Environmental Assessment

Liberty Reciprocating Internal Combustion Engine Project
Casey County, Kentucky

U.S Department of Agriculture Rural Utilities Service

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List of Abbreviations

Abbreviation	Term/Phrase/Name
AADT	average annual daily travel
ACHP	Advisory Council on Historic Preservation
ACSR	Aluminum Conductor Steel Reinforced
ACS	American Community Survey
APE	area of potential effect
BACT	Best Available Control Technology
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
dBA	A weighted decibel
EA	environmental assessment
EKPC	Eastern Kentucky Power Cooperative
EMF	electromagnetic field
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
°F	degrees Fahrenheit
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
FPPA	Farmland Protection Policy Act
FR	Federal Register
GHG	greenhouse gas
GWP	global warming potential
HAP	hazardous air pollutant
HFC	hydrofluorocarbon

Abbreviation	Term/Phrase/Name
IPaC	Information for Planning and Consultation
IRP	Integrated Resource Plan
IWG	Interagency Working Group
KAR	Kentucky Administrative Regulation
KDAQ	Kentucky Division for Air Quality
KDFWR	Kentucky Department of Wildlife Resources
KDOA	Kentucky Department of Aviation
KDOW	Kentucky Division of Water
KGS	Kentucky Geological Survey
KHC	Kentucky Heritage Council
KPDES	Kentucky Pollutant Discharge Elimination System
KRS	Kentucky Revised Statutes
kV	kilovolt
KY 49	Kentucky Route 49
KYR10	Kentucky Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction Activities
LESA	Land Evaluation and Site Assessment
µg/m^3	microgram per cubic meter
MACT	Maximum Achievable Control Technology
MCM	thousands of circular mils
MMBtu/hr	million British thermal units per hour
MMBtu/yr	million British thermal units per year
MRLC	Multi-Resolution Land Characteristics
MW	megawatt
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NESHAP	National Emission Standards for Hazardous Air Pollutants
NETL	National Energy Technology Laboratory
NHD	National Hydrography Dataset
NO_2	nitrogen dioxide
NO_x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resources Conservation Service

Abbreviation	Term/Phrase/Name
NRHP	National Register of Historic Places
NSPS	New Source Performance Standards
NWI	National Wetlands Inventory
NWP	Nationwide Permit
OSA	Office of State Archaeology
OSHA	Occupational Safety and Health Administration
PAD-US	Protected Areas Database of the U.S.
Pb	lead
PCN	pre-construction notification
PFC	perfluorocarbon
PM	particulate matter
PM_{10}	particulate matter 10 microns or less in diameter
$PM_{2.5}$	particulate matter 2.5 microns or less in diameter
PPA	power purchase agreement
Project	Liberty Reciprocating Internal Combustion Engine Project
Project Area	Reciprocating Internal Combustion Engine Plant Site and transmission line rebuild and upgrade ROWs
Project Site	Reciprocating Internal Combustion Engine Plant Site
PSC	Public Service Commission
PSD	Prevention of Significant Deterioration
PUB	palustrine unconsolidated bottom
RICE	Reciprocating Internal Combustion Engines
ROW	right-of-way
RUS	Rural Utilities Service
SC-CH_4	social cost of methane
SC-CO_2	social cost of carbon dioxide
SC-GHG	social cost of greenhouse gas
SC-N_2O	social cost of nitrous oxide
SCR	selective catalytic reduction
SER	Significant Emission Rate
SF_6	sulfur hexafluoride
SHPO	State Historic Preservation Office
SIL	Significant Impact Level
SO_2	sulfur dioxide

Abbreviation	Term/Phrase/Name
SSURGO	Soil Survey Geographic
SWPPP	Stormwater Pollution Prevention Plan
THPO	Tribal Historic Preservation Officer
tpy	tons per year
U.S.	United States
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compound
WOTUS	Waters of the United States
WQC	Water Quality Certification

1.0 Introduction

East Kentucky Power Cooperative (EKPC) is a not-for-profit, rural electric cooperative corporation established under Kentucky Revised Statutes (KRS) Chapter 279 with its headquarters in Winchester, Kentucky. EKPC provides electric generation capacity and electric energy to its sixteen (16) Owner-Member Cooperatives (owner-members), which in turn serve over 570,000 Kentucky homes, farms, commercial and industrial establishments in eighty-nine (89) Kentucky counties.

1.1 Project Description

1.1.1 Proposed Action

EKPC is requesting financing assistance from the United States (U.S.) Department of Agriculture (USDA), Rural Utilities Service (RUS) to construct and operate the Liberty Reciprocating Internal Combustion Engine Project (Project) in Casey and Marion Counties, Kentucky. The Project would include construction and operation of an approximately 214-megawatt (MW) net reciprocating engine power plant, a new asset that is necessary to meet projected load demand and support the integration of increased amounts of intermittent renewable energy generation on the EKPC system. Twelve (12) individual 18-MW Reciprocating Internal Combustion Engines (RICE), to include two 186-foot-tall stacks, would be constructed approximately 3.2 miles north of Liberty in Casey County, Kentucky (the "Project Site"). The new RICE engines would provide ramping and voltage support for new renewable energy generation using technology that reduces water usage and air emissions compared to conventional natural gas turbines. As greater amounts of intermittent resources are added to the system, EKPC needs resources that can quickly be ramped up or down to maintain appropriate system frequency as renewable resource power output fluctuates. The new generation source would also provide necessary voltage support, system reliability, and resiliency in this region of south-central Kentucky. The location of the 108-acre Project Site is shown in Figure 1-1, and a preliminary site layout of the power plant is shown in Figure 1-2. The 108-acre Project Site is currently agricultural land that EKPC would develop for the Project. Within the Project Site, approximately 43.0 acres would be permanently disturbed within the proposed fenced facility, 10 acres would be permanently disturbed within new permanent rights of way (ROW), 33.8 acres would be temporarily disturbed during construction, and 21.2 acres would be undisturbed (Figure 1-3). Also shown in the figure is the security fence that would be constructed around the permanent facilities.

The Proposed Action also includes upgrades to approximately 6.6 miles of existing electric transmission line, rebuild of approximately 7.6 miles of existing transmission line, and construction of 0.3 miles of new interconnection transmission line. Approximately 3.9 miles of transmission line upgrade and rebuild would occur approximately 1 mile northwest of Lebanon in Marion County, Kentucky. The remaining transmission line rebuilds and upgrades would occur in Casey County, Kentucky, extending northwest and southeast from the proposed power plant. The locations of the transmission line rebuilds and upgrades are shown in Figure 1-1. Figures that show greater detail of the transmission line rights of way (ROW) are included in Appendix A.

Operation of the proposed Liberty RICE facility would require installation of a new natural gas lateral pipeline, which would be constructed to supply fuel to the Project Site. The new 10-inch diameter pipeline would extend approximately 0.4 mile from the proposed RICE facility to a tap point on an existing natural gas pipeline owned and operated by Columbia Gulf Transmission, LLC, located approximately 530 feet southeast from the Project Site boundary (see Figure 1-2). The lateral pipeline would not be constructed, operated, and/or owned by EKPC;

however, the environmental impacts associated with this required component of the Project are analyzed within this Environmental Assessment (EA).

An existing 4-inch water pipeline that serves the local community would be upgraded to an 8-inch high-density polyethylene pipe. The new 8-inch water pipeline would tap into an existing water main owned and operated by the East Casey Water District, located approximately 0.1 mile east of the Project Site boundary along KY Route 49, and continue to serve the local community as well as the Project.

A new 161-kilovolt (kV) switching station ("South Casey County Switching Station") would be built on-site and looped into the Casey County-Liberty Junction 161-kV line via a new transmission line and associated facilities (0.3 mile). To support interconnection into the grid, EKPC is proposing the following transmission upgrades and rebuilds within Casey County and Marion County, Kentucky:

- Install Optical Ground Wire on the South Casey County-Casey County 161-kV line (5.7 miles).
- Increase the maximum conductor operating temperature of the 795 thousands of circular mils (MCM) Aluminum Conductor Steel Reinforced (ACSR) conductor in the Marion County-Marion County Industrial Park Tap 161-kV line to 212 degrees Fahrenheit (3.9 miles).
- Install an additional 161/138-kV, 200 MVA transformer at the Marion County substation.
- Increase the maximum conductor operating temperature of the 636 MCM ACSR conductor in the South Casey County-Casey County 161-kV line to 212 degrees F Fahrenheit.
- Rebuild the South Casey County-Liberty Junction 161-kV line using 795 MCM ACSR conductor (7.5 miles).
- Rebuild the Marion County-Lebanon 138-kV line using 795 MCM ACSR conductor (0.1 mile).

The transmission line upgrades and rebuilds would occur within EKPC's existing ROW width of 150 feet. Project impacts would be limited to the structure modification/installation locations within these areas of Marion and Casey Counties (Appendix A). Most of the line upgrades would only require modifications to the existing structures, while the line rebuilds would involve structure replacements in some locations. To reduce environmental impacts, EKPC would either replace structures at their existing location or relocate structures to avoid impacts to sensitive resources.

Figure 1-1: Liberty RICE Project Location

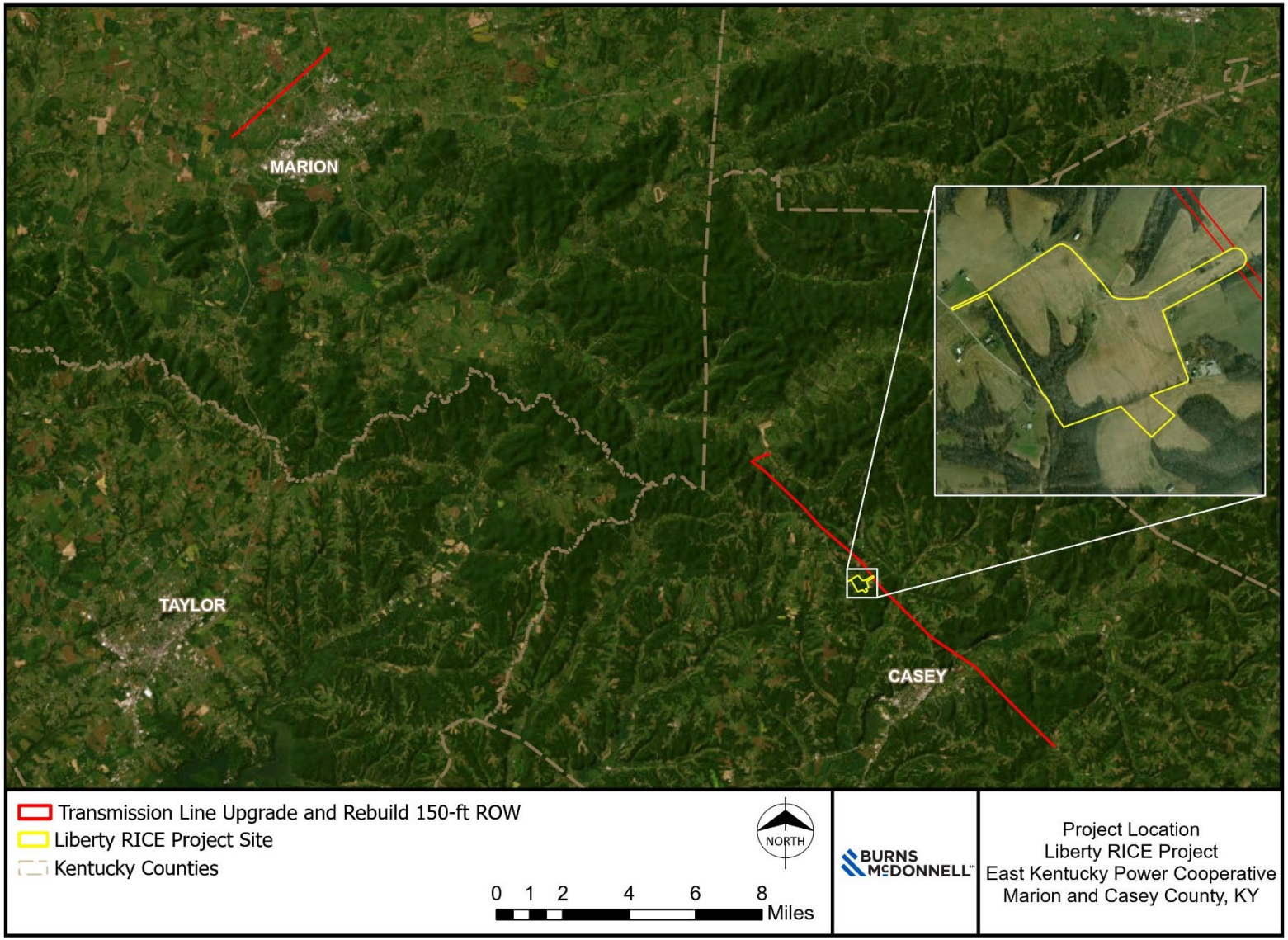


Figure 1-2: Proposed Project Site Layout

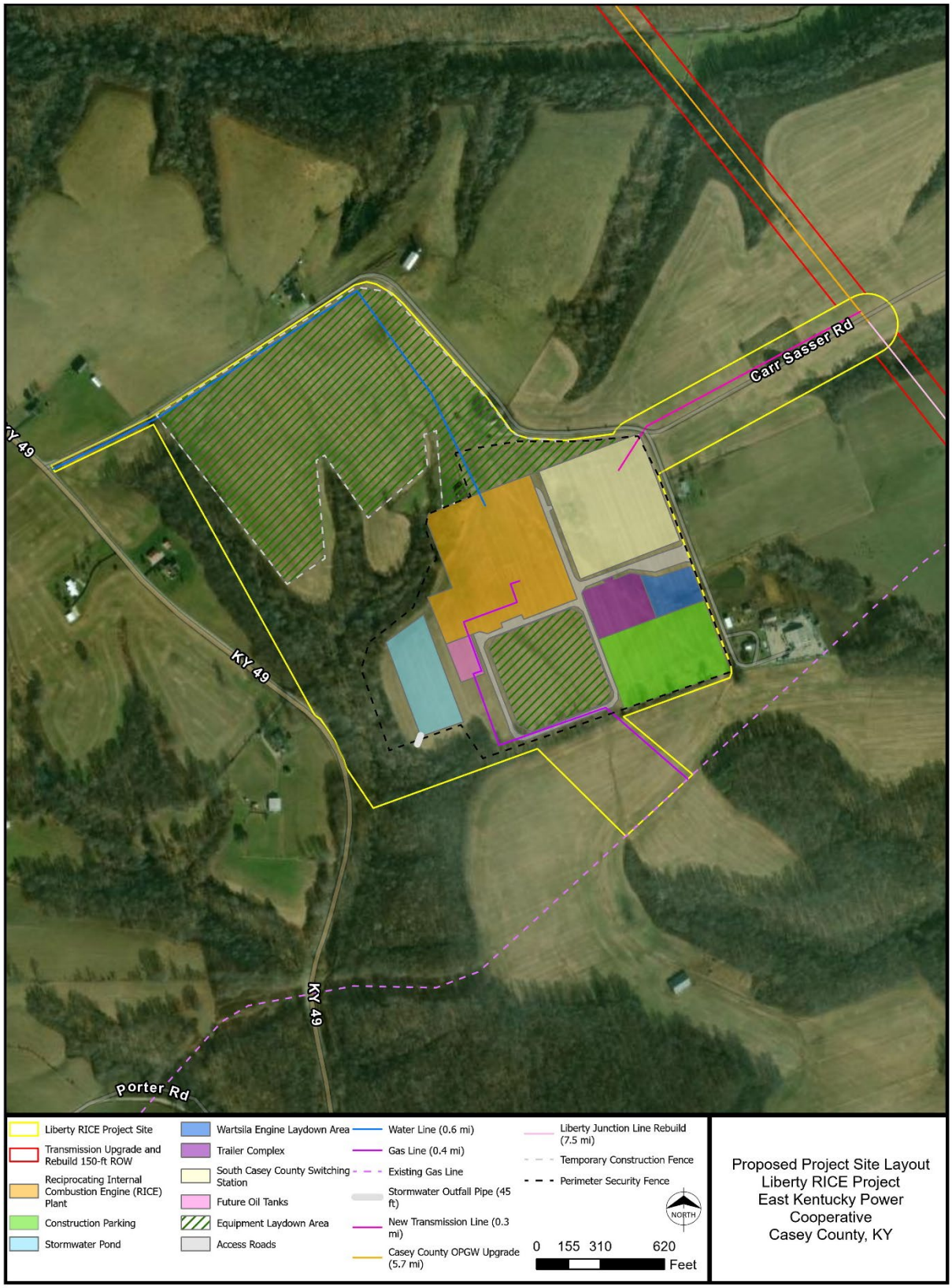
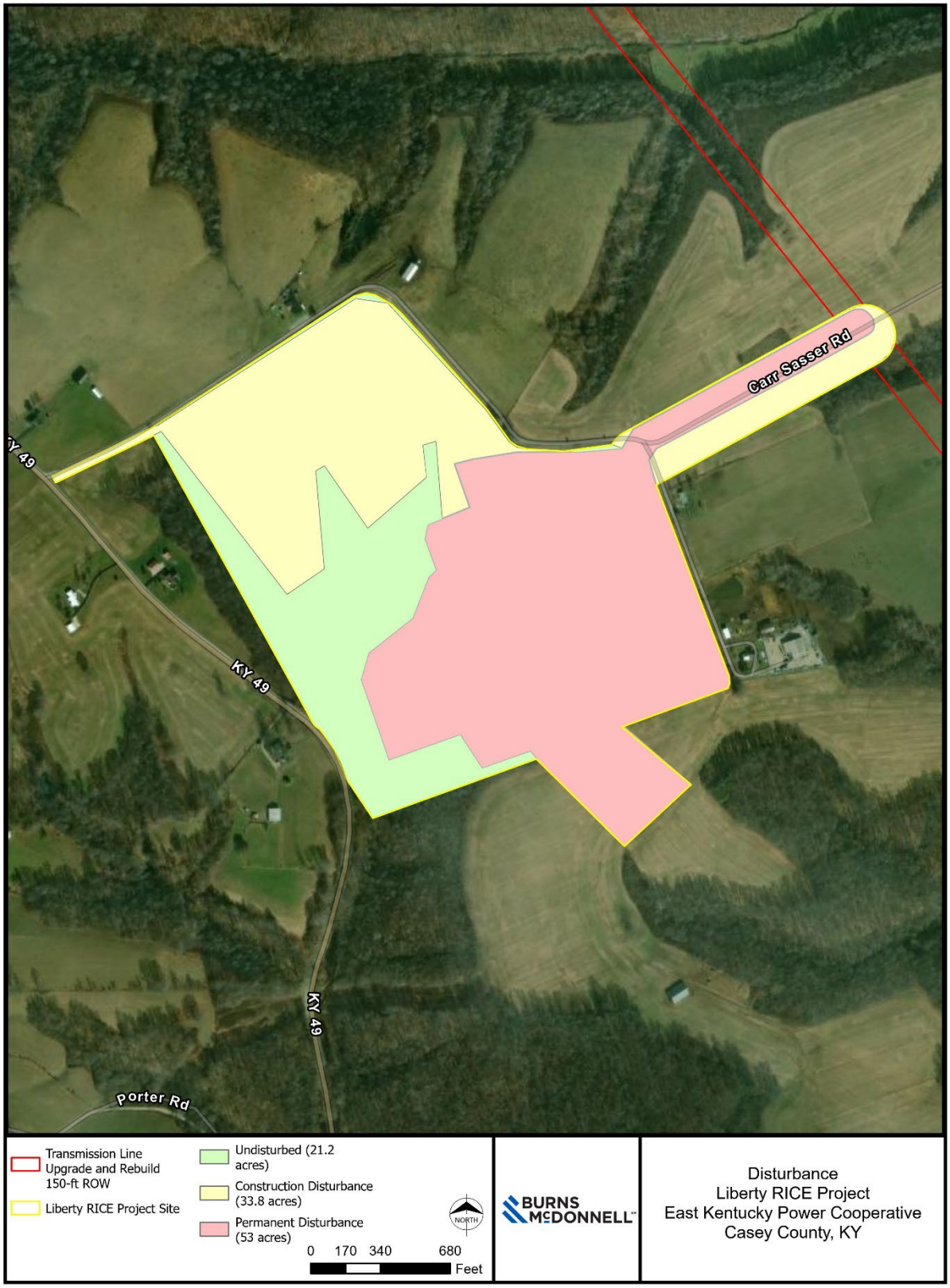


Figure 1-3: Disturbance



The Project would be constructed over a 24-month period. The total construction footprint for the Project including the Project Site and the new transmission, gas, and water line right-of-way easements is approximately 108 acres. Construction activities would also include equipment laydown, temporary offices, and parking.

The Proposed Action would require the following major new components:

- RICE facility
- Stormwater pond
- Fuel oil tanks, offload, and forwarding equipment
- Water tanks
- Electrical equipment for the plant including 161-kV switchyard
- Transmission upgrades to accommodate interconnection to the grid
- Fire protection
- Natural gas metering, filtering, and pressure regulating equipment
- Offices and trailer complex
- Permanent plant roads, lighting, fencing, and cameras

This EA was prepared in accordance with Title 7 of the Code of Federal Regulations (CFR) Part 3100 (7 CFR 3100), which prescribes the policies and procedures of the USDA for implementing the National Environmental Policy Act of 1969 (NEPA) (U.S.C. §§ 4321–4347), as amended; Title 7 CFR 1970, which provides environmental policies and procedures for the RUS; the Council on Environmental Quality, 40 CFR parts 1500 through 1508; and the USDA Rural Development guidance document 1970-C which serves as a guide for preparing EAs under NEPA.

