

Section 16.14 **RENEWABLE ENERGY**

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- I. **RENEWABLE ENERGY DEFINITIONS** – See Article 20 for Rules and Definitions in addition to these definitions for Renewable Energy.
- A. **Agrivoltaic:** A solar energy conversion system that includes the dual use of the land: combining agriculture and a solar energy conversion system. The most common types of agrivoltaic facilities include the growing of crops, providing for pollinators, or grazing of animals. These agricultural activities occur underneath and surrounding the panels or modules.
- B. **Biomass:** Biomass is renewable organic material that comes from plants and animals. Biomass contains stored chemical energy from the sun that is produced by plants through photosynthesis. Biomass can be burned directly for heat or converted to a liquid or gaseous fuels through various processes. Types of biomass for energy include: wood, crops and agricultural residues, vegetable oils and animal fats, animal manure, sewage and trash and garbage.
- C. **Commercial (Utility Scale) Wind Energy Conversion System Projects (CWEP):** A project or plan to construct and operate one or more Commercial Wind Energy Conversion Systems or Turbines that converting the kinetic energy of wind into electrical energy and is comprised of one or more turbines and accessory facilities, including but not limited to, ancillary operational meteorological towers, overhead and underground communication and electrical transmission lines, transformers, substations, roads, administrative and operations buildings, turbines, Supervisory Control and Data Acquisition (SCADA) facilities, and other associated facilities. The primary purpose is for sale, resale or offsite use.
- D. **Commercial Wind Energy Conversion System (CWECS):** A single wind-driven machine that converts wind energy into electrical power for the primary purpose of sale, resale or off-site use.
- E. **Community (Limited Scale) Wind Energy Conversion System Project (LWEP):** A Wind Energy Conversion System project consisting of one or more Wind Energy Conversion Systems or Turbines owned by variety of individuals including small business owners, farmers, local organizations, schools and universities, Native American tribes, rural electric coops, municipal utilities, and religious institutions. The primary purpose is for on-site energy use by the community to help support or reduce energy costs to the local community. Community members have a direct financial stake beyond land leasing payments and tax revenue. A portion of the power may be sold wholesale.
- F. **Concentrating Solar Thermal Power Systems:** Concentrated solar thermal power systems use mirrors or lenses to reflect and concentrate sunlight onto a receiver. The energy from the concentrated sunlight heats the receiver to a higher temperature. This heat is then used to spin a turbine or power an engine to generate electricity
- G. **Equus Beds Aquifer Protection District:** See Article 13 “EBPEquus Beds Aquifer Protection District”.

- H. **Extraordinary Events:** Any of the following would be considered an 'extraordinary event': large-scale or facility-wide damage to Solar Arrays/panels and facilities due to wind, storm, hail, fire, flood, earthquake, or other natural disaster; explosion, grievous injury to any citizen, contractor or employee; or similar event. Other events may include Collector/feeder line failure, death of threatened or endangered species, discovery of an unexpected large number of dead wildlife animals, birds or bats of any variety, and discovery or evidence of erosion, damage or impact to a cultural, historical or archeological resource.
- I. **Geothermal Energy-** Geothermal technology extracts the heat found within the subsurface of the earth, which can be directly used for heating and cooling, or converted into electricity. However, to generate electricity, medium or high-temperature resources are needed. These are usually located close to tectonically active regions where hot water and/or steam is carried to the Earth's surface or can be accessed at shallow depths.
- J. **Grading:** The act of excavation or filling or a combination of both or any leveling to a smooth horizontal or sloping surface on a property but not including normal cultivation associated with an agricultural operation.
- K. **Height, Hub:** The distance measured from the ground immediately adjacent to the tower foundation to the center of the rotor hub.
- L. **Height, Total:** The sum of the hub height and half of the turbine's rotor diameter distance, measured at the highest point on the blade tip.
- M. **Net Metering:** a system in which solar panels or other renewable energy generators are connected to a public-utility power grid and surplus power is transferred onto the grid, allowing customers to offset the cost of power drawn from the utility.
- N. **Non-Participating Landowner:** An individual, group of individuals, a trust, or other entity owning real property who or which has not signed a lease agreement with the owner or Applicant(s) of a Commercial Renewable Energy Project.
- O. **Notification Area:** All landowners with-in 1000' of a Participating Landowner's property will be notified by mail of the Public Hearing.
- P. **Applicant(s):** The party or entity responsible for the construction, operation, maintenance, and decommissioning of the Solar Energy Conversion System.
- Q. **Participating Landowner:** An individual, a group of individuals, a trust, or other entity owning real property who or which has a signed lease agreement with the owner or Applicant(s) of a Commercial Renewable Energy Project.
- R. **Permeable Fencing:** Fencing that allows wildlife to pass through. Examples include typical barb-wire fencing or wire fencing with larger holes than a traditional chain link fence, woven wire, with wildlife corridors for larger wildlife.
- S. **Personal (Small) Energy Conversion Systems – Solar and Wind for Business Use:** A business that is located on the same parcel as a residential structure may apply for a personal use energy conversion system. All regulations for Personal Wind Energy Conversion Systems and Personal Solar Energy Conversion Systems apply.
- T. **Personal (Small) Wind Energy Conversion System (PWECS):** A wind-driven machine that converts energy into electrical power for the primary purpose of on-site personal use, not for off-site commercial power production. This may include small wind turbines from 400 watts (W) to

100 kilowatts (kW), Personal (Small) Wind Energy Electricity is not generated for sale, although net metering is permitted.

- U. Prescribed Burning:** The controlled application of fire to naturally occurring or naturalized vegetative fuels under specified environmental (weather) conditions in accordance with a written prescription that: Is designed to confine the fire to a predetermined area and to accomplish planned land management objectives; and, Conforms to the standards established by the Kansas State University Research and Extension office in the Harvey County Courthouse
- V. Private Airport/Private Airstrip:** a location that is registered with the Kansas Department of Transportation and Federal Aviation Administration, appears on aeronautical charts, and has a landing surface(s) which is/are maintained and capable of providing a safe landing for aircraft. All such requirements must be in effect at the time a conditional use permit application is accepted by the Zoning Administrator.
- W. Project Area:** The total impacted area including the Site Area along with the accessory or appurtenant structures and equipment, wildlife corridors, and other components of the solar energy conversion system.
- X. Power Purchase Agreement (PPA):** a long term (10-25 years or more) electric supply agreement between two parties usually between a power producer and a customer (electric consumer or trader).
- Y. Qualified Third Party:** An individual or entity that is not owned by, operated by, or a subsidiary of the current owner or subsequent owners of a CREP or a property within the project boundary, who is qualified to perform the required analysis.
- Z. Renewable Energy Equipment:** Solar panels, wind turbines and other non-petroleum renewable sources and their apparatus permanently installed for the generation, transmission, storage, distribution or utilization of mechanical or electrical power. Equipment also includes use of meteorological towers and other equipment for studies pertaining to Commercial Renewable Energy Projects.
- AA. Sand Hills Overlay District;** Located between West US Highway 50 north to Northwest Dutch Ave and North Woodberry Road east to North Golden Prairie Road. See official map in the zoning office.
- BB. Site Area:** The footprint of the solar facility including the various Solar Modules, whether on property that is commonly owned/controlled or is under separate ownership. The Site Area is the cumulative total of the Solar Modules within the facility. The Site Area is measured with the panels as horizontal as possible. This term does not include the wildlife corridors or other features of the solar energy conversion system that are not considered part of the Solar Module.
- CC. Solar Energy Conversion System (SECS):** a machine or device that converts sunlight into heat (passive solar) or into electricity, whether by photovoltaics (PV), Concentrating Solar Thermal Devices (CST), or other conversion technology.
 - 1. **Personal Solar Energy Conversion System (PSECS):** Solar energy conversion systems that are used for personal use or are accessory to other uses. Electricity created is for consumption on-site and not for transfer or sale to a third party (although net metering is permitted).
 - 2. **Limited Scale (Community) Solar Energy Conversion System (LSECS):** Solar energy conversion system that does not exceed 10 contiguous acres in area. Minor structures other than energy conversion equipment may be included in this use. A limited scale system is typically created by people that join together to cooperatively create and use solar energy. Electricity created is for consumption of members in the group and not for transfer or sale to a third party. The electric produced by the Limited Scale Solar Energy Conversion System

is to be used in Harvey County within a three miles from the LSECS. Net metering, or sale to the local providing utility company, is permitted.

