PLANNING COMMISSION MEMO

To: Osage County Planning Commission; Malissa Krause**,** County Zoning Administrator

From: Russ Ewy, AICP, Planning Consultant

Date: October 6, 2022

Re: Proposed amendments regarding the development of Alternative Energy Systems

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The purpose of this memo is to provide an overview of the process to recommend proposed amendments to the Osage County Comprehensive Plan and Zoning Regulations to address how the County regulates large-scale wind and solar energy conversion systems ("alternative energy systems") through zoning.

The Planning Commission spent most of this year discussing the local regulation of alternative energy systems, and following several public input sessions directed staff to prepare the documentation for possible amendments to the Comprehensive Plan and Zoning Regulations accordingly.

CURRENT COMPREHENSIVE PLAN GUIDANCE

The Osage County Comprehensive Plan, adopted in 2002, outlines the overall goals and objectives for the conversion of rural lands into non-agricultural activities. Currently, there is little guidance in the plan dealing with such facilities and suggests no development standards to mitigate any potential impact of such land use.

However, the plan provided general goals and objectives for future land use changes, such as the following (emphasis added):

> LU-1 GOAL: PROMOTE THE RETENTION OF AGRICULTURAL LANDS FOR FUTURE AGRICULTURAL USES AND **PROTECT AGRICULTURAL LANDS FROM ENCROACHMENT OF NON-AGRICULTURAL, INCOMPATIBLE USES**.
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> LU-2 GOAL: PROVIDE OPPORTUNITY FOR THE ORDERLY AND EFFICIENT DEVELOPMENT OF LAND WHICH WILL ACHIEVE A FISCALLY SOUND AND **ENVIRONMENTALLY SAFE COUNTY, WHILE MAXIMIZING COMPATIBILITY AMONG LAND USES**.
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> > LUO-F OBJECTIVE: Minimize land use incompatibilities and ensure that adjacent developments are comparable in density and quality, thereby providing for a smooth transition between land uses.

LUO-G OBJECTIVE: Coordinate future development with the physical environment, placing a premium upon developing in harmony with existing natural features.

Although the existing plan does not specifically address large-scale utility facilities, we can recommend additional language to better address alternative energy systems going forward.

SUGGESTED COMPREHENSIVE PLAN AMENDMENTS

The Comprehensive Plan may be amended to address the development of large-scale commercial alternative energy systems; specifically, whether to propose certain regulatory changes to better manage such facilities or an outright prohibition.

Suggested changes to Section 2 – Chapter 9 - Land Use as follows:

Proposed new language:

LUO-K OBJECTIVE: Maintain the rural character of the county with respect to its landscape, open spaces, scenic character, peace, tranquility, and solitude.

LUO-L OBJECTIVE: Prohibit land uses which could have a detrimental effect on the ecology of the area, especially wildlife habitat, breeding grounds, nesting areas, feeding areas and flight patterns.

LUO-M OBJECTIVE: Prohibit large-scale land uses which could have a detrimental effect on the ability of the county to attract new residential development.

CURRENT ZONING REGULATIONS AND RESTRICTIONS

Article 1-104 – Definitions

None regarding solar energy conversion systems.

WIND ENERGY CONVERSION SYSTEM: The combination of mechanical and structural elements used to produce electricity by converting the kinetic energy of wind to electrical energy. Wind Energy Conversion Systems consist of the turbine apparatus and any other buildings, support structures and other related improvements necessary for the generation of electric power from wind.

WIND ENERGY CONVERSION SYSTEM, COMMERCIAL: A single Wind Energy Conversion System exceeding 100 kW or exceeding 120 feet in height above grade, or more than one Wind Energy Conversion System of any size proposed and/or constructed by the same person or group of persons on the same or adjoining parcels or as a unified or single generating system.

WIND ENERGY CONVERSION SYSTEM HEIGHT: The distance measured from the ground level at the base of the tower structure to the highest point on the Wind Energy Conversion System, including the rotor blades.

WIND ENERGY CONVERSION SYSTEM, SMALL: A wind energy conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics, which has a rated capacity of not more than 100 kW, which is less than 120 feet in height above grade and which is intended to primarily reduce on-site consumption of utility power.

