DRAFT
ENVIRONMENTAL
ASSESSMENT

CLAY CENTER ENERGY GENERATION FACILITY (SOLAR PROJECT)

CLAY CENTER, CLAY COUNTY, KANSAS

U.S. DEPARTMENT OF AGRICULTURE
RURAL UTILITIES SERVICE
POWERING AFFORDABLE CLEAN ENERGY (PACE) PROGRAM

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List of Acronyms and Abbreviations

ACS	American Community Survey
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
BA	Biological Assessment
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
CAA	Clean Air Act
CCP	Community Comprehensive Plan
CFR	Code of Federal Regulations
CWA	Clean Water Act
dBA	Decibels
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJScreen	Environmental Justice Screening and Mapping Tool
EMF	Electromagnetic Fields
EMI	Electromagnetic Interference
EO	Executive Order
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
G	Gauss
IPaC	Information for Planning and Consultation
KDOT	Kansas Department of Transportation
KPP Energy	Kansas Power Pool
kV/M	Kilovolts per Meter
LESA	Land Evaluation and Site Assessment

MBTA	Migratory Bird Treaty Act
mG	Milligauss
MW–AC	Megawatt – Alternating Current
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHD	National Hydrography Dataset
NHPA	National Historical Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRI	National Rivers Inventory
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
OSHA	Occupational Safety and Health Administration
PACE	Powering Affordable Clean Energy
PADUS	Protected Areas Database of the United States
PV	Photovoltaic
RD	Rural Development
REC	Recognized Environmental Conditions
RUS	Rural Utilities Service
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Office
SPCC	Spill Control and Countermeasures Plan
SSA	Sole Source Aquifer
SWPPP	Stormwater Pollution Prevention Plan
TDAT	Tribal Directory Assessment Tool
THPO	Tribal Historic Preservation Officer
USACE	United States Army Corps of Engineers
USC	United States Code
USCB	United States Census Bureau
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
USFWS	United States Fish and Wildlife Service
V/m	Volts per Meter
WHPA	Wellhead Protection Area
WOTUS	Waters of the United States

1.0 PURPOSE AND NEED

1.1 Overview

KPP Energy was established in 2004 under Kansas statutes with the execution of an agreement creating KPP Energy by six Kansas municipalities: Augusta, Burlington, Clay Center, Neodesha, Wellington, and Winfield. Municipal energy agencies in Kansas are not-for-profit quasi-municipal organizations that are owned by their member municipalities. KPP Energy was organized as a pool to take collective action to preserve and invest in the members' energy facilities to satisfy, in the most efficient manner possible, the members' collective future energy and transmission requirements. To this end, the KPP Energy's operating philosophy is to equitably share resources and costs among all members through the computation of uniform annual wholesale electric rates approved by the members. To date, KPP Energy's membership includes 24 municipal electric utilities.

To supply the City of Clay Center, Kansas with reliable, clean, renewable energy, KPP Energy, in an agreement with the City of Clay Center, proposes to construct a solar energy generating facility with an estimated output of 3.0 megawatts – alternating current ("MW–AC"). The proposed solar facility would be located on an approximately 18.44-acre site ("Assessment Area") owned by the City of Clay Center, and would consist of the construction of solar arrays, powerlines, substations, transformer stations, roads, and other requisite infrastructure ("Project").

KPP Energy has applied for federal funding under the Powering Affordable Clean Energy ("PACE") program, which is a part of the Inflation Reduction Act ("IRA") and administered by the U.S. Department of Agriculture ("USDA") Rural Development ("RD") Rural Utilities Services ("RUS"). PACE is designed to provide rural Americans with clean, affordable, and reliable energy (7 U.S. Code [USC] § 8103(h)). The PACE program is designed to provide financial assistance to eligible applicants that in turn would generate electricity for resale to America's rural and nonrural areas provided at least fifty (50) percent of the population served lives in communities with populations of 20,000 or fewer. Financial assistance through the PACE program includes direct/guaranteed loans to accomplish the program's objectives. Under PACE, up to sixty (60) percent of loans for renewable projects may be forgiven provided certain criteria are met.

KPP Energy prepared this Environmental Assessment ("EA") to support RUS's National Environmental Policy Act ("NEPA") review of the Project proposed for federal funding under the PACE program (40 Code of Federal Regulations ("CFR") § 1500.4 (p) and 1508.4). RUS has been the designated lead agency for this EA. The purpose of the EA is to identify and assess potential direct, indirect, and cumulative effects of building and operating the Project. The EA was prepared in accordance with NEPA implementing regulations at 40 CFR 1500–1508 and RUS's NEPA guidance at 7 CFR Part 1970-Subpart C – *NEPA Environmental Assessments*. The purpose of the EA is to inform RUS of any significant effects to environmental and social resources in its review of the Project, and its decision to issue a Finding of No Significant Impact ("FONSI") or require preparation of an Environmental Impact Statement ("EIS").

This EA was prepared in accordance with 40 CFR Parts 1500-1508. In addition, this EA addresses, as applicable, other environmental laws, regulations, and executive orders promulgated to protect

and enhance environmental quality. Environmental laws, statutes, and regulations of relevance in preparation of this EA include:

- National Environmental Policy Act (42 USC § 4321)
- Endangered Species Act of 1973 (16 USC § 1531)
- Migratory Bird Treaty Act of 1918 (16 USC § 703-712)
- National Historic Preservation Act (16 USC. § 470)
- Clean Air Act of 1977 (43 USC § 7401)
- Clean Water Act of 1977 (33 USC. § 1251)
- Archaeological Resources Protection Act of 1979 (16 USC § 470)
- Native American Graves Protection and Repatriation Act of 1990 (25 USC § 3001–3013)
- Farmland Protection Policy Act (7 USC § 4201).

1.2 Project Description

KPP Energy is proposing to construct a 3.0 MW–AC solar energy generating facility on an approximately 18.44-acre tract located within the city limits of Clay Center in Clay County, Kansas. The Project would be located south of the intersection of West Lincoln Ave and C Street. The Project would be considered a small-scale community solar energy generating facility and would consist of the construction of ground-mounted photovoltaics ("PV") mounted on a steel rack system, which would be anchored into the ground using driven steel piles. A total of 75 rows of PV panels would be installed with approximately 17 feet spacing between rows. Interconnection cables would total approximately 570 feet and installed at a minimum depth of 18 inches. Trenches would be excavated parallel to the PV racks to interconnect each individual rack. Piles will be installed at a minimum of four (4) feet to ensure stability. This project would utilize 24 inverters. In addition to the PV system, other infrastructure would include access roads, power conditioning systems, a switchyard facility, and other associated facilities. No battery storage would be associated with this development.

Access to the facility for construction and operations would be from C Street. The areas where arrays would be installed (through driven piles) would be accessed by vehicles driving on the existing ground surface. During operations, vehicles would access the site from the access roads constructed at the onset of the project – many of the panel arrays would be accessed by driving on existing ground. Minimal grading for access roads would be required.

The preexisting electrical distribution system is owned and operated by KPP Energy. The interconnection agreement, included in **Appendix C** as **Exhibit C-3**, states that "The nine solar projects do not necessitate an interconnection agreement between the city and KPP Energy. The energy generated by these arrays is categorized as "behind the meter" at each site and is not distributed onto the grid." A general location map is included as **Exhibit A-1** in **Appendix A**. The preliminary site plan is included as an in-text exhibit (**Exhibit 1**) below.

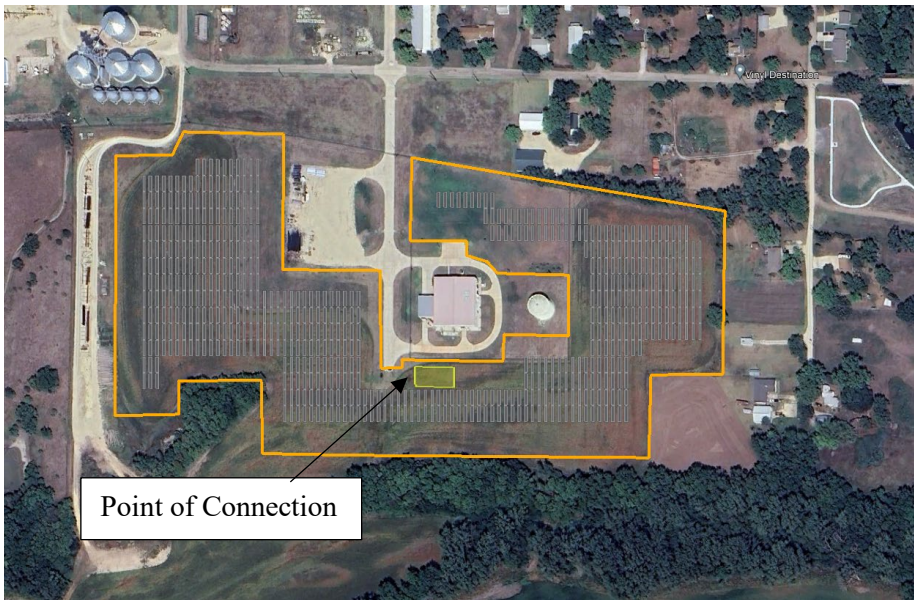

Exhibit 1: Preliminary Site Plan and Location of Arrays

An on-site investigation of the Assessment Area was performed on January 31, 2024, to assess the environmental conditions. Photographs recorded during the on-site assessment are included in **Appendix B** with a photograph location map included as **Exhibit B-1**.

Adjacent properties to the City owned parcel where the Proposed Action Alternative would be located, include rural residences to the northeast and east. The City's water treatment plant is located centrally to the Proposed Action Alternative. Grain silos are located northwest of the City owned parcel. South of the proposed facility is cultivated agricultural land and wooded corridors.

The Project would have a positive economic effect on the area and would assist KPP Energy in meeting the electricity demands of its customers. The Project would also help meet state and national goals to expand the use of renewable energy. Furthermore, the Project provides the opportunity to lessen consumer consumption of non-renewable energy and improve the environment by reducing effects of fossil fuel emissions.

1.3 Purpose and Need

USDA, Rural Development is a mission area that includes three federal agencies – Rural Business-Cooperative Service, Rural Housing Service, and Rural Utilities Service. The agencies have in excess of fifty (50) programs that provide financial assistance and a variety of technical and educational assistance to eligible rural and tribal populations, eligible communities, individuals, cooperatives, and other entities with a goal of improving the quality of life, sustainability, infrastructure, economic opportunity, development, and security in rural America. Financial assistance can include direct loans, guaranteed loans, and grants in order to accomplish program objectives.

KPP Energy is seeking financial assistance from USDA RD RUS under its PACE program, as authorized by the IRA.

The purpose of the Project is to construct an electric generating facility to provide 3.0 MW–AC of clean renewable energy to the residents in the Clay Center community. The City of Clay Center expressed interest in joining with KPP Energy for this Project to provide this service independently. KPP Energy is responding to a regional need for an affordable and reliable supply of electric power at competitive rates.

2.0 ALTERNATIVES EVALUATED INCLUDING THE PROPOSED ACTION AND NO ACTION

2.1 Introduction

NEPA requires that Federal agencies describe alternatives, including the "No Action" and "Proposed Action" alternatives, in their environmental documents (see Sections 102(2)(C)(iii) and 102(2)(E) of NEPA and 40 CFR § 1502.14). For proposals that are less complicated, single-site actions and in accordance with 7 CFR § 1970.13(a), Applicants are only required to consider and document the analysis of the "No Action" alternative if there are no potential adverse effects to environmental resources. For this review, the Project only needs to be evaluated with a "No Action" alternative as KPP Energy is proposing to complete a small-scale project at one (1) specific site and no adverse environmental effects are anticipated.

2.2 Proposed Action Alternative

Under the Proposed Action Alternative, RUS would consider providing financial assistance to KPP Energy through the PACE program to construct a 3.0 MW–AC solar energy generating facility on an approximately 18.44-acre tract located within the City of Clay Center, Clay County, Kansas. The Project would be located south of the intersection of West Lincoln Ave and C Street. The Project would be considered a small-scale community solar energy generating facility and would consist of the construction of ground-mounted PVs mounted on a steel rack system, which would be anchored into the ground using driven steel piles. A total of 75 rows of PV panels would be installed with approximately 17 feet spacing between rows. Interconnection cables would total approximately 570 feet and installed at a minimum depth of 18 inches. Trenches would be excavated parallel to the PV racks to interconnect each individual rack. Piles would be installed at a minimum of four (4) feet to ensure stability. This project would utilize 24 inverters. In addition to the PV system, other infrastructure would include access roads, power conditioning systems, a switchyard facility, and other associated facilities. No battery storage would be included in this proposed action. The expected operational life span is 35 years.

The overarching Assessment Area is a cultivated field for the growing of crops and a lesser area managed as maintained grassland. In the minimal uncultivated areas, the Project would involve limited vegetation clearing associated with minor grading of the site. The Project and would be designed to avoid, minimize, or mitigate floodplains, streams, and wetland effects. During construction, requisite site controls (i.e., stormwater best management practices ("BMP")) would be employed to minimize effects to downstream resources.

Construction of the solar facility would take approximately four to six months depending on availability of materials and would include minor grading of the surface to provide level surfaces for equipment to safely operate around the requisite infrastructure. Road, parking, and staging surfaces would be a graveled road base while transformer pads would be cemented to allow maintenance crews unfettered access to these areas. The areas under each PV panel would remain uncovered to allow natural vegetation growth. The entire perimeter would be fenced, utilizing game fencing at a height of eight feet. Gates would be placed off main access roads that are able to open wide enough for equipment to easily pass through. Each gate would be secured with a chain and padlock.

