03.04 Performance Standard

Staff Proposed Lighting Standards

All turbines and accessory facilities shall be sited to minimize adverse visual effect on the environment. Blade glint and shadow flicker shall be avoided to the greatest extent possible.



Lighting of turbines shall be **radar activated** and in compliance with current FAA Aircraft Detection Lighting System regulations. Any emergency reserve lighting shall follow “daytime white / nighttime red” standards.

If built C-WECS project area materially differs from simulations and descriptions provided in the visual impact assessment, greater mitigation techniques will be required as determined by the Governing Body. These mitigation techniques may include but are not limited to, landscape screening, fencing, or removal of individual turbines at operator’s expense.

Key Changes

12-306-44.03.04 Performance Standard

Staff Proposed Noise Standards

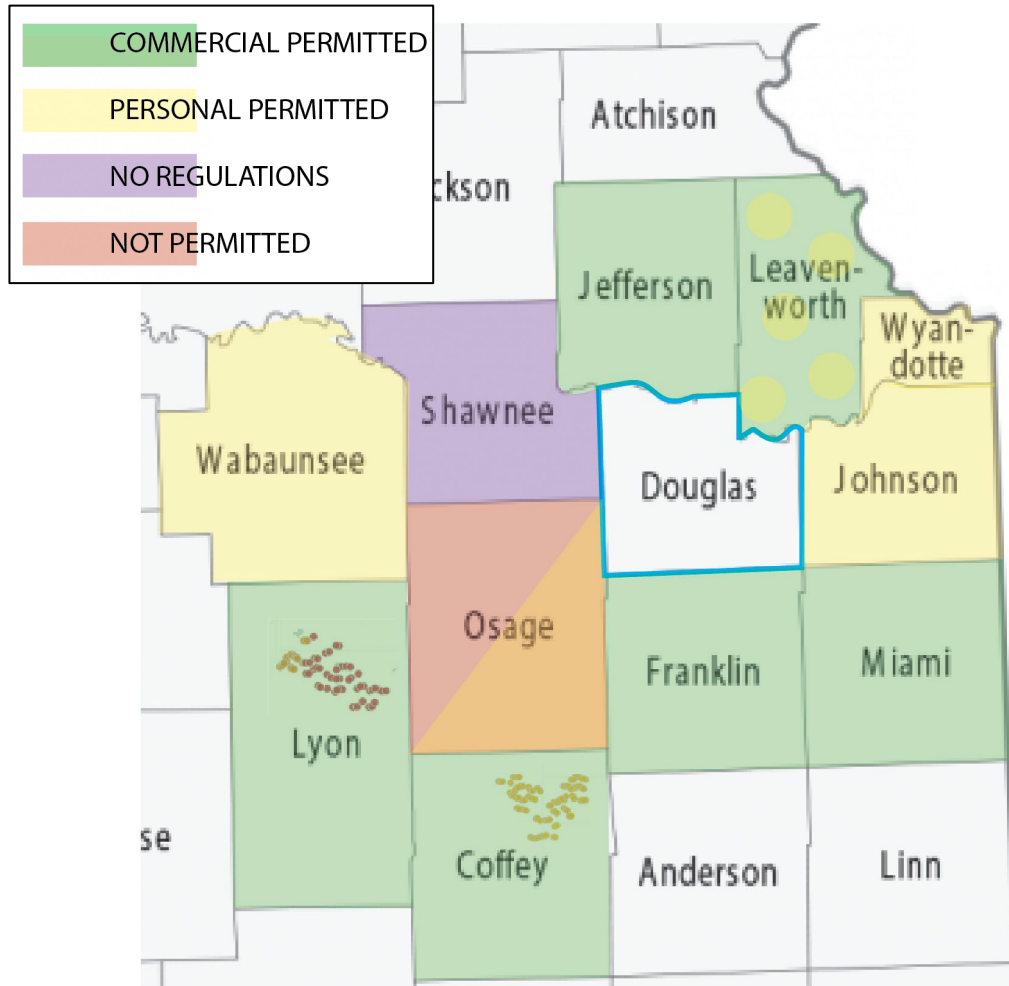
Construction: During construction phase of C-WECS development, construction activities of any nature may only occur from one hour after sunrise until one hour before sunset.