1.1 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 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 to accomplish program objectives.

RUS's action is the decision to provide financing assistance for the Proposed Action through the Electric Infrastructure Loan & Loan Guarantee Program. Under the Rural Electrification Act of 1936, as amended, the Secretary of Agriculture is authorized and empowered to make loans to nonprofit cooperatives and others for rural electrification for the purpose of financing the construction and operation of generating plants, electric transmission and distribution lines, or systems for the furnishing and improving of electric service to persons in rural areas (7 U.S. Code [USC] § 904). A primary function or mission of RUS is to carry out the electric loan program (7 USC § 6942).

EKPC exists to serve its owner-members by safely delivering adequate, reliable, cost-competitive and sustainable energy. One of EKPC's strategic objectives is to actively manage its current and future asset portfolio to safely deliver reliable and sustainable energy from appropriately diversified resources at competitive prices, and to work with federal and state stakeholders to provide high reliability and economic viability while mitigating evolving regulatory challenges including possible carbon emissions reduction mandates and penalties. EKPC will accomplish this objective by actively managing its current and future asset portfolio to maintain high reliability of electric service to its owner-members and economically diversify its energy resources, including market purchases, fossil fuels, renewables, storage, demand management and energy efficiency programs, and partnering opportunities.

EKPC utilizes load forecasts as the basis to project future capacity needs and for evaluating resource planning requirements. Factors such as historical load data, weather data, economic growth indicators, population growth, technology, and policy and regulatory changes are evaluated in load forecasts to help predict future electricity demand. Kentucky statutes require all generation utilities in Kentucky to prepare and file an Integrated Resource Plan (IRP), with the Kentucky Public Service Commission (PSC) every three years. The IRP is a comprehensive document that outlines how the utility intends to meet future electricity demand in a reliable, cost-effective, and environmentally responsible manner.

In 2022, EKPC filed its most recent triennial IRP (2022 IRP)[1], which analyzed EKPC's forecasted load, capacity needs, and related issues over a fifteen-year period from 2022 through 2036. The 2022 IRP was based on EKPC's 2020 load forecast and indicated that EKPC's total energy requirement would increase by 1.1% per year over a fifteen-year period. The highest demand on the EKPC system occurs during winter months, in which the demand peak is roughly 1,000 MW higher than summer. EKPC plans its generation portfolio to meet the expected winter peaks and, in doing so, anticipates that summer peak demand will also be met.

EKPC completed a new Long-Term Load Forecast in 2024, which shows the base demand and energy projections are substantially increased compared to those used in the development of the 2022 IRP. Key drivers of the 2024 load forecast include native load growth, load growth attributed to economic development, and the addition of assumptions for electric vehicle penetration. EKPC's generation capacity needs were assessed within the 2025 through 2039 planning horizon and were used to develop EKPC's Capacity Expansion Plan. Based on the 2024 load forecast, the expansion plan indicates that EKPC is expected to be short approximately 200 MW of capacity beginning in the 2026/2027 winter period. EKPC conducted a detailed analysis to identify the preferred power supply plan to meet the identified need of approximately 200 MW in the Kentucky service area. This analysis identified the proposed Liberty RICE Facility detailed in this EA to meet EKPC's projected increase in capacity needs.

The 2022 IRP also defined solar energy as an economic resource for the system, which will diversify EKPCs' mix of generation assets. Solar generation provides low-cost energy during summer peak periods, with limited production during winter peak load periods. The addition of variable solar resources, both in EKPC's own generation portfolio and in the wholesale energy market, will create a need for quick-response generation assets. A RICE unit's ability to start in less than 10 minutes and quickly ramp up and down will assist in meeting this need. These assets serve as a backstop when the solar generation is not producing at times throughout the day due to rain, clouds, or other natural weather occurrences, or during the summer peak which occurs late in the afternoon and dusk, when solar generation is naturally being reduced due to the setting sun. EKPC's long-range project portfolio is focused on generation and transmission assets that are designed to support renewable project integration and energy efficiency efforts, increase the renewable energy mix in the generation portfolio and reduce system greenhouse gas (GHG) emissions. A key component of this plan is supporting the reliability and resiliency of the EKPC electric power system when accounting for increased capacity of intermittent renewable resources.

Reliable and affordable power is critical to EKPC's end users. Unprecedented changes to the bulk power system are causing documented reliability challenges, yet Kentucky's growing economy continues to increase the demand for power. In April 2024, the EPA finalized a comprehensive set of new, impactful environmental regulations targeting the power sector, including the Clean Air Act Section 111 Greenhouse Gas rule. The North American Electric Reliability Corporation (NERC) finds that the EPA regulations have the potential to exacerbate the sufficiency of electricity resources to meet demand (Institute for Energy Research, 2023). These emerging issues have converged to create substantial financial and reliability risks if EKPC does not act swiftly to retrofit and add to its generation

[1] Kentucky Public Service Commission filings for Case Number 2022-00098 available at https://psc.ky.gov/Case/ViewCaseFilings/2022-00098.

portfolio. Demand cannot be met with unhedged power purchases, which Kentucky PSC has determined do not meet a utility's legal obligation to provide adequate, efficient, and reasonable service (Kentucky PSC, 2024).

2.0 Alternatives

To determine if RUS can fund the Proposed Action, alternatives that meet the purpose and need should be considered. Several options were evaluated to meet the identified future capacity needs. The options that were evaluated but eliminated from consideration, the preferred alternative, and the no action alternative are discussed in more detail below.

2.1 Introduction

One of EKPC's strategic objectives is to maintain a generation fleet that prudently diversifies its fuel sources while maximizing the potential of its capital investments over their anticipated economic lifespan.

In total, EKPC owns and operates approximately 2,963 MW of net summer generating capacity and 3,265 MW of net winter generating capacity. EKPC owns and operates coal-fired generation at the John S. Cooper Station in Pulaski County, Kentucky (341 MW) and the Hugh L. Spurlock Station (1,346 MW) in Mason County, Kentucky. EKPC also owns and operates natural gas-fired generation at the J. K. Smith Station in Clark County, Kentucky [753 MW (summer)/989 MW (winter)] and the Bluegrass Generating Station in Oldham County, Kentucky [501 MW (summer)/567 MW (winter)]; landfill gas-to-energy facilities in Boone County, Greenup County, Hardin County, Pendleton County, and Barren County (13 MW total); Makers Mark Solar Generating Facility (0.5 MW) in Marion County, Kentucky; and a Community Solar facility (8.5 MW) in Clark County, Kentucky. Finally, EKPC purchases hydropower from the Southeastern Power Administration at Laurel Dam in Laurel County, Kentucky (70 MW), and the Cumberland River system of dams in Kentucky and Tennessee (100 MW). EKPC also has 200 MWs of interruptible load and approximately 26 MWs in peak reduction mechanisms. EKPC's record peak demand of 3,754 MW occurred on January 17, 2024.

EKPC conducted detailed analysis and held internal discussions through strategic planning sessions in the production of its preferred power supply plan to meet the identified need of up to 220 MW in the Kentucky service area. EKPC issued a request for proposal for capacity and energy on a long-term basis in EKPC's service territories from potential energy providers. Several alternatives were considered including self-built alternatives and existing site alternatives. A feasibility study yielded existing site alternatives to meet EKPC's supply needs including coal, reciprocating engines, and power purchase agreements (PPAs). As there is a need for dispatchable, minimal cost, and minimal congestion energy sources, none of the alternatives evaluated were preferred to the Proposed Action. Therefore, as further explained below, EKPC is pursuing RUS funding for a self-build alternative.

2.2 Alternatives Considered

The following is a bulleted list of alternatives evaluated but eliminated from consideration. The reason for elimination is briefly described for each.

- Load Management – Load management is voluntary on the power user side. Because of this, load management does not provide reliable reductions sufficient to offset the need for additional capacity.
- Distributed Generation – Distributed generation are systems of generating power, often renewable energy sources, near the point of use instead of centralized generation sources from power plants (e.g., solar panels on a house). These types of systems neither provide sufficient capacity, nor are they dispatchable in response to intermittent power generation from renewables.
- Renewable Energy Resources – Renewable energy resources such as wind, solar, hydropower, and energy storage can provide varying amounts of renewable capacity. EKPC currently has 20 MW of

existing solar capacity and is currently developing projects that will provide a nominal 457 MW of solar capacity over the next five years. EKPC's asset portfolio also includes existing and proposed hydropower sources and renewable natural gas (biogas from landfills). Although each of these existing and proposed assets provide capacity at times, they are inherently intermittent and are not dispatchable.

- Hydrogen Combustion – while there are turbines capable of burning hydrogen to create sufficient capacity, there are no viable supplies of hydrogen to an EKPC electrical point of interconnection.
- Buying open market PPAs. The option for new PPAs is very expensive and limited because the region is expected to see a shortfall in capacity for fossil-fueled sources when several coal facilities are proposed for retirement. As previously mentioned, the Kentucky PSC has also determined that unhedged PPAs do not meet a utility's legal obligations to provide adequate, efficient, and reasonable service.

EKPC also evaluated whether a combination of these alternatives could meet the Project's purpose and need instead of the Proposed Action. Although load management, renewable energy sources, and PPAs are all strategies that EKPC currently uses to meet demand, none of these alternatives, whether implemented individually or in combination, would meet the projected demand, provide dispatchable power to fill the gap when solar is unavailable, or provide reliable and affordable power.

EKPC also considered alternatives for the technology to meet the identified need, which are described in the next section.

2.2.1 Technology Selection

A technology assessment was completed to identify the self-build generation technology that will meet the specified capacity requirements. The evaluation included RICE, Simple Cycle Gas Turbine generation facilities, and Combined Cycle Gas Turbine generation facilities. Following a detailed feasibility study, EKPC determined that all three potential self-build generation technology options could meet the identified capacity needs and were thus selected for further analysis. Ultimately, the RICE facility was chosen based on several technical and non-technical factors, primarily the ramping and voltage support this type of facility can provide to intermittent renewable resources (Burns & McDonnell, 2024b).

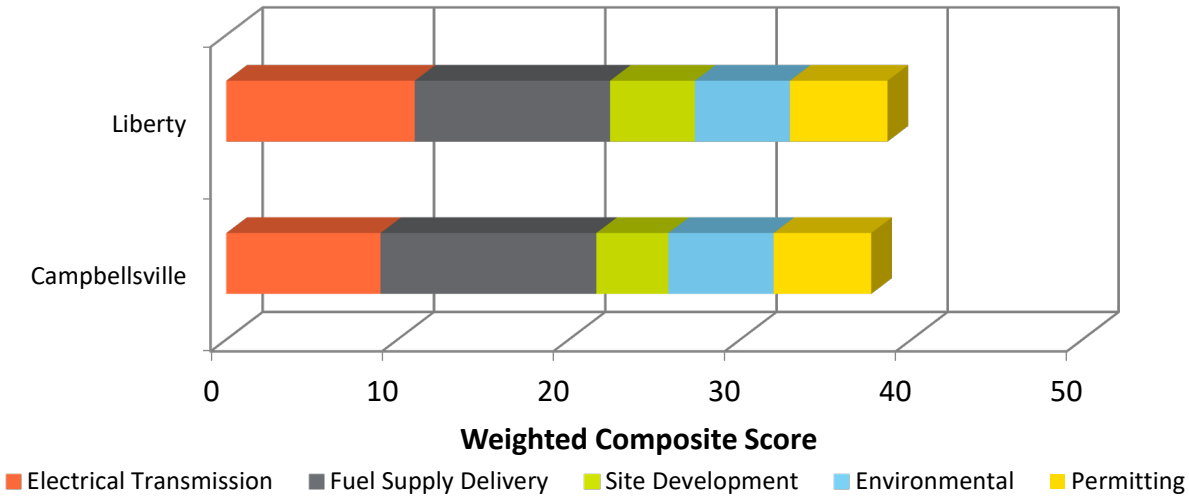
2.2.2 Alternative Project Locations

A preliminary siting study, feasibility analysis, and desktop screenings were conducted to identify an appropriate location for the RICE facility. Existing power plant sites and sites without existing power generation facilities were considered in the analyses. One of the primary siting criteria was to identify a site that co-located with an existing EKPC 161kV transmission line and existing natural gas pipelines, thereby minimizing environmental impacts associated with constructing new transmission lines and pipeline laterals and reducing capital costs. Other factors in the analyses included the proximity of existing point sources of air emissions nearby, which could potentially lead to cumulative air quality issues, as well as transmission, land, and environmental constraints. EKPC's existing electric generating sites did not meet these criteria and were not carried forward as viable alternative locations (1898 & Co., 2024). Therefore, sites near existing transmission and gas pipeline infrastructure that could accommodate the RICE facility and minimize environmental impacts were considered.

A siting study of potential locations was then conducted to determine suitable sites for the Project's development within EKPC's service territory in Kentucky. The proposed site needed to be capable of accommodating up to 220 MW of reciprocating engine generation and possess the necessary infrastructure critical to plant development. EKPC identified 20 sites across Kentucky that met the infrastructure requirements. Each site was evaluated and ranked for multiple criteria organized by five categories: electrical transmission, fuel supply delivery, site development, environmental, and permitting. After scoring was complete, an analysis of availability of the sites for

purchase was conducted. From this analysis, two sites were selected as candidate sites: the Liberty site and Campbellsville site. The Liberty site (i.e., the Liberty RICE facility) scored highest of the candidate site areas (1898 & Co., 2024). The weighted composite score for the two candidate sites is shown in (Figure 2-1).

Figure 2-1: Siting Study Weighted Composite Score



Desktop analyses were performed for these sites to identify potential fatal flaws and to determine the preliminary anticipated impacts for a generic power plant at each site (results of the analyses are incorporated into this EA). Although both sites appeared to have the infrastructure necessary to support the Project, EKPC identified a bigger challenge to procure adequate transmission line interconnection and natural gas supply for the Project at the Campbellsville site. Therefore, the Liberty site located in Casey County, Kentucky was selected.

2.3 Proposed Action Alternative

Based on a review of available and feasible alternatives, the Project, as described in Section 1.1.1, is the Proposed Action Alternative that effectively meets the Project's purpose and need. Under the Proposed Action Alternative, RUS would approve EKPC's financing request and EKPC would construct and operate the new generating facility and associated facilities.

The Proposed Action includes a fired output of approximately 214 MW net and has an anticipated in-service date in fourth quarter 2028, pending receipt of permits and approvals. The Project would burn natural gas, with the capability to use fuel oil as a backup, would employ selective catalytic reduction (SCR) technology to control nitrogen oxide (NOx) emissions, and employ oxidation catalyst technology to reduce/control carbon monoxide (CO) emissions.

The potential impacts associated with the construction of the interconnection transmission line, upgrades and rebuild of existing transmission lines, the water pipeline upgrade, and the natural gas pipeline lateral are all analyzed as part of the Proposed Action in this EA.

2.4 No Action Alternative

Under the No Action Alternative, RUS would not provide financial assistance to EKPC to construct the Project. As a result, EKPC would be unable to meet its obligation to its members to furnish adequate and reliable power to meet

their present and future needs. EKPC would be required to secure alternative financing for the proposed Project or secure power to address the projected capacity shortfall from other third-party resources. The No Action Alternative would result in increased Project financing costs, which would have an adverse impact on the financial viability of the Project. Alternately, the No Action Alternative could require EKPC to get power from another source, increasing power output from existing generating resources in the EKPC service territory (e.g., existing coal-fired power plants, etc.), or experience rolling blackouts of varying intensity, especially during extreme winter weather events.

3.0 Affected Environment/Environmental Consequences

Chapter 3 provides descriptions of the existing environmental conditions of the Project Site and transmission line rebuild and upgrade ROWs (the "Project Area") and the impacts that may be expected from constructing and/or operating the Project. This chapter provides an understanding of the affected environment and potential environmental consequences for the following resources: air quality; biological resources including vegetation, wildlife, and special status species; cultural resources; geology and soils; infrastructure, transportation, public health, and safety; land use; noise; socioeconomics; visual resources; and water resources. Federal, state, and local regulations that apply to managing these resources are also discussed in the context of the existing environment.

This chapter assesses the potential impacts of the Proposed Action Alternative and the No Action Alternative. The No Action Alternative provides a basis for comparison in which none of the Project components would be constructed.

3.1 Land Use, Formally Classified Lands, Geology, Soils, and Farmland

3.1.1 Affected Environment

Land Use

Multi-Resolution Land Characteristics (MRLC) Consortium's National Land Cover Database was used to determine land cover within the 108-acre Project Site and the 17.2 miles of existing ROWs. Land cover within the Project Area contains large portions of pasture/hay, cultivated crops, and deciduous forest. Locations surrounding the Project Area are similar in composition. There are some rural residential areas within and surrounding the Project Area, but there would be no residences within 1,000 feet of the flue-gas stacks at the RICE facility. Land use types identified within the 108-acre Project Site and transmission line ROWs are shown in Table 3-1 and Table 3-2, respectively.

Table 3-1: Land Cover Identified within the Liberty RICE Project Site

Land Use Type	Acres
Cultivated Crops	74.1
Deciduous Forest	14.5
Pasture/Hay	8.9
Developed, Open Space	8.8
Mixed Forest	1.0
Developed, Low	0.6
Developed, Medium	0.1
TOTAL	**108.0**

Source: MRLC National Land Cover Database (MRLC, 2021)

Table 3-2: Land Cover Identified within the Transmission Line ROWs

Land Use Type	Acres[1]
Pastre/Hay	131.1
Deciduous Forest	128.2
Cultivated Crops	26.9
Developed, Open Space	11.3
Mixed Forest	7.9
Developed, Low	1.7
Developed, Medium	1.0
Grasslands/Herbaceous	0.9
Barren Land (Rock/Sand/Clay)	0.6
Shrub/Scrub	0.4
TOTAL	**310.0**

Source: MRLC National Land Cover Database (MRLC, 2021)
[1] Not all acres would be disturbed.

Formally Classified Lands

The U.S. Geological Survey (USGS) Protected Areas Database of the U.S. (PAD-US) was used to identify formally classified lands, which are properties that are administered by federal, state, or local agencies or have been given special protection through formal legislative designation. There are no formally classified lands within the Project Area.

Geology

Kentucky Geological Survey (KGS) mapping was used to determine the geology of the site (KGS, 2019). According to the map, Salem and Warsaw Limestones (limestone, siltstone, shale, and sandstone), the Muldraugh Member of the Borden Formation (siltstone and chert), and the Borden Formation (siltstone, shale, and chert, minor limestone) make up the 108-acre Project Site. In addition to the same three geologic formations, alluvium (silt, clay, sand, and gravel), New Albany Shale (shale), Drakes Formation (dolomite, mudstone, and limestone), St. Louis Limestone (limestone, claystone, and siltstone), Rowland Member, Drakes Formation (Siltstone and minor shale), Grant Lake Limestone (limestone), Gilbert Member, Ashlock Formation (limestone), Tate Member, Ashlock Formation (siltstone), Boyle Dolomite (limestone and dolomite), Ashlock Formation (limestone and shale), and Calloway Creek Limestone (limestone and shale) make up the transmission line ROWs.

Soils

The general soils maps of Marion and Casey County, Kentucky, published by the USDA Natural Resources Conservation Service (NRCS) (USDA, 2019a; USDA 2019b), were referenced for the following descriptions of the general soil map units in the Project Area. The NRCS Soil Survey Geographic (SSURGO) database was used to identify the specific soil map units associated with the Project Area as mapped by the USDA-NRCS. The SSURGO database is generally the most detailed level of soil geographic data available and utilizes information contained in published NRCS soil surveys. The Project Area consists of 32 USDA-NRCS soil map units, as summarized in the tables in Appendix D. There are 3.8 acres of hydric soil within the transmission line ROWs. There are no hydric soils present in the 108-acre Project Site.

Farmland

The NRCS Soil Scientist for the region of Kentucky where the Project is located was contacted to determine if any of the soils within the Project Area are classified as prime/statewide important farmland or hydric. Of the 32 soil units in the Project, fourteen are considered prime farmland or farmland of statewide importance (Appendix D). The NRCS Soil Scientist provided the results of the Farmland Protection Policy Act (FPPA) site assessment for the Project (Appendix H). The information provided indicated that the Project Area contains farmland classified as prime farmland and farmland of statewide importance. The total acreage of the Project Site is 108 acres; however, the total acres of prime/statewide important farmland that would potentially be directly impacted by the Project is 66 acres. According to the NRCS, the remaining 42 acres are not classified as prime/statewide important farmland.

Approximately 106 acres of prime farmland or farmland of statewide importance exists with the ROW easements for the transmission line rebuilds and upgrades, which were previously disturbed during the initial transmission line construction. The NRCS does not consider reconstruction or upgrading of existing electrical overhead transmission lines to have the potential for significant impacts on the conversion of agricultural lands (prime or statewide important farmland), and the transmission line components of the Project would not permanently convert such agricultural lands. The small footprint resulting from such above-ground activity(s) negates the need for conducting a FPPA assessment for the transmission line rebuild/upgrade portions of the Project. In addition, large portions of the existing transmission line route traverse agricultural lands, and EKPC has a policy of allowing agricultural practices within its ROW easements if they do not interfere with, or jeopardize, the operation of its lines.

3.1.2 Environmental Consequences

The following sections summarize potential environmental consequences of the Proposed Action Alternative and No Action Alternative related to land use, formally classified lands, geology, soils, and farmland.