Daily activities would be monitored remotely through a Network Operations Center. This eliminates frequent, sometimes daily, visits to the site. Monthly site inspections would occur to inspect the perimeter fence and facility components, such as vegetation heights, security areas, lighting, etc. Vegetation would be scheduled to be mechanically maintained quarterly unless vegetation is large enough to affect the operations of the solar facility. Overall maintenance would be conducted annually, unless an issue arises during the monthly inspections that requires immediate attention.

Upon decommissioning of the solar site, KPP Energy or their designated affiliate would remove all PV panels, steel piles, wiring, and associated facilities. The removed components that are still within operating parameters would be either reused or sold. Equipment beyond its useful life would be recycled to the extent practicable. Areas disturbed by the project would be returned to near pre-Project conditions. Soil in heavily trafficked (compacted) areas would be plowed or ripped to uncompact soils, allowing vegetation to reestablish naturally or seeded to provide immediate soil stabilization and vegetative cover. All non-recyclable, unusable materials, or general waste generated from the decommissioning of the facility would be hauled to an approved, licensed landfill for proper disposal in accordance with state and federal requirements/law.

2.3 Other Alternatives Evaluated and Not Carried Forward

The following actions were considered as part of the NEPA process; however, these actions have been eliminated from detailed study as part of this EA.

Clay Center is a member of KPP Energy and in a partnership with KPP Energy has agreed to develop a solar site on property owned and operated by the City. To minimize costs, the site selection criteria was limited to site's currently owned by Clay Center. For the proposed Project to fulfill its purpose of supplying distributed power generation to the City of Clay Center, the proposed solar facility had to meet the following criteria:

- Undeveloped area in close proximity to Clay Center;
- Adjacent to an existing electrical distribution system suitable to support the additional load;
- Size, configuration, land use, and topography suitable to accommodate arrays to produce 3.0 MW-AC;
- No structures to be demolished;
- Not in a floodplain;
- Not in wetlands;

- No effects to surface waters;
- Compatibility with local ordinances and development permits; and
- Reasonable constructability and development costs.

Based on the site selection criteria, the proposed site was the only suitable location available to support the proposed solar facility. Accordingly, alternative sites were not evaluated.

Other means of electricity generation were considered; however, it was determined the only viable means of power generation would be from the construction and operation of a solar array.

Wind – KPP Energy did not consider the option of wind strictly due to the size of the footprint required. The average number of acres of land per MW of power generation by wind is 85 (Rosenbloom, 2006). The proposed site is 18.44 acres, which is insufficient to generate the targeted 3.0 MW-AC.

Geothermal - Electricity from geothermal energy sources is not widely utilized in Kansas. All large-scale geothermal electrical power plants in the United States are located west of the Rockies; east of the Rockies, water-bearing geology hot enough to generate electricity is too deep to be easily accessed (Kansas Geological Survey, 2011). Accordingly, Kansas has no direct-use systems and limited near-surface geothermal resources to implement large-scale geothermal electrical power plants. However, several commercial and residential sites in the state use geothermal heat pumps to heat and cool buildings (Kansas Geological Survey, 2011). This alternative was not considered due to the larger scale energy need that likely would not be met using geothermal sources.

2.4 No Action Alternative

Under the No Action Alternative, RUS would not provide PACE financial assistance to KPP Energy, and the Project would likely not be constructed. The No Action Alternative would leave the 18.44-acre tract undisturbed and in its current condition. KPP Energy would maintain their reliance on other sources for power generation (i.e., coal or natural gas power generation facilities) to meet the power demands for Clay Center. The No Action Alternative does not achieve the purpose of and need for the Project.

2.5 Environmental Resources Not Carried Forward for Detailed Analysis

The determination of environmental resources to be analyzed versus those not carried forward for detailed analysis is part of the EA scoping process. Council on Environmental Quality ("CEQ") regulations (40 CFR §1501.7[a] [3]) encourage project proponents to identify and eliminate from detailed study the resource areas that are not important or have no potential to be impacted through implementation of their respective proposed actions. Some resource areas or some aspects of resource areas would not be affected by the proposed or alternative actions. Resource areas that have been eliminated from further study in this document and the rationale for eliminating them are presented below:

Coastal Resources – The Assessment Area is not located within a state identified in the Coastal Zone Management Act of 1972 or Coastal Barriers Resources Act; therefore, there would be no effects to coastal resources. No further analysis is required.

Surface Waters – Surface waters are considered open waters, impoundments, lakes, ponds, or similar (EPA's Environmental Monitoring and Assessment Program, 2016). The Assessment Area is not located on or adjacent to identified surface waters; therefore, there are no effects to surface waters. No further analysis is required.

Corridor Analysis – A corridor analysis is not applicable for this Assessment Area as it does not follow a linear path nor have large electrical transmission lines, telecommunication cables, water or wastewater pipelines leading to or away from it; therefore, a detailed analysis is not required.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the current conditions of the environmental resources, either manmade or natural, that would be affected by implementation of the Proposed Action or alternatives. This chapter also describes the potential environmental effects that are likely to occur because of the implementation of the Proposed Action. The No Action Alternative provides a baseline against which the effects of the Proposed Action can be compared. Several key factors were taken into consideration when analyzing each environmental resource for environmental consequences:

- Timing of the effects to the resource. Quantifiable inputs and outputs can be described as temporary, defined as lasting for only a limited period of time, or permanent, defined as intending to last through the life of the project or beyond.
- Degree of effect to environmental resources. Each effect can be characterized as negligible, minor, moderate, or major to each environmental resource. Negligible effects are those that are so small or imperceivable that their effects cannot be accurately observed or measured, and are therefore of so little consequence that the environmental resource is not expected to be altered. Minor effects are those that are slight and may have little effect to the environmental resource. Moderate effects are those that are higher in intensity and may have additional effects to the environmental resource. Major effects are those that have a significant change to the environmental resource and may produce a different outcome.

3.1 Land Use

This section describes an overview of the existing land use at and surrounding the Assessment Area and the potential effects to those resources associated with the Project.

3.1.1 General Land Use and Ownership

Land use refers to the use of land for various activities, including commercial, industrial, recreational, agricultural, and residential. Adopted plans and development regulations control the type of land use and the intensity of development or activities permitted. Changes in land use patterns that result from development can affect the character of an area and result in physical effects to the environment. Many municipalities develop zoning or districting ordinances and planning documents to control the direction of development and to keep similar land uses together.

This section describes the land use and ownership resources occurring in the Assessment Area and the potential effects to those resources due to project implementation.

3.1.1.1 Affected Environment

The 18.44-acre Assessment Area is owned by the City of Clay Center. The Assessment Area is currently classified for Agricultural Use, see Appendix C for property summary report. The Assessment Area is in Section 8, Township 8S, Range 3E, (6th P.M., Book CR103, Page 337). The Assessment Area consists primarily of cultivated cropland. Based on current and historic aerial imagery, the Assessment Area has been utilized for commercial agricultural production.

Based on current aerials, the land use surrounding and immediately adjacent to the Assessment Area are private residences to the east and north and commercial agricultural business to the north and west. The city of Clay Center currently operates a water treatment plant within the same tract this project is being proposed.

3.1.1.2 Environmental Consequences

Proposed Action Alternative:

Under the Proposed Action Alternative, the entire 18.44 acres would be converted, changing the land use from agricultural row crop production to a renewable energy facility. The ownership of the property would not change and no effects to the City's water treatment plant would be expected. No reclassification or redistricting would be required as this action has received approval from the city council under its current status.

There are currently no plans for the project to exist outside of the described boundaries, resulting in no future changes to adjacent land uses. A map depicting the project boundaries can be found in Appendix A.

No Action Alternative:

Under the No Action Alternative, the agricultural cropland would remain in production resulting in no change to land uses.

3.1.1.3 Mitigation

No mitigation measures are proposed as the land use conversion from row crop agriculture to renewable energy would result in no significant adverse effects. KPP Energy worked closely with the City to avoid encroachments to the water treatment plant as well as other adjacent infrastructure. No adverse effects are anticipated resulting from the land use change from agriculture production to a solar facility. Conversion of the property should not affect the land uses of adjacent properties.

3.1.2 Important Farmlands

The Farmland Protection Policy Act of 1981 ("FPPA") was established to minimize the extent of unnecessary and irreversible conversion of farmland to nonagricultural uses contributed by Federal programs. The regulation's goal is to reduce the rate and amount of adaptation of the nation's farmlands, forest lands, and rangelands, which impairs the ability to produce sufficient domestic agricultural needs. The FPPA definition of farmland includes all land defined as follows:

a) Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion, as determined by the Secretary. Prime farmland includes land that possesses the above characteristics but is being used currently to produce livestock and timber. It does not include land already in or committed to urban development or water storage.

b) Unique farmland is land other than prime farmland that is used for production of specific high-value food and fiber crops, as determined by the Secretary. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farming methods. Examples of such crops include citrus, tree nuts, olives, cranberries, fruits, and vegetables; and

c) Farmland, other than prime or unique farmland, that is of statewide or local importance to produce food feed, fiber, forage, or oilseed crops, as determined by the appropriate State or unit of local government agency or agencies, and that the Secretary determines should be considered as farmland for the purposes of this subtitle.

3.1.2.1 Affected Environment

The Natural Resource Conservation Service ("NRCS") Web Soil Survey program was accessed to obtain a Custom Soil Resource Report for the Assessment Area. According to the report, the mapped soil units within the Assessment Area are classified as Prime Farmland (**Table 1**). See the mapped soil units as **Exhibit A-7** in **Appendix A**.

Table 1: Farmland Classification

Map Unit Name	Map Unit Symbol	Percent of Assessment Area	Farmland Classification
Muir silt loam, very rarely flooded	3261	99.8	Prime Farmland
Sherdahl loam, 3 to 7 percent slopes, eroded	3778	0.2	Prime Farmland

3.1.2.2 Environmental Consequences

Proposed Action Alternative:

According to RD Instruction 1970-L § 1970.557 (b), the Assessment Area "qualifies as an exemption under the FPPA" due to the Assessment Area being located within "incorporated city

limits" for the City of Clay Center. The Assessment Area would be located within the incorporated city limits; therefore, coordination with the NRCS would not be required to obtain a Land Evaluation and Site Assessment ("LESA") score.

No Action Alternative:

Under the No Action Alternative, the agricultural cropland would remain in production resulting in no change to important farmlands.

3.1.2.3 Mitigation

No mitigation measures are proposed since the resource is exempt from LESA review.

3.1.3 Formally Classified Lands

Formally Classified Lands are properties that are administered either by Federal, State, or local agencies, or have been given special protection through formal legislative designation (USDA Rural Development, 2008). Formally Classified Lands include National Parks, National Forests/Grasslands, Monuments, Historic Landmarks, Battlefields, Military Parks, Heritage Areas, Historic Sites, Historical Parks, Natural Landmarks, Wildlife Refuges, Seashores, Lake Shores, Trails, Wilderness Area, State Parks, State Fish and Wildlife Management Areas, Bureau of Land Management administered lands, Native American owned lands and leases, or Wild, Scenic and Recreational Rivers, all of which are managed by several Agencies. Other Formally Classified Lands are discussed in other sections of this EA including Coastal Resources, Biological Resources, and Cultural Resources and Historic Properties.

3.1.3.1 Affected Environment

The United States Geological Survey ("USGS") Protected Areas Database of the United States ("PADUS") online mapping system (A Resource for the Protected Areas Database of the United States (PAD-US), 2024) was accessed to determine if the Assessment Area is within any NRCS easements (i.e., crop reserve program or wetland reserve program), or other Federal, State, County, or Tribal owned or managed property would be affected by the Project. The Assessment Area is not located within Formally Classified Lands according to the USGS PADUS online mapping system. A USGS PADUS Map is included in **Appendix C** as **Exhibit C-2**. The Project is located on municipally owned property that is currently being leased for row crop agricultural production. See the City of Clay Center Electric Generation Utility Easement in **Appendix C** as **Exhibit C-4**.

3.1.3.2 Environmental Consequences

Proposed Action Alternative:

As the Project is in direct response to the local municipality entering into an agreement with KPP Energy for participation in the power pool, this Project is sanctioned by the City and has been approved by the respective city council, managers, and community. The land would still be owned by the City of Clay Center. The City has conveyed an easement to KPP Energy to place the solar array on City property.

No Action Alternative:

Under the No Action Alternative, the agricultural cropland would remain in production, resulting in no change to Formally Classified Lands.

3.1.3.3 Mitigation

No mitigation measures are proposed as the land would still be owned by the City of Clay Center resulting in no change to Formally Classified Lands.

3.2 Floodplains

This section describes an overview of the existing floodplain resources in proximity to the Assessment Area and the potential effects to those resources that would be associated with implementation of the Project.

A floodplain is any land area susceptible to being inundated by floodwaters from any source. Floodplains are essential to clean water, recharge of water supplies, reduction of flood risks and protection of property, human safety, health and welfare and fish and wildlife habitat (FEMA Flood Zones, 2020). Proper floodplain management would reduce flood losses and ensure the protection of the natural resources and functions of floodplains. The relevant floodplain area to be evaluated is an area that has either a one-percent probability of flood occurrence in a given year (100-year flood) or a 0.2-percent probability of flooding in a given year (500-year flood).

Executive Order ("EO") 11988, *Floodplain Management*, requires federal agencies to avoid actions, to the extent possible, where there are long and short-term adverse effects associated with the occupancy or modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practical alternative. Facilities located in a floodplain may be damaged or destroyed by a flood or may change the flood-handling capability of the natural floodplain or the pattern or magnitude of flood flows.