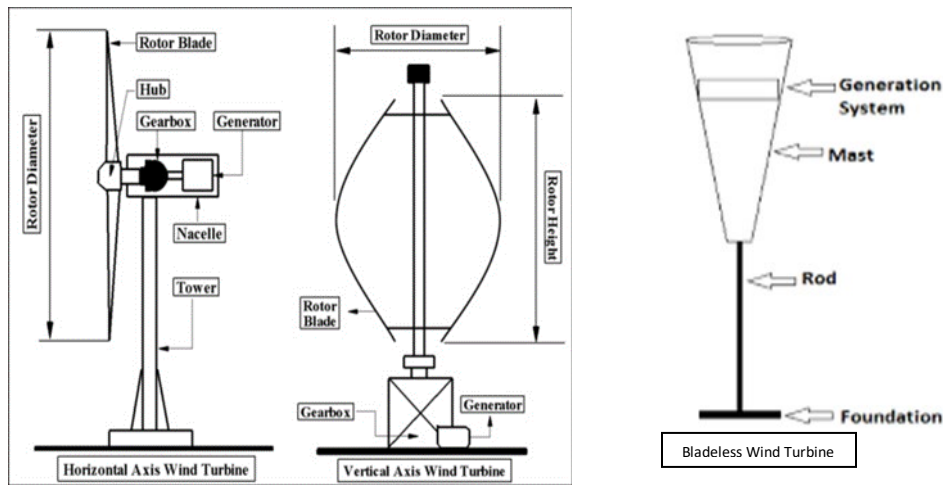
3. **Commercial Solar Energy Conversion System (CSECS):** Solar energy conversion systems, commonly referred to as 'solar farms' that convert solar energy into electricity for the primary purpose of storage and sales of generated electricity. This term includes all appurtenant facilities such as roads, substations, and operation or maintenance buildings. The system is connected to transmission, collector, feeder lines, and/or battery storage, and is intended for use in a larger electrical network exclusive of individual use.

DD. Solar Array: A collection of multiple solar panels that generate electricity as a system, most typically this is a group of solar panels connected to the same inverter.

EE. Solar Module: A grouping of Solar Arrays. The area of a Solar Module is measured with the panels as horizontal as possible. The Module may be separated from other Modules by fencing, wildlife corridors, natural areas, roads, etc. Appurtenant structures such as sub-stations, battery storage, and other storage buildings, are not included in this definition.

FF. Turbine: A wind driven machine that converts wind energy into electrical power, also referred to as tower or wind energy conversion system.

1. Horizontal Axis Wind Turbine
2. Vertical Axis Wind Turbine
3. Bladeless Wind Turbines



GG. Wildlife Corridors: A vegetated route or other connection which allows movement of wildlife between areas of habitat. A wildlife corridor may be naturally occurring areas such as stream corridors, or constructed breaks in the contiguously fenced areas other than for roads. A wildlife corridor allows animals to travel through an area that may be fragmented with solar energy conversion systems, or other features, rather than using the nearby roadways.

II. PURPOSE & INTENT

- A. The purpose of this Article 16, Section 16.14 is to define the rules and regulations required in facilitating Renewable Energy Conversion Systems within the unincorporated portion of Harvey County. Zoning jurisdiction provides reasonable requirements for the submission of proposals to establish Renewable Energy Conversion Systems and provides adequate information to the officials of Harvey County charged with the responsibility to review said proposals.

1. These regulations are written to assist the Applicant(s) and relevant authorities, provide details of the Renewable Energy Conversion System provide information so individuals may gain understanding of the project, provide a basis for discussion and informed comment and identify significant environmental, social, cultural, historical, archeological and economic effects related to the Renewable Energy Conversion System.
2. The intent of these regulations is to address major issues associated with the Renewable Energy Conversion System; however, issues that are not listed and are deemed significant during the course of review will be addressed with the review and conditions in each individual conditional use permit.
3. These regulations specify the plans, information, surveys and studies that must be submitted as part of the Conditional Use Permit (CUP) application.
4. Appropriate locational criteria for Renewable Energy Conversion System site are provided.
5. Standards are provided to:
 - a. Protect land to remain viable for agricultural uses during the life of the renewable energy project and following decommissioning;
 - b. Minimize the impact of the Renewable Energy Conversion System on nearby properties.
 - c. Minimize negative environmental impacts;
 - d. Restoration of the site; and
 - e. Provide appropriate decommissioning and disposal measures.
6. To the extent there are conflicts between the requirements of Article 16, Section 16.14 and other provisions of the Harvey County Zoning Regulations, it is intended that the requirements of Article 16, Section 16.14 shall control the interpretation of the Zoning Regulations as related to this subject matter.

III. WIND ENERGY CONVERSION SYSTEMS

A. APPLICABILITY

1. All Wind Energy Conversion System development within this Article, as described herein, shall comply with the requirements of *Section 16.14* of this Article and those required for a Conditional Use Permit as stated in *Article 3 Land Use Determination Procedures*.

B. FINDINGS

1. Harvey County finds that Harvey County is not suitable for Commercial (Utility Scale) Wind Energy Conversion Systems or Community Scale Wind Energy Systems. Preserving agricultural farm ground and rural landscape is a high priority of the comprehensive plan. Findings concluded this use did not comply with those goals and did not conform to the purposeful growth goals for Harvey County. Lack of suitability is due to the environmentally sensitive areas (Equus Beds Aquifer Overlay District and Sand Hills Overlay Districts), large areas of floodplain, the population density of rural Harvey County, number of airports/airstrips and communication towers located in Harvey County, and possible interference with weather and other radar systems.

C. COMMERCIAL (UTILITY-SCALE) WIND ENERGY CONVERSION SYSTEM PROJECTS

1. All Commercial (Utility-Scale) Wind Energy Conversion Systems are prohibited within the unincorporated portions of Harvey County.

D. COMMUNITY SCALE WIND ENERGY CONVERSION SYSTEM PROJECTS

1. All Community Scale Wind Energy Conversion Systems are prohibited within the unincorporated portions of Harvey County.

E. PERSONAL (SMALL) WIND ENERGY CONVERSION SYSTEMS (PWECS)

1. Turbines used for onsite use from 400 watts (W) to 100 kilowatts (kW) are required to obtain a Building Permit. No more than two (2) turbines may be located on a parcel for on-site use. Electric may be net metered but may not be generated for the purpose of sale on the grid. Businesses may apply for PWECS if located on same parcel as residence.
2. Personal (Small) Wind Energy Conversion Systems exclude Windmills or Wind Pumps used to pump water to livestock or aerate a farm pond. Windmills and Wind Pumps do not require building permits and are not regulated under these regulations. See Harvey County Sanitation Code for permitting requirements for drilling water wells.

F. Requirements

1. Applicant(s) shall be held liable for any damage to County or Township roads or right-of-way resulting from construction, reconstruction or deconstruction/ decommissioning.
2. No Personal (Small Scale) Wind Energy Conversion System shall be located in the Special Flood Hazard Area (SFHA) as identified by the Federal Emergency Management Agency (FEMA) on a Flood Insurance Rate Map (FIRM). This includes AE Floodways, A, AE, AH, and AO flood hazard areas. See *Article 15 Floodplain Development Overlay District*.
3. Any work completed in Harvey County by the Applicant(s) for a PWECS, shall comply with Local, State, and Federal laws and regulations.
4. **Setbacks Requirements** for Personal (Small Scale) Wind Energy Conversion Systems
 - a. PWECS are limited in height to 115 feet overall height.
 - b. No PWECS may be closer than height of the overall turbine plus 50 feet from property line measured from the center of tower.
 - c. Parcels must be a minimum of 5 acres or larger.
 - d. PWECS that cause interference with microwave towers, television towers, communication systems or radar systems already permitted prior to PWECS shall be removed or moved to a location they no longer cause interference.
 - e. All applications will need to identify the type and manufacturer of the PWECS, (type of base or foundation used for the turbine and specs of that foundation and tower).
 - f. If located in the Equus Beds Aquifer Protection District (See Comprehensive Plan for the Map), the application will be reviewed by Groundwater Management District #2. This review may take up to 60 days.
 - g. Freestanding, guyed, lattice and roof-mount PWECS are allowed.