3.1.2.1 Proposed Action Alternative

Construction and operation of the RICE facility will permanently convert 43 acres of agricultural land (including cultivated cropland and hayfields), residential land, and associated soils into an industrial facility, with much of the area covered by buildings, concrete, and gravel. Additionally, 10 acres of agricultural land associated with new permanent ROWs at the RICE facility would be affected by the Project, but vegetative cover within the ROWs would be restored. The RICE facility is not expected to impact geological formations. Temporary workspaces at the Project Site will be restored.

Due to the presence of important farmland, an AD-1006 Farmland Conversion Impact Rating Form was completed for the Project Site and submitted to the state USDA NRCS office on October 7, 2024 (see Agency Correspondence in Appendix H). The NRCS Soil Scientist completed the AD-1006 form, which indicated up to 66 acres of prime/statewide important farmland within the 108-acre Project Site could be directly or indirectly converted (i.e., taken out of production) to accommodate construction and development of the Project. According to the NRCS response letter dated November 1, 2024, the proposed Project Site has a relative Land Evaluation and Site Assessment (LESA) value of 85, based on a scale of 0 to 100 points. According to the FPPA data provided by the NRCS, the percentage of farmland in Casey County having the same or higher value is 11.78%. The percentage of Casey County farmland to be converted as a result of the proposed action is 0.07%, which is considered minimal. Per the completed AD-1006 form, the Project has a total LESA value of 161 out of 260 (see completed form in Appendix H). For Projects with scores greater than or equal to 160, which includes the Proposed Action, the FPPA recommends federal agencies consider the following measures specific to farmland impacts:

- Minimize impacts to farmland by limiting the degree or magnitude of the action and its implementation

- Rectify the impact by repairing, rehabilitating, or restoring the impacted environment
- Reduce the impact over time by preservation and maintenance operations during the life of the action.

Per the mitigation section below, EKPC would implement measures to minimize effects to farmland for potential future use, including minimization of erosion and sedimentation and revegetating with low growing grasses and herbaceous vegetation. Due to these mitigation measures, no significant impacts to prime farmland are anticipated, and an alternative site does not need to be considered.

EKPC would use its existing ROWs to construct the transmission line upgrades and rebuilds. Although 106 acres of prime farmland and farmland of statewide importance exist within the transmission line ROWs, the majority of impacts associated with the transmission lines would be temporary, considered construction disturbance only. Access paths and staging areas within the transmission line corridor will be cleared, but excavations will only occur where pole structures are replaced. Hydric soils, prime farmland, and farmland of statewide importance will largely remain unaffected by the transmission line rebuilds and upgrades. Agricultural activities would still be allowed within the ROWs during Project operation. Pole structures have a minimal footprint and do not significantly interfere with agricultural activities. If pole structures are replaced, EKPC would either replace structures at their existing location or relocate structures to avoid impacts to sensitive resources. Additionally, the NRCS considers the existing ROWs to be previously converted.

Construction and operation of the proposed Project would therefore not have a significant impact on existing land use, geologic formations, soils, or prime farmland.

3.1.2.2 No Action Alternative

The No Action Alternative would have no short- or long-term impacts to land use, formally classified lands, geology, soils, or farmland at or near the Project because no construction or operation would occur.

3.1.3 Mitigation

Construction and operation of the proposed RICE facility would alter the current land use and could remove up to 66 acres of prime/statewide important farmland from use for production. However, the acreage of permanent conversion of farmland to industrial use would be minimal compared to the amount of available farmland in the region. In addition, EKPC is committed to the following mitigation measures to further minimize impacts to farmlands as a result of the Project.

Measures to avoid and minimize soil erosion and sedimentation, protect topsoil, and replenish nutrients would include but may not be limited to the following:

- Given the existing topography and agricultural use of the site, only minimal grading is anticipated under the Proposed Action and no removal of topsoil from the site is expected.
- During construction, portions of the Project Site would be cleared, grubbed, graded, excavated, and revegetated. In areas not impacted by these activities, such as areas that do not require clearing, existing vegetation would be preserved where practicable. The amount of soil exposed during construction would be minimized.
- EKPC would implement a Storm Water Pollution Prevention Plan (SWPPP) in compliance with Kentucky Division of Water (KDOW) requirements to ensure that all ground disturbance is stabilized to prevent erosion and sedimentation resulting from stormwater runoff. Following construction, areas disturbed by construction would be restored as per the SWPPP and Kentucky Pollutant Discharge Elimination System (KPDES) requirements.

- Silt fencing would be installed on the downside of all disturbed areas, near waterways, and near drain tile inlets. This silt fencing would control soil erosion via stormwater runoff.
- Temporary seeding would be applied to areas of exposed soil that have not been brought to final grade yet, where further land-disturbing activities would not be performed for a period greater than 30 days, and where vegetative cover is required for less than 1 year. Areas needing protection during periods when permanent seeding is not applied, would be seeded with annual species. Final stabilization would be achieved when all soil-disturbing activities at the site have been completed and a uniform (i.e., evenly distributed, without large bare areas) perennial vegetation cover with a density of 70% of the native background vegetative cover has been established on all unpaved areas or areas not covered by permanent structures or with alternative surfacing, such as riprap or crushed rock.
- Construction materials imported to the Project Site, including erosion control products and seed mixes, shall be free of invasive plant species, if possible.
- Measures would also be implemented to prevent the spread of invasive plant species, including construction equipment inspection and cleaning to remove visible plants, seeds, mud, and dirt clods

3.2 Floodplains

3.2.1 Affected Environment

The U.S. Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) (Map Number 21045C0230D) indicates that there are no 100- or 500- year floodplains within the 108-acre Project Site (FEMA, 2009).

The U.S. FEMA FIRM indicates that there are 100- or 500- year floodplains within the existing ROWs associated with the transmission line upgrades and rebuilds (FEMA, 2009; FEMA, 2023). Within the 3.9 miles of transmission line ROW where upgrades are proposed in Marion County, the FEMA FIRM dataset (Map Numbers 21155C0180D and 21155C0160D) indicate that a floodplain is crossed twice at the northeastern most section of the line. This section of the transmission line upgrade traverses through Zone A associated with Cartwright Creek and Cartwright Creek Tributary. Within the transmission line upgrades and rebuilds in Casey County, the FEMA FIRM dataset (Map Numbers 21045C0125E, 21045C0150E, 21045C0230D, 21045C0235D, 21045C0233D, 21045C0275D) shows that the Proposed Action traverses Zone A associated with Cox Branch, Brush Creek, Green River, and Moccasin Creek.

3.2.2 Environmental Consequences

The following sections summarize potential environmental consequences of the Proposed Action Alternative and No Action Alternative related to floodplains.

3.2.2.1 Proposed Action Alternatives

EKPC would use its existing ROWs to construct the transmission line upgrades and rebuilds, and most impacts associated with the transmission lines would be temporary, considered construction disturbance only. Some pole structures would be replaced, resulting in minimal permanent impacts. If any poles are replaced within floodplains, EKPC would either replace structures at their existing locations to minimize new floodplain impacts, or EKPC would relocate structures to span and avoid floodplains. These activities to upgrade and rebuild the transmission lines within the floodplain would be authorized under the KDOW Development in a Floodplain General Permit (Permit Number: KY FPGP, AI No.: 35050), in accordance with the requirements of 401 KAR 4:060. The Floodplain General Permit authorizes development and placement of utility poles as an eligible activity that shall be granted automatic coverage because this type of activity does not have the potential to change the Base Flood Elevation and has minimal flood risk potential.

3.2.2.2 No Action Alternative

The No Action Alternative would have no short- or long-term impacts to floodplains at or in the vicinity of the Project because no construction or operation would occur.

3.2.3 Mitigation

Because construction and operation of the RICE facility would have no impact on floodplains, no mitigation measures are required.

When in floodplains, to the extent practicable, pole replacements would be installed in the same location or outside of the floodplain to avoid changes to floodplain elevations. The KDOW Floodplain General Permit authorizes development and placement of utility poles as an eligible activity that shall be granted automatic coverage because this type of activity does not have the potential to change the Base Flood Elevation and has minimal flood risk potential.

3.3 Wetlands and Waterbodies

3.3.1 Affected Environment

Burns & McDonnell completed a desktop assessment for Waters of the U.S. (WOTUS) using the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) Maps and USGS National Hydrography Dataset (NHD). Wetland, stream, and waterbody delineations were completed for the Project Site and the transmission line rebuild in Casey County following the 1987 *Corps of Engineers Wetlands Delineation Manual* and the 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region – Version 2.0*. Due to the minimal level of anticipated construction activities, an onsite delineation was not completed for the existing ROW associated with the proposed transmission line upgrades. During onsite delineations, each delineated WOTUS was assigned a type based on the Cowardin Classification System (Cowardin et al., 1979), which are further characterized in the Wetland Delineation Report (Appendix B). No other wetlands, waterbodies, or other aquatic resources have been identified within the Survey Area except as noted below.

A wetland delineation report is attached as Appendix B and contains maps with callouts of surveyed wetlands and streams. Figure 3-1 shows the wetlands and waterbodies that were delineated at the Project Site. Figures that show delineated features within the survey area and NWI wetlands and NHD wetlands outside of the survey area are provided in Appendix A, Figure 1.

The NWI data indicate the potential presence of two riverine wetlands associated with two blue line streams on the USGS topographic map within the RICE facility survey area. Burns & McDonnell conducted onsite WOTUS delineations on March 27, 2024 for the RICE facility and identified one palustrine unconsolidated bottom (PUB) open water pond and 12 streams. The pond totaled 0.06 acres. A total of 5,772 feet (1.09 miles) of ephemeral, intermittent, and perennial streams were delineated. Ephemeral streams totaled 1,351 feet, intermittent streams totaled 2,891 feet, and perennial streams totaled 1,529 feet.

The transmission line ROW south of the RICE facility, where the transmission line rebuild would occur, was delineated by Burns & McDonnell August 19-22, 2024. During these delineations, six palustrine emergent wetlands totaling 0.37 acre, two palustrine scrub-shrub wetlands totaling 0.84 acre, and five PUB open water wetlands totaling 0.88 acre were delineated in the ROW. Additionally, 30 ephemeral stream reaches totaling 2,879 feet, 14 intermittent stream reaches totaling 2,388 feet, and 14 perennial stream reaches totaling 4,370 feet were delineated within the existing ROWs.

Figure 3-1: Delineated Wetlands and Waterbodies at the Project Site

Due to the minimal amount of work and minimal environmental impacts anticipated, field delineations were not conducted within the existing ROWs where transmission line upgrades are proposed, and NWI and NHD data were

used to identify the probable locations of wetlands, streams, and waterbodies in those areas. In Casey County, the NWI data indicated the presence of 17 riverine wetlands and one PUB wetland. In Marion County, the NWI data indicated the presence of nine riverine wetlands and three PUB wetlands.

3.3.2 Environmental Consequences

The following sections summarize potential environmental consequences of the Proposed Action Alternative and No Action Alternative related to wetlands and waterbodies.

3.3.2.1 Proposed Action Alternatives

The proposed RICE facility was designed to avoid impacts to WOTUS to the extent practicable. Four ephemeral streams that are potentially non-jurisdictional features (i.e., not WOTUS) were identified within the area that would be used for temporary laydown within construction disturbance areas (S5, S6, S7, and the upstream reach of S8). These channels, each measuring 1 to 4 feet wide, may be impacted by construction activities. EKPC would fill the uppermost reaches of one stream that is located within the footprint of the RICE facility (S10), resulting in permanent impacts to approximately 32 feet, or 64 square feet (0.001 acre) of stream channel (Figure 3-1). Stream S10 is an intermittent stream that is approximately 2 feet wide and is assumed to be a WOTUS. EKPC would confirm Nationwide Permit authorization for these impacts and/or coordinate with the U.S. Army Corps of Engineers (USACE) regarding proposed permanent impacts.

Several jurisdictional features traverse the existing transmission line ROWs. There are no practicable alternatives to crossing these areas due to the Project being upgraded and rebuilt within the existing corridor. EKPC would avoid placement of structures in WOTUS and would avoid impacts to WOTUS during construction. Temporary impacts to WOTUS may occur for access along the ROWs during Project construction. Best management practices (BMPs) including wetland matting and temporary stream crossings would be implemented to minimize impacts, and pre-construction conditions would be restored. Therefore, EKPC does not anticipate the Proposed Action would result in permanent loss or significant impacts to WOTUS within the transmission line ROW.

The existing transmission line to be rebuilt in Casey County crosses the Green River on the southeast side of US Hwy 127, which is a Section 10 navigable water. Based on guidance from the USACE regarding existing crossings of Section 10 waters, the proposed line rebuild would not require authorization because the Project entails straight replacement, in the same alignment, with no work occurring in WOTUS, and no additional lines being hung. Therefore, this work would be covered under a maintenance classification and no permit verification is required from the USACE. Furthermore, the transmission line crossing of the river at this location is not expected to have any significant impact on navigation. This portion of the Green River is very shallow and not used for commerce, and any impacts to navigation during reconstruction of the line would only involve small personal crafts, such as a canoe, rowboat, or kayak. The vertical clearance from the water for the proposed line height would be greater than the existing 45 feet of clearance with no potential to affect navigation. Should any river traffic need to be halted, it would be temporary and would resume once the stringing of the conductor over the river crossing is completed. Therefore, no impacts are anticipated at the proposed crossing with regard to Section 10 waters.

3.3.2.2 No Action Alternative

The No Action Alternative would have no short- or long-term impacts to wetlands, streams, and waterbodies at or in the vicinity of the Project because no construction or operation would occur.

3.3.3 Mitigation

EKPC would fill portions of one stream that is located within the footprint of the RICE facility (S10), resulting in permanent impacts to approximately 32 feet, or 64 square feet (0.001 acre) of stream channel. For the proposed

transmission line activities, temporary wetland and stream impacts associated with accessing the structure location are anticipated to occur, and the Proposed Action would be authorized under USACE Nationwide Permit (NWP) 57 and the KDOW General 401 Water Quality Certificate (WQC). Under the general conditions of NWP 57, a total loss of WOTUS that does not exceed 0.5 acres for a single and complete project is allowable. Measures would be implemented to maintain normal downstream flows and prevent erosion.

A pre-construction notification (PCN) would be submitted to the USACE district engineer prior to commencing the activity if the discharge results in the loss of greater than 0.1-acre of WOTUS. General Condition 23 of the NWP requires compensatory mitigation at a minimum one-to-one ratio for all losses of stream bed that exceed 0.03-acre and require PCN. For stream bed losses of 0.03-acre or less that require PCN, the district engineer may determine on a case-by-case basis whether compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Based on the preliminary design, the Proposed Action would not require a PCN or mitigation for stream impacts. However, the potential need for mitigation would be reevaluated upon completion of the final design, and if appropriate discussed with the USACE. The USACE district engineer may determine that the adverse environmental effects of the Proposed Action are no more than minimal and may provide an activity-specific waiver of the mitigation requirement.

The KDOW General Certification for NWP 57 authorizes activities with cumulative temporary and permanent impacts less than 0.5 acre of wetlands or 300 linear feet of surface waters. Activities that do not meet that condition require an Individual Certification. Based on the preliminary design, a portion of stream S10 that is located within the footprint of the RICE facility would be filled, resulting in approximately 32 feet of stream impacts. Within the transmission line rebuild ROWs, no poles would be installed in WOTUS. Any temporary stream crossings that would be required for access along ROWs would not be expected to impact streams below their ordinary high water mark. Therefore, the Project would meet the 401 WQC General Certification, and an Individual Certification from KDOW would not be required. Upon completion of the final Project design, EKPC would re-evaluate permitting requirements and, if required, obtain an Individual 401 WQC prior to initiating Project construction activities. Erosion and sedimentation pollution control plans and BMPs would be designed, installed, and maintained during construction activities so that violations of state water quality standards would not occur (401 KAR 10:031 Section 2 and KRS 224.70-100).

3.4 Water Resources

3.4.1 Affected Environment

Surface Waters, Water Supply, and Discharge

As discussed in Section 3.3 and in the Wetland Delineation Report in Appendix B, there are surface waters present in the Project Area. The Project does not cross any state special-use designated streams, which includes cold water aquatic habitat, outstanding state water resources, outstanding national resource waters, exceptional water, reference reach waters, Kentucky Wild River, Federal Wild River, and Federal Scenic River systems. Further, the Project does not cross any 303(d) Impaired Streams (KEEC, 2024a; KEEC, 2024b).

The RICE facility is within the Upper Green River Basin, which flows west to the Ohio River (KYWW, 2024). There are no water sources that are viable for water supply in the Project Area. The nearest water supply (Lebanon Water Works Co Inc., SWAPP Zone 3, Water Withdrawal Number 0230) is approximately 3 miles upstream to the northwest of the Project Site (KEEC, 2022). An East Casey County Water District distribution water line runs along Carr Sasser Road to the north and east and would be upgraded as part of this Project (KDOW, 2024).

Within Marion County, the transmission line ROW is within the Salt River Basin, which flows west and meets up with the Ohio River. Within Casey County, the transmission line is within the Salt River Basin and Upper Green

River Basin. Approximately 2.8 miles of the transmission line in Casey County crosses Lebanon Water Works Co Inc., SWAPP Zone 3, Water Withdrawal Number 0230. No other parts of the transmission line area cross source water. The transmission line ROWs cross multiple water utility lines; however, there are no sources that are viable for water supply within the Project Area.

Groundwater

The Project Site and transmission line ROWs would not cross principal aquifers (USGS, 2003) or sole source aquifers (USEPA, 2024f). The Kentucky Groundwater Data Repository, accessed through the Kentucky Geologic Map Information Service, was reviewed to identify active, inactive, and decommissioned wells and springs in the vicinity of the Project. One domestic, single household well was identified within the transmission line ROW in Casey County, approximately 400 feet west of the northern tie-in location. No other water supply wells or springs were identified within Project Area. Multiple water supply wells were present within the vicinity of the Project in the section of the transmission line ROW where upgrades are proposed (KGS, 2020). Water wells and springs are shown on Figure 1 in Appendix A.

Water Quality

The Site's water would be supplied by potable water from the East Casey County Water District. There are no 303(d) waterbodies (i.e., waterbodies that do not meet water quality standards) within or adjacent to the Project.

3.4.2 Environmental Consequences

The following sections summarize potential environmental consequences of the Proposed Action Alternative and No Action Alternative related to water resources.

3.4.2.1 Proposed Action Alternatives

Direct effects of the Proposed Action on water quality would be limited to the Project Site's limits of disturbance and the existing transmission ROWs. Permanent impacts to approximately 32 feet/0.001 acre of stream bed would be required to construct and operate the RICE facility. The transmission line upgrades and rebuilds would not directly affect rivers and streams. The current transmission lines span waters, and there are no pole structures within channels. If poles must be replaced, EKPC would either replace structures at their existing locations to minimize impacts, or EKPC would relocate structures to upland locations for the transmission lines to span waters.

Indirect effects to water resources could occur as a result of increased nutrients, storm flows, and sediment loading of streams. Soil disturbance at the RICE facility has potential to cause sediment to travel downstream into Brush Creek. EKPC would follow BMPs during construction and operation to reduce the potential for indirect effects to water resources. Construction BMPs may include silt fence, inlet protection, straw wattle barriers, riprap, erosion control blankets, and other erosion and sediment control measures, as necessary. These BMPs would be installed prior to initiating soil-disturbing activities and maintained as necessary throughout Project construction. EKPC would construct a stormwater pond to manage stormwater during operation of the RICE facility.

No groundwater would be used for the Project. The Project is expected to purchase water from the East Casey County Water District. The new 8-inch water line that will tap into an existing water line will supply the Project with a potable water source to be used for showers, eye wash stations, auxiliary equipment service, and fire protection. The new water supply pipeline will handle the minimal daily use; however, a 450,000-gallon fire water storage tank will be used for fire protection. East Casey County Water District did not indicate any issues providing water for the Project. Wastewater streams include process water, sanitary water, and stormwater. Engineering determinations are still being made to decide the final wastewater pathways. EKPC would obtain a KPDES Wastewater Discharge Permit from the KDOW, if needed, for wastewater discharges.

The Proposed Action Alternative would not affect the water quality or the impairment status of the surrounding areas.

3.4.2.2 No Action Alternative

The No Action Alternative would have no short- or long-term impacts to water resources at or in the vicinity of the Project because no construction or operation would occur.

3.4.3 Mitigation

To protect the water quality, EKPC would obtain and adhere to the requirements of the Kentucky Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction Activities (KYR10). Prior to construction, EKPC would submit an electronic Notice of Intent to the KDOW and prepare and implement a SWPPP, which would outline BMPs such as effective erosion prevention, sediment control measures, and other site management practices necessary to manage stormwater runoff during construction.

Construction and operation of the proposed Project is not anticipated to have significant adverse impacts on surface waters or groundwater. EKPC would employ good water management practices during construction and operation and would obtain a KPDES Wastewater Discharge Permit from the KDOW, if needed, for wastewater discharges. No mitigation is required.

3.5 Coastal Resources

3.5.1 Affected Environment

The Project would be located in an area where there are no coastal resources.

3.5.2 Environmental Consequences

As there are no coastal resources near the proposed Project, there is no potential for environmental consequences of the Proposed Action Alternative related to coastal resources.

3.6 Biological Resources

The biological resources of the area surrounding the Project along with the impacts on biological resources that may result from the Project are discussed in the following sections.

3.6.1 Affected Environment

The following sections discuss vegetation, wildlife, and special status species in the Project Area.

3.6.1.1 Vegetation

The Project Area is within the Interior Plateau Level III Ecoregion. The Interior Plateau natural vegetation is primarily oak-hickory forest, with some areas of bluestem prairie and cedar glades (Woods et. al, 2002). This ecoregion is broken up into 10 subecoregions (i.e., Level IV ecoregions).