3.2.1 Affected Environment

According to the Federal Emergency Management Agency's ("FEMA") Flood Map Service Center, Clay County, Kansas, the Assessment Area is located outside Zone A (100-year flood zone). The Assessment Area is situated between two FEMA FIRM Panels (FIRM ID:

20027C0145C effective date: 5/4/2014 and FIRM ID: 20027C0235C effective date: 5/4/2014) (FEMA's National Flood Hazard Layer Viewer, 2024). Therefore, no regulated floodplain would be affected by the Proposed Action Alternative. See **Exhibit A-6** in **Appendix A**.

3.2.2 Environmental Consequences

Proposed Action Alternative:

Under the Proposed Action Alternative, there would be no effects to floodplains as they are absent from the Assessment Area. Accordingly, implementation of the Proposed Action Alternative would not result in any increases to the 100-year or 500-year flood elevation or present barriers to floodway passage within the vicinity of the Assessment Area.

No Action Alternative:

Under the No Action Alternative, there would be no effects to floodplains as they are absent from the Assessment Area.

3.2.3 Mitigation

No mitigation measures are proposed since the Proposed Action Alternative is outside of a regulated flood zone.

3.3 Wetlands

This section describes an overview of the existing wetland resources within the Assessment Area and the potential effects to those resources that could result with the implementation of the Project.

Wetlands are considered as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (USACE and USEPA Wetland Definition, 2024). The U.S. Army Corps of Engineers ("USACE") uses three characteristics when making wetland determinations: vegetation, soil, and hydrology. Unless an area has been altered or is a rare natural situation, wetland indicators of all three characteristics must be present during some portion of the growing season for an area to be considered a wetland.

EO 11990, *Protection of Wetlands*, states that it is federal policy to avoid, to the extent possible, the long and short-term adverse effects associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands, wherever practical. Additionally, federal agencies are required to take actions to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. Regulatory oversight of wetlands falls under Section 404 of the Clean Water Act ("CWA") and permits are administered by the USACE with oversight by the U.S. Environmental Protection Agency ("USEPA").

Section 404 of the CWA regulates the discharge of dredge and fill materials into Waters of the United States ("WOTUS"). WOTUS include territorial seas, navigable coastal and inland lakes, river and streams, intermittent streams, and wetlands. Section 401 of the CWA grants each state the authority to approve, deny, or condition any Federal permits that could result in a discharge to State waters (also known as the Water Quality Certification). Jurisdictional features (features subject to Section 404 of the CWA) may include but are not limited to wetlands, open waters, ponds, lakes, and perennial/intermittent streams. Permits may be required prior to effecting jurisdictional features depending on the type, location, and degree/amount of effect. (USEPA Section 404 of the Clean Water Act, 2024).

3.3.1 Affected Environment

The U.S. Fish and Wildlife Service's ("USFWS") National Wetland Inventory ("NWI") Map (USFWS Download Seamless Wetlands Data by State, 2024) and the U.S. Geological Survey's ("USGS") National Hydrography Database ("NHD") (USGS National Map Downloader, 2024) were reviewed for the Assessment Area. Based on the review, there are no NWI nor NHD features within the Assessment Area (**Exhibits A-4** and **A-5** in **Attachment A** show the proximity of NWI and NHD features relative to the Assessment Area, respectively.). Further, the National Hydric Soils Rating database was review for the mapped soils within the Assessment Area. Both soil types mapped within the Assessment Area are considered "predominantly non-hydric" (NRCS Hydric Soils List, 2024). On January 31, 2024, Topographic scientists conducted a wetland and stream delineation of the 18.44-acre Assessment Area in support of the Project. Three (3) wetland-determination data forms were recorded in the Assessment Area to determine the presence/absence of wetland resources – negative results were recorded (See **Exhibit E-2** in **Appendix E**). Topographic scientists concluded that no aquatic features that would be considered WOTUS are located within the Assessment Area and coordination/cooperation with the USACE is unwarranted.

3.3.2 Environmental Consequences

Proposed Action Alternative:

No wetlands are present within the Assessment Area; therefore, no effects to wetlands would occur under the Proposed Action Alternative.

No Action Alternative:

No wetlands are present within the Assessment Area; therefore, no effects to wetlands would occur under the No Action Alternative.

3.3.3 Mitigation

No mitigation measures are proposed as there would be no effects to wetlands. Regardless, appropriate erosion and sediment control best management practices would be employed during construction to minimize mobilized soils or sediment from moving offsite potentially impacting downgradient aquatic resources, to include wetlands.

3.4 Water Resources

This section provides an overview of water resources near the Assessment Area and addresses water quantity and quality issues related to discharges to or appropriations from surface or groundwater, groundwater protection programs (e.g., sole source aquifers and recharge areas) and water quality degradation from temporary construction activities. Water quality and quantity changes can affect other environmental resources including but not limited to groundwater and drinking water supplies, threatened and endangered species, other fish and wildlife species, and wetlands. Potential effects to biological resources including threatened and endangered species and other fish and wildlife species are discussed in Section 3.5. Effects to surface and/or groundwater would be KPP Energy's responsibility and permitting requirements, typically through state agencies, would be adhered to.

3.4.1 Affected Environment

Safe Water Drinking Act

The Kansas Department of Health and Environment ("KDHE") Public Water Supply Section is charged with regulation of all public water supply systems in the state to ensure safe drinking water as defined by Kansas Statutes Annotated 65-162a and Kansas Administrative Regulations 28-15a-2. The Project would adhere to all State regulations and local ordinances regarding drinking water quality. Wellhead Protection Areas ("WHPA") were also reviewed to determine if the Assessment Area is located in or drains into a sensitive well or wellfield supplying a public water system as defined by the Safe Drinking Water Act ("SDWA"). A Kansas Open Records Act ("KORA") request was submitted to obtain this information and specify WHPA locations in Kansas as it relates to the Assessment Area. Communication, via e-mail, with Kansas Department of Health and Environment ("KDHE") representatives provided a map of the WHPAs within the state. This map shows the Assessment Area within a WHPA. The WHPA location map is included in **Appendix G** as **Exhibit G-4** and KDHE chain of communication as **Exhibit G-5**.

Stormwater

The KDHE Wastewater & Stormwater Permitting and Compliance Section regulates construction stormwater, wastewater, and waste disposal. Based on the size of the proposed development, KDHE would require authorization under the Construction Stormwater General Permit. Excavation dewatering requires authorization under a general permit unless comprised entirely of stormwater. KDHE requires notification if encountering contamination or in areas of known contamination when excavating.

Ground Water

The KDHE Water Well Program is charged with providing for the exploration and protection of groundwater. Sole Source Aquifers (SSAs) are important sources of fresh water in certain portions of the United States. A review of the EPA's Interactive Map of Sole Source Aquifers ("SSA") (EPA Interactive Map of Sole Source Aquifers, 2024) was performed to determine if any streamflow zones, aquifer recharge areas, or other features at the land surface important for SSA designations are to be within the Assessment Area. The review of SSAs returned negative results for the state of Kansas.

Surface Water

The Kansas Total Maximum Daily Load ("TMDL")/303d Viewer identifies the impaired waters and TMDLs on Kansas waterways. The state of Kansas is required by the CWA to prepare a list of surface waters and the impairments of Kansas' waterways every even numbered year. The Kansas TMDL/303d Viewer identified the nearest impaired water to the Assessment Area as Huntress Creek (102500179354). Huntress Creek is located approximately 0.1 miles east from the nearest point of the Project and is identified as an impaired water for recreation due to medium levels of *E. coli* bacteria. No TMDL waterbodies (i.e., lakes) were identified in the general vicinity of the Assessment Area.

3.4.2 Environmental Consequences

Proposed Action Alternative:

Under the Proposed Action Alternative, effects to water resources would be minimal. Short-term, minor water quality effects may occur during the construction of the Project. These effects would be associated with soils from disturbed areas being mobilized by stormwater into adjacent areas during rainstorm events; however, these effects would be temporary and would not significantly alter water quality conditions or affect any WHPA.

There would be no anticipated effects to groundwater aquifers associated with the Project. Wastewater would not be generated, and process water would not be required for construction or operation of the Project. The Project would only add minor amounts of impervious surfaces, approximately 0.1 acres, to the Assessment Area and vegetation would be allowed to reestablish and would be maintained wherever possible throughout the operational life of the facility to reduce the potential for erosion and shading.

No Action Alternative:

Under the No Action Alternative, the Assessment Area would continue to be disturbed annually, removing vegetation, and destroying stabilizing soil structure. Herbicides and fertilizers would also be applied annually. As a result, tilled soils, herbicides, and fertilizers associated with mechanized commercial agriculture may have the potential to enter streams and affect downstream waters.

3.4.3 Mitigation

Due to the size of the project, a Stormwater Pollution Prevention Plan ("SWPPP") would be required. Additionally, BMPs such as soil erosion and sediment control measures would be utilized during construction to minimize the potential for increased runoff and siltation. Additionally, vegetation would be allowed to reestablish and would be maintained wherever possible throughout the operational life of the facility to reduce erosion. WHPAs should not be affected from the implementation of the Project.

3.5 Biological Resources

This section describes an overview of the existing biological resources within the Assessment Area and the potential effects to those resources that would be associated with the Project. Biological resources refer to the flora (plants) and fauna (invertebrates, fish, birds, amphibians, reptiles, birds, and mammals) that may be found or have historically been found at the Assessment Area. Biological resources may also include rivers, lakes, wetlands, upland communities, and other habitat types necessary to support local flora and fauna. See Section 3.4 for a discussion of water resources in and near the Assessment Area. Vegetation is a key habitat component and acts to stabilize soils and prevent erosion; additionally, information on vegetation can be used in evaluating potential effects to species and habitats. Potential effects to biological resources can be direct, such as individual mortality, harassment or displacement occurring at the same time as the proposed action, or indirect, such as displacement due to changes in habitat or resource availability. Effects of the Proposed Action on Federally listed species, as well as other species of concern, and critical habitat are addressed in this section.

3.5.1 General Biological Resources

3.5.1.1 Affected Environment

The Assessment Area lies within Kansas' Central Great Plains Level III Ecoregion and the Smoky Hills Level IV Ecoregion. The Central Great Plains were "once a grassland, dominated by mixed-grass prairie with scattered low trees and shrubs in the south, much of this region is now in cropland, with the eastern boundary of the region marking the eastern limit of the major winter wheat growing area of the United States." The Smoky Hills ecoregion "is an undulating to hilly dissected loess plain with sandstone hills underlain by the Dakota Formation. The region is transitional, with a variable climate and potential natural vegetation ranging from tallgrass prairie in the east to mixed-grass prairie in the west. Soils are silty and loamy, and formed in loess, which is thinner and with areas of sandy soils formed in sandstone. Land use consists of cropland and grassland with dryland winter wheat as the principal crop. Average annual precipitation ranges from 24 to 28 inches." (Chapman, Shannen S. et. al., 2001).

Existing flora on the site is constant with commercial crops such as wheat, corn and soy beans. The grassed area consists of Bermuda grass (*Cynodon dactylon*). Other grasses and forbs, such as perennial rye grass (*Lolium perenne*) and nightshade (*Solanum elaeagnifolium*) are actively managed against through the application of herbicides.

Common fauna found throughout the landscape might include White-tailed deer (*Odocoileus virginianus*), racoon (*Procyon lotor*), coyote (*Canis latrans*), fox squirl (*Sciurus niger*), assortative passerine birds, hawks, and vultures (K-State, 2024). No species surveys were conducted for the purpose of this analysis.

3.5.1.2 Environmental Consequences

Proposed Action Alternative:

Under the Proposed Action Alternative, there would be no effects to the general ecoregions. Effects to local fauna would not be expected as the existing ecology of cultivated fields does not provide any meaningful habitat other than space. Space with the potential to be utilized would be reduced due to the installation of exclusionary fencing around the perimeter of the Assessment Area. As this area does not provide forage, nesting, denning, matting or other ecological roles, no effects to common fauna would occur. Beneficial effects may occur with the increase of flower plants from the reestablishment of local native vegetation. Benefited species may include the Monarch Butterfly.

Native flora will be allowed to reestablish within the assessment area. Mechanical mowing will be utilized at an as needed bases to reduce shading and allow for maintenance of the facility. With the discontinued use of herbicides and seasonal soil tilling, beneficial effects would be expected to common flora.

No Action Alternative:

Under the No Action Alternative, there would be no effects to the general ecoregions or common local flora and fauna.

3.5.1.3 Mitigation

No mitigation measures are proposed as there are no anticipated effects to general biological resources.

3.5.2 Listed Threatened and Endangered Species

The Endangered Species Act ("ESA") is enforced by the USFWS and provides the protection and recovery of species threatened with extinction and ensures federal agencies use their authorities to further the purpose of the ESA to protect and conserve endangered and threatened species. The ESA defines a federally endangered species as any species which is in danger of extinction throughout all or a significant portion of its range (USFWS ESA Endangered Species, 2024). The ESA also identifies habitats critical to listed species and potential mitigation strategies within these habitats. Section 7 of the ESA requires that all federal agencies consult with the USFWS regarding potential effects that their federal actions could have to listed species (USFWS ESA Section 7 Consultation, 2024).

3.5.2.1 Affected Environment

An official species list obtained from the USFWS Information for Planning and Consultation ("IPaC") System (accessed May 21, 2024) identified three (3) federally listed, proposed listed, and candidate species (**Table 2**) in Clay County with potential to occur within the Assessment Area. See USFWS IPaC Official Species List in **Appendix G** as **Exhibit G-1**.