Operation: Noise level shall not exceed **50 decibels** measured at the property line of the nearest non-participating property owners. Noise caused by operating turbines shall not cause adverse low-frequency sounds which disrupt non-participating property owners.

A good faith effort shall be made by the C-WECS Operator to mitigate any unforeseen issues caused by demonstrable noise impacts.



Evaluation of Nearby County Wind Regs



Coffey – Permitted (Existing 95 turbine wind farm)

Franklin – Permitted

Jefferson – Permitted

Johnson – No Commercial; P-WECS only

Leavenworth – Permitted

Lyon – Permitted (Existing 61 turbine wind farm)

Miami – Permitted

Osage – Prohibits alternative energy systems; P-WECS permitted

Shawnee – No regulations (Reserved in code)

Wabaunsee – No Commercial; P-WECS only

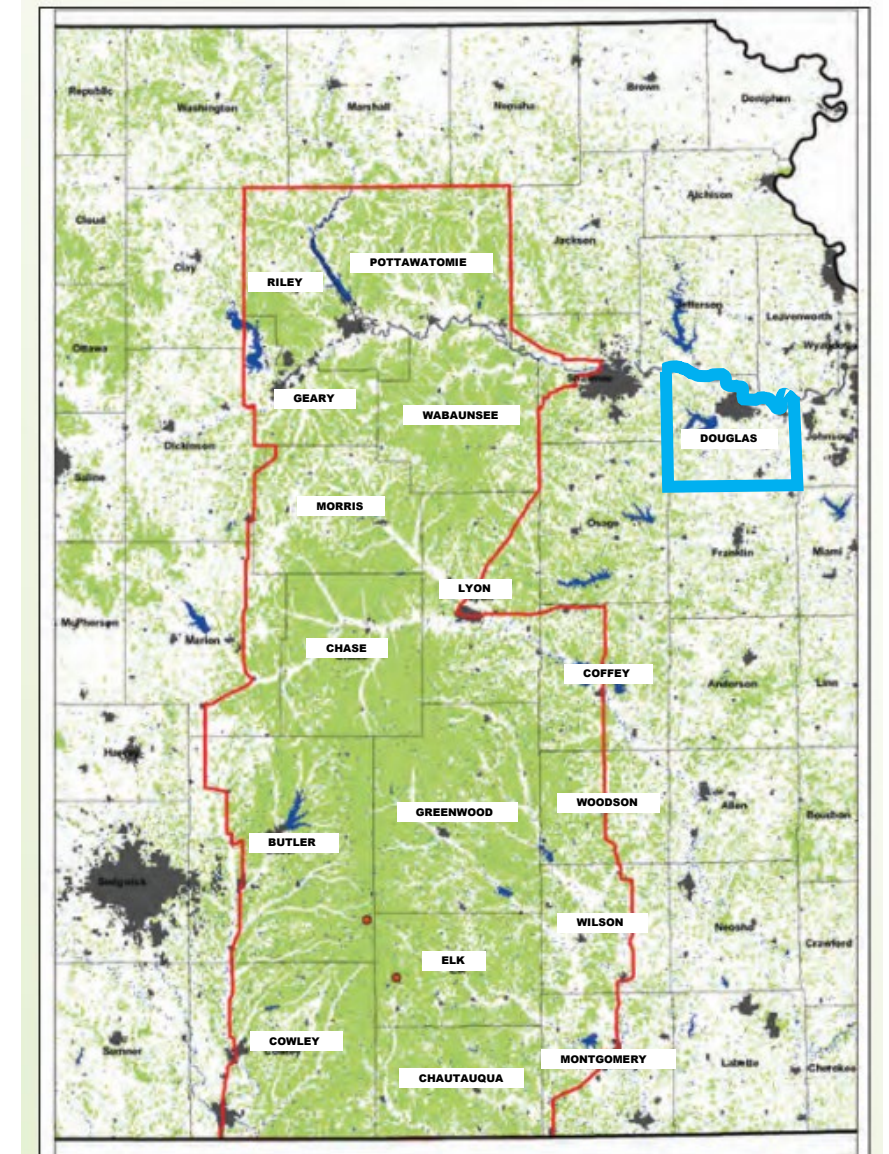
Wyandotte – No Commercial; P-WECS only

Evaluation of Nearby County Wind Regs

The tallgrass heartland wind moratorium was first declared in 2004 by Governor Sebelius on the advice of the Kansas Geological Survey.