The Project Site and southern parts of the transmission line ROW are within the Eastern Highland Rim Level IV Ecoregion. Potential natural vegetation is mapped as oak–hickory forest, but in ravines near the Cumberland Plateau, forests are mixed mesophytic in character. Today, white oak (*Quercus alba*) dominates upland forests and bottomland trees grow along streams. The northern parts of the rebuild are within the Knobs-Norman Upland and Outer Bluegrass Level IV Ecoregions as mapped by the U.S. Environmental Protection Agency (Woods et. al, 2002). The Knobs-Norman Upland ecoregion supports mixed deciduous forests and locally swampy valley floors used for

livestock farming, general farming, and woodland. The Outer Bluegrass ecoregion contains mostly pastureland and cropland. There are some open areas that contain savanna woodlands and white oak.

During onsite field investigations of the Project Site and transmission line ROW where rebuilds are proposed, Burns & McDonnell identified six vegetation communities, consisting of maintained turf grass, agricultural, pasture, shrub uplands, forested uplands, and open water ponds. Dominant vegetation within the Project Area included tulip poplar (*Liriodendron tulipifera),* sugar maple (*Acer saccharum)*, American beech (*Fagus grandifolia)*, American elm (*Ulmus americana*), Amur honeysuckle (*Lonicera maackii*), butterweed (*Packera glabella*), soybean (*Glycine max*), Kentucky bluegrass (*Poa pratensis*), field brome (*Bromus arvensis*), mayapple (*Podophyllum peltatum*), henbit (*Lamium amplexicaule*), and Allegheny blackberry (*Rubus allegheniensis).*

3.6.1.2 Wildlife

A habitat assessment survey was completed to evaluate the potential for special-status species or their critical habitat to occur within or in the vicinity of the Project Area (Appendix C). Special-status species are defined as species designated by the USFWS as Endangered, Threatened, Proposed for Listing or Candidate for Listing under the Endangered Species Act (ESA) and species protected under the Bald and Golden Eagle Protection Act (BGEPA).

Based on special-status species lists generated from the sources shown below, a habitat assessment was completed to evaluate the potential for special-status species to occur within the Project Area and its vicinity and to determine the presence or absence of designated or proposed critical habitat. The habitat assessments were based on review of the following sources and field observations:

- The natural history and known geographical and elevation range of the special-status species.
- USFWS Information for Planning and Consultation (IPaC) tool used to determine species protected or likely to be protected under the ESA that are known or likely to occur in the Project Area.
- Results of a Kentucky Department of Wildlife Resources (KDFWR) list of species and known critical habitat of protected species.
- Observations recorded by Burns & McDonnell during field reconnaissance on March 27 and August 19-22, 2024, of the habitats present in the Project Area (Appendix C).

In total, ten ESA species and one BGEPA listed species were evaluated for their potential to occur in the Project Area. Table 3-3 lists the ESA-listed, proposed, and candidate species and state-listed species considered for potential to occur in the Project Area. Critical habitat for federally protected species has not been designated by the USFWS in the Project Area. For federal listed species, the USFWS's effects determination is included in the table.

Table 3-3: Federal and State Threatened and Endangered Wildlife Species Potentially in the Project Area

Common Name (*Scientific Name*)	Federal Status (USFWS)	Effect / Potential to Occur
Birds		
Whooping Crane *(Grus americana)*	Experimental, Non-essential	No effect. The Project Area lacks appropriate aquatic habitats.

Bald Eagle[1] (*Haliaeetus Leucocephalus*)	Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c)	No effect. Likely to occur. Although bald eagles may traverse the Project Area, specifically along the Green River searching for food resources, no known nests are present in the Project area.
Vesper Sparrow (*Pooecetes gramineus*)	State Listed Endangered	No effect. Unlikely to occur. Suitable grassland habitat is not present within the Project Area.
Red-breasted Nuthatch (*Sitta canadensis*)	State Listed Endangered	No effect. Unlikely to occur. Suitable coniferous forest or mountain habitat is not present within the Project Area.
Great Egret (*Ardea alba*)	State Listed Threatened	No effect. Unlikely to occur. Suitable food source along with wetland or marsh habitat is not present within the Project Area.
Northern Harrier (*Circus hudsonius*)	State Listed Threatened	No effect. Unlikely to occur. Could possibly be found hunting/foraging in agricultural fields, but unlikely due to the lack of open terrain marsh or wet grassland breeding habitat within or adjacent to the Project Area.
Blue-winged Teal (*Spatula discors*)	State Listed Threatened	No effect. Unlikely to occur. Wetland or mudflat habitat is not present within the Project Area.
Mussels		
Fanshell (*Cyprogenia stegaria)*	Federally Endangered	May affect but is not likely to adversely affect. No suitable habitat was observed onsite and the USFWS has no records of federally listed mussel occurrences in the Project Area. Potential indirect effects on downstream mussel habitat will be mitigated through implementation of a SWPPP.
Pink Mucket (pearlymussel) (lam*psilis abrupta)*	Federally Endangered	May affect but is not likely to adversely affect. No suitable habitat was observed onsite and the USFWS has no records of federally listed mussel occurrences in the Project Area. Potential indirect effects on downstream mussel habitat will be mitigated through implementation of a SWPPP.
Salamander Mussel (Simpsonaias ambigua)	Federally Proposed for Listing as Endangered	May affect but is not likely to adversely affect. No suitable habitat was observed onsite and the USFWS has no records of federally listed mussel occurrences in the Project Area. Potential indirect effects on downstream mussel habitat will be mitigated through implementation of a SWPPP.
Snuffbox Mussel (Epioblasma triquetra)	Federally Endangered	May affect but is not likely to adversely affect. No suitable habitat was observed onsite and the USFWS has no records of federally listed mussel occurrences in the Project Area. Potential indirect effects on downstream mussel habitat will be mitigated through implementation of a SWPPP.
Purple Lilliput (*Toxolasma lividum*)	State Listed Endangered	No effect. Likely to occur. Streams on site had potentially suitable habitat in the form of small and medium sized streams with sand and gravel substrates. However, no in-stream work in streams with suitable habitat is anticipated. Potential indirect effects on downstream mussel habitat will be mitigated through implementation of a SWPPP.
Little Spectaclecase (*Leaunio lienosus*)	State Listed Threatened	No effect. Likely to occur. Streams on site had potentially suitable habitat in the form of small and medium sized streams with sand and gravel substrates. However, no in-stream work in streams with suitable habitat is anticipated. Potential indirect effects on downstream mussel habitat will be mitigated through implementation of a SWPPP.
Insects		
Monarch butterfly (*Danaus plexippus*)	Federal Candidate for Listing	May affect but is not likely to adversely affect. Likely to occur. Suitable habitat is present in sparse quantities within the ROW portion of the Project on grasslands, prairies, and

		meadows, or grasslands with presence of milkweed. Disturbed areas would be reseeded following Project completion.
Maine Snaketail (*Ophiogomphus mainensis*)	State Listed Endangered	No effect. Unlikely to occur. Stream morphology, velocity, and site elevation does not provide suitable habitat in the Project Area.
Zebra Clubtail (*Stylurus scudderi*)	State Listed Endangered	No effect. Unlikely to occur. Necessary stream velocity and rapids are not present within the Project Area.
Mammals		
Tricolor Bat (*Perimyotis subflavus)*	Federally Proposed for Listing as Endangered	May affect but is not likely to adversely affect. May occur within or adjacent to the Project Area. Forested areas and potential roost trees are present within the Project Area. To avoid direct effects to this species from habitat removal, all tree clearing would be restricted to the unoccupied period (October 15 – March 31). Potential indirect effects on foraging habitat would be mitigated through implementation of a SWPPP.
Grey Bat (*Myotis grisescens)*	Federally Endangered	May affect but is not likely to adversely affect. No records of known hibernacula or roosting habitat in the Project area. No significant direct adverse effects on foraging habitat are anticipated. Potential indirect effects on foraging habitat would be mitigated through implementation of a SWPPP.
Indiana Bat (*Myotis sodalist)*	Federally Endangered	May affect but is not likely to adversely affect. No records of known hibernacula or non-forested roosting habitat in the Project area. The potential effects from the removal of minimal summer roosting, foraging, and commuting forested habitat during the unoccupied timeframe (October 15 – March 31), and lack of Indiana bat primary roost trees was determined to be insignificant and/or discountable.
Northern Long-eared Bat (*Myotis septentrionalis)*	Federally Endangered	May affect but is not likely to adversely affect. No records of known hibernacula or non-forested roosting habitat in the Project area. The potential effects from the removal of minimal summer roosting, foraging, and commuting forested habitat during the unoccupied timeframe (October 15 – March 31) was determined to be insignificant and/or discountable.
Little Brown Bat (*Myotis lucifugus)*	State Listed Threatened	May affect but is not likely to adversely affect. May occur within or adjacent to the Project Area. Potential roost trees are present within the Project Area. All tree clearing would be limited to the unoccupied timeframe (October 15 – March 31), which would avoid direct impacts to bat. Potential indirect effects on foraging habitat would be mitigated through implementation of a SWPPP.
Fish		
Longhead Darter (*Percina macrocephala)*	State Listed Endangered	No effect. Unlikely to occur. Necessary stream velocity with rapids is not present within the Project Area.

Source: USFWS Information for Planning and Consultation Unofficial Species List (USFWS, 2024a); Casey County Species List (KDFWR, 2024); Determinations based on U.S. Fish and Wildlife Service nomenclature (USFWS, 2024b) and USFWS December 3, 2024, consultation response letter (Appendix H).
[1]BGEPA Listed Species.

3.6.2 Environmental Consequences

The following sections summarize potential environmental consequences of the Proposed Action Alternative and No Action Alternative related to biological resources.

3.6.2.1 Proposed Action Alternative

3.6.2.1.1 Vegetation

Construction and operation of the Project Site would occur primarily in agricultural fields (cultivated cropland and hayfields) that do not serve as wildlife habitat or natural vegetated areas. Minor tree clearing would be required along forest edge habitat. Of the 108-acre Project Site, approximately 43 acres of the site would be permanently disturbed once construction of the Project is complete, resulting in a conversion from vegetated cover to an industrial site. Approximately 10 acres would be disturbed within new permanent ROWs associated with the RICE plant and 33.8 acres would be temporarily disturbed during construction; vegetation would be re-established after construction is completed in the ROWs and temporary workspaces. Approximately 21.2 acres of the Project Site would remain undisturbed. The undisturbed areas are primarily forested riparian areas that would not be directly affected by the Project. Therefore, the amount or type of vegetation onsite is not expected to significantly change due to the Project.

EKPC would use its existing, maintained ROWs to construct the transmission line upgrades and rebuilds. Most impacts associated with the transmission line activities would be temporary, and areas within construction disturbance would be restored and revegetated after the Project is constructed. Pole structures have a minimal footprint and if pole structures are replaced, EKPC would either replace structures at their existing location or relocate structures to avoid impacts to sensitive resources. Tree clearing is not anticipated, as workspace would be confined to existing, maintained ROWs. Any required hazard tree removal along the edges of the existing ROW would be minimal. No new conversion of vegetated areas would occur as a result of the transmission line upgrades and rebuilds.

BMPs would be implemented to control the spread of exotic, noxious weeds, and invasive plant species. EKPC would use construction techniques that minimize the extent and duration of bare soil exposure, thus minimizing the opportunity for exotic species to become established. Silt fence, inlet protection, straw wattle barriers, riprap, erosion control blankets, and other erosion and sediment control measures would be installed, as necessary, to reduce the movement of sediment that could contain non-native seeds. Disturbed areas would be seeded with weed-free seed mixes to help reduce the chance of noxious weed colonization. Temporary seeding would be applied to areas of exposed soil that have not been brought to final grade yet, where the establishment of vegetation is desired. Temporary seeding would also occur in disturbed areas where further land-disturbing activities would not be performed for a period greater than 30 days, and vegetative cover is required for less than 1 year.

3.6.2.1.2 Wildlife

In total, 10 ESA species, one BGEPA listed species, and 11 state listed species were evaluated for their potential to occur in the Project Area (Table 3-3). Three federally endangered species, one federally proposed endangered species, one state threatened listed species, and the Bald Eagle were determined to have potential to occur in the Project Area.

At the proposed 108-acre RICE site, there is no habitat for federally endangered or threatened species as identified in the IPaC report dated October 8, 2024, and direct impacts to federal and state endangered species are not anticipated. While there is suitable habitat for some endangered or threatened species within the transmission line rebuild/upgrade portions of the Project Area, EKPC would implement avoidance and minimization measures including time of year restrictions for tree clearing, avoidance of instream impacts along transmission lines, and implementation of a SWPPP to prevent direct and indirect impacts to protected species.

EKPC initiated informal consultation with the USFWS on October 15, 2024, to request concurrence with the effects assessment. The USFWS responded on December 3, 2024, with its determination that the Project may affect but is not likely to adversely affect the gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), fanshell (*Cyprogenia stegaria*), pink mucket (*Lampsilis abrupta*), and snuffbox mussel (*Epioblasma triquetra*). The USFWS does not have any records of hibernacula for gray bats, Indiana bats, and northern long-eared bats in the Project Area; the Project would result in minimal tree clearing; tree clearing would be conducted between October 15 and March 31; no instream disturbances within suitable foraging habitat (e.g. Brush Creek, Moccasin Creek, and the Green River) is proposed; and a SWPPP would be implemented to prevent erosion, control sediment, and prevent or reduce pollutant discharge into downstream waters. The USFWS also determined that based on the lack of impacts to suitable mussel habitat and the implementation of a SWPPP, that the Project may affect but is not likely to adversely affect federally listed mussels. Indirect impacts to downstream mussel habitat would be avoided through the implementation of a SWPPP.

While bald eagles are known to occur in the area, impacts to bald eagles are unlikely to occur. No bald eagle nests were observed within the vicinity of the Project Area during the habitat assessment.

The proposed Project would have no short- or long-term impacts to threatened or endangered bird species or bald eagles as there is no suitable habitat on the RICE facility Project Site. Impacts to migratory birds are not anticipated; the construction and permanent disturbance areas at the Project Site are within cultivated agricultural areas and mowed hayfield, and the transmission line activities would occur within existing, maintained ROWs with minimal vegetation disturbance. EKPC would implement design features to reduce light pollution impacts on resources in the surrounding areas. Design features include using down shielding or directional lighting, minimizing the amount of night-time lighting needed while accommodating safety during operation, using motion sensors or heat sensors to minimize lighting where practicable, and using low intensity energy-saving lighting (e.g., LEDs) that provides the minimum lumens needed for safe operation. Construction is not anticipated to result in long-term impacts to wildlife at the Project Site. Noise and human activity that are associated with construction may result in displacement impacts to wildlife species foraging in the area. Ongoing operations are not likely to have substantial impacts on surrounding species.

3.6.2.2 No Action Alternative

The No Action Alternative would have no short- or long-term impacts on biological resources at or in the vicinity of the Project because no construction or operation would occur.

3.6.3 Mitigation

3.6.3.1 Vegetation

Construction and operation of the proposed Project would have minimal impacts on vegetation. EKPC would control the spread of exotic, noxious weeds, and invasive plant species through BMPs including use of sediment barriers, minimizing the extent and duration of soil disturbance, inspecting and cleaning, and temporary and permanent revegetation of disturbed soils using weed free seed mixes.

3.6.3.2 Wildlife

Construction and operation of the proposed Project is unlikely to result in adverse impacts to listed threatened or endangered species, migratory birds, or eagles. Good conservation practices such as minimizing the amount of tree clearing required to construct and operate the Project, conducting tree clearing activities during the bats' inactive season (between October 15 and March 31), avoiding instream impacts along the transmission line ROWs, implementing a SWPPP, and incorporating lighting design features to reduce light pollution impacts on resources

in the surrounding areas would be implemented to avoid and minimize impacts to protected species and their habitats. Should instances such as the observation of an active bald eagle nest occur during construction activities, EKPC would work with the USFWS to minimize potential impacts.

3.7 Historic and Cultural Resources

3.7.1 Affected Environment

In accordance with Section 106 of the National Historic Preservation Act and 36 CFR Section 800.1, federal agencies are required to consider the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings. If there is more than one federal agency, a lead federal agency may be designated to act for all federal agencies. The federal agency or lead federal agency is responsible for coordination with consulting parties which may include the Kentucky Heritage Council/State Historic Preservation Office (SHPO), Tribal Historic Preservation Officers (THPO) if tribal land is involved, Indian Tribes, the public, the ACHP, local governments, and applicants.

The following investigations were completed to assist with Section 106 compliance. The cultural resources of the Archaeological Study Area and the Historic Resources Non-Physical Area of Potential Effect (APE) and the potential impacts to cultural resources as a result of the Project are discussed in the following sections. The Archaeological Study Area included the 108-acre Project Site, as well as the 150-foot-wide ROWs where transmission line rebuilds and upgrades would occur, and encompassed a total of approximately 394 acres. The Project's proposed direct physical effects where field investigations were completed included the Project Site and transmission line rebuild ROW easement, which totaled approximately 248.8 acres. Although located within the archaeological APE, surveys were not completed along the existing ROW where the transmission line upgrades are proposed because ground disturbing impacts are expected to be minimal. The APE does not include any tribal lands as defined pursuant to 36 CFR § 800.16(x). A separate Historic-Age Architectural Resources Reconnaissance Survey was also completed for the Project. The Historic Resources Non-Physical APE consists of a 0.5-mile buffer around the Project Site and 750-foot buffer for the transmission line rebuild ROW and is approximately 440 acres. A figure that shows the APEs is provided in Appendix A, Figure 3.

The cultural resources investigation was designed to conform with the Osage Nation Historic Preservation Office Archaeological Survey Standards, along with Kentucky and federal guidelines for conducting cultural resources investigations. The investigation included a background review of previously recorded cultural resources, including historic-age resources, and previously reported cultural resources surveys in the Archaeological Study Area. Field survey that included pedestrian survey and systematic shovel testing was completed for the Project Site and transmission line rebuild ROW.

The background review identified ten previously recorded archaeological sites within the Archaeological Study Area. Two unevaluated sites, 15Mn102 and 15Mn323, are near or cross the ROWs where upgrades are proposed (Burns & McDonnell, 2024c). These sites were surveyed to confirm their presence and conditions.

The Historic-Age Architectural Resources Reconnaissance Survey was conducted in March and September 2024. Architectural resources including dwellings, barns, outbuildings, silos, commercial spaces, churches, cemeteries, and modern resources were documented within the Historic Resources Non-Physical APE. One resource, CS-232, intersects the Project's Direct APE and would be directly impacted by the Proposed Action; however, it is not recommended for National Register of Historic Places (NRHP) inclusion due to lack of integrity and significance. No other historic-age resources intersect the Project's Direct APE, and no historic-age resources are recommended eligible for NRHP inclusion due to lack of integrity and significance (Burns & McDonnell, 2024c)

The archaeological investigation was completed between March and September 2024. Survey identified 20 new, previously undocumented archaeological sites, along with a total of nine isolated finds within the APE. Nineteen of the documented sites were prehistoric open habitation sites or prehistoric isolated finds, and one was a twentieth century historic farmstead. Two of the sites (15Cs64 and 15Cs65) may be eligible for NRHP inclusion; however, direct impacts would be avoided. The remaining sites and isolated finds are considered not eligible for the NRHP (Burns & McDonnell, 2024c).

3.7.2 Environmental Consequences

3.7.2.1 Proposed Action Alternative

A report documenting the findings of the background research and field surveys was submitted to the SHPO (Burns & McDonnell, 2024c) on January 6, 2025. SHPO concurred with the report's recommendations and noted that no further survey is required. The cultural report and findings of no adverse effect were also presented to the Cherokee Nation, Eastern Band of Cherokee Indians, and Osage Nation for concurrence, as discussed further in Section 6.3. No responses were received from the tribes. Correspondence with the SHPO and tribes regarding the archaeology and cultural historic APEs is included in Appendix H.

In accordance with 36 CFR § 800.5(c)(1), RUS concluded the Section 106 review process and proceeded based on the recommended finding of no adverse effect to historic properties for the Proposed Action.

3.7.2.2 No Action Alternative

The No Action Alternative would have no direct or indirect impacts to historic-age and archaeological resources at or in the vicinity of the Project because no construction or operation would occur.

3.7.3 Mitigation

The Project would replace poles in place for the rebuild transmission line. Engineering solutions to span unevaluated sites 15Cs64 and 15Cs65 would be evaluated. With these engineering measures taken, no further archaeological work is recommended for the Project.

If buried cultural resources are encountered during Project construction, land-disturbing activities in the immediate area would be halted, and the investigators and Kentucky Office of State Archaeology (OSA) archaeologists would be notified. Exposed cultural resources would be evaluated for their significance, and appropriate actions to address the findings would be coordinated with the Kentucky Heritage Council (KHC) and OSA in accordance with the Project's Unanticipated Discovery Plan.

3.8 Aesthetics

3.8.1 Affected Environment

The 108-acre Project Site is bordered by Kentucky Route 49 (KY 49) to the west and Carr Sasser Road to the north and east, located approximately 4 miles north of Liberty, Kentucky. The area is relatively low, flat farmland with minimal sloping to the southeast and a tree line on the south and west property that would be left in its current state at the completion of the Project. The properties surrounding the Site are similar in composition and are primarily composed of pasture/hayfields and deciduous forests. There is an existing transmission line to the east of the Project Site.

3.8.2 Environmental Consequences

The following sections summarize potential environmental consequences of the Proposed Action Alternatives and No Action Alternative related to aesthetics.