Table 2: USFWS IPaC List of Threatened, Endangered, and Candidate Species Clay County, Kansas

Species	***Status***	***Environmental Baseline for Potential Habitat***	***Potential Habitat Presence/Species Potential for Occurrence within the Assessment Area***	***Species Analysis Required***	***Determination of Effect***
Northern Long-eared Bat *(Myotis septentrionalis)*	Endangered (Federal)	The **Northern Long-eared Bat** is generally associated with old-growth forests with intact interior forest habitat, with low edge-to-interior ratios. Late successional forest characteristics may be favored due to the large number of partially dead or decaying trees that the species uses for breeding, summer day roosting, and foraging. During the summer, this species also roosts singly or in colonies underneath bark, in cavities, in crevices of both live and dead trees, or caves and mines.	No preferred roosting habitat exists for this species within the Assessment Area; therefore, potential for occurrence is unlikely.	No further analysis may be required for this species.	***"No Effect"***
Tricolored Bat *(Perimyotis subflavus)*	Proposed Endangered (Federal)	The **Tricolored Bat** is associated with forested landscapes, along waterways in riparian areas. During the fall, the species typically roost in hollow trees, among dead leaves of oaks in mature forests and caves but will also utilize human-made structures during hibernation. Maternity and other summer roosts are mainly in dead or live tree foliage; caves, mines, and rock crevices may be used as night roosts between foraging forays.	No preferred roosting habitat exists for this species within the Assessment Area; therefore, potential for occurrence is unlikely.	No further analysis may be required for this species.	***"No Effect"***
Monarch Butterfly *(Danaus plexippus)*	Candidate (Federal)	**Monarch Butterfly** habitat is a complex issue for this species. In general, breeding areas are virtually all patches of milkweed in North America and some other regions. The critical conservation feature for North American populations is the overwintering habitats, which are certain high altitude Mexican conifer forests or coastal California conifer, or Eucalyptus groves as identified in literature.	No habitat exists within the Assessment Area due to frequent mechanical and/or chemical maintenance for unwanted vegetation such as weeds. Therefore, potential for occurrence is unlikely.	No further analysis may be required for this species.	***"No Effect"***

3.5.2.2 Environmental Consequences

Proposed Action Alternative:

Under the Proposed Action Alternative, listed threatened or endangered species would not be affected by the Project based on the lack of suitable habitat and protected species' requirements. No designated critical habitat for federally listed species occurs within the Assessment Area nor would any species be affected by the Project. When listed species or critical habitat are not known to occur or potentially occur in the Assessment Area, or if there is no mechanism to affect the listed species or critical habitat, as is the case for the Project, a **"No Effect"** determination can be reached and consultation with the USFWS is not required under the ESA. See attached USFWS IPaC in **Appendix G** as **G-1** and IPaC Consistency Letter in **Appendix G** as **Exhibit G-2**.

No Action Alternative:

Under the No Action Alternative, the current land use of agricultural row crop production would continue. No change in land use would result in a **"No Effect"** to all proposed, candidate and listed species.

3.5.2.3 Mitigation

The construction and operation of the Project would comply with the ESA, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat occur, the findings would be brought to the attention of the contractor and the contractor would immediately report this evidence to KPP Energy. Construction would be temporarily halted pending the notification process and further directions issued by the USFWS following the consultation.

3.5.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act ("MBTA") is enforced by the USFWS and makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter any migratory bird or the parts, nests, eggs of such bird except under the terms of a valid permit issued (USFWS Migratory Birds, 2000).

3.5.3.1 Affected Environment

The USFWS IPaC Report obtained for the Assessment Area lists no migratory bird species that are of conservation concern and may be potentially affected by activities within the Assessment Area. Alternatively, the North American Bird Conservation Initiative ("NABCI") Birds of Conservation Concern Migratory Bird Program was reviewed to determine the Bird Conservation Region ("BCR") for the Assessment Area. The Assessment Area is located within BCR 19 Central Mixed Grass Prairie which extends from the edge of shortgrass prairie on the west to the beginning of tallgrass prairie and savanna-like habitat to the east (NABCI Bird Conservation Regions, 2024). It is important to note that this list is not exclusive to species protected under the Migratory Bird Treaty Act; however, serves as a targeted list of species of conservation concern in response to the

absence of a species list provided by IPaC. **Table 3** includes the listed migratory birds, habitat descriptions, and effect determinations.

Table 3: NABCI Migratory Birds of Conservation Concern Summary BCR 19 Central Mixed Grass Prairie

Species	*Status*	*Environmental Baseline for Potential Habitat*	*Potential Habitat Presence/Species Potential for Occurrence within the Assessment Area*	*Species Analysis Required*	*Determination of Effect*
Western Grebe (*Aechmophorus occidentalis*)	Concern	The breeding range of the **Western Grebe** is south-central British Columbia, central Alberta, central Saskatchewan, and southwestern Manitoba, south to California, northern Utah, North Dakota, western Nebraska, northwestern Iowa, and western Minnesota. This species nests on large inland bodies of water usually deep enough to allow the bird to swim submerged. Nests are typically anchored to, or built up over, living vegetation.	No preferred nesting habitat exists for this species within the Assessment Area due to the Assessment Area being outside the known breeding range and the lack of preferred aquatic resources, therefore, potential for occurrence is unlikely.	No further analysis will be required for this species.	***"No Impact"***
Black-billed Cuckoo (*Coccyzus erythropthalmus*)	Concern	The breeding habitat of the **Black-billed Cuckoo** contains forest edge and open woodland, both deciduous and coniferous, with dense deciduous thickets. This species nests in groves of trees, forest edges, moist thickets, overgrown pastures, and in deciduous or evergreen trees or shrubs about 1.8 meters above ground. At times, the Black-billed Cuckoo nests almost on the ground and is concealed by tall herbage.	No preferred nesting habitat exists for this species within the Assessment Area due to the lack of thick riparian vegetation, therefore, potential for occurrence is unlikely.	No further analysis will be required for this species.	***"No Impact"***

Species	*Status*	*Environmental Baseline for Potential Habitat*	*Potential Habitat Presence/Species Potential for Occurrence within the Assessment Area*	*Species Analysis Required*	*Determination of Effect*
Chimney Swift *(Chaetura pelagica)*	Concern	The breeding range of the **Chimney Swift** is from south to eastern New Mexico, southern Texas, Gulf Coast, and southern Florida, and west to southeastern Wyoming and eastern Colorado. This species inhabits rural and urban environments having both an abundance of flying arthropods and suitable roosting/nesting sites. Nests are principally in chimneys, but also on the interior walls of a variety of other anthropogenic structures including silos, barns, outhouses, uninhabited houses, boathouses, wells, and cisterns. Natural nest sites include the interior of hollow tree trunks and branches, Pileated Woodpecker cavities and rock shelters. Trees in which nests have been found include American Beech (*Fagus grandifolia*), Yellow Birch (Betula lutea), Silver Maple (*Acer saccharinum*), Sycamore (*Platanus occidentalis*), Bald Cypress (*Taxodium distichum*), and Water Tupelo (*Nyssa aquatica*).	No preferred nesting habitat exists for this species within the Assessment Area due to the lack of anthropogenic structures and tall stands of woody vegetation therefore, potential for occurrence is unlikely.	No further analysis will be required for this species.	***"No Impact"***
Snowy Plover (Interior/Gulf Coast) *(Charadrius nivosus nivosus)*	Concern	The breeding range of the **Snowy Plover** is along the Pacific coast, north to Washington, south to Oaxaca, and inland from Oregon and California, east to Kansas and Texas, south to southeastern California, southern Arizona, southern New Mexico, and north-central Texas, with the largest concentration around the Great Salt Lake, Utah. This species nests on the ground on broad open beaches, dry mud or salt flats, sandy shores of rivers, lakes, and ponds where vegetation is sparse or absent.	No preferred nesting habitat exists for this species within the Assessment Area due to the lack of aquatic resources, therefore, potential for occurrence is unlikely.	No further analysis will be required for this species.	***"No Impact"***

Species	*Status*	*Environmental Baseline for Potential Habitat*	*Potential Habitat Presence/Species Potential for Occurrence within the Assessment Area*	*Species Analysis Required*	*Determination of Effect*
Willet *(Tringa semipalmata)*	Concern	The breeding habitat requirements for the **Willet** include large expanses of short, sparse grasslands for nesting and wetland complexes for foraging. In both upland and wetland habitats, adults with broods use somewhat taller, denser grass cover than do breeding pairs during nesting.	No preferred nesting habitat exists for this species within the Assessment Area due to the lack of preferred nesting material and aquatic resources therefore, potential for occurrence is unlikely.	No further analysis will be required for this species.	***"No Impact"***
Least Tern (Atlantic/Interior) *(Sternula antillarum antillarum/athalassos)*	Concern	The nesting habitat of the **Interior Least Tern** includes bare or sparsely vegetated sand, shell, and gravel beaches, sandbars, islands, and salt flats associated with rivers and reservoirs. Nesting locations are often at higher elevations away from the water's edge, since nesting usually starts when river levels are high and relatively small amounts of sand are exposed.	No preferred nesting habitat exists for this species within the Assessment Area due to the lack of preferred nesting substrate, therefore, potential for occurrence is unlikely.	No further analysis will be required for this species.	***"No Impact"***
Black Tern *(Chlidonias niger surinamensis)*	Concern	**Black Tern** nests cluster in favored marsh substrates, which may be saturated with moisture, built on floating substrates of matted or decaying marsh vegetation, detached rotting masses, logs and boards, muskrat (*Ondatra zibethicus*) houses or feeding platforms, peat mats, lily pads, or abandoned nests of other species. Low nest site fidelity is likely a function of annual variation in water conditions and vegetation structure, two factors that influence availability of suitable nest substrates.	No preferred nesting habitat exists for this species within the Assessment Area due to the lack of favored substrates used for nest success, therefore, potential for occurrence is unlikely.	No further analysis will be required for this species.	***"No Impact"***
Burrowing Owl (Western) *(Athene cunicularia hypugaea)*	Concern	The **Western Burrowing Owl** nests and roosts in abandoned burrows dug by mammals and in the Great Plains, this species nest chiefly associated with prairie dogs. Livestock dung is used in some areas to line burrow entrance, reducing detection by predators. the pattern of burrow use is influenced by availability, soil, dynamics of prairie dog population, and other owls.	No preferred nesting habitat exists for this species within the Assessment Area due to the lack of mammal burrows, therefore, potential for occurrence is unlikely.	No further analysis will be required for this species.	***"No Impact"***

Species	*Status*	*Environmental Baseline for Potential Habitat*	*Potential Habitat Presence/Species Potential for Occurrence within the Assessment Area*	*Species Analysis Required*	*Determination of Effect*
Long-eared Owl *(Asio otus)*	Concern	The **Long-eared Owl** breeding habitat includes wooded areas with dense vegetation needed for roosting and nesting and open areas for hunting. This species usually occupies old nests of crows, squirrels, hawks, magpies, or herons, sometimes in tree cavities and rarely on the ground. High rodent numbers are essential for nesting success and breeding density is generally no more than 1-2 pairs per sq km.	No preferred nesting habitat exists for this species within the Assessment Area due to the lack of dense vegetation for nest success, therefore, potential for occurrence is unlikely.	No further analysis will be required for this species.	***"No Impact"***
Red-headed Woodpecker (*Melanerpes erythrocephalus*)	Concern	**Red-headed Woodpeckers** typically nest in a hole excavated 2-25 meters above the ground in a live tree, dead stub, utility pole, or fencepost. Individuals typically nest in the same tree or cavity in successive years and summer territories extended from 3.1-8.5 hectares.	No preferred nesting habitat exists for this species within the Assessment Area due to the lack of woody stands, therefore, potential for occurrence is unlikely.	No further analysis will be required for this species.	***"No Impact"***
Black-capped Vireo *(Vireo atricapilla)*	Concern	**Black-capped Vireo** nesting occurs in areas with clumps of woody vegetation separated by bare ground, rocks, and/or herbaceous vegetation and often in areas with sparse *Juniperus spp.* Favorable breeding habitat had 35-55% dispersed scrub cover (primarily deciduous) in spatially heterogeneous configurations, with (in most areas) juniper cover well below 10%.	No preferred nesting habitat exists for this species within the Assessment Area due to the lack of woody stands, therefore, potential for occurrence is unlikely.	No further analysis will be required for this species.	***"No Impact"***
Lark Bunting *(Calamospiza melanocorys)*	Concern	The **Lark Bunting** breeds in eastern Kansas, within mixed-grass and shortgrass areas with low to moderate height, high vegetative cover, and 10-15% bare ground as well as areas dominated by sagebrush (*Artemisa spp.*). This species also inhabits breeding areas with taller grass and scattered shrubs, weedy edges, and retired croplands. Specifically, in Kansas, oriented nests adjacent to protective vegetation that allowed access to morning sunlight, adequate ventilation, and afternoon shade contributed to reproductive success.	No preferred nesting habitat exists for this species within the Assessment Area due to the lack of herbaceous vegetative cover, therefore, potential for occurrence is unlikely.	No further analysis will be required for this species.	***"No Impact"***

Species	*Status*	*Environmental Baseline for Potential Habitat*	*Potential Habitat Presence/Species Potential for Occurrence within the Assessment Area*	*Species Analysis Required*	*Determination of Effect*
Bobolink *(Dolichonyx oryzivorus)*	Concern	The **Bobolink** has a large nesting range in North America that expanded with historical anthropogenic habitat changes. Breeding habitat includes tall grass areas, flooded meadows, prairie, deep cultivated grains, and hayfields. Nests are on the ground in small hollows in areas concealing herbaceous vegetation. Individuals tend to return to breed in the same area in successive years, especially if that site has had good bobolink productivity.	No preferred nesting habitat exists for this species within the Assessment Area due to the lack of herbaceous vegetative cover, therefore, potential for occurrence is unlikely.	No further analysis will be required for this species.	***"No Impact"***
Pyrrhuloxia *(Cardinalis sinuatus)*	Concern	The **Pyrrhyloxia** nests in mesquite, thorny bushes, about 1.5-2.5 meters above the ground resting insecurely on small twigs away from the trunk and main branches. Breeding occurrences include nesting areas as well as foraging areas.	No preferred nesting habitat exists for this species within the Assessment Area due to the lack of nesting material for reproductive success, therefore, potential for occurrence is unlikely.	No further analysis will be required for this species.	***"No Impact"***

Species descriptions were obtained by NatureServe Explorer and USFWS Environmental Conservation Online System ("ECOS").