Article 10-103 Development Plan

4. In addition to all other requirements herein or elsewhere within these Regulations, the application for a **Commercial Wind Energy Conversion System** shall be for all the land within the perimeter of the proposed development and shall include all lands needed to meet all requirements, including setbacks, required within this application. One application, with landowners' signature, shall be required for each parcel of land located within the perimeter of the proposed Commercial Wind Energy Conversion System.

   The application shall consist of the following:

   A. Introduction: This shall be a written document providing general information on the proposed project, which may be in an "executive summary" form, and addressing the following information.

      1. Title of the project.
      2. Two (2) maps showing project location and vicinity. One at 1:100,000 scale, and one at 1:2,000 scale (USGS scale).
      3. Name and address of the developer, and phone number of a contact person for the project. A statement from the developer providing relevant information regarding an overview of the company, qualifications and experience in Commercial Wind Energy Conversion System development, and environmental management history of the company. In addition, the name, address and phone numbers of the manager of the project in the event the project is approved.
      4. Relevant background information on the project, including a general overview of the project location, rationale and need for the project, timeframe and project life, phases of development, likely markets for the electricity produced, and possibilities for future expansion.
      5. An examination of feasible alternative locations to the project and reasons for the proposed choice over those alternatives.
      6. The applicant's position regarding the consequences of not approving the project.

7. Environmental guidelines and industry codes of practice that will be followed if approved.
8. Detailed Reclamation Plan.
9. What percentage of the State of Kansas Renewable Portfolio Standards (RPS) does this project supply. (Applicable only in the event this requirement is added to the State regulations.)

B. Project Description**:** This shall be a detailed description of the project and its life span, including the construction, operation, and decommissioning phases, and, any infrastructure and off-site accessory structures required for the project.

1. A general description of the major components and on-site facilities of the Commercial Wind Energy Conversion System, including information on the wind turbine specifications, transmission line and accessory facilities such as control rooms, transformers, substations, maintenance facilities, underground infrastructure, and interior access roads. The number, location, capacity, and dimensions of the turbines shall also be included.
2. A description and schedule of major construction activities for the turbines, transmission lines, and accessory structures.
3. A description of the proposed site preparation involving removal of vegetation.
4. Estimates of the quantities of raw materials required for construction activities (sand, gravel, etc.) and their likely source.
5. The volume and designated route for traffic generated during the construction phase, including routes for oversized and heavy equipment, and the proposed method of providing assurances to the public entities responsible for the roads of repairs and on-going maintenance to the roads and bridges needed to support the project.
6. The designated route for traffic generated during the utilization of the facilities, including routes for oversized and heavy equipment needed for maintenance or repairs, and the proposed method of providing assurances to the public entities responsible for the roads of repairs and on-going maintenance to the roads and bridges needed to support the project.
7. Operation and maintenance requirements (including frequency of maintenance activities) for the turbines and internal transmission lines connecting the individual turbines within the project and the transmission lines connecting the system to the "grid."
8. Width of transmission line easement required, including access requirements to the easement and any restrictions necessary on land use, development, and access within said easement.

C. Site Plans. A Site Plan with the following specifications shall be submitted:

1. Scale of 1" = 2000';
2. Scale and north point (up);
3. Name / address of land owner(s) and land developer(s);
4. Boundaries of site. This includes boundary of property and boundary of area affected by CUP;
5. Topography with contours at intervals of 20';
6. Adjoining streets; rail roads and airports;
7. Transmission lines;
8. All houses within 1000' of the site boundary;
9. Acreage of site; point(s) of access to the project;
10. Schematic location of turbines, electrical collection systems, and maintenance roads;
11. Boundaries of the 100-year floodplain as identified on the Federal Insurance Administration's "Flood Hazard Boundary Maps" of Osage County, Kansas.
12. The location of any underground pipelines and other utility easements.