- h. Any leakage of hazardous material, petroleum products or other chemicals that may seep into soil or groundwater should be addressed immediately. Applicant(s) will be responsible for all clean-up of soil and groundwater.
- i. Net Metering is allowed for PWECS and is subject to any State or Kansas Corporation Commission limits, rules and/or regulations.
- j. A preconstruction water analysis test for household safety is required for any existing well on a parcel where the PWECS structure will penetrate deeper than 6' below the ground surface. Water testing shall be taken to a certified laboratory. Water test results will be supplied to the Zoning Office for record. A retesting of water shall be done 1 (one) year after construction and results recorded at the Zoning Office. In years following, water will be tested if County Zoning Staff requests a retest.

IV. SOLAR ENERGY CONVERSION SYSTEMS

A. APPLICABILITY

- 1. All Solar Energy Conversion System Development within this Article, as described herein, shall comply with the standards and procedures of this Article and those required for a Conditional Use Permit as stated in *Article 3 Land Use Determination Procedures*. It shall be understood any timeline restrictions in Article 3 are not applicable unless the project is a Personal (Small) Solar Energy Conversion Project.

B. FINDINGS

- 1. Harvey County finds that the unincorporated areas of Harvey County are not suitable for Commercial (Utility) Scale Solar Energy Conversion Systems or Concentrated Solar Thermal Power Systems. Preserving agricultural farm ground and rural landscape is a high priority of the comprehensive plan. Findings concluded this use did not comply with those goals. This use did not conform to the purposeful growth goals for Harvey County. Other factors considered in the findings included population density, protection of the environmentally sensitive areas including the Equus Beds Aquifer, Special Flood Hazard Areas and Sand Hills Overlay District, and permeability and drainage of soil.
- 2. Harvey County finds that the unincorporated areas of Harvey County are suitable for Limited Scale Solar Conversion Projects and all Personal Solar Electric Conversion System Projects.

C. CONCENTRATING SOLAR THERMAL POWER SYSTEMS & COMMERCIAL (UTILITY) SCALE SOLAR ENERGY CONVERSION SYSTEMS (CSECS)

- 1. Commercial Scale Solar Energy Conversion Systems and Concentrated Solar Thermal Power Systems are prohibited in Harvey County.

D. LIMITED SCALE SOLAR ENERGY CONVERSION SYSTEM (LSECS)

- 1. It is the purpose of this section to provide details related to any Conditional Use Permit Application for Limited Scale Solar Energy Conversion Systems and/or Solar Energy Projects. To create a process to permit the development of Solar Energy Conversion projects and to identify significant environmental, social and economic impacts related to the projects.
 - a. This section will outline required information for application of a Conditional Use Permit and review and approval criteria for Limited Scale Solar Energy Conversion Systems (LSECS). A development plan is to be submitted with the application.

- b. The conditional use criteria is not intended to regulate the installation of the Personal Solar Energy Conversion Systems. No conditional use permit is needed for private on-site use systems. Criteria for these systems is addressed in *Section 16.14 – III E. Personal Solar Energy Conversion Systems*.
2. **Requirements for Limited Scale Solar Electric Conversion Projects:** The following considerations shall be evaluated with the review of any application:
- a. The Applicant(s) shall demonstrate their ability to strictly conform to all applicable performance standards detailed in these Regulations as well as applicable Local, State and Federal laws or regulations.
 - b. Key Issues to be considered with the review of the application include but are not limited to:
 - 1) Visual impact;
 - 2) Impact on cultural, historical or archeological features;
 - 3) Impact on critical wildlife habitats, native flora and fauna, current state-listed threatened and endangered species, and species in need of conservation as defined by Kansas Department of Wildlife and Parks;
 - 4) Impact on environmentally sensitive lands;
 - 5) Impact on water quality and soil and erosion;
 - 6) Impact on infrastructure, including roads and bridges for construction access;
 - 7) Aviation/Federal Aviation Administration (FAA) impacts;
 - 8) Cumulative impacts;
 - 9) Company experience, reputation and financial ability;
 - 10) Decommissioning, removal, reclamation and disposal;
 - 11) Bond agreement or other means of ensuring reclamation, disposal and decommissioning performance;
 - 12) Specific requirements for building and construction;
 - 13) Emergency services and training requirements; and
 - 14) Degree to which agricultural uses and wildlife habitat are accommodated with the facility layout and design.
 - c. **Conditional Use.** If approved, the Conditional Use Permit shall encompass the perimeter of the proposed solar project. One Conditional Use Permit application, with landowner's signature (s), shall be required for the land located within the perimeter of the Conditional Use Permit.
 - d. **Time Frame.** The conditional use permit may be approved with a time frame of up to 25 years from the date of the Board of County Commissioners approval. Continuation of the use beyond that time frame will require the submission and approval of a new conditional use permit.

- e. **Plan Review and Inspections.** The Applicant(s) shall contract with a special inspector and/or plan reviewer, approved by the Board of County Commissioners for construction plan review and all required construction inspections at the Applicant(s)'s expense.
- f. **Building Permits Required.** Building permits will not be issued until all requirements are met. *Article 7. Permits Required for Development.*
- g. **Regulations.** Strict conformance to all requirements and performance standards as detailed in Article 16.14 of the Zoning Regulations of Harvey County, Kansas.
- h. **Revisions.** Any proposed expansion to the facility will require approval of a new conditional use permit. This would include an increase in the site area or the area for accessory equipment. Minor modifications may be approved through the site plan process. A minor modification includes changes which do not increase the site area or the area for accessory equipment.
- i. **Standards.** Include the following:
 - 1) **Site Area Size.** In order to maintain the rural character and preserve agricultural land the maximum Solar Facility Site Area of a LSECS shall not exceed 10 acres. The Site Area is the cumulative total of Solar Modules and is measured when the panels are in their most horizontal position. It does not include access drives, batteries, transformers, ancillary structures or their required setbacks.
 - 2) **Location.** The LSECS shall be located to:
 - a) Accommodate the future growth of incorporated cities;
 - b) Utilize existing terrain, vegetation, and structures to screen the project from off-site view;
 - c) Avoid steep slopes of 15% or greater;
 - d) Make use of brownfield sites or similar, where possible;
 - e) Minimize impact to environmentally sensitive lands.
 - 3) **Farmland.** As food sustainability and preservation of prime agricultural land are goals of the comprehensive plan, and Limited Scale Solar Energy Conversion Systems (LSECS) commonly utilize land for multiple decades, the following standards shall apply:
 - a) LSECS that further enhance climate and food system resilience and preserve agricultural character by enabling the integration of food production into their design are encouraged.
 - b) LSECS may be located on prime farmland and farmland of statewide importance when the natural topography is preserved with limits set on grading.
 - c) Where approved, grading shall not exceed 5% of the site area unless a modification is granted by the Board of County Commissioners.
 - d) A modification from this grading requirement may be granted if it is found to be necessary to ensure proper drainage or to mitigate unusual site constraints.
 - e) Grading may occur to the extent needed to accommodate the system on brownfield sites or other previously disturbed land.