3.5.3.2 Environmental Consequences

Proposed Action Alternative:

Under the Proposed Action Alternative, effects to migratory birds are not expected based on the lack of migratory birds likely to utilize or otherwise visit the Assessment Area, as well as the lack of suitable nesting and foraging habitat. Ground mounted solar arrays also pose little to no risk to migratory birds. Additionally, the solar panels proposed for use at this facility are designed to absorb the sunlight (PV panels) versus reflect the light; therefore, a reflective glare is not a concern for this facility. See Biological Assessment ("BA") submitted separately from this document.

No Action Alternative:

Commercial row crop agriculture would remain the primary land use within the Assessment Area. Effects to migratory birds would be negligible to absent due to cultivated fields offering little to no preferred habitat for migratory birds.

3.5.3.3 Mitigation

No mitigation measures are proposed since there would be no anticipated effects to migratory birds.

3.5.4 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act ("BGEPA") is enforced by the USFWS and makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter any Bald or Golden Eagle or the parts, nests, eggs of such bird except under the terms of a valid permit issued. The BGEPA also prohibits any activity that could cause injury to the species, nest abandonment, or a decrease in productivity. (USFWS Bald and Golden Eagle Protection Act, 2024).

3.5.4.1 Affected Environment

The Assessment Area primarily consists of routinely agricultural cropland with portions of maintained grassland. While Bald and Golden Eagles may be visitors to the area surrounding the Assessment Area, suitable nesting habitat, which includes tall, large diameter trees and preferred foraging areas including large, open expanses of water, are not present near the Assessment Area.

3.5.4.2 Environmental Consequences

Proposed Action Alternative:

Under the Proposed Action Alternative, effects to Bald and/or Golden Eagles are not anticipated since the Assessment Area and surrounding areas do not contain preferred habitat to support the species.

No Action Alternative:

Under the No Action Alternative, the project site would remain in its current condition resulting in no effects to Bald and/or Golden Eagles.

3.5.4.3 Mitigation

No mitigation measures are proposed since effects to Bald and/or Gold Eagles are not anticipated.

3.5.5 Invasive Species

EO 13112, *Invasive Species*, directs federal agencies to not authorize, fund or carry out actions believed to cause or promote the introduction or spread of invasive species unless the Agency determines that the benefits of such actions outweigh the potential harm caused by invasive species.

The possibility of an introduction of an invasive plant species may occur with any construction related activity. Disturbance of soil and vegetation in a Assessment Area provides an opportunity for invasive seeds to germinate. The USACE Kansas City District has developed an invasive species plant list for Kansas, which can be found at: https://usace.contentdm.oclc.org/digital/api/collection/p16021coll11/id/2682/download. The list includes 466 plant species as potentially occurring in Kansas.

3.5.5.1 Affected Environment

At the time of the on-site investigation, invasive species within the Assessment Area primarily consisted of Palmer's Amaranth (*Amaranthus palmeri*), Bermudagrass (*Cynodon dactylon*), and Grain Sorghum (*Sorghum bicolor*).

3.5.5.2 Environmental Consequences

Proposed Action Alternative:

Given that only minor earthwork would be required for the construction of the Project and no fill material is being imported, the potential for the establishment and spread of non-native/invasive species is unlikely. Further, under the Proposed Action Alternative, the potential increase of invasive species is not anticipated. Vegetation must be maintained under the panel surface to prevent panel shading, which would be the responsibility of KPP Energy and would be performed on a scheduled interval. Periodic mowing would select against invasive species and promote the growth of native grasses and forbs.

No Action Alternative:

Commercial row crop agriculture would remain the primary land use within the Assessment Area. Annual tillage and herbicide applications would remove all unwanted vegetation, including invasive species.

3.5.5.3 Mitigation

The proposed Project would comply with the requirements of EO 13751 by maintaining all possible existing ground cover and by seeding any disturbed area with a mixture of native herbaceous vegetation after construction, which would discourage the establishment of non-native species and promote the restoration of native species.

3.6 Historic and Cultural Resources

This section provides an overview of historic properties and cultural resources near the Assessment Area and addresses potential effects to those resources that would be associated with the Project, also known as area of potential effects (APE). Cultural Resources, following a National Park Service definition (National Park Service, 2024), includes the tangible remains of a prehistoric or historic human activity, occupation, or endeavor. These remains can represent a variety of resource types. Common resource types include districts, sites, buildings, structures, objects, and archaeological resources. Cultural resources comprise the physical remains themselves, the areas where significant human events occurred even if evidence of the event no longer remains, and the environment surrounding the actual resource. Potential effects to cultural resources can be direct or indirect. The National Historic Preservation Act requires federal agencies to consider effects to *historic properties* within an undertaking's area of potential effects ("APE"). *Historic Properties* (as defined in 54 USC 306108, and its implementing regulation, 36 CFR Part 800.6 and 800.16) are those cultural resources that are eligible for inclusion in the National Register of Historic Places (under 36 CFR 60.4). The Assessment Area correlates to the APE.

3.6.1 Affected Environment

To evaluate potential effects to the APE, a literature review and cultural resources inventory of the entire APE was completed (Milam, 2024). Human occupation of Kansas began over 12,000 years ago (Hoard and Banks, 2006). In the ensuing millennia, a variety of different people lived in the state. Following the Paleoindian and Archaic periods, Ceramic- and Plains Woodland-period tribes occupied the region, influenced by cultures farther east (Adair, 1996; Bozell, 2006; Hoard and Banks, 2006; Vehik, 1984). Later occupations include those by people within the Central Plains, Plains Village, and Oneota traditions, and the Great Bend Aspect (Blakeslee and Hawley, 2006; Brosowske and Bevitt, 2006; Wedel, 1959). By the Protohistoric (AD 1450–1725) and Historical Indigenous (post AD 1725) periods, tribes occupying Kansas included the Wichita, the Kansa, Comanche, and Pawnee (Blakeslee and Hawley, 2006; Hoard and Banks, 2006). Although centered farther east, the Kaw and Osage extended into Kansas as well. The U.S. Department of Housing and Urban Development's Tribal Directory Assessment Tool (TDAT) suggests that tribes with an interest in Clay County include the Cheyenne and Arapahoe Tribes of Oklahoma, Kaw Nation of Oklahoma, Osage Nation, Pawnee Nation of Oklahoma, Wichita, and Affiliated Tribes (Wichita, Keechi, Waco, & Tawakonie) of Oklahoma. Historical Euro-American entry into the state began in AD 1541, with occupation intensifying in the AD 1800s (Carrillo, 1990a, b, c; Hyslop, 2002). Settlement in Kansas increased following the end of the Civil War, and intensified after the construction of railways in the 1860s–1880s (Fraser and Strand, 1997). The completion of railroads, such as Kansas Pacific and the Atchison, Topeka & Santa Fe, allowed homesteading to expand greatly within the state. Since early homesteading, agriculture has remained a cornerstone of development in the region.

A file search was conducted through the Kansas State Historical Society ("KSHS") on January 18, 2024. Prior to completing a cultural resources inventory of the APE, there were no known sites or historic properties within one (1) mile of the APE.

The cultural resource inventory area covered the 18.44-acre APE and included the excavation of 121 survey-level shovel tests. No cultural resources were documented during this inventory, thus the Project resulted in a no historic properties affected determination. The cultural resource inventory report was provided to the USDA-RUS for review and, following completion of this review, provided to the Kansas Historical Society ("KHS")/State Historic Preservation Office and Tribal Historic Preservation Offices for review and comment (Table 4). Responses were received from Osage Nation and the Kansas State Historic Preservation Office; the latter is operated as the KHS. Both the KHS and Osage Nation concurred with the USDA-RUS determination that a finding of no historic properties affected, in accordance with 36 CFR § 800.4(d)(1), was appropriate for the referenced project.

Table 4. Summary of Section 106 Consultation and Responses

Consulted Tribe/Historic Preservation Office	Consultation Notification Date	Consultation Response Date
Cherokee Nation	08/05/2024	None
Cheyenne and Arapaho Tribes, Oklahoma	08/05/2024	None
Osage Nation	08/05/2024	Concurrence letter (provided 09/04/2024)
United Keetoowah Band of Cherokee Indians in Oklahoma	08/05/2024	None
Wichita and Affiliated Tribes (Wichita, Keechi, Waco & Tawakonie), Oklahoma	08/05/2024	None
Kansas State Historical Society/State Historic Preservation Office	08/05/2024	Concurrence letter (provided 8/16/2024)

3.6.2 Environmental Consequences

Proposed Action Alternative:

No Historic Properties exist in the APE; thus, the Project resulted in a *no historic properties affected* determination.

No Action Alternative:

Under the No Action Alternative, no surface disturbance would occur. No Historic Properties exist in the APE; therefore, the No Action Alternative also results in a *no historic properties affected* determination.

3.6.3 Mitigation

Inadvertent Discoveries and Native American Graves Protection and Repatriation Act

Despite the fact that the Proposed Action Alternative has no effect to historic properties, there is a small possibility that artifacts or other cultural materials may still be present. If any artifacts are unearthed during construction, the proponent or their contractor would halt work immediately and contact the Kansas State Historic Preservation Office for further instructions. The inadvertent discovery of any human remains shall comply the Native American Graves Protection and Repatriation Act ("NAGPRA") (25 U.S.C. §§ 3001 et seq.) and its implementing regulations (43 CFR 10) and the Archaeological Resources Protection Act of 1979 ("ARPA") (16 USC 470 aa–mm) and its implementing regulations (43 CFR 7), as well as applicable Kansas state regulations (Section 126-1-2). The undertaking is not on federal lands and no Native American historic properties or cultural items were encountered or are expected. As such, a NAGPRA plan of action is not believed to be mandated, following 43 CFR 10.5.

3.7 Aesthetics/Visual Resources

This section describes an overview of the existing visual resources at the Assessment Area and the potential effects to those resources associated with the Project. Visual resources are the visual character of a place, both manmade and natural, that give a particular landscape its character and aesthetic quality.

As development in rural areas increases in scope and complexity, aesthetics or visual effects may be a concern. The visual quality of an area may be affected by the introduction of new buildings or structures. Where visual effects are identified, and avoidance of the affected area is not feasible, efforts should be made to design, construct and operate in such a way that would minimize aesthetic effects.

3.7.1 Affected Environment

The Project is located on land previously disturbed from agricultural activities and currently owned by the City of Clay Center. The proposed solar array would be located on rural, agricultural tracts of land outside of any aesthetically sensitive location such as a scenic vista, area, or park. Further, the Assessment Area and the surrounding landscape's visual environment is dominated by the surrounding city operated construction staging area, workshop, water treatment plant and adjacent grain silos. With a maximum height of 10 ft, the solar panels would not visually change the landscape with the adjacent buildings potentially reaching a height of 50 ft.

3.7.2 Environmental Consequences

Proposed Action Alternative:

The Project would place PV panels over the approximately 18.44-acre site, outside of any scenic or otherwise aesthetically sensitive area. Due to the limited height of these PV structures and the existing land uses, no effects to the aesthetics/visual resources of the area are anticipated by the Proposed Action Alternative.

No Action Alternative:

Under the No Action Alternative, the Assessment Area would remain in agricultural row crop production resulting in no effects to aesthetics/visual resources of the area.

3.7.3 Mitigation

No mitigation measures are proposed since there would be no anticipated effects to aesthetics/visual resources with the implementation of the Project.

3.8 Air Quality

3.8.1 Air Quality

This section describes an overview of the existing air quality in the Assessment Area and the potential effects that would be associated with the Project.

Air quality management and protection responsibilities exist at the Federal, State and Local levels; however, the primary statutes that establish ambient air quality standards and establish regulatory authorities to enforce regulations designed to attain those standards are codified by the federal Clean Air Act ("CAA").

The CAA and its amendments mandate requirements for managing air quality across the nation by establishing primary and secondary air quality standards. Primary air quality standards protect the public heath, including the health of sensitive populations including people with asthma, children, and older adults. Secondary air quality standards protect public welfare by promoting ecosystem health, damage to crops and buildings and preventing decreased visibility. Potential air quality effects can be short-term (construction-related) or long-term (facility emissions and increased traffic). (USEPA NAAQS Table, 2024).

3.8.1.1 Affected Environment

The National Ambient Air Quality Standards ("NAAQS") for "criteria" pollutants including ozone (O_3), particulate matter ($PM_{2.5}$ and PM_{10}), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2) and lead (Pb). The NAAQS for these pollutants is listed in **Table 5** and represent the levels of air quality deemed necessary by the USEPA to protect the public health and welfare with an adequate margin of safety.