3.8.2.1 Proposed Action Alternative

The aesthetics of the surrounding area would be altered by the RICE facility. Some minor vegetation clearing would occur along the edge of the existing forested area, and safety and security lighting would result in increased light emissions compared to ambient conditions. The two, 186-foot stacks at the facility, the RICE generating equipment and associated structures, transmission line structures, and switching station would introduce new features to the landscape.

Residents and traffic heading either north or south along KY-49 would have limited to no direct line of sight of the facility, depending on the presence of foliage on trees in the southwest portion of the property. Scenic elements along Carr Sasser Road and Ronald Clements Road would be most impacted by the facility. Sparse traffic would be expected and would be limited to residents in the immediate area. The transmission line ROWs traverse similar topography and land cover as the Project Site. Transmission line rebuild and upgrade work would occur in existing ROWs that already contains transmission infrastructure.

The Project would have minor impacts to visual resources of the surrounding areas.

3.8.2.2 No Action Alternative

The No Action Alternative would have no short- or long-term impacts to aesthetics at or in the vicinity of the Project because no construction would occur.

3.8.3 Mitigation

To mitigate visual impacts, EKPC would include vegetative screening, landscaping, berms, or other barriers to help screen the facility. Buildings, equipment, and storage facilities at the site would be neutral colored to blend with the local surroundings. EKPC would reduce potential light pollution by using down shielding or directional lighting, minimizing the amount of night-time lighting needed while accommodating safety during operation, using motion sensors or heat sensors to minimize lighting where practicable, and using low intensity energy-saving lighting (e.g., LEDs) that provides the minimum lumens needed for safe operation. Temporary construction laydown and parking areas would be revegetated to restore the area and blend with the local surroundings.

3.9 Air Quality

The air quality of the area surrounding the Project and the impacts of the Project on air quality are discussed in the following sections.

3.9.1 Affected Environment

According to the Koppen climate classification, the Project Site is in the Northern Hemisphere's Humid Subtropical zone. Features of this zone include generally warm and humid summers with mild winters. Periods of extreme cold are infrequent and typically do not last more than a few days. There are no significant precipitation differences between seasons and dry months in the summer. Winter precipitation is dominated by rainfall that tends to be widespread, continuous, and uniform in intensity and tied almost exclusively to synoptic-scale systems.

The federal government established the National Ambient Air Quality Standards (NAAQS) under the Clean Air Act (CAA) to protect public health (including the sensitive populations such as asthmatics and the elderly), safety, and

welfare from known or anticipated effects of six air pollutants commonly known as "criteria" air pollutants: sulfur dioxide (SO_2), particulate matter (particulate matter 10 microns or less in diameter (PM_{10}) and particulate matter 2.5 microns or less in diameter ($PM_{2.5}$)), CO, nitrogen dioxide (NO_2), ozone, and lead (Pb). The Significant Impact Levels (SIL) and primary NAAQS thresholds established by the EPA to protect human health and used to determine project impacts based on modeled results from air dispersion modeling are listed in Table 3-4.

Table 3-4: NAAQS and SIL Thresholds

Pollutant[a]	Averaging Period	NAAQS[b] ($\mu g/m^3$)[e]	SIL[c,d] ($\mu g/m^3$)
SO_2	3-hour	1300	25
	1-hour	196	7.8[f]
PM_{10}	24-hour	150	5
$PM_{2.5}$	Annual	9	0.13
	24-hour	35	1.2
CO	8-hour	10,000	500
	1-hour	40,000	2,000
NO_2	Annual	100	1
	1-hour	188	7.52[f]
Ozone	8-hour	0.070[g]	0.001[g]
Lead	Rolling 3-month	0.15	--

(a) SO_2 = sulfur dioxide, PM_{10} = particulate matter 10 microns or less in diameter, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter, CO = carbon monoxide, NO_2 = nitrogen dioxide
(b) NAAQS = National Ambient Air Quality Standards
(c) SIL = Significant Impact Level
(d) SIL values listed are for Class II areas
(e) $\mu g/m^3$ = micrograms per cubic meter
(f) interim SIL value
(g) Value presented is in units of parts per million

Casey County is in attainment, meaning that the area meets federal clean air standards. Several air quality monitoring sites, operated by the Kentucky Division for Air Quality (KDAQ), were used to determine the background air quality near the Site. Monitors were selected and approved by KDAQ for CO, NO_2, PM_{10}, $PM_{2.5}$, and ozone.

3.9.2 Environmental Consequences

The following sections summarize potential environmental consequences of the proposed Action Alternatives and No Action Alternative related to air quality.

3.9.2.1 Proposed Action Alternative

Construction and operation of the proposed RICE at the Project Site would be subject to applicable state and Federal air quality regulations. These regulations would apply to the Project equipment (twelve RICE units and auxiliary equipment). Regulations applicable to the proposed Project are 401 KAR Chapter 51: Attainment and Maintenance of the NAAQS, 401 KAR Chapter 52: Permits, Registrations, and Prohibitory Rules, 401 KAR Chapter 59: New Source Standards, 401 KAR Chapter 60: New Source Performance Standards, 401 KAR Chapter 63: General Standards of Performance, 40 CFR 60 New Source Performance Standards (NSPS), and 40 CFR 63 National

Emissions Standards for Hazardous Air Pollutants (NESHAP) for source categories. The following sections provide potential environmental consequences of construction and operation of the Proposed Action related to air quality.

Construction

Air emissions from the construction of the Project would occur due to 1) vehicular emissions from increased traffic from the construction work force and construction deliveries, 2) internal combustion engine emissions from construction equipment, and 3) fugitive dust (PM_{10} and $PM_{2.5}$) emissions from excavation, site preparation, and storage piles. These emissions from construction activities can be difficult to quantify, as they are dependent on the number and type of construction vehicles in operation at any given point during construction, the number of construction workers driving to and from the Project Site and ROWs for the transmission line rebuilds and upgrades, and the number and type of construction activities occurring

Operation

EKPC proposes to install twelve compression ignition RICE and accompanying auxiliary equipment at the Project Site. The RICE would be Wärtsilä Model 18V50DF with a nominal capacity of 18.3 MW each. The engines would be capable of firing both natural gas and fuel oil. Additionally, it is expected that the RICE would have as many as 1,825 total startup/shutdown events per year.

The engines would each have an SCR system to control emissions of NO_x and an oxidation catalyst to control emissions of CO. To minimize the emissions of SO_2 and $PM/PM_{10}/PM_{2.5}$, the engines' emissions would be controlled through the use of pipeline quality natural gas and good combustion practices as specified by the manufacturer. GHG emissions would be minimized with the use of natural gas as the main fuel, with fuel oil only being used as a backup fuel.

The potential emissions from the engines were analyzed at 100%, 75%, 50%, and 40% load on natural gas and fuel oil. The overall emissions were compared to the Prevention of Significant (PSD) Emission Rate Thresholds (SER). If a pollutant exceeds the SER, then that pollutant triggers the need for PSD review for that pollutant, which includes air dispersion modeling, Best Available Control Technology (BACT) analysis, and other permitting tasks.

The worst-case, future potential-to-emit calculations were performed for each pollutant for the Project and are listed in Table 3-5. Because the potential emissions of criteria pollutants are above the PSD permitting threshold, the Project triggers the PSD permitting process. The Project is expected to exceed the 100 tons per year (tpy) threshold for five criteria pollutants and therefore would be considered a Title V Major source as defined in 401 KAR 52:010. EKPC submitted a combined PSD/Title V permit application to the KDAQ in September 2024. As required, a BACT and modeling analysis was submitted as part of the permit application package.

Table 3-5: Total Project Emission Summary

Pollutant[a]	Potential Project Emissions (Tons per Year [TPY])[b]	PSD Significant Emission Rate Thresholds (TPY)	PSD Review Applicable (Yes, No)
NO_x	**670**	250	Yes
CO	**377**	250	Yes
SO_2	12.2	250	No
VOC	**294**	250	Yes
$PM/PM_{10}[c]/PM_{2.5}[c]$	**256**	250	Yes
CO_2e	**1,025,681**	75,000[d]	Yes

(a) NO_x = nitrogen oxides; CO = carbon monoxide; SO_2 = sulfur dioxide; VOC = volatile organic compounds; PM= total particulate matter; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
(b) Numbers in bold indicate the Significant Emission Rate significance level is exceeded.
(c) Filterable plus condensable
(d) If the Project does not trigger PSD for any other pollutant, the CO_2e PSD threshold does not apply per Utility Air Regulatory Group vs EPA (Case#12-1146, June 23, 2014 before the Supreme Court of the United States Court).

NESHAPs are contained in 40 CFR Part 63. NESHAPs are emissions standards set by the U.S. Environmental Protection Agency (EPA) for specific source categories. The NESHAPs require the maximum degree of emission reduction of certain hazardous air pollutant (HAP) emissions that the EPA determines to be achievable, which are known as the Maximum Achievable Control Technology (MACT) standards.

The facility is expected to be a major source of HAPs (greater than 25 tons per year of total HAPs and greater than 10 tons per year of any single HAP). Therefore, the facility is subject to MACT standard Subpart ZZZZ: National Emission Standards for HAPS for Stationary RICE.

The acid rain provisions of the CAA Amendments are specified in 40 CFR Part 72 through 78. The requirements are applicable to utilities and other facilities that combust fossil fuel (mainly coal) and generate electricity for wholesale or retail sale. Often referred to as the Acid Rain Program, the program establishes the reduction of emissions of acid rain forming pollutants, specifically, SO_2 and NO_x emissions. EKPC would not be subject to the Acid Rain Program for the dual-fuel RICE located at the facility as the RICE units are not generators with a nameplate capacity greater than 25 MW each and do not meet other applicability requirements. These units are therefore exempt from the Acid Rain regulations.

The regulatory requirements for air quality are designed to protect human health. By meeting the established requirements (NAAQS, NSPS, NESHAPs, etc.), EKPC will meet all air quality regulations and maintain existing air quality so as to protect human health.

3.9.2.2 No Action Alternative

The No Action Alternative would have no short- or long-term impacts to air quality at or in the vicinity of the Project because no construction or operation would occur. However, there would still be a need for power capacity that would be obtained elsewhere, likely from existing fossil-fueled sources or new PPAs with fossil-fueled sources.

3.9.3 Mitigation

Construction activities would have air emissions but are anticipated to be minimal outside of the construction areas and would be temporary in nature. The majority of the construction emissions would be from fugitive sources and construction equipment. Fugitive dust control measures could include, but are not limited to, the following:

- Applications of water;
- Paving or watering of roadways after completion of grading;
- Reduction in speed on unpaved roadways to 15 miles per hour or less; and
- Seeding of areas within 30 days of final grading establishment

For operations, the air emissions calculations have determined that the Project would be a major PSD source and would require a Title V Major Source operating permit. All equipment would meet applicable NSPS and NESHAP limits. Because the Project is a PSD major source, a BACT analysis was completed, and the Project will therefore

include an SCR system to control NO_x emissions and an oxidation catalyst to control CO and VOC emissions. Good combustion practices would minimize to the maximum extent practicable, emissions of SO_2, PM_{10} and $PM_{2.5}$. EKPC submitted an air permit application for the Project to the KDAQ in September 2024 and would adhere to the conditions and requirements of the permit during operation of the Project.

3.10 Climate Change and Greenhouse Gas Emissions

The CEQ issued additional guidance on January 9, 2023, titled, *National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change* (88 FR 1196) directing Federal agencies to consider all available tools and resources in assessing GHG emissions and climate change effects of their proposed actions under NEPA. The public comment period was open until April 10, 2023.

This section describes the affected environment and potential environmental consequences related to GHGs and the potential implications of these emissions to influence climate change. Existing conditions and environmental consequences associated with other air emissions are addressed in Section 3.9 Air Quality of this document. Additional sources of GHGs beyond electric generating units include, but are not limited to, emissions from the construction of the power plant natural gas delivery infrastructure, upstream emissions from natural gas or fuel oil extraction and delivery pipelines, and additions to the local electrical transmission network.

Human activities such as the combustion of fossil fuels could contribute GHG emissions to the surrounding study area. Increases in GHG emissions have been proposed to change atmospheric chemistry, potentially leading to changes in climate, particularly a trend toward increased average temperatures around the globe.

This section describes the affected environment and potential environmental consequences related to GHGs and the potential implications for these emissions to influence climate change. Existing conditions and environmental consequences associated with other criteria air pollutant emissions are addressed in Section 3.9 of this document.

3.10.1 Affected Environment

The Project would be located in an area surrounded by a mix of undeveloped lands, residences, and agricultural activities. Air emission sources from the land uses surrounding the Project Site would include vehicular and agricultural activities. These activities generate a variety of air pollutants, many of which are identified, tracked, and regulated by the EPA under the CAA. In addition, several components of these emissions are identified as GHGs.

GHGs have been identified as affecting the earth's temperature. Called the "greenhouse" effect, this is a naturally occurring phenomenon in which various gases in the earth's atmosphere (classified as GHGs) play a role in determining the earth's temperature. Solar radiation enters the earth's atmosphere from space and a portion of the radiation is absorbed by the earth's surface. The earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. GHGs, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs contributing to the greenhouse effect are CO_2, methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. Primary GHGs are discussed, as follows:

3.10.1.1 Carbon Dioxide (CO_2)

CO_2 is a colorless, odorless gas. It is emitted both naturally and through human activities. CO_2 is naturally present in the atmosphere as part of the earth's carbon cycle (the natural circulation of carbon among the atmosphere,

oceans, soil, plants, and animals). While CO_2 emissions come from a variety of natural sources, an increase in CO_2 emissions has been recorded in the atmosphere since the industrial revolution. CO_2 is the primary GHG emitted through human activities, largely from the combustion of fossil fuels such as coal, oil, and gas. The transportation and energy sectors are the largest CO_2 emitters in the United States (EPA, 2024a). Energy production and support, agricultural production, and manufacturing are the biggest CO_2 emitters in the Project vicinity (EPA, 2022).

3.10.1.2 Methane (CH_4)

CH_4 is a colorless, odorless gas that is not flammable under most circumstances. CH_4 is the major component of natural gas, about 87% by volume. In 2022, CH_4 accounted for about 12% of all United States GHGs from human activities (EPA, 2024b). Human activities emitting CH_4 include leaks from natural gas systems and the raising of livestock. CH_4 is also emitted by natural sources such as decomposition of vegetation, particularly in anerobic environments such as wetlands. In addition, natural processes in soil and chemical reactions in the atmosphere help remove CH_4 from the atmosphere. CH_4's lifetime in the atmosphere is much shorter than CO_2, but CH_4 is more efficient at trapping radiation than CO_2. Pound for pound, the comparative impact of CH_4 is more than 28 times greater than CO_2 over a 100-year period (EPA, 2024a). Methane is the primary GHG emitted during the extraction and production of natural gas and is a significant driver of current warming (Lackner et al., 2021). The largest sources of CH_4 in the Project vicinity are the transportation, energy, and agricultural sectors.

In addition to the transportation and use of natural gas, there are several agricultural areas near the Site. Agricultural activities that contribute to CH_4 are the combustion of fossil fuels in automobiles traversing the agricultural fields and in heavier farming machinery.

3.10.1.3 Nitrous Oxide (N_20)

N_2O is a clear, colorless gas with a slightly sweet odor. In 2021, N_2O accounted for about 6% of all United States GHGs emissions from human activities (EPA, 2024b). Human activities such as agriculture, fuel combustion, wastewater management, and industrial processes are increasing the amount of N_2O in the atmosphere and are the largest sources of N_2O in the Project vicinity. N_2O is also naturally present in the atmosphere as part of the earth's nitrogen cycle and has a variety of natural sources. N_2O molecules stay in the atmosphere for an average of 114 years before being removed by a sink or destroyed through chemical reactions. The impact of 1 pound of N_2O on warming the atmosphere is almost 265 times that of 1 pound of CO_2 (EPA, 2024a).

3.10.1.4 Fluorinated Gases

Unlike many other GHGs, fluorinated gases have no natural sources and only come from human-related activities. They are emitted through their use as substitutes for ozone-depleting substances (e.g., as refrigerants) and through a variety of industrial processes such as aluminum and semiconductor manufacturing. Many fluorinated gases have very high global warming potentials (GWPs) relative to other GHGs, so small atmospheric concentrations can have disproportionately large effects on global temperatures (EPA, 2024a). They can also have long atmospheric lifetimes—in some cases, lasting thousands of years. Like other long-lived GHGs, most fluorinated gases are well-mixed in the atmosphere, spreading around the world after they are emitted. Many fluorinated gases are removed from the atmosphere only when they are destroyed by sunlight in the far upper atmosphere. In general, fluorinated gases are the most potent and longest lasting type of GHGs emitted by human activities.

There are four main categories of fluorinated gases—hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF_6), and nitrogen trifluoride. The major emissions source of HFC compounds is their use as refrigerants—for example, in air conditioning systems in both vehicles and buildings. These chemicals were developed as a replacement for chlorofluorocarbons because they do not deplete the stratospheric ozone layer.

PFCs are produced as a byproduct of aluminum production and are used in the manufacturing of semiconductors. PFCs generally have long atmospheric lifetimes and GWPs near 10,000. SF_6 is used in magnesium processing and semiconductor manufacturing, as well as a tracer gas for leak detection. SF_6 is also used as an insulating gas in electrical transmission equipment, including circuit breakers. The GWP of SF_6 is 22,800, making it the most potent GHG that the Intergovernmental Panel on Climate Change has evaluated (EPA, 2017). There is not currently a practical alternative to SF_6 as an insulating gas.

3.10.1.5 Global Warming Potentials

GHGs vary widely in the power of their climatic effects; therefore, climate scientists have established GWPs. The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO_2. The GWP of CO_2 is set to equal 1. CH_4 and N_2O are approximately 25 and 298 times more powerful than CO_2, respectively, in their ability to trap heat in the atmosphere; thus, they have GWPs of 25 and 298, respectively. CO_2e is a quantity that enables all GHG emissions to be considered as a group despite their varying GWPs. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO_2e. The atmospheric lifetime and GWP of selected GHGs are summarized in Table 3-6.

Table 3-6: Global Warming Potentials and Atmospheric Lifetimes

Greenhouse Gas	Atmospheric Lifetime (years)[1]	Global Warming Potential (100-year time horizon)[2]
Carbon dioxide (CO_2)	50–200	1
Methane (CH_4)	12	25
Nitrous oxide (N_2O)	114	298
Sulfur hexafluoride (SF_6)	3,200	22,800

Sources:
(1) IPCC, 2007
(2) 40 CFR 98 Subpart A

3.10.1.6 Potential Effects of Greenhouse Gases

An increase in GHGs released to the atmosphere has been linked to warming of the earth on a global scale. Earth's average temperature has risen by 1.5 degrees Fahrenheit (°F) over the past century and is projected to rise another 0.5 to 8.6 °F over the next hundred years. Rising global temperatures have been accompanied by changes in weather and climate. Many places have seen changes in rainfall, resulting in more droughts, floods/intense rain as well as heat waves. Oceans are warming and becoming more acidic (EPA, 2024d). Ice caps and glaciers are melting, causing sea levels to rise. Other effects include, but are not limited to, the spread of diseases out of their normal range, habitat loss, negative impacts to agriculture production, increased air pollution episodes, and impacts to the economy are expected to result from climate change (EPA, 2024d).

3.10.2 Environmental Consequences

The following sections provide potential environmental consequences of the Proposed Action Alternatives and No Action Alternative related to climate change and GHG.

3.10.2.1 Proposed Action Alternative

Unlike criteria pollutants, there is no standard methodology to determine how a project's relatively small incremental contribution to GHGs would translate into physical effects on the global environment. As a result, this section focuses on the level of GHG from Project emissions.

Construction

During construction of the facility, small amounts of air pollutants, including GHGs, would be temporarily generated. The largest source of GHG emissions during construction is the combustion of fuels such as gasoline or diesel by construction equipment. These construction emissions would be temporary in nature, would fall off rapidly with distance from construction areas, and are not anticipated to result in long-term impacts. Once the construction activities are completed, construction-related emissions would cease.

Operation

A variety of emissions resulting from Project operation are considered GHGs. GHG emissions from the Project equipment are due to CO_2, CH_4, SF_6, and N_2O emissions. These calculated GHG emissions were ratioed with their appropriate GWP shown in Table 3-6 and summed to obtain the overall Project CO_2e emissions. Consistent with Kentucky and EPA guidance, air dispersion modeling of CO_2e would not be conducted since there is no modeling threshold for this pollutant.

The proposed engines would operate on natural gas with fuel oil backup. Natural gas is considered a low-carbon fuel; due to this classification, firing natural gas is considered a control technology for the RICE.

Each of the new circuit breakers would contain SF_6. SF_6 is a potent greenhouse gas with a global warming potential of 22,800 times that of CO_2. The new circuit breakers are state-of-the-art and would be sealed and SF_6 leakage would be minimized. Modern circuit breakers and switches are designed as totally enclosed, pressure containing systems with far lower potential for SF_6 emissions than older circuit breakers. The current International Electrotechnical Commission standards are that new equipment be built to low leakage limits (less than 0.5% per year).

Potential GHG emissions from the Project are shown in Table 3-7.

Table 3-7: Project Emissions of Greenhouse Gases

Source	Air Emissions (tons per year, tpy)				
	CO_2	CH_4	N_2O	SF_6	CO_2e
Engines[a]	1,021,759	26.85	4.07	--	1,023,642
Natural Gas Preheater	1,557.56	0.029	0.003	--	1,559.16
Emergency Generator	217.36	0.0088	0.0017	--	218.10
Emergency Fire Water Pump	56.19	0.0023	0.00045	--	56.38
Piping Components	0.040	6.78	--	--	169.61
Breakers (11 Units)	--	--	--	0.0016	36.37
Total	**1,023,590**	**33.67**	**4.08**	**0.0016**	**1,025,681**

Source: PSD/Title V Permit Application (September 2024)
(a) Represents worse-case emissions scenario.
(b) Dashes indicate no emissions expected for this source.