- f) Grading for battery storage, transformers, access, roads, and grid connection infrastructure does not count toward the 5% limit.
- 4) **Soils.** All grading and construction activities shall preserve existing topsoil.
- a) Temporary displacement or removal of soil. Topsoil may be temporarily displaced where grading has been approved as part of an installation. The amount of topsoil displaced shall be minimized. Topsoil shall be stockpiled on the site. After rough grading, topsoil shall be redistributed uniformly on the surface of all the areas to be vegetated.
 - b) Displaced topsoil shall not be removed from the site except as required by Kansas Department of Health and Environment (KDHE) due to contamination, or other applicable Local, State or Federal laws. Amount of soil removed shall be reported to KDHE and the Zoning Director with supporting documentation.
 - c) The Zoning Director may require topsoil to be brought to the site for reapplication and planting, depending on the amount that was removed.
 - d) Contaminated topsoil shall be disposed of in accordance with Local, State or Federal regulations.
 - e) On cultivated land, Applicant(s) shall minimize compaction of the land during all phases of the project's life. Compaction shall be confined to as small an area as practical.
 - f) During site clearance and construction, silt fences and other temporary erosion controls shall be installed and left in place until new native vegetation covers the bare ground around the renewable energy equipment.
- 5) **Vegetation.** Applicant(s) is encouraged to design the PSECS to accommodate concurrent use of the land for livestock grazing, row crops, pollinators, other agrivoltaic uses, or contain a diverse array of native grasses and forbs for native habitat under and between the rows of solar panels. Ground around and under solar panels/arrays and in designated buffer areas shall be planted and maintained in perennial vegetated ground cover or agricultural plants that are managed to prevent erosion and runoff, and meet the following standards:
- a) Clearing of natural vegetation shall be limited to that which is necessary for the construction, operation, and maintenance of the PSECS access roadways, and other approved site improvements.
 - b) Applicant(s) shall minimize the removal of trees and shall not remove groves of trees or hedgerows (shelterbelts) without approval of the affected landowner.
 - c) The surface of the LSECS site shall be prepared as shown on the approved Vegetation Management and Agrivoltaic Plan. For the remainder of the Project Area, disturbed soils shall be seeded to prevent erosion and manage runoff. Seed mixes for perennial plantings should include a diversity of grasses and wildflowers; Native plants, wildflowers, and agriculture are preferred.
 - d) Any pesticides used on the site shall be applied only by a pesticide applicator certified by the Kansas Department of Agriculture. If the vegetation plan has been designed to minimize the use of pesticides or herbicides, those practices should be clearly stated on the site plan and noted in the operation plan.

- 6) **Special Flood Hazard Area.** No LSECS shall be located in the Special Flood Hazard Area (SFHA). This includes all mapped AE Floodways, AE, A, AH, and AO flood hazard areas as identified by the Federal Emergency Management Agency (FEMA) on a Flood Insurance Rate Map (FIRM).
- 7) **Wetlands.** Wetlands shall be preserved. Wetlands are identified on the U.S. Fish & Wildlife Service National Wetland Inventory map or Kansas GIS Wetlands Layer.
- 8) **Setbacks.** All structures shall be located in compliance with the setbacks required for that zoning district. Solar panels/array and appurtenant structures shall be located a minimum of:
 - a) **Property Line.** (100) feet from property lines of non-participating land owner not included in the Conditional Use Permit;
 - b) **Residential.** (100) feet from existing residence. Buffering or screening landscaping, fencing, agricultural uses, and access drives may be within this (100) foot setback.
 - c) **Roads.** Road setbacks are same as outlined in the appropriate zoning district of these regulations.
 - d) **Battery Storage System** shall not be located within 500 feet of an existing residence.
 - e) **Right-of-Way.** No portion of a LSECS may encroach upon the right-of-way with the exception of distribution or transmission lines (overhead and underground) provided all applicable approvals from authority having jurisdiction over that portion of right-of-way have been obtained.
 - f) **Other.** Additional setbacks may be required to mitigate site specific issues or to provide for frontage roads, cross-access easements, and other means of egress/ingress.
- 9) **Height.** Maximum height of all structures constructed in the LSECS project area shall be thirty-five (35) feet as measured from the finished grade at the base of the structure to its highest point, including appurtenances.
- 10) **Airports/Airstrips.** (2) miles from the boundary of any public or private airport or airstrip recognized by the Federal Aviation Administration (FAA). If a system is proposed to be placed within an Airport Overlay District or within 5 miles of any airstrip, the Applicant(s) shall provide acknowledgement of location approval or acceptance from the Federal Aviation Administration with the conditional use permit.
- 11) **Lighting.** Lighting associated with the LSECS shall be limited to levels required for safety and security and shall not exceed the equivalent lumens of 150 watts incandescent light bulb. If LED lights are used, the color temperature shall be no more than 3000k (Kevin). Outdoor lighting shall be arranged to direct away from non-participating parcels and public roads and shall be in such a manner to avoid glare, visible bulbs or light spillage onto adjacent properties. Direct or reflected glare from flood lights or spotlights shall not be visible from non-participating parcels or public roads. The source of light should be hooded or controlled, and all light fixtures shall be cut-off or shoebox design to prevent glare and light spillage off-site. Building mounted lights should also be shoebox design. All light poles shall not exceed a height of twenty (20) feet. All lighting should be shown in the plan.

- 12) **Glare.** All structures associated with the LSECS shall be arranged to direct reflected sunlight away from adjacent roadways and adjacent properties. All solar panels must be constructed to minimize glare and reflection onto adjacent parcels and public roads and must not interfere with traffic, including air traffic or create a safety hazard as per any Local, State and Federal laws or regulations. Mitigation measures to limit glare may include but are not limited to: textured glass, anti-reflective coatings, screening, distance or positioning units in a manner that reduces glare. Complaints of glare shall be mitigated by Applicant(s).
- 13) **Noise.** The operational noise generated from the LSECS, including inverters, battery energy storage systems, components, and associated ancillary equipment shall not exceed a noise level of 45 dB(A weighted) measured at the property line. If it is determined that a pure tone noise is generated by the project, equipment shall be relocated modified or removed (decommissioned) from service if necessary to comply with this condition.
 - a) Applicant(s) shall submit equipment and component manufacturer noise ratings at the time of application to demonstrate compliance with the maximum permitted noise level, as noted above.
 - b) Transformers, inverters, or other sounds or vibration generating equipment must be placed so that low level recurring ambient noise does not exceed the limit noted above. Noise levels can be minimized with type of equipment or the placement of equipment interior to the site, shielded by proposed solar panels and/or by specifically placed noise and vibration deadening fence, landscape or other efforts.
 - c) Construction and decommissioning noise shall be analyzed and mitigated to minimize impact to the adjoin property owners.
 - d) Complaints of noise throughout the life of the LSECS will be investigated and an assessment analysis prepared by a third-party company of the county's choice. Equipment found to exceed noise will be modified, replaced or removed.
- 14) **Battery Energy Storage System.** All battery energy storage systems shall comply with requirements of the National Fire Protection Association (NFPA) 855 and all other Local, State and Federal regulations. At a minimum, the following standards shall apply;
 - a) Battery energy storage systems, including all mechanical equipment shall be enclosed by a fence with a self-locking gate to prevent unauthorized access unless housed in a dedicated-use building.
 - b) The area within 10 feet on each side of a battery energy storage system shall be cleared of combustible vegetation and surfaced with gravel or other non-combustible surfacing.
 - c) Signage for the battery energy system shall be in compliance with ANSI Z535 and shall include the following information: the type of technology associated with the battery energy storage system; any special hazards associated; the type of suppression system installed in the area of the battery energy storage system and 24-hour emergency contact information.
 - d) As required by the National Electric Code (NEC), disconnect and other emergency management information shall be clearly displayed on a light reflective surface. A clearly visible warning sign concerning voltage shall be placed at the base of all pad mounted transformers and substations.
 - e) Warning signage spacing shall be determined with the battery energy storage plan.