Table 5: National Ambient Air Quality Standards

Pollutant	Averaging Time	Level	Form
Carbon Monoxide (CO)	8 hours	9 ppm	Not to be exceeded more than once per year
Carbon Monoxide (CO)	1 hour	35 ppm	Not to be exceeded more than once per year
Lead (Pb)	Rolling 3-month average	0.15 $\mu g/m^3$	Not to be exceeded

Nitrogen Dioxide (NO_2)	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
Nitrogen Dioxide (NO_2)	1 year	53 ppb	Annual mean
Ozone (O_3)	8 hours	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution ($PM_{2.5}$)	1 year	12.0 $\mu g/m^3$	Annual mean, averaged over 3 years
Particle Pollution ($PM_{2.5}$)	1 year	15.0 $\mu g/m^3$	Annual mean, averaged over 3 years
Particle Pollution ($PM_{2.5}$)	24 hours	35 $\mu g/m^3$	98th percentile, averaged over 3 years
Particle Pollution ($PM_{2.10}$)	24 hours	150 $\mu g/m^3$	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)	1 hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
Sulfur Dioxide (SO_2)	3 hours	0.5 ppm	Not to be exceeded more than once per year

The USEPA Green Book provides detailed information about area NAAQS designations, classifications, and nonattainment status. Established under the CAA, the General Conformity Rule plays an important role in helping states improve air quality in those areas that do not meet the NAAQS. These regulations require that projects in federal nonattainment areas that could be built with funding from a federal agency such as the RUS must demonstrate conformity with the applicable state or local attainment plan. To date, Clay County is not currently listed as a nonattainment or maintenance area; therefore, is in conformance with the EPA's collection of regulations and enforcement to fulfill the requirements of the Clean Air Act, known as the State Implementation Plan for air quality. See EPA Green Book Report in **Appendix H** as **Exhibit H-1**.

3.8.1.2 Environmental Consequences

Proposed Action Alternative:

Under the Proposed Action Alternative, the Project would not generate air emissions from a stationary source. The given nature of a solar energy generating facility during operation would not contribute to air pollution and would not result in a conflict or obstruction of an air quality plan. Short-term, potential air quality effects may result from the minor earthmoving and construction activities during the construction phase. Earthwork and construction emissions would have a temporary effect; consisting of mainly dust generated during movement of soils and other construction activities, and exhaust emissions from construction-related equipment and vehicles.

The Project would produce electricity with no direct air emissions of greenhouse gases or other air pollutants, and very low life-cycle emissions relative to traditional fossil fuels. In the long-term, there would be a reduction in harmful greenhouse gas emissions by reducing the energy demand from traditional fossil fuel sources in the area, which should improve air quality in the region.

No Action Alternative:

Under the No Action Alternative, commercial agriculture would continue to be the primary land use. Annual tillage of the soil would contribute to emissions in the form of dust and fossil fuel driven farming equipment.

3.8.1.3 Mitigation

Dust suppression techniques (e.g., covering or spraying bare soils with water) would be used to control dust resulting from construction activities. Post-construction, disturbed soils would be seeded with native herbaceous species.

3.9 Socioeconomics and Environmental Justice

USDA Departmental Regulation DR-5600-2, *Environmental Justice* and EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, require that federal agencies, whenever feasible, maintain information of populations by race, national origin or income and would use this information to determine whether their actions have disproportionately high and adverse human health or environmental effects on minority or low-income populations. Additionally, the socioeconomic conditions of the Assessment Area are analyzed for any potential effects associated with the construction and operation of the Project. Factors considered in this analysis include population, employment, and income.

3.9.1 Affected Environment

The USEPA's Environmental Justice Screening and Mapping Tool ("EJScreen") and data from the U.S. Census Bureau ("USCB") were utilized to determine the possible socio-economic effects and environmental justice effects of minority and low-income populations for the proposed Project and surroundings. According to the EJScreen Summary Report, included as **Exhibit D-1** in **Appendix D**, the total population of the Assessment Area and a 1-mile radius is 1,328. According to the USCB American Community Survey ("ACS"), the area's race makeup is White (approximately 93%), Hispanic (approximately 3%), Black (approximately 4%) and Asian (approximately 1%). The area's population is reported to be 4% aged 1-4, 22% from 1-18, 78% from 18 and up, and 23% over the age of 65 and up. According to the USCB ACS, the average per capita income for the City of Clay Center is $28,795 with 41% of individuals classified as "Low Income" (USCB ACS Clay Center City, Clay County, Kansas, 2022).

3.9.2 Environmental Consequences

Proposed Action Alternative:

Under the Proposed Action Alternative, effects related to socioeconomic and environmental justice are not anticipated. Since the Project does not include the addition of new homes or businesses, implementation of the Project would not directly stimulate unplanned population growth in the Assessment Area. Local residents would not notice a change in shifts in population movement and growth, or effect on public service demands. The Project should not adversely or significantly

affect low income or minority populations but should provide positive economic effects by expanding the tax base in Clay County as well as provide a source of affordable, renewable energy.

No Action Alternative:

Under the No Action Alternative, commercial row crop agriculture would continue to be the primary land use; therefore, providing a source of income for the lessee of the property and the municipality in the form of rent. Effects to low income or minorities would not change.

3.9.3 Mitigation

No mitigation measures are proposed since low-income or minority populations would not be affected by the Project.

3.10 Miscellaneous Concerns

3.10.1 Noise

This section describes an overview of the existing ambient sound environment at the Assessment Area and the potential effects that would be associated with the Project. Noise is an unwanted or unwelcome sound added to the natural acoustic setting of a locale. The most common unit of sound is the decibel ("dB"), a logarithmic measure of sound pressure. However, the human ear is not equally sensitive to all sound frequencies. The A-weighted decibels ("dBA") scale, weighted approximately to the sensitivity of the human ear, quantifies this subjective noise level perception. Approximating the range of human hearing, the dBA scale ranges from 0 dBA to about 140 dBA. The softest sound heard by a person with average hearing is 0 dBA; 20-30 dBA is a rural farm; 40-50 dBA is a peaceful subdivision; 70-80 dBA is an urban freeway shoulder; and 110 dBA is equivalent to thunder (KSDOT, 2024).

In addition, noise levels are perceived differently at night, between 10pm and 7am, with noise levels perceived as more disruptive during normal sleeping hours. This difference is reflected by artificially increasing the perceived volume by 10 dBA. The day-night-sound level is measured in Ldn, a weighted 24-hour average noise level to describe a receptor's cumulative noise exposure. An Ldn at or below 65 dBA is typically applied as suitable for residential use. Similarly, the Community Noise Equivalent Level ("CNEL") weights 7pm to 10 pm with an additional 5 dBA along with the Ldn weight of 10 dBA between 10pm and 7am. The CNEL is typically approximated as 0.5 dBA higher than the Ldn. The EPA recognizes noise levels below an Ldn of 55 dBA as having no adverse impact (EPA, 1974).

The Federal Noise Control Act of 1972 (Public Law 92-574) established that all Federal agencies administer their programs to promote an environment free of noise that would jeopardize public health or welfare. In 1974, in response to the requirements of the Federal Noise Control Act, the EPA identified indoor and outdoor noise level limits to protect public health and welfare (communication disruption, sleep disturbance, and hearing damage). Outdoor and indoor noise exposure limits of 55 dB Ldn and 45 dB Ldn, respectively, are identified as desirable to protect against speech interference and sleep disturbance for residential, educational, and healthcare areas.

The sound-level criterion identified to protect against hearing damage in commercial and industrial areas is 70 dB 24-hour Ldn (both outdoors and indoors).

The construction of the Project could create noise effects. Noise can be defined as a sound, especially one that is loud or unpleasant, that may cause disturbance. Certain activities inherently produce sound levels or characteristics that have the potential to create noise. There are two main categories of noise – community noise and job-related noise. Job related noise is regulated by the Occupational Safety and Health Administration ("OSHA") (Occupational Safety and Health Administration, Occupational Noise Exposure, 2024). The other category, community noise, refers to the combination of multiple sources of noise which may result in an overall unacceptable level for those living, working, or recreating in the area especially in noise-sensitive areas including residences, schools, hospitals, churches, parks, wildlife refuges, etc.

3.10.1.1 Affected Environment

The Assessment Area is in Clay County, Kansas within the city limits for Clay Center. Ambient noise at the Assessment Area consists predominantly of rural or natural sounds, as well as manmade noise from vehicle traffic traveling on local roads and highways. Furthermore, the site would be located adjacent to the City's water treatment plant and storage yard for surplus building materials and equipment storage. Frequent movement of materials and equipment are currently a large part of the community noise associated with this area.

3.10.1.2 Environmental Consequences

Proposed Action Alternative:

Under the Proposed Action Alternative, there would be a direct, short-term increase in noise related to construction activities. According to the American National Standards Institute ("ANSI"), average construction sound levels range between 80-90 decibels ("dBA") (ANSI, 2018) – this singular effect would be temporary, occurring only during daytime hours within the 4 to 6-month construction period. Post-construction, the ambient sound environment would be expected to return to existing levels. Noise from equipment (i.e., the inverter) and routine maintenance would only be audible during the daylight hours when the panels are producing power and would likely only be heard by individuals within the perimeter fence. Consequently, the Project would only cause temporary noise effects and would not result in a long-term increase to the ambient noise levels of the area.

No Action Alternative:

Under the No Action Alternative, noise levels would remain unchanged. Annual commercial row crop agricultural activities would add to the ambient noise level in the immediate Assessment Area.

3.10.1.3 Mitigation

No mitigation measures are proposed since noise would be negligible during construction and virtually non-existent once the Project is operational. Noise due to construction would adhere to ANSI recommendations.

3.10.2 Transportation and Traffic

This section provides an overview of the existing traffic and transportation resources near the Assessment Area and describes the potential effects the Project could have on these resources.

Transportation effects include increases and decreases in traffic and transportation that might be causes or exacerbated by development of the Project. Other effects considered are the transportation of materials to or from the facility either during construction or during operation. Any possible changes in transportation patterns or intensity are also evaluated.

3.10.2.1 Affected Environment

The Project would be located south of the intersection of West Lincoln Ave and C Street. Access to the Project would be from C Street, which is a paved road at the Assessment Area. The nearest highway to the Assessment Area is State Highway 24, which is located to the north of the Assessment Area and is accessible by C Street. Kansas Department of Transportation ("KDOT") does not have an average daily traffic counts for the area; however, the average daily traffic count for State Highway 24 is 1,410 vehicles in 2022. C street is already frequented by traffic caring heavy equipment that is used and stored at the City's water treatment plant and storage yard. The nearest railroad line is located approximately 15 miles southwest of the Assessment Area and the nearest municipal airport is the Clay Center Municipal Airport located approximately 1.15 miles west of the Assessment Area.

3.10.2.2 Environmental Consequences

Proposed Action Alternative:

Under the Proposed Action Alternative, there would be no significant effects to traffic and transportation due to the implementation of the Project, given the short duration of the construction phase and the limited number of workers and equipment required for operation and maintenance. Most of the traffic burden, due to the Project, would occur during the construction phases. During these short duration phases, it is anticipated that traffic would increase slightly to account for construction personnel and equipment. A significant increase in traffic for any maintenance or inspection activities is not anticipated. Construction traffic would resume to pre-project levels once construction is complete.

No Action Alternative:

Under the No Action Alternative, traffic in the area would remain unchanged.

3.10.2.3 Mitigation

No mitigation measures are proposed since effects to traffic and airports are not anticipated.

3.11 Human Health and Safety

This section describes public health and safety associated with the construction and operation of the Project and the potential effects. There is an importance in evaluating the Project's effect on public health and safety per 40 CFR Part 1508.27. The Project would require all personnel and visitors to follow the OSHA guidelines during construction and operation.

3.11.1 Electromagnetic Fields and Interference

Electromagnetic fields ("EMF") contain both electric and magnetic fields. Electric fields are forces that electric charges exert on other electric charges. Electric fields produced by voltage are measured in volts per meter ("V/m") or kilovolts per meter (1000 V/m or "kV/m"). Flow of current results in a magnetic field measured in gauss ("G") or milligauss ("mG"). While an electric field is easily shielded by conducting objects (including magnetic soil, trees, and buildings), a magnetic field is not easily weakened by most materials. There are several sources of EMF in common items that are used every day. See **Table 6** for the common sources of magnetic fields and the EMF intensity they can generate.

Table 6: Common Sources of Magnetic Fields (mG)

Sources*	**Distance From Source (6 inches (mG))**	**Distance from Source (24 inches (mG))**
Microwave Oven	100-300	1-30
Dishwasher	10-100	2-7
Refrigerator	Ambient – 40	Ambient – 10
Fluorescent Light	20-100	Ambient – 8
Copy Machine	4-200	1-13
Drill	100-200	3-6

Source: NIEHS, 2002

*Different makes and models of appliances, tools, and/or fixtures will produce different levels of magnetic fields. These are generally accepted ranges.

The strength of EMF from transformers, capacitor banks, and substations decreases rapidly with distance. Typically, the EMF produced from a substation is indistinguishable from background beyond the fence. Generally, the strongest EMF around the outside of a substation is generated from the power lines connected to the substation (NIEHS, 2002), which for the Project would be buried below the ground. Table 7 depicts the strength of both electric and magnetic fields decreasing rapidly with distance from the source. Table 8 depicts the distance EMFs travel and the decrease in intensity for underground transmission lines.