To put the CO_2e emissions into perspective, the GHG emissions for the State of Kentucky were reviewed, utilizing the Greenhouse Gas Inventory Data Explorer (EPA, 2024b). This interactive tool provides public access to the EPA's annual Inventory of U.S. Greenhouse Gas Emissions and Sinks and the new U.S. Greenhouse Gas Emissions and Sinks by State reports. The last five years of available greenhouse gas emission data was pulled for the State of

Kentucky; since the most recent year available in the tool is 2022, emissions data from 2018 to 2022 were reviewed. The tool reports data in millions of metric tons. To directly compare the emissions data to the Project emissions, these values were converted into US short tons. US short tons are used for the CO_2e emissions utilized in the air permit application, the air emissions in Section 3.9, and this section. The average state-wide CO2e emissions for the most recent 5 years of data available (2018-2022) were determined to be 7,058,463,422 tons per year (EPA, 2024b). The Project CO_2e emissions, as shown above, are calculated to be 1,025,681 tons per year. This equates to 0.01% of the statewide CO_2e emissions.

Social Cost of Carbon

The "social cost of carbon," "social cost of nitrous oxide", and "social cost of methane" – together, the "social cost of greenhouse gases" (SC-GHG), are estimates, in dollars, of the economic damages that would result from emitting one additional ton of a greenhouse gas into the atmosphere in a given year. The "social cost" puts the effects of climate change into economic terms to help policymakers and decisionmakers understand the economic impacts of decisions that would increase or decrease emissions. On January 20, 2021, President Biden issued E.O. 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis. Section 1 of E.O. 13990 establishes an Administration policy to listen to the science; improve public health and protect our environment; ensure access to clean air and water; reduce greenhouse gas emissions; and bolster resilience to the impacts of climate change. Section 2 of E.O. 13990 calls for Federal agencies to review existing regulations and policies issued between January 20, 2017, and January 20, 2021, for consistency with the policy articulated in the E.O. and to take appropriate action. Consistent with E.O. 13990, the CEQ rescinded its 2019 "Draft National Environmental Policy Act Guidance on Considering Greenhouse Gas Emissions" and issued interim NEPA Guidance on Consideration of Greenhouse Gas Emissions and Climate Change (CEQ, 2023). This guidance, effective upon publication, builds upon and updates the CEQ's 2016 Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews.

While CEQ works on updated guidance, it has instructed agencies to consider and use all tools and resources available to them in assessing GHG through the use of social cost of GHG estimates (CEQ, 2023). Regarding the use of Social Cost of Carbon or other monetized costs and benefits of GHGs, the 2016 GHG Guidance noted that NEPA does not require monetizing costs and benefits. It also noted that "the weighing of the merits and drawbacks of the various alternatives need not be displayed using a monetary cost-benefit analysis and should not be when there are important qualitative considerations." Section 5 of E.O. 13990 emphasizes how important it is for federal agencies to "capture the full costs of greenhouse gas emissions as accurately as possible, including taking global damages into account" and establishes the Interagency Working Group (IWG). In February of 2021, the IWG published Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide: Interim Estimates under E.O. 13990 (IWG, 2021), and updates previous CEQ guidance from 2016. In accordance with the current directive, this subsection provides estimates of the monetary value of changes in GHG emissions that could result from selecting each alternative. Such analysis should not be construed to mean a cost determination is necessary to address potential impacts of GHGs associated with specific alternatives. These numbers were monetized; however, they do not constitute a complete cost-benefit analysis, nor do the SC-GHG numbers present a direct comparison with other impacts analyzed in this document. SC-GHG is provided only as a useful measure of the benefits of GHG emissions reductions to inform agency decision-making.

For federal agencies, the best currently available estimates of the SC-GHG are the estimates of the social cost of carbon dioxide, methane, and nitrous oxide developed by the EPA. The EPA published the document "Supplementary Material for the Regulatory Impact Analysis for the Final Rulemaking, "Standards of Performance for New, Reconstructed and Modified Sources and Emission Guidelines for Existing Sources: Oil and Natural Gas

Sector Climate Review - EPA Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances"

Select estimates are published in the Technical Support Document (EPA, 2023) and the complete set (2020-2080) of annual estimates are available on the EPA's Website. The EPA's SC-GHG estimates are based on complex models describing how GHG emissions affect climate and how they affect economic outcomes, including changes in agricultural productivity, damages caused by sea level rise, and declines in human health and labor productivity. One key parameter in the models is the discount rate, which is used to estimate the present value of the stream of future damages associated with emissions in a particular year. A higher discount rate assumes that future benefits or costs are more heavily discounted than benefits or costs occurring in the present (i.e., future benefits or costs are a less significant factor in present-day decisions). The current set of interim estimates of SC-GHG have been developed using three different annual discount rates: 1.5%, 2%, and 2.5% (EPA, 2023).

As expected with such a complex model, there are multiple sources of uncertainty inherent in the SC-GHG estimates. Some sources of uncertainty relate to physical effects of GHG emissions, human behavior, future population growth and economic changes, and potential adaptation (IWG, 2021). To better understand and communicate the quantifiable uncertainty, the IWG and EPA model generates several thousand estimates of the social cost for a specific gas, emitted in a specific year, with a specific discount rate. These estimates create a frequency distribution based on different values for key uncertain climate model parameters. The shape and characteristics of that frequency distribution demonstrate the magnitude of uncertainty relative to the average or expected outcome.

For this analysis, the build scenario represents the operation of the proposed RICE facility. The no-build scenario represents a zero-emission scenario. The operation start date for the proposed plant is targeted for 2028. The IWG projections are limited to 2050. Therefore, this analysis calculates the SC-GHG from 2028-2050 (analysis lifespan). Maximum annual emissions were projected for the RICE facility's lifespan, which is conservatively assumed to be 25 years. It was assumed that the units would operate at 150 million British thermal units per hour (MMBtu/hr), each, for all expected natural gas actual operational hours and 2,400 hours of fuel oil operation. Standard emission factors for natural gas and fuel oil combustion were sourced from Table C-1 to Subpart C of Part 98, Title 40. These calculated annual emission values were used in conjunction with the social cost estimates provided in the IWG Report to calculate the SC-CO_2, SC-CH_4, SC-N_2O for the analysis lifespan.

The SC-GHGs were calculated using the estimated emissions from the proposed Project. These emissions were previously discussed in Table 3-7. These SC-GHG estimates represent the present value of future market and nonmarket costs associated with CO_2, CH_4, and N_2O emissions. Estimates are calculated based on EPA estimates of social cost per metric ton of emissions for a given emissions year and EKPC estimates of emissions in each year. They are rounded to the nearest $1,000. In Table 3-8, the social cost is shown for the build scenario where it is assumed that the proposed Project moves forward. For the discount rates, in order from high to low, over the analysis lifespan the SC-GHG was calculated to be approximately $2,983, $4,981, and $8,704 million in 2020 dollars if the Project is constructed and operational compared to the no build (no emissions) scenario. The EPA SC-GHG workbook is included in Appendix E.

Table 3-8: Present Value of Estimated SC-GHG for GHG Emissions Associated with the Proposed Project over a 25-year Lifespan (millions, 2020$)

Discount Rates	2.5%	2%	1.5%
Statistic	Average	Average	Average

Build Scenario SC-GHG	$2,982	$4,981	$8,704

Notes:
(a) Analysis lifespan is from 2028 to 2052
(b) This analysis does not incorporate upstream, downstream, or construction emissions, SC-GHG is the sum SC-CO_2, SC-CH_4, SC-N_2O.

Upstream GHG Emissions

Upstream GHG emissions from the transportation of natural gas on the Columbia Gulf Transmission, LLC gas pipeline were estimated as a part of the climate change analysis. EKPC consulted the EPA Inventory of U.S. GHG Emissions and Sinks (EPA, 2024c) as well as the EPA's "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from Combustion Turbine Electric Generating Unit" (EPA, 2022), for use to determine an emission factor for upstream natural gas transportation losses. Additionally, Northwest Power and Conservation Council's "Upstream Methane Emissions and Power Planning (NPCC, 2020) and Center for Climate and Energy Solutions "Natural Gas" (C2ES, 2021) were consulted to confirm the loss rates. These losses are not caused by the Project but are associated with natural gas delivery to the site. The facilities transporting this gas are currently in-place, aside from a new tap line and metering and regulation station onsite the plant would use. EKPC determined a 1.5% methane loss during transportation of natural gas was appropriate based on the available data on methane loss. This 1.5% value was taken from the "Available and Emerging Technologies for Reducing Greenhouse Gas emissions from Combustion turbine Electric Generating Unit" document mentioned above. The other two documents confirmed that a leak rate of approximately 1.5% is appropriate for use in these types of analyses.

To calculate annual CO_2e emissions from upstream transportation of natural gas, an annual million British thermal units per year (MMBtu/yr) of natural gas usage was utilized based on the maximum possible run hours/load for each engine. The annual natural gas use by the proposed RICE was estimated to be 11,448,000 MMBtu/yr. A 1.5% leakage for this amount of natural gas was calculated to equate to 16.9 lb CO_2e/MMBtu of natural gas. Multiplying this natural gas leakage rate by the total estimated annual natural gas use provided a natural gas leakage emissions estimate of 87,773 metric tons CO_2e per year. This is equivalent to 0.001% of the average state-wide CO_2e emissions for the State of Kentucky over the last five years with available data (2018-2022).

Upstream emissions from fuel oil were estimated from emission factors produced by National Energy Technology Laboratory's (NETL) Upstream Dashboard v3 and the estimated annual fuel oil consumption. The annual fuel oil use by the proposed RICE was estimated to be 360,000 MMBtu/yr. Using the emission factor from NETL, upstream emissions from fuel oil were calculated to be a total of 348,234 tons CO_2e per year. This is equivalent to 0.005% of the average state-wide CO_2e emissions for the State of Kentucky over the last five years with available data (2018-2022).

3.10.2.2 No Action Alternative

The No Action Alternative would result in no new greenhouse gas emissions at the Project Site. However, there would still be a need for power capacity that would be obtained elsewhere, likely from existing fossil-fueled sources or new PPAs with fossil-fueled sources.

3.10.3 Mitigation

During construction, steps would be taken to prevent excess emissions of GHG resulting from construction activities and vehicular traffic. These steps may include reducing the idling of construction vehicles.

EKPC submitted an air permit application for the Project to KDAQ in September 2024. EKPC would adhere to the conditions and requirements of the permit during operation of the Project.

3.11 Socio-Economic Impact Assessment

3.11.1 Affected Environment

To identify general socioeconomic patterns in the Project Area, various socioeconomic characteristics have been reviewed, including population growth trends, racial and ethnic characteristics, employment data, and economic indicators.

Population Growth Trends

The Project Site is in Casey County, Kentucky, and the transmission line upgrades and rebuilds are located in Casey and Marion Counties, Kentucky. These are predominantly rural areas that have experienced little change in population over the last 10 years. Table 3-9 presents the population trends near the Project.

Table 3-9: Population Trends

	Kentucky	Casey County	Marion County
2010 Census Population[1]	4,339,367	15,955	19,820
2020 Census Population[1]	4,505,836	15,941	19,581
2023 Population Estimate[2]	4,526,154	15,918	19,834
% Change 2020-2023	0.4%	-0.1%	1.3%

Source: U.S. Census Bureau, 2023a

[1] From Decennial Census Datasets, updated every 10 years

[2] From Population and Housing Unit Estimates, updated annually

Racial and Ethnic Characteristics

The U.S. Census Bureau publishes demographic estimates on an ongoing basis as part of the American Community Survey (ACS). The most recent ACS 5-year estimates (2018-2022) for both counties and the state are presented in Table 3-10.

Table 3-10: Racial Characteristics

	Kentucky	Casey County	Marion County
Total Population (ACS 2022 5-year estimates)	4,502,935	15,942	19,581
White	84.8%	95.5%	89.0%
Black or African American	8.0%	0.9%	6.9%
American Indian and Alaskan Native	0.2%	0.2%	0.2%
Asian	1.5%	0.3%	0.6%
Pacific Islander	0.1%	0.0%	0.1%
Other Race alone	1.3%	1.0%	0.7%
Two or More Races	4.2%	2.1%	2.5%

Source: U.S. Census Bureau, 2022d

Employment and Income

Table 3-11 provides employment characteristics for the state and county. Major industries in Casey and Marion Counties include manufacturing, government jobs, and health care/social assistance (KY Stats, 2021).

Table 3-11: Employment Data

	Kentucky	Casey County	Marion County
Population 16 years and over	3,607,440	12,754	15,443
In labor force	2,147,538 (59.5%)	6,126 (48.1%)	8,260 (53.5%)
Employed (civilian labor force)	2,025,396 (56.1%)	5,490 (43%)	7,767 (50.3%)
Unemployed (civilian labor force)	108,558 (3%)	636 (5%)	493 (3.2%)
Armed forces	13,584 (0.4%)	6 (<0.01%)	0 (<0.01%)
Not in labor force	1,459,902	6,628	7,183
Top industry	Government Employed	Manufacturing	Manufacturing

Source: U.S. Census Bureau, 2022a; Kentucky Center for Statistics, 2021

The unemployment rate and poverty rate in both counties is higher than that of Kentucky as a whole. Table 3-12 shows income and poverty data for the state and counties.

Table 3-12: Income and Poverty

	Kentucky	Casey County	Marion County
Median household income (in 2022 dollars), 2018- 2022	$60,183	$42,190	$49,627
Percent of persons in poverty	16.2%	26.5%	20.0%

Source: U.S. Census Bureau, 2023a and U.S. Census Bureau, 2023c

Housing

Table 3-13 provides the housing characteristics for the counties.

Table 3-13: 2020 Housing Statistics

	Kentucky	Casey County	Marion County
Housing Units	2,036,728	7,446	8,537
Percent of owner-occupied housing units	68.1%	75.8%	73.8%
Vacant housing units	230,100	1,359	793
Median House Value	$177,000	$124,300	$141,000

Source: U.S. Census Bureau, 2023a, U.S Census Bureau, 2022b

Area Public Service and Utilities

Educational Facilities, Medical Facilities, Fire Station, and Police Stations are shown in Appendix A, Figure 4 and summarized below.

Educational Facilities: There are multiple schools within two miles of the Project Area, including Casey County Middle and High School and Lebanon Elementary and Middle School.

Medical Facilities: There are two hospitals within two miles of the Project Area: Casey County Hospital and Spring View Hospital.

Casey County Hospital has a 24-hour acute care, critical access hospital with a variety of long-term services. The hospital operates two rural health clinics – Casey County Primary Care and Casey County Family Practice – as well as a program for senior adults.

Spring View Hospital is a 24-hour 75-bed facility offering a full range of services with state-of-the art technology offering a wide range of specialties.

Fire Protection: There are multiple fire departments near the Project Area. The Lebanon, Marion, Brush Creek, and Poplar Springs fire departments provide services to the Project Area.

Police Protection: There are a few sheriff and police departments near the Project Area including Casey County Sheriff's Office, Liberty Police Department, Marion County Sheriff, and Lebanon Police Department. Rural areas are served by county sheriffs while areas within the cities are patrolled by the respective city police departments.

Potable Water, Sanitary Sewer, Electricity, Gas, and Solid Waste: The RICE facility would be served by the East Casey County Water District. Electricity to the Project Site would be supplied by the electrical grid from Inter-County Energy. Natural gas would be supplied to the site by Columbia Gulf Transmission, LLC. Solid waste would be disposed of through a local service provider and sanitary waste would likely utilize an on-site septic system with lateral line fields. The final wastewater pathways for wastewater streams including process water, sanitary water, and stormwater are still being determined.

Recreation and Open Space: Public recreational land does not exist near the Project Site or transmission line ROWs. The closest open space is a 1,293-acre Marion County Wildlife Management Area and State Forest, located approximately 7 miles southeast of the northern transmission line. This wildlife area is open for regulated public hunting, hiking and wildlife viewing.

3.11.2 Environmental Consequences

The following sections summarize potential environmental consequences of the Proposed Action Alternative and No Action Alternative related to the local population.

3.11.2.1 Proposed Action Alternative

Construction activities would temporarily stimulate the local community. Additional jobs in the construction trades such as pipefitters, electricians, insulators, construction management personnel, laborers, and carpenters may be available to the local workforce. Peak construction labor force for the Project is expected to be approximately 200 workers. The length of peak employment would range from a few weeks to several months, depending on skill or specialty.

Gas stations, convenience stores, and restaurants in nearby communities could experience increases in business during the construction period in response to activity from construction workers.

The construction workforce required for the proposed Project may have an impact on the availability of temporary housing. Construction workers may seek temporary housing for varying time periods based on their individual roles in the proposed Project. Casey and Marion Counties have a limited supply of temporary housing units available for use by construction workers relocating to the area on a temporary basis. Short-term housing is likely to experience the largest increase in demand due to the transient nature of construction workers and their limited duration in the proposed Project vicinity. Generally, housing options for construction crews would consist of area hotels or RV camps.

The Project is not anticipated to result in increased demand for emergency services. EKPC would have on-site safety professionals during working hours for non-life-threatening injuries and first aid treatment. A local medical treatment facility would be used for medical services beyond that scope. EKPC is responsible for preparing an emergency response plan that would be implemented during Project construction and operation. The plan would have a site map showing areas for assembly, location of emergency stations, and site evacuation route.

The Project would be located in a rural area with relatively few homes and businesses nearby. Adverse human impacts could include additional noise and traffic impacts during construction, temporary visual impacts during construction, and changes in long-term visual impacts during operation. No new operational impacts are proposed. There would be no new ROWs, and any pole structures that need to be replaced would be replaced at the same location or within close proximity to the existing pole location to avoid impacts to sensitive resources. Noise and traffic impacts would be experienced within the immediate vicinity of the ROWs, but impacts would be temporary and localized.

A property value impact study was completed, which indicated that the RICE facility is not expected to negatively impact adjoining property values (Burns & McDonnell, 2024a). The adjoining properties are mostly well set back from the proposed RICE facility. Supplemental vegetation is proposed to enhance the areas where the existing trees would not currently screen the facility.

3.11.2.2 No Action Alternative

The No Action Alternative would have no short- or long-term impacts on the local population at or in the vicinity of the Project because no construction or operation would occur.

3.11.3 Mitigation

No adverse human health or environmental effects would result from the Project. The generation of revenue and local jobs is often viewed as a positive contribution to the surrounding communities. Therefore, no mitigation measures are proposed for socioeconomic impacts.

3.12 Noise

3.12.1 Affected Environment

The Project Site is located in Casey County, Kentucky approximately 3.5 miles northwest of the City of Liberty. Surrounding the immediate Project Site are agricultural fields and some residential structures, as well as a small business adjacent to the east of the Project Site. There are eight residences within 0.5 mile of the proposed construction activity and Project equipment. Primary existing noise sources in the area include traffic from Highway 49 and local agricultural activities.

The proposed transmission line rebuilds and upgrades would occur within existing, maintained ROWs that are 150-feet wide. Similar to the Project Site, the ROWs include and are surrounded by agricultural fields and rural residential areas. The ROWs also cross deciduous forested areas, which are cleared and maintained as open land

within the 150-foot-wide ROW. Primary existing noise sources in the area include highway traffic and local agricultural activities.

Noise Regulations

The area immediately surrounding the proposed Project Site is unincorporated residential and agricultural. There are residential properties and agricultural fields on all sides of the Project.

Applicable federal, state, county, and municipal noise ordinances were reviewed for the Project and surrounding area. The Project Site is outside of any municipalities, and the State of Kentucky and Casey County do not have noise ordinances with applicable numerical sound level limits for the Project.

There is a section of transmission line ROW located within the City of Lebanon and unincorporated Marion County. Neither Lebanon nor Marion County have noise ordinances with applicable numerical sound level limits for the transmission line construction.

3.12.2 Environmental Consequences

The following sections summarize potential environmental consequences of the proposed Action Alternatives and No Action Alternative related to noise. Because there were no identified noise regulations, Table 3-14 shows A-weighted sound pressure levels of common sound sources and their associated subjective loudness.

Table 3-14: Typical Sound Pressure Levels Associated with Common Sound Sources

Sound Pressure Level (dBA)	Subjective Evaluation	Environment
140	Deafening	Jet aircraft at 75 feet
130	Threshold of pain	Jet aircraft during takeoff at a distance of 300 feet
120	Threshold of feeling	Elevated train
110	Very loud	Jet flyover at 1,000 feet
100		Motorcycle at 25 feet
90	Moderately loud	Propeller plane flyover at 1,000 feet
80		Diesel truck (40 mph) at 50 feet
70	Loud	B-757 cabin during flight
60	Moderate	Air-conditioner condenser at 15 feet
50	Quiet	Private Office
40		Farm field with light breeze, birdcalls
30	Very quiet	Quiet residential neighborhood
20		Rustling leaves
10	Just audible	--
0	Threshold of hearing	--

Sources:
(1) Adapted from *Architectural Acoustics*, M. David Egan, 1988
(2) *Architectural Graphic Standards*, Ramsey and Sleeper, 1994

3.12.2.1 Proposed Action Alternative

Construction

Project construction would result in temporary and minor noise impacts to the surrounding area. Construction-related sounds would vary in intensity and duration depending on specific stages and activities of construction but would not be permanent. Nearby residences may temporarily experience increased noise during construction.