- f) Battery storage shall not be located within 500 feet of an existing residence.
- g) Battery storage systems in the Equus Beds Aquifer will require Environmental Impact Assessment demonstrating no danger to the groundwater. This assessment will also be review by Groundwater Management District #2. *See Development Plan – 3. Additional Materials- q) Battery Storage System Environmental Impact Assessment.*

15) **Electrical Interconnections.**

- a) All electrical interconnection and distribution lines within the subject site shall be located underground, with the following exceptions:
 1. When site conditions require a modification, a variance may be granted by the Board of Zoning Appeals;
 2. In instances where shallow bedrock, water courses or other protected environmentally sensitive lands make underground connections detrimental.
- b) Underground cables shall be located at least 3 feet, vertically or horizontally from existing underground utilities.
- c) Off-site, above ground utility or power lines may only be used for generation tie-lines from the project substation to a utility substation and must be located in public right-of-ways, easements or other legally dedicated tracts of land.

16) **Transmission Lines.** Communication lines and power collection lines are to be installed underground in the area covered by the Conditional Use. Said lines are to be located under or at the edge of access roads. Above ground, transmission lines may be used only in public right-of -way or easement. If, however, there is documented evidence by the Applicant(s) that there are specific existing and potential circumstances in the area affected by physical, environmental and economic situations which may justify alternative construction above ground for such installations, consideration may be given to modifications of the above standards in all or a part of the area to mitigate such concerns. Such modifications shall be specifically described in a condition attached to the approval of the conditional use. Applicant(s) must obtain any required Utility Permits from Harvey County Road & Bridge Department.

17) **Fencing & Screening.** For the purpose of providing security, LSECS may be enclosed by security fencing with the following conditions:

- a) The fencing shall be no more than eight (8) feet in height unless required by Local, State or Federal Regulations.
- b) As required by Local, State and Federal regulations, critical electrical and communications equipment, may be fenced with chain-link fence topped with barbed wire when such measures are deemed necessary to ensure public safety and provide additional security for the equipment.
- c) Fencing material may be chain link but shall not include slats. Fencing shall be constructed with materials and design that promotes the surrounding character of the area (e.g. woven wire and wooden post). The use of permeable fencing, which is constructed to allow wildlife to pass through the fence, is encouraged.

- d) A 25-foot deep Buffer Zone shall be provided and maintained along property lines of non-participating residential properties and park and recreational areas for the purpose of screening and mitigating specific adverse visual impacts.
 1. The buffer area shall include the minimal features necessary to provide an adequate buffer in order to minimize land disturbance.
 2. The buffer may include a combination of berms, fences, and/or vegetation and may occur within the required setbacks on the facility property.
 3. The buffer area shall be designed to buffer the view of the facility from the residence and the residential portion of the property.
 4. Evidence of waivers shall be provided to the Zoning Office and shall be filed with the Register of Deeds at the Applicant(s)'s expense.
- 18) **Signage.** Perimeter fencing shall incorporate appropriate safety signage, at a minimum spacing of every 500 feet. Signage including addresses for each fenced area, shall be provided as required by Emergency 911 dispatch.
- 19) **Extraordinary Events.** Within 72 hours of an occurrence, the Applicant(s) shall provide written notice of the event to the Zoning Director, noting the cause and degree of damage associated with the event.
- 20) **Storage.** No outdoor storage of equipment or materials associated with the LSECS, unless permitted by the Conditional Use Permit.
- 21) **Clean-up.** Applicant(s) shall remove all waste and scrap that is the product of construction, operation, restoration and maintenance from the site and properly dispose of it upon completion of each task. Bottles, paper and other litter deposited by site personnel shall be removed on a daily basis. No burying of trash or debris is allowed. Smaller debris and trash should be removed immediately. Larger debris, broken parts, will be removed within 7 days or at time of repair.
- 22) **Maintenance.** All structures, components and equipment shall be maintained and kept in good condition by the Applicant(s).
 - a) Maintenance shall include, but not be limited to painting, structural repairs, replacement of damaged or worn parts or cables, and integrity of security measures.
 - b) Site access shall be maintained to a level acceptable to Local emergency personnel. The Applicant(s) shall be solely responsible for maintaining the subject site, all appurtenant structures and the installation and maintenance of any access roads (s) unless accepted as a public right-of-way.
- 23) **Liability Insurance.** Applicant(s) shall provide general liability insurance, showing general liability insurance coverage for the lifespan of the project encompassing installation and operation through decommissioning. Evidence shall be provided annually in the form of a certificate of insurance.
- 24) **Other Standards and Codes.** All LSECS shall be in compliance with all applicable local, state and federal regulatory standards including, but not limited to, the Endangered Species Act, Clean Water Act, Clean Air Act, National Fire Protection Association 855 Standards and the National Electric Code, as amended.

- 25) **Payment in Lieu of Tax Agreement (PILOT).** Applicant(s) shall provide a PILOT agreement which adequately compensates the County for governmental services provided in the project boundary during the period of tax exemption (if applicable).
 - 26) **Reviews.** At the request of Zoning Office, Board of County Commissioners or other Local, State or Federal authorities, the LSECS shall be reviewed for compliance with the standards of the conditional use permit by a third party firm, at Applicant(s)'s expense.
 - 27) **Transfer of Applicant(s)/Ownership.** If the Applicant(s) listed on the approved CUP plans to sell or otherwise transfer their responsibilities to an entity not listed on the CUP, the listed Applicant(s) shall notify the Zoning Director of this proposed change. Furthermore, the new Applicant(s) shall notify the Board of County Commissioners and Zoning Director in writing, acknowledging their acceptance of responsibility and intent to comply with all conditions listed in the approved CUP.
 - a) A review of the LSECS shall be completed by a third party firm at Applicant(s)'s expense to review for compliance with all standards and conditions of the Conditional Use Permit and Zoning Regulations prior to transfer. LSECS shall be in compliance to be approved for transfer.
 - b) The Board of County Commissioners may approve the transfer of Applicant(s) if they find the proposed Applicant(s) has demonstrated their ability to strictly conform to all applicable performance standards detailed in these regulations as well as applicable Local, State, and Federal laws or regulations.
 - c) Applicable fees will apply for transfer.
3. **Application and Required Documents.** These requirements specify the maps, information surveys and studies that must be submitted as part of the conditional use application. The County may adjust the standards for future LSECS based on the success or failure of remedial actions required and with the changing technology in solar generated electricity. Conditional Use approval shall include, but not be limited to the following requirements :
- a. **SITE PLAN:** A physical and digital site plan with the following specifications shall be submitted:
 - 1) Scale of 1" = 2,000';
 - 2) Scale and north point (up);
 - 3) Name, address, email address and phone number of landowner(s), land developer and designated contact person.
 - 4) Boundary of the entire site including delineation of individual landowners, if applicable, and boundary of area affected by conditional use.
 - 5) If property is leased. Proof of lease must be included.
 - 6) Acreage of site and point(s) of access to the project;
 - 7) Existing points of ingress and egress to property.
 - 8) Topography with contours at intervals of one-foot; If the site contains any FEMA mapped floodplain, the topography must be tied to the FIRM datum.