Table 7: Typical US Magnetic Fields Levels Associated with Transmission Lines

Sources*	Usage	Typical Magnetic Field Measurement (mG) Maximum in ROW	Approximate Distance from Centerline – 50 feet (mG)	Approximate Distance from Centerline – 100 feet (mG)	Approximate Distance from Centerline – 200 feet (mG)
115 kV Overhead	Average	30	7	2	0.4
115 kV Overhead	Peak	63	14	4	0.9
230 kV Overhead	Average	58	20	7	1.8
230 kV Overhead	Peak	118	40	15	3.6
500 kV Overhead	Average	87	29	13	3.2
500 kV Overhead	Peak	183	62	27	6.7

Source: PSCW, 2017

Table 8: Typical Magnetic Field Levels Associated with Underground Transmission Lines in the UK

Underground Transmission Lines Voltage	Details	Load	Maximum in ROW (mG)	Approximate Distance from Centerline – 16 feet (mG)	Approximate Distance from Centerline – 33 feet (mG)	Approximate Distance from Centerline – 66 feet (mG)
132 kV	Single cable buried 1-meter below the surface	Typical	50	17.8	9.4	4.7
275 kV	Direct buried with 0.5-meter spacing and 0.9-meter deep	Typical	241	33	9	2.3
275 kV	Direct buried with 0.5-meter spacing and 0.9-meter deep	Maximum	962	131	36	9.2

Source: PSCW, 2017

3.11.1.1 Affected Environment

The Proposed Action Alternative is located within the City of Clay Center; however, it is characterized as rural in nature. The nearest residential structure is located immediately adjacent to the project's northern boundary. An existing overhead electrical powerline parallels West Lincoln Avenue approximately 200 feet north of the project boundary.

Because a correlation between EMF exposures and public health hazards has not been established, Federal and most state health regulatory agencies have determined not to set numeric exposure limits for EMFs. An American organization, the International Commission of Electromagnetic Safety/Institute of Electrical and Electronics Engineers, publishes exposure limits including an exposure limit of 2,000 mG or 5 kV/m (TasNetworks, 2023). The State of Kansas does not have an exposure limit to EMFs.

3.11.1.2 Environmental Consequences

Proposed Action Alternative:

The Proposed Action Alternative would not include overhead high-voltage electric transmission lines, substations, cell, or microwave towers. The current scientific literature suggests that electromagnetic fields that are generated from similar solar facilities operate below acceptable exposure levels, with the highest EMFs present at three (3) feet of distance from the inverter units used. The proposed solar array for this Project is located over 1,000 feet from the nearest occupied residence and a security fence would be installed around the perimeter of the property to prevent unauthorized access on the Property. As a result, the Project would have no impact to human health and safety because of EMFs.

No Action Alternative:

Under the No Action Alternative, no change to EMF exposure would occur.

3.11.2 Environmental Risk Management

Environmental risk management informs Agency staff on the proper procedures for environmental due diligence relating to hazardous substances, hazardous wastes, and petroleum waste products. If properly conducted, environmental risk management proactively recognizes potential hazards and legal and financial vulnerabilities associated with the major hazardous materials, federal and state laws, as well as possible hazards to the human environment in compliance with NEPA.

3.11.2.1 Affected Environment

Environmental due diligence is the process of inquiring into the environmental condition of real property to determine the potential for contamination and/or recognized environmental conditions ("REC"). An onsite investigation of the Assessment Area was conducted on January 31, 2024, to fulfill the requirements for a Phase I Environmental Site Assessment ("ESA"). The findings from the on-site investigation and database research were summarized in a Phase I ESA report dated March 19, 2024. The Phase I ESA report was performed in accordance with the procedures

included in American Society for Testing and Materials ("ASTM") E-1527-21, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. The Phase I ESA report has been submitted separately from this document.

3.11.2.2 Environmental Consequences

The assessment revealed no RECs associated with the Assessment Area. Based on the information obtained from the Phase I ESA investigation, the report concluded that further Environmental Site Assessment (Phase II) is unwarranted. Phase I ESAs are valid for 180 days. An update to the Phase I ESA would be required prior to project commencement.

Proposed Action Alternative:

Under the Proposed Action Alternative, no change to human health and safety would occur.

No Action Alternative:

Under the No Action Alternative, no change to human health and safety would occur.

3.11.2.3 Mitigation

Waste generation would be managed in accordance with Federal, State, and Local regulations. Safety at the Project would be managed by strict adherence to OSHA requirements. Procedures in an emergency response plan would include management efforts, a Hazardous Operations Manual, and Spill Control and Countermeasures ("SPCC") plans designed to protect workers and the public from exposure to hazards.

3.11.3 Reflectivity, Glare, or Dazzle

Reflectivity refers to light that is reflected off surfaces. The potential effects of reflectivity are glint, glare, or dazzle, which can cause a brief loss of vision. According to the Federal Aviation Authority ("FAA"), solar energy projects introduce new visual surfaces to the airport setting, where reflectivity could result in glare that cause flash blindness episodes for pilots and air traffic controllers (Federal Aviation Authority FAA Issues Policy on Solar Projects on Airports, 2021).

3.11.3.1 Affected Environment

The Assessment Area is located in an urban area approximately 1.0 mile southeast of Clay Center Municipal Airport. This airport does not contain air traffic controllers and is primarily used for small recreational aircraft and light commercial aircraft such as crop-dusters.

3.11.3.2 Environmental Consequences

Proposed Action Alternative:

The amount of reflectivity varies among solar technologies with the majority of manufacturers utilizing anti-reflective coatings to reduce the glare. Additionally, due the distance of identified airports in proximity to the Assessment Area (e.g., Clay Center Municipal Airport is approximately one (1) mile from the Assessment Area), glint, glare, and dazzle should not be a concern to aviation (pilots) with the implementation of the Project.

No Action Alternative:

Under the No Action Alternative, the area would remain in agricultural production. No glint, glare or dazzle would occur. Therefore, no effects would be anticipated.

3.11.3.3 Mitigation

The Project would reduce reflectivity by utilizing PV panels, which are primarily absorptive compared to concentrated solar power technologies. Lastly, the Project does not include lighting; therefore, the Project would not result in light exposure or result in light pollution or glare.

4.0 CUMULATIVE EFFECTS

Construction of the Project is anticipated to last four to six months. After construction, the Project is expected to operate for 35 years. After decommissioning the Project, KPP Energy would reclaim the Project Area. The temporal scale for cumulative effects is 36 years to account for the construction and operation periods.

The purpose of the Cumulative Effects Analysis is to assess if the Proposed Action Alternative would have significant effects on resources in combination with other past, present, or foreseeable future actions. All resource effects would be combined with the resources and actions in the area of similar geographic effects to the human environment.

The overall impact of this Project on the local environment involves the disturbance of the agricultural lands, soils, and vegetation. The grading of the landscape and removal/re-distribution of the soils is the most vulnerable stage of the Project and would be associated with primarily negative environmental effects such as surface water runoff increasing alongside erosion potential and encroachment of invasive plant species. However, these effects would be temporary and long-term effects can be avoided with the planting of a native seed mix beneath the panels to hold the soil in place and redevelop the soil profile as root matrices grow. The result would be increased water infiltration and competition with invasive species as well as the revitalization of soil bio-chemical nutrient cycles and horizon development. By the end of the project lifespan soil health would be expected to be similar to or better than existing conditions.

4.1 Future Projects

Desktop research of potential past, present, and future actions in the vicinity of the Proposed Action Alternative was completed. Resources reviewed included:

- City of Clay Center Website: www.cityofclaycenter.com
- City of Clay Center Legal Notices and Publications
- City of Clay Center City Council Minutes

There are no known developments proposed in the City of Clay Center.

4.2 Cumulative Effects Analysis

The cumulative effects analysis includes actions that meet the following criteria:

- The action would potentially effect a resource potentially affected by the Proposed Action Alternative.
- The action causes effects within all or parts of the same geographic scope of the Proposed Action Alternative.
- The action causes effects within all or part of the temporal scope for the potential effects from the Proposed Action Alternative.

The Proposed Action Alternative is not expected to have significant effects to land use, floodplains, wetlands, water resources, biological resources, cultural and historic properties and cultural resources, aesthetics, air quality, socioeconomics/environmental justice, noise, transportation, health and safety, corridors, or soils. Effects to the resources analyzed in Section 3 would mostly be localized to the Assessment Area, with most of the effects occurring during the four to six month project construction period.

As stated in Section 4.1, there are no known development projects in the City of Clay Center and therefore would have no cumulative effects associated with the Proposed Action Alternative. However, a future development within the City of Clay Center is a possibility. A review of possible unexpected developments is included per resource section below.

4.2.1 Land Use

The surrounding area is mostly agricultural and undeveloped with a few rural residential lots. Other land uses include agricultural buildings (e.g., equipment storage and grain silos) and the City of Clay Center's water treatment plant, both of which are not likely to change significantly over the life of the Project. It is possible the development of the Proposed Action Alternative could spur additional solar development in the area over time. However, given the Kansas Emission Reduction and Mitigation Plan (KDHE, 2024), additional solar development in the region is likely regardless of the development of the Proposed Action Alternative. It is assumed other projects would result in similar land use changes in the vicinity. Therefore, the activities associated with the Proposed Action Alternative could have a minor cumulative effect on land use including prime

farmlands in the vicinity when combined with other reasonably foreseeable planned and approved development actions.

4.2.2 Floodplains

Based on the Proposed Action Alternative's site plan, no permanent structures would be placed in a 100-year (1.0%) or 500-year (0.2%) floodplains. Structures and the solar panels would be outside the flood zone. Facilities would be decommissioned following the useful life of the solar facility. Other planned and approved development projects in the area also would be expected to adhere flood standards and regulations. As a result, no cumulative effects on floodplains and flooding would be expected from the construction of the Proposed Action Alternative when combined with other reasonably foreseeable actions in the vicinity.

4.2.3 Wetlands

The Proposed Action Alternative was designed to avoid effects to wetland features. It is assumed that other projects in the area would also comply with Federal, state, and local regulatory requirements to avoid or minimize wetland effects for actions subject to regulatory requirements. The potential construction of additional developments in the area may add to incremental loss of wetlands but it is expected that the effects to wetlands during the construction of other projects would be permitted and the cumulative effects would be mitigated, as necessary, under applicable Federal, state, and local requirements and carried out in accordance with applicable construction permits. As a result, minor adverse cumulative effects to wetlands could be expected from the construction of the Proposed Action Alternative when combined with other reasonably foreseeable actions in the vicinity, but would be mitigated according to Federal, state, and local regulatory requirements.

4.2.4 Water Resources

Adherence to regulatory requirements during construction and operation of the Proposed Action Alternative and other reasonably foreseeable projects would have no effects to surface or groundwater quality. Implementation and adherence to BMPs and other measures employed by all reasonably foreseeable projects is expected to result in short-term negligible effects to water resources during construction and decommissioning, and long-term negligible effects to surface water during operations in their immediate vicinities. The Proposed Action Alternative would have no effects on surface water, groundwater storage reduction, drawdown, subsidence, or yield. Any unforeseen cumulative effects to surface water or groundwater from the construction of the Proposed Action Alternative when combined with other reasonably foreseeable planned and approved development actions in the vicinity, would be mitigated according to Federal, state, and local regulatory requirements.

4.2.5 Biological Resources

4.2.5.1 Threatened and Endangered Species, Other Protected Species, and Wildlife

The Proposed Action Alternative would not contribute to habitat loss from present and reasonably foreseeable project trends and actions. Project-related disturbance would be temporary and the potential for an increase in pollinator habitat is possible with the change in vegetation composition from row crop agriculture to native permanent vegetation. As detailed in Sections 3.5.2, 3.5.3, and 3.5.4, no effects to threatened or endangered species or other protected species are anticipated with the implementation of the Proposed Action Alternative. Consequently, the Proposed Action Alternative would not be anticipated to result in cumulative effects to threatened and endangered species or other protected species when combined with reasonably foreseeable, but unplanned, actions in the vicinity.

4.2.5.2 Vegetation and Invasive Species

Cumulative effects to vegetation from the Proposed Action Alternative could occur where other existing and reasonably foreseeable trends and actions occur within the proposed area. Current conditions in the project vicinity are disturbed row crop agricultural ground which consists of disturbed ground and annual crop rotations. Reasonably foreseeable future actions in the Proposed Action Alternative Assessment Area could result in altered species composition; however, with the implementation of a native pollinator seed mix designed for solar application, an increase in the number of plant species and relative frequencies of occurrence for some plants and thus an increase in overall plant diversity may occur. Agricultural land would represent the largest vegetation community affected by implementation of the Proposed Action Alternative. The Proposed Action Alternative could also influence factors affecting vegetation growth (e.g., revegetation, root formation, exposure to spills, and watering via dust abatement) and invasive species and noxious weed encroachment. However, BMPs and design features would be applied to minimize adverse effects associated with vegetation and the introduction of invasive species. The Proposed Action Alternative may be decommissioned, and the row crop agricultural conditions would be restored following the useful life of the solar facility. Therefore, the Proposed Action Alternative when combined with other present and reasonably foreseeable actions in the vicinity would have a negligible cumulative effect on vegetation.

4.2.6 Historic and Cultural Resources

The Proposed Action Alternative would have no adverse effect on NRHP-eligible resources in the AFE. The specific effects of the reasonably foreseeable projects on NRHP-eligible resources is unknown; however, it is assumed that effects to such resources would be avoided to the extent practicable and that appropriate mitigation would be implemented if effects cannot be avoided. Therefore, the Proposed Action Alternative when combined with other present and reasonably foreseeable actions in the vicinity would not be expected to contribute to cumulative effects to historic and/or cultural resources.