D. A written report addressing the items identified in Article 17-102, Performance Standards, as they relate to Commercial Wind Energy Conversion Systems. In particular, these should address the following topics:

1. Off-Site Infrastructure.
2. Overview of existing environment.
3. Noise.
4. Surface water.
5. Groundwater.
6. Air.
7. Visual effects.
8. Ice Throw.
9. Fire Hazard Analysis.
10. Communication interference.
11. A Decommissioning & Reclamation Plan for the entire site.
12. Mitigation proposals intended to offset any potential impacts to the environment by the proposed development.

5. Where approved by a Conditional Use Permit, a **Commercial Wind Energy Conversion System** shall conform to the following performance standards:

   A. Off-Site Infrastructure. All roads not a part of the primary highway system of the State of Kansas intended to be used by the applicant as a means of ingress and egress to the proposed facility shall be designated on the application. Final approval of the designated roads to be used shall be made a part of the Conditional Use Permit, if approved. A construction and maintenance agreement between the applicant and Osage County and/or the appropriate Township officials shall be required. Such agreement shall specify the standards to which such roads will be reconstructed, if necessary, and the standards to which such roads will be subsequently maintained by the owner/operator of the Commercial Wind Energy Conversion System. The agreement shall also specify the form, manner, timing, and frequency of maintenance and upkeep. The responsibility of determining sufficiency of compliance with the road agreement shall be with Osage County or its designee.

   In addition, documentation shall be provided indicating any proposed changes or upgrades to electrical substations, existing power transmission systems, or realignment of other utility systems required to support the project. Acknowledgement from the owners of those systems shall be provided that they are aware and have reached agreement with the applicant to provide for those changes and that any additional approvals required by these Regulations for such expansions have been or will be made prior to any construction by the applicant or that utility system.

   B. Overview of existing environment and proposed mitigation plans. A written description of the project site location, including an overview of the existing environment that may be affected by the construction and operation of the project, and the proposed mitigation plans to offset any identified or projected impacts to the environment. Said overview shall include information regarding:

      1. Flora – vegetation species, threatened species (officially listed), critical habitat and habitat conditions for such species.
      2. Fauna – species, habitat assessment, threatened species (officially listed), migratory species, critical habitat and habitat conditions for such species.
      3. Geoconservation – sites of geoconservation significance listed on the state/national database. Virtually all of Wabaunsee County is located in the Flint Hills.
      4. Flood zones.
      5. Known or mapped archeological or historical sites or structures within a mile of the project.

C. Noise. A noise report shall be prepared that identifies current decibel levels surrounding the project site and the decibel levels and source noise if development occurs. Any proposed increase in noise levels on residential properties within ¼-mile of the project shall be indicated and mitigation plans identified.

D. Surface water. Water Quality Standards utilized for construction sites in Kansas under the requirements of the Clean Water Act shall be in effect during all construction, operation and maintenance of all facilities in the project, including using appropriate methods to be used to mitigate impacts.

E. Groundwater. It must be demonstrated that the project is consistent with the objectives and requirements of all relevant water management policies of the county and state. The following issues shall be addressed:

1. Protection of the quality and quantity of the area's groundwater resources.
2. Maintenance of groundwater quality.
3. Preparation of a hydrology survey of the property within the project.

F. Air. Dust emissions control measure shall be utilized during construction phase and from all access roads that impact all non-agricultural uses, including farm residences, during the life of the project.

G. Visual effects. The following standards shall apply:

1. All towers and blades shall be of an unpainted, galvanized color, except for limited markings for names of manufacturers or logos or similar identifying markings of the owners of the system.
2. The layout of the system shall be such to eliminate shadow flicker and blade glint from impacting on public roads and mitigate any such impacts on residential structures within the vicinity of the system.
3. All lighting necessary to comply with the FAA lighting requirements shall be installed on the minimum number of structures to comply with the requirements and shall consist of dual lighting structures with day time strobe lights on medium intensity and night time red lights only. No high intensity strobes or night time strobes shall be permitted.

H. Ice Throw. All tower structures shall be located such that the maximum potential distance of ice throw from any individual structure shall be on the land owned by the leasor on which the structure is located. Specific documentation shall be provided to quantify the basis of the distance assumed and shall be included with the application materials. Ice throw shall not be allowed onto public roads or adjoining property.