- 9) Boundaries of any special flood hazard area as identified on the Federal Emergency Management Agency "FEMA" Flood Insurance Rate Map; and the Flood Insurance Study (FIS) of Harvey County, Kansas
- 10) Adjoining streets with names and location of nearby railroads and airports.
 - a) Location of transmission lines.
 - b) Active residential buildings within 1000 feet of the site boundary;
 - c) Natural and man-made features on the site including woodlands, grassland, plowed field, creeks, wetlands, swales, channels, ditches, streams, existing ponds, lakes and culverts etc.;
 - d) Soil map showing location of soils classified as Class 1 and 2 soils, prime farmland, and farmland statewide importance as identified in the Natural Resource Conservation Service (NRCS) soil survey;
 - e) Presence of any critical habitat for threatened or endangered species as determined by Kansas Department of Wildlife and Parks.
 - f) Existing vegetation (list type and percentage of coverage; i.e. grassland, tilled ground, wooded area, etc.)
 - g) Environmentally sensitive lands (i.e. Equus Beds Overlay and Sand Hill overlay districts).
 - h) Show the location and purpose of any underground pipelines including water lines, communication and internet cables and other utility easements.
 - i) Location of oil wells, oil equipment, disposal wells, and oil storage.
 - j) Location of cultural, historical or archeological sites which are contained within the site plan.
- b. **DEVELOPMENT PLAN.** A physical and digital plan shall be submitted. The development plan shall be written in a style that is easily understood by the general reader and shall be as current as possible at time of submission. Technical terminology shall be avoided as much as possible. Detailed technical data, statistics and supplementary information required to support the main text is to be included as appendices. All sources of information are to be referenced, and must be current. Information presented as maps, diagrams or plans is preferred as it is generally easier to understand. Where information is unavailable or not yet finalized, estimates and/or alternative options shall be provided and noted as estimates or alternatives. Not all matters in the criteria are relevant to all aspects of a project. Only those matters relevant to the particular project need be addressed.
 - 1) **Introduction:** This section shall provide information on the following:
 - a) Name of the project.
 - b) Maps showing vicinity and project location. One at 1:100,000 scale and one at 1:2,000 scale (U.S.G.S. scale), in paper and electronic form.

- c) Name, address, phone number and email address of the project developer and contact person and a statement from developer providing relevant information regarding:
 1. An overview of the Applicant(s) and/or developer providing relevant information regarding qualifications and experience in solar energy development and environmental management history of the company.
 2. Phases of construction including relevant background information on the project, including a general overview of the project location, time frame and project life, phases of development, likely market for electricity produced and possibilities for future expansion.
 3. Adopted environmental guidelines and industry codes of practice that will be followed if approved.
 - d) Number, location and spacing of solar panels and all appurtenant structures. Panel type, fixed or tracking, to be listed on plan.
 - e) Project area and solar panel coverage expressed in acreage.
 - f) An inventory, with description of all proposed structures and uses, including battery storage, inverters, substations and structures.
 - g) Location and sizes of any planned temporary construction laydown yards.
 - h) Planned location of underground and overhead electric lines connecting solar project to any building, substation, or other electric load; Width of transmission line easements required and any restrictions necessary on land use, development and access within said easement.
 - i) Approximate limits of disturbance for all temporary and permanent project components (panels, inverters, access drives, buried electric collection lines, temporary laydown yards, substation, etc.)
 - j) An examination of feasible, alternative locations for the project and reasons for the choice of this location over alternative locations.
- 2) **General Construction Document Requirements:** Applicant(s) shall provide:
- a) General Description of major components and onsite facilities. Photovoltaic panel 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 equipment shall also be included.
 - b) Prior to the start of, and continuously throughout construction and site restoration, Applicant(s) shall designate a field representative responsible for overseeing compliance with the conditions of the Conditional Use. Said representative shall be accessible by telephone during normal business hours. Address, phone number, email address and emergency phone number shall be provided to the Zoning Administrator and 911 Emergency Services and shall be available to residents, officials and other interested persons. Applicant(s) is required to notify the Zoning

Administrator and 911 Emergency Services should they change their designated representative.

- c) A description and general schedule of major construction activities for project area, transmission lines and accessory structures related to LSECS.
- d) Assessment of construction impacts such as, but not limited to, noise, vibration, lights, waste management, water supply, etc., and mitigation measures. Mitigation measures could include, but are not limited to, limited construction hours, reduced scope of work at one time, alternate construction methods, etc.
- e) Applicant(s) shall submit a plan to control dust on access roads, especially during construction. Harvey County is a partner within the Air Quality Improvement Task Force.
- f) Prior to any site clearing or construction, Applicant(s) shall apply for and receive any necessary Stormwater National Pollutant Discharge Elimination System permits from the Kansas Department of Health & Environment (KDHE), and maintain compliance with its permit through construction.
- g) An outline of any proposed site preparation involving removal of vegetation and restoration of vegetation, clearing, grading, topographic changes, tree removal, etc. due to construction.
- h) Installation methods for foundations for poles and racks. Including depth and type of foundations.
- i) Applicant(s) shall construct the smallest number of access roads as necessary. Access roads shall be low profile roads so farming equipment can cross them.
- j) Where an access road is to cross a stream or drainage way, it shall be designed and constructed so runoff from the upper portions of the watershed can readily flow to the lower portions of the watershed. Applicant(s) must contact the Division of Water Resources and any local officials prior to any construction. Applicant(s) must follow regulations, pertaining to building a structure in a Special Flood Hazard Area, of the Federal Emergency Management Agency, the State of Kansas and the Harvey County Unified Development Code Article 15. Floodplain Development Overlay District
- k) Applicant(s) shall inform all employees, contractors and others involved in the construction of the terms and conditions of the Conditional Use Permit.
- l) If environmental conditions not previously identified are discovered during construction, the Applicant(s) shall have the right to move or relocate a LSECS, once the Zoning Administrator is notified of such, only if the discovery would, by law, prevent such use.
- m) Any new infrastructure or off site accessory structures required for the project to progress shall be described, including the following:
 - 1. Requirements for new, upgraded, improved or realigned transportation infrastructure for roads or bridges.
 - 2. Changes to electrical substations.

3. Changes or upgrades to existing power transmission systems including any upgrades to existing transmission lines.
 4. Requirements for the realignment of other utilities affected by the LSECS.
- 3) **Additional Materials.** The following shall be submitted with the application:
- a) **Interconnection Facilities Study.** A copy of Interconnection Facilities Studies and a copy of the Interconnection Agreement with the local electric utility shall be provided prior to the release of the conditional use permit plans for building permits (if applicable).
 - b) **Stormwater Pollution Prevention Plan.** A copy of the KDHE approved Stormwater Pollution Prevention Plan for the site. A Stormwater management plan with supporting calculations, documenting how increased runoff will be conveyed throughout the site. The calculations must include the design of open channels and culverts on site. Based on recommendations from an engineer approved by the County, storage and controlled release at points of discharge from the site may be required; if so, the Stormwater management plan must be implemented on the final site plan prior to approval. If applicable a stream buffer analysis and requirements shall be included.
 - c) **Surface Water.** Applicant(s) shall identify effects of the LSECS (especially during construction) on surface waters and methods to be used to mitigate the identified effects, if any.
 - d) **Groundwater Protection-** Applicant(s) must demonstrate that the LSECS is consistent with the objectives and requirements of all relevant water management policies of the County including:
 1. Protection of the quality and quantity of the areas groundwater resources and maintenance of existing groundwater quality.
 2. Applicant(s) shall abide by the regulations in *Article 13, EBP Equus Beds Aquifer Protection District*.
 3. Conditional Use Permits in the Equus Beds Aquifer will require environmental studies demonstrating no risk to groundwater. This study must be completed by a third party that has been approved by the Zoning Office. A copy of the study will be submitted to the Zoning Office and Groundwater Management District #2 (GMD#2).
 4. Type of foundation will require approval by the planning commission and review by GMD# 2.
 5. The Applicant(s) shall submit a copy of the CUP to the GMD#2 at the same time the CUP is submitted to Harvey County. Upon receiving the CUP, GMD#2 will be allowed 60 days, or any extension of time approved by Harvey County, to submit comments and/or recommendations to Harvey County. All structures including footings, pilings and foundation must meet required separation distance to groundwater as recommended by GMD#2.
 6. **Water Testing.** With each approved LSECS conditional use permit application, a water analysis of active wells on participating property(s) shall be analyzed for substances such as lead and cadmium and shall include a pesticide panel. An

offer shall be made to all landowners in the ¼ mile radius for testing paid by the Applicant(s). Letters of offer to test shall be mailed by certified mail and proof of mailing shall be given to Zoning Office. Testing must occur prior to construction. Results of testing will be supplied to the landowners and the Zoning Office.