Since then, this proclamation has served to protect the “remarkable landscape and many wildlife that inhabit” the Flint Hills region.

The area includes portions of 12 Kansas counties and contains two-thirds of the world’s remaining tallgrass prairie.



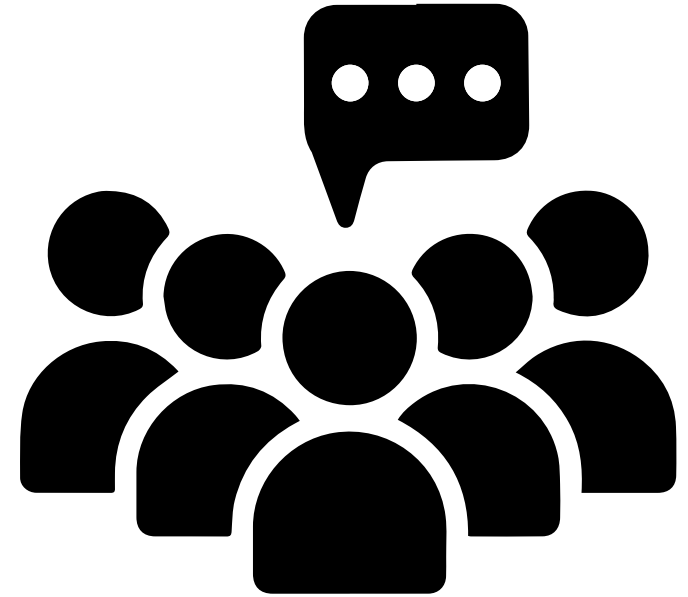
What We've Heard

Community members have expressed interest in:

- Greater setbacks
- Regulating noise
- Regulating lighting
- Greater decommissioning/ reclamation standards

Community members have expressed concern regarding:

- Environmental impact
- Character of the area
- Emergency situations & response
- Ensuring that land remains viable for agricultural uses



Next Steps

Formal public comment period opened 12/7/22, Revised Wind Regulations have been published on the dedicated website, www.lawrenceks.org/windregs

Those comments will be gathered by staff & presented to the Planning Commission at the termination of the public comment period. Date of public comment close, February 5 @ 11:59PM (60 days)

12/19/22: Planning Commission receive Text Amendment. Staff to present staff report & discuss proposed changes to Section 12-306-44 of the County Code (WECS). Public hearing opens.

1/12/23: Staff to host Community Meeting in SW Douglas County (Greenbush School, 6pm-9pm) located at 1104 E 1000 Rd, Lawrence, KS. Not a formal public hearing.

Email staff comments or questions at:
windregs@lawrenceks.org

WECS Proposed Calendar

Date	Action
12/7	Publish Revised Draft Regulations
12/14	Mid-Month Study Session with Planning Commission
12/19	Planning Commission receive Text Amendment. Staff to present staff report & discuss proposed changes to Section 12-306-44 of the County Code (WECS). Public hearing opens.
1/12	Staff to host Community Meeting in SW Douglas County (Greenbush School, 6pm-9pm)
1/23	Planning Commission receive update on text amendment. Staff to present any additional research and discuss what was heard at the Community meeting. Public hearing continues.
1/30	Staff to host open house in Riverfront City Hall (2pm-7pm)
2/5	Public Comment on Revised Wind Regulation Text will close (11:59PM)
2/20	Planning Commission receive update on text amendment. Staff to present analysis and summary of “what we heard” throughout 60-day public comment period. Public hearing continues.
3/8	Tentative Planning Commission Mid-Month meeting. Staff to present new revised regulations from previous guidance and changes made as a response to public comment.
3/20	Planning Commission to receive update on text amendment and consider recommending approval to Board of County Commissioners. Public hearing closes.

*calendar subject to change.

www.lawrenceks.org/windregs

Dedicated email address: windregs@lawrenceks.org