I. Fire Hazard Analysis. Specific measures shall be documented to assure that risks from fire cause by any individual structure shall be minimized. These include redundant mechanical equipment to shut down any rotor suffering from high heat from internal failure, and safety plans to be utilized during construction and maintenance.

In addition, mitigation plans are to show how the towers and equipment are protected from fire originating from outside the site, especially in the event of a fire originating from a controlled burn or other source that might encroach into the project area. (NOTE: Best source of information is the Osage County Extension office.)

Prescribed burning is defined as the controlled application of fire to naturally occurring or naturalized vegetative fuels under specified environmental (weather) conditions in accordance with a written prescription that:

1. Is designed to confine the fire to a predetermined area and to accomplish planned land management objectives; and,
2. Conforms to the standards established by the Kansas State University Research and Extension Office – Osage County.

J Communication interference. Provide documentation regarding the risk of interference to other communication signals (radio, television, microwave, radar) and actions to mitigate potential adverse effects.

K. Decommissioning and Reclamation / Abandoned Towers. Approval of the Conditional Use Permit for a Commercial Wind Energy Conversion System shall be accompanied by financial security in an amount and form approved by the Board of County Commissioners as reasonably necessary to reclaim the site to its pre-construction condition. The purpose of this financial security is to assure removal of all improvements subject to permit in the event of abandonment of the facility. Decommissioning shall include the requirement that all equipment shall be removed from the site, the foundations shall be removed to a depth of four (4) feet below the ground surface, access roads removed to the landowner's satisfaction, and the ground reseeded in native grasses. Access roads may be maintained if so, requested by the landowner(s) and not included within the reclamation requirements.

Abandonment shall include any six-month period following delivery by certified mail of written notice of abandonment to the owner of record of the system and the landowner(s) when a completed Commercial Wind Energy Conversion System does not produce any electric energy and there is no demonstrated plan to restore the equipment to operating condition.

Upon termination of the aforesaid six-month period, abatement shall proceed as set forth in these Regulations.

L. Monitoring and Review: Each approved Commercial Wind Energy Conversion System shall provide a monitoring, review and reporting program for each part of the project to confirm compliance with the above listed performance standards. At the time of application, a written report shall be submitted detailing shall the proposed pre-construction monitoring / studies, sites to be sampled, sampling procedures, the parameters to be analyzed, frequency of sampling and reporting. A site plan showing sampling locations is also required.

Article 17-103 – Conditional Uses Enumerated as follows:

9. Commercial Wind Energy Conversion System when located in the "AG" Agricultural District, subject to the following:

A. Strict conformance to all performance standards as detailed in these Regulations. The requirement for construction to begin within one (1) year may be extended to 18 months on written request by the developer showing that circumstances beyond their control has prevented them from obtaining a building permit.

B. The following setback requirements shall apply to the development:

1. The height of the Wind Energy Conservation System plus 50 feet from all public roads.

2. A distance equal to twice the Wind Energy Conversion System height from a residential structure.

C. All communication lines and power collection lines shall be installed underground, under or at the edge of the access roads. Aboveground transmission lines may be used only in public rights-of-way or easements.

D. The applicant shall apply for a construction permit for each Wind Energy Conversion System structure and shall do so prior to commencing construction.

E. The lowest point of the rotor blades shall be at least 100 feet above ground level at the base of the tower.

F. No significant quantities of lubricants shall be kept on site. No hazardous materials shall be kept on site.

33. Small Wind Energy Conversion Systems on lands zoned other than "AG" Agricultural.

Article 17-107 – Accessory Uses Allowed:

1. In District "AG" Agricultural, the following, or similar accessory uses are allowed:

   H. Small Wind Energy Conversion Systems, as defined herein.

SUGGESTED ZONING REGULATION AMENDMENTS

The Zoning Regulations may be amended to address the development of large-scale commercial alternative energy systems; either through additional requirements for these land uses, or by prohibiting their development altogether. In the event the Planning Commission wishes to exclude commercial-scale alternative energy systems within the county while preserving the ability for property owners to establish private on-site systems, the amendments to the Zoning Regulations would be the following:

Suggested changes to Article 1-104 –Definitions as follows:

Proposed new language:

ALTERNATIVE ENERGY SYSTEMS means either a Wind Energy Conversion System (WECS) or a Solar Energy Conversion System (SECS). Those terms shall mean the following:

1. Wind Energy Conversion System (WECS) means the combination of mechanical and structural elements used to produce electricity by converting the kinetic energy of wind to electrical energy. Wind Energy Conversion Systems consist of the turbine apparatus and any other buildings, support structures and other related improvements necessary for the generation of electric power from wind and intended for wholesale sales of generated electricity.