Construction of the proposed Project is expected to last approximately 24 months and would involve Project Site preparation, excavation, placement of concrete and other typical industrial construction practices. Construction may occur on a 7-days per week, 24-hours per day schedule to minimize the length of calendar time that temporary construction impacts affect the area. There are certain operations that, due to their nature or scope, must be accomplished in part outside typical working hours. Such work generally consists of activities that must occur continuously, once begun (such as pouring concrete foundations).

The impacts that various construction-related activities might have would vary considerably based on the proximity to the property line. Generic sound data ranges are available for various types of equipment at certain distances. Table 3-15 lists generic activities and their minimum and maximum instantaneous sound levels at 50 feet.

Table 3-15: Range of Typical Construction Equipment Noise Levels in A weighted decibel (dBA)

Generic Construction Equipment	Minimum Noise at 50 feet	Maximum Noise at 50 feet
Backhoes	74	92
Compressors	73	86
Concrete Mixers	76	88
Cranes (movable)	70	94
Dozers	65	95
Front Loaders	77	96
Generators	71	83
Graders	72	91
Jack Hammers and Rock Drills	80	98
Pumps	69	71
Scrapers	76	95
Trucks	83	96

Source: FHWA Highway Construction Noise

The types of equipment listed in the table above may be used at various times and for various amounts of time. Construction of the Project may involve driving piles. Equipment noise would be addressed during construction, and sound dampening material may be used if necessary. Most activities would not occur at the same time. There would be periods when concrete needs to dry and no construction occurs. Sound levels are expected to be quieter for areas where activities are occurring at distances greater than 50 feet from the property line.

Noise from construction is expected to be localized and temporary. The actual noise levels generated by construction would vary on a daily and hourly basis, depending on the activity that is occurring, and the types and number of pieces of equipment that are operating. Noise resulting from construction would vary with equipment type and age, type of work being done, distance from receptor, and meteorological conditions. It is expected that most construction would be done during the daytime when receptors are less sensitive to noise and that the noise would be intermittent. Any excessive construction noise should be of short duration and have minimal adverse long-term effects on land uses or activities associated with the Project vicinity.

Operation

A noise study was completed for the Project operational sound levels based on the expected equipment associated with the RICE facility. No operational noise would occur as a result of the operation of the transmission line rebuilds and upgrades. The noise study is provided in Appendix F and included background sound monitoring and acoustical modeling for the Project.

The RICE facility could operate day or night. Base operational sound levels for the Project indicate that the facility would be audible during periods of low traffic and is expected to cause an increase to existing nighttime sound levels of approximately 20 dBA at the worst-case receptor. The existing ambient sound levels and the predicted Project-generated sound levels during operation are shown in Table 3-16 below for the nearest noise-sensitive receptors.

Table 3-16: Project Background and Operational Sound Levels

Receptor Location	Assumed Average Ambient Sound Level (dBA)	Predicted Project Sound Levels (dBA)
R1	32	50
R2	32	43
R3	32	42
R4	32	45
R5	32	52

Project sound levels are expected to be slightly above the expected ambient sound levels for the area, with the most significant impacts having potentially moderate effect at the nearby neighbors during periods of lower ambient sound levels.

3.12.2.2 No Action Alternative

The No Action Alternative would have no short- or long-term impacts to noise at or in the vicinity of the Project because no construction or operation would occur.

3.12.3 Mitigation

The Project design includes significant low-noise mitigation upgrades including a high-transmission loss rated RICE building, a roof ridge vent silencer, insulated exhaust duct, a resonator silencer, a charge air intake silencer, a high-performance exhaust silencer, and a noise level 4 (“ultra-low-noise”) radiator option.

Mitigation options have been included, even though sound mitigation measures are not required for the Project since there are no applicable noise limits for the Project. In addition to the designed mitigation, Occupational Safety and Health Administration (OSHA) standards would be met onsite.

3.13 Transportation

3.13.1 Affected Environment

The Project Site is bordered by KY 49 and Carr Sasser Road. KY 49 is a two lane, asphalt paved state highway that intersects with Carr Sasser Road, a two lane, asphalt paved county road at the northwest corner of the Project Site. Per KYTC Traffic Counts Map, the 2022 average annual daily travel (AADT) for KY 49 is approximately 1,018 vehicles per day. No AADT is available for Carr Sasser Rd, but it can be assumed that daily travel is less than KY 49, limited to accessing the few residences and business on Carr Sasser Road. A traffic study was completed for the Project to verify road adequacy and flow parameters (Appendix G).

The transmission line rebuild and upgrades would cross multiple state routes and local roads within existing ROW areas.

In accordance with 14 CFR Part 77, the Federal Aviation Administration (FAA) reviews certain development or structure alteration projects that have the potential to obstruct navigable airspace. Specifically, any construction or alteration that is more than 200 feet above ground level requires notification to FAA and is subject to review. Construction of the proposed RICE facility will not require notification to the FAA because none of the components of the facility will exceed the 200-feet-aboveground-height notification requirements of the FAA. The tallest portions of the installed facility would be the two (2) approximately 186-ft-tall combustion exhaust stacks. The nearest airport to the Project Site is the Liberty – Casey County Airport, which is located approximately 6.75 miles southwest of the Project Site, and the proposed exhaust stacks would not exceed any slope ratios associated with this airport. Based on the distance from this facility and north-south orientation of the runway approach slope, it is not expected that the proposed Project would have any adverse impacts on navigable airspace. Furthermore, FAA filing requirements for the Project were also evaluated using the FAA Notice Criteria Tool. This online tool confirmed that none of the FAA Notice Criteria height, proximity, or location thresholds would be met or exceeded by the Project, and notification to the FAA would not be required for the Liberty RICE Project.

3.13.2 Environmental Consequences

The following sections summarize potential environmental consequences of the proposed Action Alternative and No Action Alternative related to transportation.

3.13.2.1 Proposed Action Alternative

Existing highways and county roads would be used to provide Project access during construction. Within the Project Site, an access road would be constructed from Carr Sasser Road for use as the primary construction access road. The transmission rebuild and upgrades would utilize existing access roads where possible.

Traffic would include equipment and material deliveries and the construction labor force. The frequency of onsite vehicular traffic would be proportionate to the onsite construction labor projections.

The construction labor force for the Project is anticipated to average approximately 100 workers peaking at around 200 workers. Traffic would increase during peak construction, a period of approximately three to six months, during weekday morning hours between 5:00 a.m. and 8:00 a.m., and in the evenings between 4:00 p.m. and 6:00 p.m. during peak construction periods. Weekend work is currently not anticipated for the Project; however, certain

activities that must occur continuously (e.g., pouring concrete) may extend into weekend hours. Carr Sasser Road would experience congestion during the peak phase of the Project, but traffic conditions are expected to return to normal levels with slight increases for deliveries to the facility (full traffic study available in Appendix G). The operation of the Project is estimated to create 20 permanent jobs, which is not anticipated to interfere with commuter traffic.

Although additional vehicular traffic would result from the construction of the proposed Project, the impacts would be temporary. Traffic impacts would be greatest along KY 49 and vary according to construction delivery and construction labor shift changes. The transmission upgrades and rebuild traffic would vary depending on the area being worked on. The roadway capacity of any route and level of service to the traveling public is not anticipated to substantially impact other areas.

Depending on the location of work, truck access to the Project Site would be served by either KY 49, KY 501, or KY 55. The state or county would issue operating permits for oversize truck movements, as required. Based on current projections, the roads, bridges, and crossings in the area are sufficient for the Project's delivery and transportation needs. Minor traffic congestion on Carr Sasser Road is anticipated during peak construction; however, no adverse impacts are anticipated.

3.13.2.2 No Action Alternative

The No Action Alternative would have no short- or long-term impacts to transportation at or in the vicinity of the Project because no construction or operation would occur.

3.13.3 Mitigation

As the construction and operation of the proposed Project would have only temporary impacts on transportation, no mitigation measures are planned. Any existing roads damaged by construction traffic would be repaired once construction is complete. Plans to control traffic during peak times may be implemented.

3.14 Human Health and Safety

3.14.1 Affected Environment

Two potential human health and safety concerns associated with the Project are to be considered: electromagnetic fields (EMF) and risk management associated with hazardous materials.

EMF are associated with high-voltage (greater than 161 kV) electric transmission lines and substations. All of the offsite transmission lines and substations necessary for the proposed Project are in place and are 161 kV or less. The Project would require a new 0.3-mile transmission line interconnection, rebuilds of existing 138-kV and 161-kV transmission lines, upgrades to existing 161-kV transmission lines, and substation modifications to accommodate the Project and connect to EKPC's grid. Access to the Project Site would generally be restricted to EKPC employees and contractors, and the facility would be surrounded by security fencing to limit access to the area.

A core value of EKPC is the safety of its employees and contractors. As such, EKPC has identified certain hazards associated with power production. There are several risks to human health and safety possible while constructing and operating a power plant, including hazards such as fire, slips, trips, falls, electrical hazards, confined space entry, and many others. Additionally, hazardous substances or wastes may be released, generated, or required for construction and operation of the Facility. Examples may include the use and storage of fuels, lubricating oils, chemicals, and other materials that may be considered hazardous.

3.14.2 Environmental Consequences

The following sections summarize potential environmental consequences of the proposed Action Alternatives and No Action Alternative related to potential environmental consequences.

3.14.2.1 Proposed Action Alternative

EMF would be strongest directly under proposed and existing transmission lines and would decrease with increased distance from transmission line ROW. The proposed Project requires modification of the existing transmission lines outside of the Project Site, as well as the modification of substations along the transmission route. The upgrades are not anticipated to increase risks due to EMF along the current transmission ROW.

During construction, the Project would be managed to prevent harm to the public. The public would not be allowed to enter construction areas associated with the proposed Project. The major risk to the public would be an increase in traffic volume on the roadways near the proposed Project as a result of commuting construction workers and transportation of equipment and materials.

Construction and operation of the proposed Project would also involve the use and storage of regulated and hazardous materials. During construction, diesel fuel, gasoline, and lubricating oils from heavy equipment and vehicles may accidentally leak or spill. Hydraulic fluid, paints, and solvents would likely be used during the construction phase as well. Additionally, the presence of aboveground fuel storage tanks and oil-filled equipment present the potential to release into the environment.

3.14.2.2 No Action Alternative

The No Action Alternative would have no short- or long-term impacts on human health or safety at or in the vicinity of the Project because no construction or operation would occur.

3.14.3 Mitigation

EKPC provides approved personal protection equipment for the protection of employees. It is the employee's responsibility to use this equipment and the supervisor's responsibility to see that this equipment is used in accordance with the manufacturer’s recommendations and OSHA regulations. Training guidelines set forth by EKPC are applicable to all EKPC employees and are intended to emphasize that all employees are trained in safety-related work practices, safe procedures, and other safety requirements, including those mandated by federal or state laws and by EKPC. Training is designed to provide information, to ensure understanding, and to apply/practice what is understood so that employees would be motivated to follow principles that protect their safety and health.

During construction and operation, used oil generated at the proposed Project Site and other potentially hazardous materials (automotive fluids, spray paint cans, etc.) would be collected and properly handled by a licensed/permitted recycler.

Construction-related hazards would be effectively mitigated by complying with applicable federal and state occupational safety and health standards, applicable National Electrical Safety Code regulations, and utility design and safety standards.

Risk management associated with hazardous materials is an additional human health and safety concern. To reduce the potential for a release of regulated or hazardous materials during the construction phase of the proposed Project, work would be planned and performed in accordance with OSHA standards and protocols addressing the use of potentially hazardous materials and applicable federal and state environmental regulations. If a hazardous release were to occur, emergency response, cleanup, management, and disposal of contaminated

soils would be conducted according to EPA and state standards, and the facility site-specific Spill Prevention Control and Countermeasure (SPCC) Plan. The SPCC Plan would be implemented during construction and operations of the facility to reduce the potential for significant environmental impacts.

3.15 Summary of Impacts

Table 3-17 provides a summary of potential impacts by Alternative.

Table 3-17: Summary of Potential Impacts

Resource	Impacts from Proposed Action	No Action Alternative
Air Quality	The existing air quality in the Casey County area is designated as attainment or unclassifiable regarding the NAAQS for all criteria pollutants. Construction of the Project has the potential for short-term adverse effects on air quality in the immediate area around the site. Minor and temporary generation of criteria pollutants and GHGs would occur during construction. It is anticipated that the Project would not affect the attainment status for Casey County. EKPC would comply with the issued KDEP construction air permit and Title V operating permit that would include emission limitations, monitoring requirements, and other terms and conditions. These emission limits ensure that the Project does not exceed the NAAQS for criteria pollutants.	The PPAs required to meet load requirements could lead to increased power production from coal-fired facilities, which would lead to worsened air quality.
Biological Resources	Temporary impacts from the Project could occur because of the increased presence of human and vehicle disturbance during construction. Displacement of species might occur due to increased human activity in the area, vehicle traffic, and material transfer. Impacts to wildlife from vehicle collisions would also be an increased risk during construction and operation. Most species affected would be mobile and able to move away from any impacts, but others could be vulnerable; foraging habitat impacts. Construction and operation of the Project Site would occur primarily in agricultural fields (cultivated cropland and hayfields) that do not serve as wildlife habitat or natural vegetated areas. The fence surrounding the RICE facility would exclude wildlife from the plant's operational area. Minor tree clearing would be required along forest edge habitat, which would occur between October 15 – March 31, when bats would not occupy the area.	No impacts are anticipated for this alternative.
Cultural Resources	The Project Site would not impact cultural resources. Two archaeological sites (NRHP eligibility undetermined) were identified within the transmission line ROWs. If pole replacements are required within these sites, EKPC would replace the poles at the existing locations to avoid new impacts or would relocate the poles to span potential historical sites.	No impacts are anticipated for this alternative.
Geology and Soils	The Project Site would require excavation for underground utilities and deep structures such as pump pits. For transmission line rebuilds where poles would be replaced, holes would be mechanically dug using truck mounted auger. Surplus soils would be spread within upland areas of the right of way and stabilized. After all line construction is complete, the ROW would be restored. Construction and operation of the RICE facility is not expected to affect geological formations. Soils within the permanent footprint at the Project Site would be converted to an industrial facility with much of the area occupied by buildings, concrete, and gravel. Temporary workspace at the Project Site would be restored. Access paths and staging areas within the transmission line corridor would be cleared, but excavations would only occur at locations where pole structures would be replaced. Hydric soils, prime farmland, and farmland of statewide importance would remain largely unaffected by the transmission line rebuilds and upgrades.	No impacts anticipated for this alternative.
Infrastructure, Transportation, Public Health and Safety, and Hazardous Materials	*Utilities:* Outages would be required for transmission line rebuilds and upgrades. The RICE facility would require minor construction of a new waterline to connect with the municipal system, a pipeline lateral to connect with an existing natural gas transmission pipeline, and 0.3 mile of new transmission line to connect to the grid. *Transportation:* One access road would be constructed from Carr Sasser Road for use as the primary access road to the Project Site. Carr Sasser Road would experience congestion during the peak phase of RICE facility construction (an	No impacts anticipated for this alternative

Resource	Impacts from Proposed Action	No Action Alternative
	approximate 6-month duration), but traffic conditions are expected to return to normal levels with slight increases for deliveries to the facility. The transmission line rebuilds and upgrades would utilize existing access roads where possible. No permanent changes to existing roads are anticipated as part of this Project. No permanent damage to roads is anticipated with the implementation of mitigation measures. *Public health and safety:* Access roads would be blocked from public access. Existing healthcare facilities are anticipated to be sufficient for the Project during construction and operation, and no necessary improvements are anticipated. The RICE facility would have onsite fire suppression measures and facilities for the storage of hazardous materials. No local fire department improvements are anticipated. Police protection would be provided by the City of Liberty and the Kentucky State Police during both construction and operations, if needed. No expansion of police protection is anticipated. *Waste management:* Local waste disposal and sanitation facilities are not anticipated to be adversely affected by the additional waste streams generated during construction and operation of the RICE facility. No additional solid wastes would be generated by the Project as byproducts from the production of electricity.	
Land Use, Recreation, Farmland, and Coastal Facilities	*Land use:* Construction and operation of the RICE facility would permanently convert 43 acres of agricultural (cultivated cropland and hayfields) and residential land to an industrial facility with much of the area occupied by buildings, concrete, and gravel. *Recreation:* No direct impacts to recreational areas are anticipated. *Farmland*: Up to 66 acres of prime farmland or farmland of statewide importance would be directly affected by the Project and could be removed from agricultural production. The USDA's Farmland Conversion Impact Rating Form and EKPC mitigation commitments indicated no significant impacts to prime farmland are anticipated, and an alternative site does not need to be considered. *Coastal:* No impacts to coastal resources are anticipated.	No impacts anticipated for this alternative
Noise	Project construction would result in temporary noise impacts in the surrounding area. Construction-related sounds would vary in intensity and duration depending on specific stages and activities of construction but would not be permanent. Nearby residences may temporarily experience increased noise during construction. Minor temporary disturbances to wildlife could occur. Operational sound levels at the RICE facility are expected to be slightly above the expected ambient sound levels for the area, with the most significant impacts having potentially moderate effect at the nearby neighbors during periods of lower ambient sound levels. Project design includes low-noise mitigation to reduce sound levels.	No impacts anticipated for this alternative
Socioeconomics	The Project would require an average daily workforce of 100 workers with an anticipated peak workforce of 200 workers. Local businesses near the Project such as gas stations, convenience stores, and restaurants may experience increases in business during construction due to construction workers onsite. This increased demand would cease after construction is complete and would not add considerably to the demand on existing business, services, or community facilities. The RICE facility would create up to 20 full-time permanent jobs. These new permanent employees may be from the local workforce or may relocate to the area for the position. Considering the population of the City of Liberty and Casey County, the addition of 20 jobs is not anticipated to considerably increase demand for housing, schools, or other local services.	No impacts anticipated for this alternative

Resource	Impacts from Proposed Action	No Action Alternative
	The Project would not directly impact public facilities, cemeteries, or religious facilities. A residence, barn, and outbuilding would be demolished to construct and operate the RICE facility. These structures exist on the property that would be purchased and developed, and the property owner would receive fair market value for the property.	
Visual Resources	The aesthetics of the surrounding area would be altered by the Project. Some minor vegetation clearing would occur along the edge of the existing forested area, and safety and security lighting would increase light emissions; however, EKPC would incorporate design features to reduce light pollution (down shielding, directional lighting, minimizing lighting duration, using motion or heat sensors, and using low-intensity energy-saving lighting). The two, 186-foot stacks at the facility, RICE facility and equipment, transmission line structures, and switching station would introduce new features to the landscape. The transmission line upgrades and rebuilds would occur within existing ROW.	No impacts anticipated for this alternative
Water Resources	*Surface Water*: Permanent impacts to approximately 32 feet/0.001 acre of stream bed would be required to construct and operate the RICE facility. The transmission line upgrades and rebuilds would not directly affect rivers and streams. Grading design at the Project Site would change the topography to facilitate storm water drainage patterns. Stormwater runoff within the Project Site would be collected and directed to an onsite stormwater pond. *Groundwater*: There are no sole source aquifers or water supply wells near the Project Site. No groundwater would be used for the Project. Therefore, there would be no impacts to groundwater. *Floodplain*: The Project Site is not within 100- or 500-year floodplains. Transmission line rebuilds and upgrades would not result in new floodplain impacts and covered by the Floodplain General Permit. *Wetlands/Riparian:* The Project Site has been selected to avoid wetland impacts. Transmission lines would span wetlands with no fill discharged to the wetlands. *Wastewater*: Wastewater would undergo treatment to meet regulatory standards before being discharged. This treatment process would likely involve physical, chemical, and biological methods to remove contaminants. The final wastewater pathways for wastewater streams including process water, sanitary water, and stormwater are still being determined. Treated wastewater would be discharged in compliance with local, state, and federal regulations.	No impacts anticipated for this alternative.

4.0 Cumulative Effects

The CEQ defines cumulative effects (40 CFR 1508.1) as the effects on the environment which result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions, regardless of what agency or person undertakes such other actions.

The following resources were determined to have no or minimal direct effects, and therefore would have no cumulative effects and are not further evaluated in this section:

- Land Use, Formally Classified Lands, Geology, and Soils
- Farmland
- Floodplains
- Water Resources
- Coastal Resources
- Biological Resources
- Historic and Cultural Resources
- Socioeconomics
- Transportation
- Human Health and Safety

4.1 Region of Influence

To determine cumulative effects, effects on each resource are analyzed for a geographic scope that includes an area footprint appropriate for the resource. Areas within Casey and Marion Counties were analyzed for regional cumulative effects. The following sources were reviewed to identify other past, present, and reasonably foreseeable actions whose effects may interact with the Project's impacts, thereby contributing to cumulative effects:

- Local utility webpages and news articles
- Kentucky Transportation Cabinet website (KYTC, 2024)
- USACE website for Jurisdictional Determination and Permit Decisions

The identified actions are described in the following section.

4.2 Past, Present, and Reasonably Foreseeable Actions

Past actions that have affected the resources within and around the Project Area include:

- Construction and use of roadways and bridges created on-going air emissions and noise sources; and
- Construction and operation of natural gas pipelines that run south of the Project Site and the electric transmission lines that would be upgraded or rebuilt resulted in land use changes.

Present actions that have affected the resources of the area may include:

- Transmission line upgrades independent of the Proposed Action have the potential to locally affect various resources.

- Periodic maintenance of adjacent natural gas pipelines could result in minor ongoing impacts to various resources.