4.2.7 Aesthetics/Visual Resources

The PV arrays associated with the Proposed Action Alternative would be limited in height and would have no effect on the surrounding aesthetics and/or visual resources of the landscape. Further, the reasonably foreseeable additional solar development that may be spurred by this project, provided the PV arrays are constructed in a similar fashion, should also have no effect on the surrounding aesthetics and/or visual resources of the landscape.

4.2.8 Air Quality

Construction and decommissioning activities associated with the Proposed Action Alternative, as well as with the reasonably foreseeable projects, would result in a temporary increase in criteria pollutant and ozone precursor emissions in the form of both fugitive dust from ground disturbing activities and exhaust emissions from the use of construction equipment and operation of worker vehicles and vendor and haul trucks. With the implementation of BMPs to control emission and any mitigation measures as needed, cumulative effects on air quality or climate in association with construction and decommissioning of the Proposed Action Alternative in conjunction with the construction of other projects would have no effect on the overall air quality or climate for the area.

4.2.9 Socioeconomics and Environmental Justice

The direct effects to the economy associated with the Proposed Action Alternative would be expected to be minor, and beneficial long-term. The development of other planned and approved projects would be expected to have similar minor to moderate beneficial effects on the local economy depending on the size and type of project. Therefore, the Proposed Action Alternative would be anticipated to contribute minor cumulative beneficial effects and long-term beneficial socioeconomic effects to the local economy when combined with reasonably foreseeable planned and approved actions in the vicinity. There would not be disproportionately high and adverse environmental or economic effects on minority or low-income populations. Given the absence of any foreseeable projects the Proposed Action Alternative would not result in more than negligible cumulative effects to the environmental justice communities.

4.2.10 Noise

If construction of the Proposed Action Alternative overlaps construction of any unanticipated future projects in the vicinity, it is possible they may contribute to a temporary, cumulative increase in noise if construction vehicles utilize some of the same roadways. This impact would be minor and temporary. Operational noise is not anticipated at the facility that would coincide with other planned and approved projects in the immediate vicinity of the proposed Project. Therefore, the Proposed Action Alternative would not be anticipated to result in more than minor contributions to cumulative noise effects when combined with reasonably foreseeable actions in the vicinity.

4.2.11 Transportation and Traffic

It is not anticipated that project-related traffic would coincide with that from other unanticipated future projects in the immediate vicinity of Proposed Action Alternative. With mitigation, the resulting long-term transportation related effects associated with operation of the Proposed Action Alternative would be negligible. Therefore, the Proposed Action Alternative would not be anticipated to result in more than minor contributions to cumulative effects to transportation when combined with reasonably foreseeable actions in the vicinity.

4.2.12 Electromagnetic Fields

There are currently no other known PV arrays planned for the project vicinity. The Proposed Action Alternative may indirectly spur additional construction of solar arrays in the future. It is also assumed that the additional projects would be situated away from residential developments and the electromagnetic fields and interference would be evaluated; therefore, the potential for electromagnetic fields and interference effects would be minimal. For these reasons, the Proposed Action Alternative is anticipated to make a negligible contribution to cumulative effects from electromagnetic fields and interference.

4.2.13 Environmental Risk Management

Because the Proposed Action Alternative includes property used for agricultural purposes, residual pesticides may remain in shallow soils. Similar conditions could be present at other planned and approved project sites. Public and worker health and safety hazards during construction and decommissioning activities would have an increased safety risk, which would be mitigated through implementation of health and safety plans, BMPs, and adherence to OSHA regulations. It is assumed that other reasonably foreseeable projects in the vicinity would employ similar measures to mitigate health and safety risks. Minimal human health or safety hazards would be anticipated because of the Proposed Action Alternative's operations. Overall, effects to human health and safety in association with implementation of the Proposed Action Alternative would be short-term, occurring only when workers are present and working at the site, and would be minor. Therefore, the Proposed Action Alternative would not be anticipated to result in more than minor contributions to overall health and human safety.

Under the Proposed Action, the Project would have both short-term (temporary) and long-term direct effects – these effects would be expected to be minor, insignificant, and would unlikely contribute to cumulative effects.

4.3 Summary of Environmental Effects

Because the Proposed Action Alternative includes property used for agricultural purposes, residual pesticides may remain in shallow soils. Similar conditions could be present at other planned and approved project sites. Public and worker health and safety hazards during construction and decommissioning activities would have an increased safety risk which would be mitigated through implementation of health and safety plans, BMPs, and adherence to OSHA regulations. It is assumed that other reasonably foreseeable projects in the vicinity would employ similar measures

to mitigate health and safety risks. Minimal human health or safety hazards would be anticipated because of the Proposed Action Alternative operations. Overall, effects to human health and safety in association with implementation of the Proposed Action Alternative would be short-term, occurring only when workers are present and working at the site, and would be minor. Therefore, the Proposed Action Alternative is not anticipated to result in more than minor contributions to overall health and human safety.

Table 9 provides a summary of potential environmental effects associated with the implementation of the Project.

Table 9: Summary of Environmental Effects

Resource	Determination of Effect for the Proposed Action Alternative
General Land Use	Land use would change from agricultural cropland to a renewable energy facility; however, the land use conversion would result in no significant adverse effects. Landownership and zoning would not change.
Important Farmland	Approximately 18.44 acres of Prime Farmland would be converted to non-agricultural use; however, the Assessment Area is within the city limits for Clay Center, Kansas which results in an exemption status – results in no adverse effect.
Formally Classified Lands	The Project would occur within land owned by the municipality, all components of the Project would be approved by the city council – resulting in no effect.
Floodplains	The Project would not be located in a SFHA and would not result in effects that would increase the 100-year or 500-year flood elevation or present barriers to floodway passage.
Wetlands	Wetlands are not present within the Assessment Area – results in no effect.
Water Resources	The Project would not result in significant adverse effects to water resources; however, necessary stormwater and erosion controls would be utilized during construction to minimize the potential for runoff and siltation and effects to a WHPA.
Coastal Resources	Coastal resources are not present within the Assessment Area – results in no effect.
Biological Resources – General Biological Resources	The Project would not result in significant adverse effects due to minimal impervious surfaces being designed, minor vegetation clearing, and the limited use of water.
Biological Resources – Listed Threatened and Endangered Species	The Project would not result in adverse effects to listed threatened or endangered species based on the lack of suitable habitat and protected species' requirements. Additionally, no designated critical habitat for listed species occurs within the Assessment Area nor would critical habitat be affected by the Project.
Biological Resources – Migratory Birds	The Project would not result in significant adverse effects to migratory birds due to the lack of suitable habitat for the species. Construction is limited to timeframes when migratory birds are not present, otherwise, a qualified wildlife biologist would be employed to identify nest potential or presence of migratory birds.
Biological Resources – Bald and Golden Eagles	The Project would not result in significant adverse effects to Bald or Golden Eagles based on the lack of suitable habitat for the species.

Resource	Determination of Effect for the Proposed Action Alternative
Biological Resources – Invasive Species	The Project would not result in significant adverse effects due to the routine maintenance of the Assessment Area and the lack of opportunity for establishment of invasive species.
Historic and Cultural Resources	Field assessment for the Project and consultation with the Kansas SHPO and interested Tribes was performed. Based on the findings, there is no effects to historic properties for the project. The Kansas SHPO and the Osage Nation concurred with the findings.
Aesthetics/Visual Resources	A change in the visual character of the Assessment Area would occur; however, the change would not result in a significant adverse effect given the estimated height of the array and lack of public views or scenic areas.
Air Quality	The Project would result in temporary effects during construction (i.e., fugitive dust); however, would result in no significant adverse effects long-term.
Socioeconomics and Environmental Justice	The Proposed Project would not result in significant adverse effects to low income or minority populations.
Noise	The Project would result in temporary effects from noise during construction but would result in no significant adverse effects long-term. Short-term effects from noise would adhere to OSHA regulations.
Transportation and Traffic	The Project would result in temporary effects to traffic during construction but would result in no significant adverse cumulative effects to transportation or traffic long-term.
Electromagnetic Fields	The Project is anticipated to make a negligible contribution to cumulative effects from electromagnetic fields and interference.
Human Health and Safety	The Project would not result in significant adverse cumulative effects to human health and safety.
Reflectivity, Glare, or Dazzle	The Project would make a negligible contribution to cumulative effects from reflectivity, glare, or dazzle.

5.0 SUMMARY OF MITIGATION

Table 11 summarizes the mitigation measures identified in the various resource sections of this EA.

Table 11: Mitigation for the Proposed Action

Resource	Mitigation Measure
Land Use, Important Farmlands, and Formally Classified Lands	None
Floodplains	None
Wetlands	KPP Energy would prepare a SWPPP and install BMPs as required for construction activities. All BMPs would be installed prior to soil disturbing activities.
Water Resources	KPP Energy would prepare a SWPPP and install BMPs as required for construction activities. All BMPs would be installed prior to soil disturbing activities.
Coastal Resources	None
Biological Resources	Industry-accepted best management practices would be implemented to prevent birds from colliding with or being electrocuted by utility lines and poles would be adopted,

	as appropriate. Low reflective PV panels would be incorporated to minimize bird strikes. The construction and operation of the Project would comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of the contractor, the contractor would immediately report this evidence to KPP Energy and a representative of the Agency. Construction shall be temporarily halted pending the notification process and further directions issued by the Agency after consultation with the USFWS. If possible, minor vegetation clearing would be performed outside the peak migratory bird breeding/nesting period (May 1-July 1) to avoid effects to nesting birds. If vegetation clearing activities cannot be avoided during this period, KPP Energy would conduct pre-clearance surveys of the site. If a field survey identifies one or more active bird nest, appropriate measures would be taken to avoid incidental take, including establishing an avoidance buffer until the young have fledged. If an active nest is identified that cannot be avoided, KPP Energy would consult with the Kansas Department of Wildlife and Parks and the USFWS to determine an appropriate course of action. If it is determined that the Proposed Action resulted in the introduction of invasive species at the Project, KPP Energy would develop an appropriate weed management plan(s) in keeping with any relevant Kansas policies to prevent invasive species from becoming established.
Historic and Cultural Resources	The Cheyenne and Arapaho Tribes of Oklahoma, Kaw Nation of Oklahoma, Osage Nation, Pawnee Nation of Oklahoma, and Wichita and Affiliated Tribes (Wichita, Keechi, Waco & Tawakonie) of Oklahoma would be notified if any inadvertent discoveries are made during project activities.
Aesthetics/Visual Resources	None
Air Quality	KPP Energy would implement fugitive dust control measures, including watering, during construction of the Proposed Action, and all construction equipment would be maintained in accordance with manufacturer's instructions. No emissions are anticipated during operation of the Proposed Action Alternative.
Socioeconomics and Environmental Justice	None
Noise	Construction-related noise effects would be mitigated as much as practical to minimize nighttime noise effects by limiting noise-generating activities to the hours between 6:00 a.m. and 6:00 p.m. depending on the time of year and taking into consideration construction-related safety considerations.
Transportation and Traffic	KPP Energy would coordinate with the City of Clay Center and Clay County, as needed, to ensure the existing traffic control infrastructure can support construction of the Proposed Action, and to coordinate access to the Project site to minimize traffic effects during construction.
Environmental Risk Management	Waste generation would be managed in accordance with Federal, State, and Local regulations. Safety at the Project would be managed by strict adherence to OSHA requirements. Procedures in an emergency response plan would include management efforts, a Hazardous Operations Manual, and Spill Control and Countermeasures ("SPCC") plans designed to protect workers and the public from exposure to hazards.
Reflectivity, Glare, or Dazzle	Low glare PV panels would be incorporated into the site design.

6.0 COORDINATION, CONSULTATION, AND CORRESPONDENCE

6.1 State Historic Preservation Office Consultation

The Kansas Historical Society received the initial notification of the proposed Project and the final NHPA Section 106 Archaeological and Historical Reports for review and comment.

6.2 Tribal Consultation

The following Tribes received initial notification of the proposed Project and the final NHPA Section 106 Archaeological and Historical Reports for their review and comment:

- Cheyenne and Arapaho Tribes of Oklahoma,
- Kaw Nation of Oklahoma,
- Osage Nation,
- Pawnee Nation of Oklahoma, and
- Wichita and Affiliated Tribes (Wichita, Keechi, Waco & Tawakonie) of Oklahoma

6.3 Other Agency Consultation

The preparation of this Draft EA resulted in consultation with the following Agencies and Agency websites:

- Clay County Tax Assessor
- NRCS Web Soil Survey
- USGS Protected Lands Map
- National Wild and Scenic Rivers Map
- National Park Service Nationwide Rivers Inventory Map
- FEMA Floodplain Map
- USFWS NWI Map
- EPA NEPAssist
- EPA SSA Map
- EPA Ecoregions – Level III and Level IV
- USFWS IPaC
- National Register of Historic Places
- National Historic Landmarks
- Kansas Historical Society – State Historic Preservation Office
- HUD TDAT and the following Tribes:
    - Cheyenne and Arapaho Tribes of Oklahoma,
    - Kaw Nation of Oklahoma
    - Osage Nation,
    - Pawnee Nation of Oklahoma, and
    - Wichita and Affiliated Tribes (Wichita, Keechi, Waco & Tawakonie) of Oklahoma
- EPA Green Book
- Environmental Justice Screening and Mapping Tool

- US Census Bureau Data
- Coastal Zone Management Agency Map
- Coastal Barrier Resource Systems Map
- KDOT – Average Daily Traffic Counts
- Federal Aviation Administration

6.4 Public Involvement

The public notice for the Draft EA will be made available in the Clay Center Dispatch for a 3-day review and 14-day comment period.

7.0 LIST OF PREPARERS

The following is a listing of RUS and consultant staff responsible for the preparation of this EA.

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