2. Solar Energy Conversion System (SECS) means a commercial facility that converts sunlight into electricity, whether by photovoltaics (PV), concentrating solar thermal devices (CST), or other conversion technology, for the primary purpose of wholesale sales of generated electricity and includes all associated support facilities including, but not limited to, roads, substations, operation and maintenance buildings, as specified in the application.

3. This definition shall not include alternative energy systems used for the private on-site generation and consumption of generated electricity (see definitions for Solar Energy Conversion System – Private and Wind Energy Conversion System – Private).

SOLAR ENERGY CONVERSION SYSTEM – PRIVATE: means a solar collection facility that converts sunlight into electricity, whether by photovoltaics (PV), or other similar conversion technology, for the primary purpose of the private use of generated electricity with a rated capacity of less than 30 kilowatt (kW) of solar energy capacity. Associated support facilities, such as battery energy storage equipment, shall be included in this definition.

WIND ENERGY CONVERSION SYSTEM – PRIVATE: means a wind energy conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics, which has a rated capacity of not more than 30 kilowatts (kW), which is less than 120 feet in height above grade and which is intended to primarily reduce on-site consumption of utility power.

~~WIND ENERGY CONVERSION SYSTEM, COMMERCIAL: A single Wind Energy Conversion System exceeding 100 kW or exceeding 120 feet in height above grade, or more than one Wind Energy Conversion System of any size proposed and/or constructed by the same person or group of persons on the same or adjoining parcels or as a unified or single generating system.~~

~~WIND ENERGY CONVERSION SYSTEM HEIGHT: The distance measured from the ground level at the base of the tower structure to the highest point on the Wind Energy Conversion System, including the rotor blades.~~

~~WIND ENERGY CONVERSION SYSTEM, SMALL: A wind energy conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics, which has a rated capacity of not more than 100 kW, which is less than 120 feet in height above grade and which is intended to primarily reduce on-site consumption of utility power.~~

Article 10-103 - Development Plan

Remove all reference to Section 10-103(4)

Article 11-102 - Performance Standards - Districts "AG", "SR", "R-1" and "V-1"

Remove all reference to Section 11-102(5)

Article 17-103 - Conditional Uses Enumerated

Remove all reference to Section 17-103(9)

33. ~~Small~~ Wind Energy Conversion System - Private on lands zoned other than "AG" Agricultural.

Article 17-107 – Accessory Uses Allowed:

1. In District "AG" Agricultural, the following, or similar accessory uses are allowed:

   H. ~~Small~~ Wind Energy Conversion System - Private, as defined herein.

   J. Solar Energy Conversion System - Private, as defined herein.

Suggested changes to 17-110 - Prohibited Uses

Proposed new language:

5. No property shall be used for the establishment of Alternative Energy Systems, as defined herein.

SUGGESTED MOTIONS

1. Recommend <u>APPROVAL</u> of proposed amendments to both the Comprehensive Plan and Zoning Regulations to prohibit alternative energy systems within the county, as outlined in the memo dated October 6, 2022 from the county's planning consultant. This recommendation is based on our determination that alternative energy systems would not be in the best interest to the general welfare of the county as a whole. The aesthetics, size and scope of these facilities make them objectionable and unsightly to area property owners as determined through the public input process, and would have a negative impact on local heritage (e.g., the Santa Fe National Historic Trail), wildlife, and natural features within the county.

2. Recommend <u>DENIAL</u> of proposed amendments to both the Comprehensive Plan and Zoning Regulations to prohibit alternative energy systems, as outlined in the memo dated October 6, 2022 from the county's planning consultant, and direct staff to develop additional regulations to better address said land uses.

3. Defer action on these proposed amendments to gain additional information.