- e) **Soil.** A soil test shall be conducted at an EPA certified lab to document the soil health and any heavy metals present prior to construction and following decommissioning. Phospholipid Fatty Acid (PLFA) may be tested by a non-EPA lab if needed.
 - 1. Soil sample should include: Total carbon (organic and inorganic); PFLA; and heavy metals such as lead and cadmium. A map of soil sample locations should be included with the report. A photo for each sample that demonstrates the location within the site and current vegetation shall be provided.
 - 2. Additional soil tests and test sites may be required by the County or KDHE at the Applicant(s)'s expense in the event that one or more panels are damaged. A sample will be taken at the location of each incident, and a report will be provided to the Zoning Office.
 - 3. Soil remediation plans shall be provided to the Zoning Office for review if contamination or soil degradation has occurred. Remediation measures shall be implemented as approved. Remediation shall not be considered complete until the soil testing results are within a range designated by KDHE, as established with the soil remediation plans.
- f) **Greenhouse Gas and Ozone.** Applicant(s) shall address the direct and indirect effects of the solar project on greenhouse gasses and ozone depleting substances over the life span of the project.
- g) **Traffic and Road Maintenance Plan.**
 - 1. Applicant(s) shall identify all county roads, township roads, and right-of-ways that will be used for the Solar Energy Project and shall notify the Harvey County Road and Bridge Department and Township to determine if it needs to inspect the roads prior to their use. Where practical, existing roadways shall be used for all activities associated with the Solar Project.
 - 2. Applicant(s) will provide a Road Impact Study, if requested by Road and Bridge Superintendent, Township Officers or Board of County Commissioners, for all phases from the County's choice of engineering firms at the cost of the Applicant(s).
 - 3. Transportation routes used for construction shall be coordinated with the Harvey County Road and Bridge Superintendent and Township Officers. A detailed report of routes to be utilized for construction and decommission shall be outlined at time of the conditional use permit.
 - 4. Applicant(s), Road and Bridge Superintendent, Township and the Board of County Commissioners shall enter into a road agreement for maintenance and repair of roads and right-of-ways subject to the extra wear and tear due to transportation of solar and construction equipment and components during all phases of the project.
 - 5. A road agreement must be approved before any building permit is issued for construction to begin. Road agreement will include all phases including but not

limited to site preparation, construction, on-going maintenance, replacement or repair and decommissioning.

6. Applicant(s) will obtain any required permitting overweight/oversized equipment.
 7. Applicant(s) shall be held liable for any damage to County or Township roads or rights of way resulting from construction, deconstruction, decommissioning and/or maintenance activity.
 8. No parking, loading or unloading shall take place on township, county or state/federal roads.
- h) **Visual Impact Assessment.** Applicant(s) will provide a visual impact assessment with simulation photographs that show how the project will be viewed from points of interest. The vantage points may include, but are not limited to, intersection of roads, adjacent property lines, and aerial views.
- i) **Property Value Impact Assessment.** Applicant will provide a property value impact assessment completed by a third party that determines whether a proximity to a solar farm will result in any measurable and consistent impact on adjacent property values, given the existing uses and zoning of nearby property at time of development. Report shall address any local concerns regarding proposed solar project having a perceived impact on surrounding property values. Impact study will use comparable size solar projects and situations, and take into account all unique features of the specific sight in Harvey County.
- j) **Landscaping Plan.** A landscaping plan detailing all proposed changes to the landscape of the site required to accommodate buffering and screening from adjacent properties.
1. The plan shall include the installation, establishment and maintenance of buffering or screening landscaping as required.
 2. A species list shall be provided for all buffering or screening landscaping.
 3. The landscaping plan shall include management methods and schedules noting how the vegetation will be managed on an annual basis, with particular attention given to the establishment period of approximately three years.
- k) **Flora - Vegetation Management and Agrivoltaic Plan.** A vegetation management and/or agrivoltaic plan detailing all proposed changes to the vegetation of the site and outlining all proposed agrivoltaic uses, current or future.
1. Plan shall show where existing vegetation is to be removed and what new vegetation will be planted. The plan includes an assessment of Flora — vegetation species, threatened species (officially listed), critical habitat and habitat conditions for such species.
 2. Specifications of proposed ground cover, including seed mixes, screening materials and herbicides to be used on site. Pollinator friendly groundcover or crops are highly encouraged.
 3. The plan shall include management methods and schedules noting how the vegetation will be managed on an annual basis, with particular attention given to the establishment period of approximately three years.

- l) **Impact Assessment on Fauna/Wildlife.** Species, habitat assessment, threatened species (officially listed), migratory species, critical habitat and habitat conditions for such species including wildlife corridor routes and details regarding fencing, if any, that accommodates wildlife movement. Inventory of existing wildlife, endangered species, wetlands, wildlife corridors, and other biologically sensitive areas within the project area. Inventory shall be conducted by a county approved third party.
- m) **Geo-conservation.** Identifying and protection of sites of geo-conservation significance listed on the state/national database.
- n) **Archeological Reconnaissance Survey** within the site that will be impacted by the construction or operation of the solar project. Survey shall be provided to the State Historic Preservation Office (SHPO) to determine if cultural, historical or archeological resources are present. Any unrecorded cultural, historical or archaeological resources that are found shall be evaluated for integrity and potential listing on the State Historic Site Survey and/or the National Register of Historic Places, the Register of Historical Kansas Places and the Kansas Historical Resource Inventory (KHRI). Undocumented resources that are eligible for listing on the National Register of Historic Places, the KHRI, and the Kansas Register of Historical Kansas Places shall be avoided. All archaeological investigations shall meet the SHPO and Harvey County Historical Society standards and guidelines.
- o) **Fire Safety and Hazardous Materials Plan:** A plan including all means of managing an Extraordinary Event at the solar installation shall include, but will not be limited to the following information:
 1. Applicant(s) shall submit a fire, rescue and hazardous material plan. The plan shall identify the potential fire risk associated with the project, including both prescribed burning and non-prescribed burning (natural or accidental). This shall include fire within the site, escape from the site and the effects of fire originating from outside the site.
 2. The project summary, electronic schematics, site plans, emergency ingress/egress, with the location of the access drives and the width and load rating of the access drives.
 3. Emergency contact information; which will also be posted on the site.
 4. Fire protection and suppression systems for buildings that store batteries, hazardous material or compressed gasses.
 5. Site control measures during and after an emergency. All means of managing an emergency including shutting down the installation shall be noted and clearly marked.
 6. Procedures for inspection and testing of associated alarms, interlocks and controls shall be noted on the plan.
 7. Material Safety Data Sheet (MSDS) unless the facility meets the reporting thresholds of Emergency Planning and Community Right to Know (EPCRA) Act in which case the Applicant(s) shall submit a Tier II report, if required by the EPA. The EPA requires Tier II reports for facilities that store hazardous chemicals above certain threshold quantities. (Note some storage of Hazardous Materials may be prohibited in the Equus Beds Overlay District).

8. Electrical shock hazards and possible contact with hazardous substances or toxic fumes identified.
 9. The Applicant(s) shall update the Emergency Services and Fire Safety Plan Annually in collaboration with Emergency Management and provide new copies to the system owner, the local fire district, emergency response agencies, Harvey County Emergency Management and Harvey County Zoning Office.
 10. Any specialty response equipment required to adequately manage Extraordinary Events will be provided, updated and/or replaced by the Applicant(s), as needed at the Applicant(s)'s expense.
 11. Annual Emergency and Extraordinary Event response training will be offered and provided for all emergency response stakeholders on the plan, site equipment and processes required to assure their safety and effective management during an event.
- p) **Solar Glare Hazard Analysis.** The Applicant(s) shall provide a Solar Glare Hazard Analysis utilizing the latest version of the Solar Glare Hazard Analysis Tool (SGHAT) or its equivalent, to evaluate the solar glare aviation hazard and potential impact on neighbors.
- q) **Battery Storage System Environmental Impact Assessment.** Battery Storage Systems will require an environmental impact assessment for approval in the Equus Beds Overlay District. Results of the study will be given to Groundwater Management District #2 for review and the County Zoning Office. GMD #2 will make a review prior to the public hearing. The review process may take up to 60 days. If needed an extension may be granted for the GMD #2 review.
- r) **Decommissioning, Reclamation or Abandonment:** Applicant(s) shall submit a Decommissioning and Reclamation Plan describing the manner in which the Solar Project will be decommissioned and reclaimed from the site at the end of its useful life or upon abandonment. Applicant(s) will be required to:
1. Remove all structures, foundations, underground wiring and any and all materials foreign to the site prior to installation.
 2. All cables buried 36 inches or less underground must be removed. Cables deeper than 36 inches may remain if the following requirements are met; a map of the buried lines is provided to *One Call Kansas*, and an affidavit is attached to the deed of property to note the buried cables, deeper than 36 inches, are present on the property.
 3. Foundations shall be removed and the area removed filled with soil which is reasonably similar to the quality that was originally excavated. Any special requests, recommendations or requirements by GMD #2 shall be completed.
 4. All ground shall be returned to its original state (e.g. tillable or pasture). All drainage and erosion issues will be mitigated. All voids and holes shall be reported to the GMD #2 for review and shall be grouted as requested by GMD #2 or filled with topsoil.
 5. All liquids, greases, or similar substances will need to be removed. Any spills or leakage shall be reported to the Zoning Director. Applicant(s) will be responsible for any clean-up of soil, air or surface or groundwater contamination or pollution

clean-up at the expense of the Applicant(s). The county will have the right to hold Escrow/Surety Bond/Insurance Policy until clean-up is completed to their satisfaction. An Environmental study to test soil and water quality shall be completed by a third party, approved by the County, at the cost of the Applicant(s). Study is to be completed at time of decommissioning and/or clean-up.

6. Access roads shall be removed to the owner's satisfaction. If the landowner requires removal of the road, the land will be restored to a tillable state. Any part of the project on leased property, the decommissioning/reclamation plan may incorporate agreements with landowners regarding leaving access roads, fences, gates, repurposed buildings in place or regarding restoration of agricultural crops or woodland resource land. Any use of remaining structures must be in conformance with the regulations in effect at that time.
 7. Concrete and other materials used in the construction of the site must be removed from site and taken to an approved landfill or recycling facility. Disposal of all solid and hazardous waste must be in accordance with local, state and federal waste disposal regulations.
 8. Decommissioning Plan will be updated within 5 years after the project begins operating at the expense of the Applicant(s) or current Conditional Use holder. The plan will be subsequently updated every five years.
 9. At the end of the Solar Energy Conversion Project's useful life, or if the solar project is abandoned, the site shall be restored in accordance with the requirements of this condition within 12 months.
 10. Abandonment – The Zoning Office shall issue a Notice of abandonment to the owner/operator of the facility. The owner/operator shall have the right to respond to the Notice of Abandonment within 30 days from the Notice receipt date. The Zoning Office may withdraw the Notice of Abandonment and notify owner/operator that the notice has been withdrawn if the owner/operator provides sufficient information to demonstrate that the facility has not been abandoned which may include documentation or certification by the owner/operator of the local electric utility. A Solar Energy Conversion Project is considered abandoned when it does not produce any electric energy for more than 90 days and there is no demonstrated plan to restore the equipment to operating condition.
 - a. Upon termination of the aforesaid one year period, abatement shall proceed as set forth in these criteria. The Board of County Commissioners may require Applicant(s) or Holder of Conditional Use to decommission any abandoned Solar Energy Equipment.
- s) **Surety Bond/Escrow Account** – The Applicant(s) shall post a bond, establish an escrow account, or provide other such financial security deemed acceptable by the County Commissioners, in the amount equal to the estimated decommissioning costs, to ensure proper decommissioning and reclamation of the site.
1. The Applicant(s) shall contract with an independent third party approved by the County Commissioners for estimated decommissioning and reclamation costs, at the Applicant(s)'s expense.
 2. The bond or other financial security, shall be posted prior to the commencement of the use.

3. The bond, or other financial security, shall include a mechanism for adjustment over the life span of the project.
 4. The bond, or other financial security, shall be adjusted for inflation annually.
 5. The Solar Facility owner or Applicant(s) shall engage a qualified individual to recalculate the estimated cost of decommissioning at an interval of every five years, and every year for the final five years of the CUP. If the recalculated estimated cost of decommissioning exceeds the previous estimated cost of decommissioning, then the owner or Applicant(s) shall adjust their financial security to meet the new cost estimate. If the recalculated estimated cost of decommissioning is less than previous estimated cost of decommissioning, then the County may approve reducing the amount of the security to the recalculated estimate of the decommissioning cost.
 6. In the event the Applicant(s) is in non-compliance or default to non-payment, the County shall have the right to call said bond, or other financial security, and use it for decommissioning purposes. Should there be any remaining balance; the County shall have the right to withhold payment of any refund until the decommissioning process is completed to the County's satisfaction.
 7. Transfer of Ownership. A bond or other financial security will stay in place until a new bond or other financial security is established by the new owner(s).
- 4) **MONITORING AND REVIEW.** This section shall provide an outline of a monitoring, review and reporting program for each part of the project. Details shall include any pre-construction monitoring and study sites to be sampled, sampling procedures, parameters to be analyzed, and the frequency of sampling and reporting. A Site Plan showing sampling locations is required.
 - 5) **REFERENCES.** This section shall provide details of authorities consulted, reference documents, etc.
 - 6) **APPENDICES.** All detailed technical information that supports the Development Plan should be included in appendices. The most important features of the appendices shall be included in the main body of the Plan.

E. PERSONAL SOLAR ENERGY CONVERSION SYSTEMS

1. Personal Solar Energy Conversion Systems (PSECS) are allowed in the unincorporated areas of Harvey County. Electricity created by PSECS is for on-site use and not for transfer or sale to a third party (although net metering is permitted). Businesses may apply for PSECS if located on same parcel as residence.
2. **Ground Mount Systems-** PSECS ground mounted systems are allowed with an approved Building Permit. Ground mounted systems shall meet setbacks for the respective zoning.
 - a. Any ground mounted system mount that will penetrate the ground more than 6 feet is required to test existing water quality of wells on the participating property at time of construction. Well shall be analyzed for bacteria, nitrates, substances such as lead and cadmium and shall include a pesticide panel. Well owners are encouraged to retest wells every five years for these substances. A copy of results must be supplied to the Zoning office for record.

- b. No Ground mounted solar systems may be located in a Special Flood Hazard Area as specified on the Flood Insurance Rate Map (FIRM) as specified by FEMA.
3. **Roof Mount Systems and Solar Roof Tiles** – PSECS roof mounted systems and solar roof tiles are permitted in the unincorporated areas of Harvey County. Roof mounted systems do not require building permits.

VIII. OTHER RENEWABLE ENERGY PROJECTS

- A. HYBRID ENERGY SYSTEMS.** Small scale/Personal Hybrid solar and wind electric systems are permitted in the unincorporated areas of Harvey County. These systems are allowed if they are for on-site use only. Net-metering is allowed. Building permits will be required. See Wind Energy Conversion System regulations for guidelines and regulations on wind generators. Setbacks for personal solar and wind energy conversion systems apply.
- B. GEOTHERMAL ENERGY SYSTEMS.** Geothermal systems are permitted in the unincorporated areas of Harvey County. Geothermal water wells may require permitting. Local and State permitting requirements for drilling wells may apply. Harvey County has been found to be suitable for Geothermal Heat Pumps but not suitable for Electric Power or Direct Use.
- C. BIOMASS ENERGY.** Biomass Energy Production is a use permitted by Conditional Use in an Industrial Development and Service District zoned area such as an industrial park. See Article 12. IDS Industrial Development and Service District.
- D. OTHER RENEWABLE ENERGY SOURCES.** Other sources of renewable energy projects not outlined in these regulations shall be prohibited. Interested Applicant(s) in such projects must present project to the Planning Commissioners. If Planning Commissioners approve of project application, Applicant(s) shall make application by Conditional Use Permit, or if warranted by Planning Commission, regulations will be developed prior to accepting application.