Reasonably foreseeable actions that may affect the resources of the area include the following:

- Highway Plan Project #8-80150.00 is a road widening project in Casey County that would add lanes to US 127 between Liberty and the Lincoln County line. The project is currently in the design stage (2024), and construction is protected to occur in 2028 (KYTC, 2023). During construction, the surrounding area may experience increased air emissions, traffic, and noise. In the long term, this project aims to reduce traffic congestion.
- The Cooperative Solar Farm Three in Marion County is a proposed 635-acre solar farm north of Lebanon, in Marion County, east of Kentucky Route 55 that would be constructed in 2026 and 2027 (EKPC, 2024). This project would result in land use changes and may contribute to air emissions, noise, and traffic impacts during construction.

The entities involved in implementing each of these actions would have been and are required to obtain their own permits, clearances, and/or licenses prior to construction and operation of their respective actions. These entities would also be responsible for the on-going maintenance and compliance of their actions. The potential cumulative effects on each resource are described in the following sections.

4.2.1 Wetlands and Waterbodies

As discussed in Section 3.3, wetlands and waterbodies were identified within and adjacent to the Project Area, and approximately 0.001 acre of WOTUS would be impacted to construct and operate the RICE facility. It is likely that past actions in the Project Area, including agricultural practices, road, and utility construction, impacted and altered wetland and waterbodies in the region. Present and future actions are subject to federal permitting requirements that may not have existed previously. While the identified present and future actions in the area may also have the potential to impact wetlands and waterbodies, each of the entities undertaking those actions would be required to survey, permit, and/or mitigate impacts to jurisdictional wetlands and streams per USACE requirements. Therefore, given the minor anticipated impacts to WOTUS in the Project Area, and the requirement to avoid, minimize, and mitigate impacts to WOTUS for those other actions, there are not anticipated to be significant cumulative impacts to wetlands or waterbodies in the area.

4.2.2 Aesthetics

The landscape of Casey and Marion Counties has been altered by residential and business development and agriculture. Construction of identified past activities required vegetation clearing and, in some instances, built permanent visual features into the viewshed (e.g., existing transmission line and other community infrastructure). These visual features are now part of the existing viewshed.

Present actions, including ongoing maintenance and potential upgrades to existing utilities, are not expected to result in new permanent visual impacts. These activities would likely occur within existing ROWs that are currently maintained, and visual impacts would be limited to temporary construction impacts.

The aesthetics of the surrounding area could be altered by reasonably foreseeable actions. The road widening project in Casey County would occur along an existing highway approximately 3 to 5 miles from the RICE facility, which is the only portion of the Proposed Action that would result in long-term visual impacts. There is substantial terrain, vegetation, and distance between the two projects; therefore, there would be no cumulative visual impacts. The solar farm project would occur at the eastern terminus of the electric transmission line that would be

upgraded in Marion County. Although the solar farm may result in visual impacts, the transmission line upgrades would not result in changes to the existing viewshed; therefore, there would be no cumulative visual impacts.

4.2.3 Air Quality, Climate Change, and Greenhouse Gas Emissions

Past actions would have contributed to construction emissions and vehicle emissions in the area. Present actions also have the potential to temporarily impact air quality during the construction of maintenance/repair and upgrade projects. The two potential future actions would also result in vehicle and equipment emissions; however, construction activities would be intermittent and temporary in nature, ceasing after construction is complete. Neither project would result in long-term emissions that would contribute to cumulative air quality, climate change, or greenhouse gas emissions impacts.

There is no current state policy mandating GHG emissions reductions. Cumulatively, emissions are not anticipated to substantially impact the overall air quality in the region, as the KDAQ and EPA regulate activities to maintain ambient air quality. Therefore, no adverse cumulative impacts to air quality are anticipated as a result of the identified actions.

4.2.4 Noise

Existing residential, commercial, and agricultural activities and associated traffic currently contribute to noise in the area. Identified past actions may have increased existing noise during construction, and the addition of large roadways has created a long-term source of noise in the area. The identified present and future actions would have temporary construction noise associated with them.

Operational impacts from most of the actions are anticipated to be negligible long-term. There have been localized cumulative noise impacts near the Project Site from the various actions, but none are currently considered adverse cumulative noise impacts because most of the actions are expected to have no long-term impact or are far enough away to not create cumulative impacts.

5.0 Summary of Mitigation

Potential impacts to the environment and the surrounding community would be mitigated and minimized by actions taken during the design, construction, operation, and maintenance of the RICE facility and transmission lines. Table 5-1 is a summary of mitigation proposed for the Project by resource.

Table 5-1: Summary of Mitigation

Resource	Potential Environmental Consequences	Mitigation Measures Required	Intensity of Residual Effects
Land Use, Formally Classified Lands, Geology, Soils, and Farmland	Under the Proposed Action, approximately 43 acres of agricultural, residential, and open space would be converted to industrial use at the Project Site, and approximately 10 acres would be converted to ROWs. Up to 66 acres of prime/statewide important farmland may directly affected at the Project Site. The transmission line rebuilds and upgrades would occur within existing ROWs, and there would be minimal to no impacts to land use, geology, soils, and farmland.	EKPC would avoid impacts to 21.2 acres of the Project Site and would restore 33.8 acres after construction is completed. Ten acres of new permanent ROW would also be restored to vegetative cover. No mitigation measures are anticipated for the transmission line rebuilds and upgrades.	Minimal
Floodplains	The Project Site is outside the 100-year and 500-year floodplains. If existing poles that are located in 100-year or 500-year floodplains need to be replaced, floodplain impacts could occur.	No mitigation measures are anticipated at the Project Site. Pole replacements would be installed in the same location or outside of the floodplain to avoid changes to floodplain elevations.	None
Wetlands and Waterbodies	Permanent impacts to approximately 32 feet/0.001 acre of stream bed would be required to construct and operate the RICE facility. EKPC would avoid placement of pole structures in WOTUS. Temporary impacts to WOTUS may occur for access along the ROWs during Project construction.	EKPC would adhere to NWP 57 and 401 WQC conditions, including mitigation, if required by the USACE. Erosion and sedimentation pollution control plans and BMPs would be designed, installed, and maintained in effective operating conditions during construction activities.	Low
Water Resources	Soil erosion and stormwater runoff into nearby streams and rivers may impact waterways during construction.	EKPC would obtain and adhere to the requirements of KYR10. EKPC would submit an electronic NOI to the KDOW and prepare and implement a SWPPP.	Minimal
	Stormwater runoff into nearby streams and rivers may impact waterways during operation.	EKPC would construct a stormwater pond to manage stormwater during operation of the RICE facility.	Minimal
Threatened and Endangered Species	The Project may affect but is not likely to adversely affect the tricolor bat, Indiana bat, gray bat, little brown bat, and the northern long-eared bat.	Tree clearing would occur outside of bat roosting season.	None
Vegetation	Agricultural fields (cultivated cropland and hayfields) would be converted to industrial land use at the Project Site. Minimal tree clearing along forest edge habitat would also be affected at the Project Site.	EKPC would avoid impacts to 21.2 acres of the Project Site and would restore 33.8 acres after construction is completed. Ten acres of new permanent ROW would also be restored to vegetative cover.	Minimal

Resource	Potential Environmental Consequences	Mitigation Measures Required	Intensity of Residual Effects
	EKPC would use its existing, maintained ROWs to construct the transmission line upgrades and rebuilds; therefore, no permanent loss of vegetation is anticipated.	Areas of temporary construction disturbance would be restored and revegetated after the Project is constructed.	
	Construction related disturbances could provide an opportunity for the establishment of invasive species.	EKPC would mitigate the potential to spread of invasive plant species during the Project by limiting the extent and duration of bare soil exposure, installing erosion and sediment control measures to reduce the movement of sediment, and using weed-free temporary and permanent seed mixes.	Minimal
Wildlife	Construction and operation of the RICE facility would occur primarily in agricultural fields (cultivated cropland and hayfields) that do not serve as wildlife habitat or natural vegetated areas. Minor tree clearing would be required along forest edge habitat.	No mitigation measures are anticipated.	Minimal
	During construction, noise and activity may drive wildlife away from the area immediately surrounding the Project.	No mitigation is needed. After construction ends, wildlife would return to areas surrounding the fenced facility	Minimal
Historical and Cultural Properties	Two unevaluated cultural sites could be impacted by the transmission line rebuild.	Poles would be replaced in the same location to avoid new impacts or would be relocated to span and avoid unevaluated sites 15Cs64 and 15Cs65. An Unanticipated Discovery Plan would be implemented if buried cultural resources are encountered during Project construction.	None
Aesthetics	The two, 186-foot stacks at the facility, RICE facility and equipment, transmission line structures, and switching station would introduce new features to the landscape.	New trees would be planted near visual corridors along Project Area. Buildings, equipment, and storage facilities would be neutral colored. Temporary construction laydown and parking areas would be revegetated to restore the area and blend with the local surroundings.	Low
Air Quality	Fugitive dust emissions would occur from increased transportation from construction vehicles.	Fugitive dust control measures would include, but are not limited to, the following: • Applications of water • Paving or watering of roadways after completion of grading	Minimal

Resource	Potential Environmental Consequences	Mitigation Measures Required	Intensity of Residual Effects
		• Reduction in speed on unpaved roadways to 15 miles per hour or less • Seeding of areas within 30 days of final grading establishment	
	Emissions from construction activities may lead to adverse air quality impacts.	Air emissions from construction equipment are low and temporary in nature, fall off rapidly with distance from the construction site, and would not result in long-term impacts. No mitigation is anticipated.	Minimal
	Emissions would occur from operation of the Project.	EKPC would adhere to the conditions and requirements of the KDAQ air permit during Project operation. All equipment would meet the applicable NSPS and NESHAP limits. The Project would include an SCR system to control NO_x emissions and an oxidation catalyst to control emissions of CO. Good combustion practices would minimize to the maximum extent practicable, emissions of PM_{10} and $PM_{2.5}$.	Low
Socioeconomic and Community Resources	Project would generally have a positive impact on the socioeconomics of the surrounding areas. Project impacts are expected to be localized and temporary. No adverse human health or environmental effects would result from the Project.	No mitigation measures are anticipated.	Minimal
Noise	Noise would be produced from the construction equipment and activities. Actual noise levels generated by construction would vary on a daily and hourly basis, depending on the activity that is occurring, and the types and number of pieces of equipment that are operating.	Any excessive construction noise should be of short duration and have minimal adverse long-term effects on land uses or activities associated with the Project Area.	Minimal
	Noise would be produced from the operation of the RICE facility.	Sound measurements would be taken at various times of operation to verify that noise levels do not exceed contractually guaranteed levels, as well as EPA guideline levels. Project design includes sound mitigation measures although they are not required.	Minimal
Transportation	Construction of the Project would cause increased traffic in the area surrounding the Project. Carr Sasser Road would experience congestion during the peak phase of the Project, but traffic conditions are expected to return to normal levels with slight increases for deliveries to the facility.	As construction and operation of the proposed Project would have only temporary impacts on transportation, no mitigation measures are anticipated.	Minimal

Resource	Potential Environmental Consequences	Mitigation Measures Required	Intensity of Residual Effects
	Project operation is estimated to create 20 permanent jobs, which is not anticipated to interfere with commuter traffic.	The transportation and utility infrastructure for this area is limited and primarily services the local, rural community with low traffic levels. In the case that construction and operation of the Liberty RICE facility would increase traffic substantially, it could impact these resources for local community members. The Project would develop plans to minimize impacts and potential concerns.	Minimal
	Damage to existing roads could occur because of Project construction.	Roadways would not be purposefully damaged. Any existing roads damaged by construction traffic would be repaired once construction is complete.	Minimal
Human Health and Safety	EMF would be strongest directly under the transmission line and decreases with increasing distance from the transmission line ROW. The proposed Project is not anticipated to significantly increase the existing EMF levels in the current transmission corridor.	No mitigation would be necessary.	None
	During construction, the site would be managed to prevent harm to the public. The public would not be allowed to enter construction areas associated with the proposed Project. The biggest risk to the public would be from an increase in traffic volume on the roadways near the proposed Project as a result of commuting construction workers and transportation of equipment and materials.	Perimeter fences and controlled access would remain in place throughout the construction and future operation of the Project. Increases in traffic would be temporary in nature and following construction would decrease to acceptable, safe travel levels. Plans to control traffic during peak times would be implemented, as needed.	Minimal
	Constructing and operating a power plant involves various health and safety risks, including fire, slips, trips, falls, electrical hazards, and confined space entry. Hazardous substances or waste may be released, generated, or required for construction and operation of the RICE facility.	A comprehensive safety program is in place at EKPC. A safety briefing is required annually for employees and upon entry for contractors. Adequate training for human health and safety concerns would be mandatory for all construction workers on the Project Site. Personal safety equipment such as hard hats, ear and eye protection, and safety boots would be required for all workers onsite. Accidents and injuries would be reported to the designated safety officer onsite.	Minimal
	Construction and operation of the proposed Project would also involve the use and storage of regulated and hazardous materials. During construction, diesel fuel, gasoline, and lubricating oils from heavy equipment and vehicles may accidentally leak or spill.	Risk management associated with hazardous materials is an additional human health and safety concern. To reduce the potential for a release of regulated or hazardous materials during the construction phase of the proposed Project, work	Minimal

Resource	Potential Environmental Consequences	Mitigation Measures Required	Intensity of Residual Effects
	Hydraulic fluid, paints, and solvents would likely be used during the construction phase as well. Additionally, the presence of aboveground fuel storage tanks and oil-filled equipment present the potential to release into the environment.	would be planned and performed in accordance with OSHA standards and protocols addressing the use of potentially hazardous materials and applicable federal and state environmental regulations. If a hazardous release were to occur, emergency response, cleanup, management, and disposal of contaminated soils would be conducted according to EPA and State standards. Conformance to these standards and procedures would reduce the potential for significant impacts resulting from the release of hazardous materials during the construction phase.	

6.0 Coordination, Consultation, and Correspondence

The following sections detail the agency and tribal coordination efforts completed for the Project and public involvement plan.

6.1 Public Involvement

On September 12, 2024, the EKPC team held a public official briefing regarding the Proposed Action. Invitations were sent to the public officials listed below

- Mayor Sam Haddad, Liberty
- Judge Executive Randy Dial, Casey County
- State Rep. Daniel Elliott
- State Sen. Brandon Storm
- U.S. Rep. Brett Guthrie's Office (Sandy Simpson, Zach Settles, Andrew Furman)
- Hunter Whitaker, U.S. Sen. Mitch McConnell's Office
- Mica Sims, Callum Case, U.S. Sen. Rand Paul's Office
- Nicki Johnson, President, Liberty-Casey Chamber of Commerce

The briefing was attended by Sen. Brandon Storm, Hunter Whitaker, Mica Sims, and Callum Case.

Public involvement was also voluntarily integrated into the early planning stages of the project by EKPC through a number of processes including a press release, newspaper advertisements, U.S. Postal Service mailings, EKPC's website (https://www.ekpc.coop/new-generation), and a public meeting. Publicly available information from the Property Valuation Administrator Office was used by EKPC to identify the landowners of those property parcels located in the vicinity of the proposed Project.

A public Open House meeting was held on December 11, 2024, at the Central Kentucky Ag/Expo Center, 678 Wallace Wilkinson Blvd, Liberty, Kentucky. The public was invited to the open house through notices placed in the local newspaper. The notice included a brief description and location of the Project, as well as particulars of the open house. EKPC also mailed an open house invitation and Project information packet to the property owners to residents near the Project Site, as well as state and local officials. The project information packet was also posted on EKPC's website throughout this same timeframe.

The purpose of the open house was to give members of the public and individuals living near the Project Area the opportunity to learn about the proposed Project and to discuss their concerns regarding the proposal with EKPC staff. At the open house, maps of the proposed project area and renderings depicting the preliminary facility design were available to facilitate constructive discussion regarding the proposal. EKPC also solicited information from individuals concerning the proposed study area. Open House attendees provided information regarding the project vicinity and concerns regarding the project. Below is a summary of the issues and/or concerns raised by attendees regarding the proposed project:

- General opposition regarding land/property impacts
- General impacts to the environment
- Impacts to agricultural lands/prime farmlands/topsoil
- Proximity to residences/visual impacts
- Adjacent property value impacts

- Several community representatives also attended in support of the project and the economic and community benefits it would provide.

EKPC must also satisfy all requirements of the Kentucky PSC – Certificate of Public Convenience and Necessity (CPCN) process for a Kentucky utility company seeking to construct a new generation project. EKPC filed an application with the Kentucky PSC for a CPCN to construct the new Liberty RICE facility on September 19, 2024. There is also public involvement, and a comment period associated with this process that is being completed concurrently with the NEPA review.

6.2 Agency Consultation

Letters were sent to agencies to inform agency contacts that EKPC had engaged RUS and was requesting financing for the Project. The letter provided a Project description and explained that the action triggers an EA. The agencies were provided with this Project information as an opportunity to ask questions and provide initial feedback. Agency correspondence is provided in Appendix H. Table 6-1 provides a list of agencies who received letters.

Table 6-1: RUS Scoping Letter Distribution

Agency	Date(s) Contacted	Contact	Response
Federal Agencies			
USACE[1]	July 30, 2024	Louisville District	No response received.
USEPA[2]	July 30, 2024	Region 4 – Southeast	Phone call with Maria R. Clark 8/28/04 NEPA Section – Region 4
USDA - NRCS	July 30, 2024 October 7, 2024 November 1, 2024	Perri Brown	Project required Form AD-1006 Farmland Conversion Impact Rating be filled out. Filled out form indicated a score of 161.
USFWS[3]	July 30, 2024 October 15, 2024 November 20, 2024	Lee Andrews	Responded 12/3/24 and concurred that the Project may affect but is not likely to adversely affect the gray bat, Indiana bat, northern long-eared bat, fanshell, pink mucket, and snuffbox mussel.
Federal Aviation Administration	July 30, 2024	Benjamin Mayberry	No response was received. FAA Notice Criteria Tool was run and no notification is required.
State Agencies			
Kentucky State Historic Preservation Office (SHPO)	July 10, 2024 Aug 28, 2024, S106 initiation letter Jan 6, 2025, S106 finding letter and reports submitted	Craig Potts and Patricia Hutchins	Responded 9/24/24 to concur with the proposed area of potential effect and level of effort for the Project.
Federally Recognized Indian Tribes	Aug 28, 2024, S106 initiation letter Jan 6, 2025, S106 finding letter and reports submitted	Cherokee Nation Osage Nation E. Band of Cherokee	No responses received.
Kentucky Energy and Environment Cabinet	July 30, 2024	Gordon Slone and Rebecca Goodman	Forwarded information to the appropriate staff within the Department for Environmental Protection for their review.

Agency	Date(s) Contacted	Contact	Response
Kentucky Department of Fish and Wildlife Resources (DFWR)	July 30, 2024	Travis Neal	No response received.
Kentucky Transportation Cabinet (KYTC)	July 30, 2024	Jami West	No response received.
KDOA	July 30, 2024	Mark Carter	No issues or comments.
Kentucky Department for Environmental Protection	July 30, 2024	Tony Hatton and Louanna Aldridge	Offered applicable suggestions for compliance with federal, state, and local regulations. This consolidated information from the KDOW, Kentucky Division of Waste Management, Kentucky Division of Enforcement, and KDAQ.
Kentucky Division for Air Quality	July 30, 2024	Michael Kennedy	KY DEP combined response.
Kentucky Division of Water	July 30, 2024	Sarah Gaddis	KY DEP combined response.
Kentucky Division of Waste Management	July 30, 2024	Brian Osterman	KY DEP combined response.
Local Agencies			
Casey County Clerk's Office	July 30, 2024	Casey Davis	No response received.

[1] United States Army Corps of Engineers
[2] Environmental Protection Agency
[3] United States Fish and Wildlife Service

Agencies that responded expressed no concern regarding the Project. In general, agencies responded that the Project should obtain permits if needed prior to construction.

6.2.1 Federal Permitting

Appendix I provides the federal permits and approvals required for the Project.

6.2.2 State Agency Coordination

The following sections provide details about specific state agency coordination and correspondence, as well as a list of state permits required for the Project.

6.2.2.1 Kentucky Department of Environmental Protection

The Kentucky Department for Environmental Protection provided combined responses from the KDOW, Division of Waste Management. Division of Enforcement, KDAQ, Division of Oil and Gas, and Kentucky Nature Preserves on August 26, 2024 (Appendix H).

6.2.2.1.1 Kentucky Division of Water

The KDOW provided permitting procedures for the following permits or certifications that may be needed:

- Water quality certification
- Source Water Protection BMPs

- Ground Water Protection Plan

The proposed work is enforced by the Groundwater Section of the Watershed Management Branch.

6.2.2.1.2 Kentucky Division of Enforcement

The Kentucky Division of Enforcement endorses the Project.

6.2.2.1.3 Kentucky Division of Waste Management

The underground Storage Tank Branch identified potential underground storage tank sites that may be located within or near the Project Area. The Superfund Branch identified superfund sites that may occur within or near the Project Area, and the Solid Wate Branch identified historic landfill sites within or near the Project Area. The Hazardous Watse Branch indicated no hazards within the area. The Recycling and Local Assistance (RLA) Branch indicated RLA tracked open dump sites within the area. The Division of Waste Management provided general solid waste and waste disposal guidance. EKPC evaluated the data provided and confirmed that none of the locations provided are within the Project Area or within 0.5 miles of the Project Area.

6.2.2.1.4 Department for Natural Resources/Division of Oil and Gas

The Division of Oil and Gas did not identify any active oil or gas wells in the area.

6.2.2.1.5 Kentucky Nature Preserves

Kentucky Nature Preserves provided resources for identifying the presence of potential federally or state listed species and natural communities within the Project Site.

6.2.2.1.6 Kentucky Division for Air Quality

The KDAQ provided general guidance for permitting requirements that would apply to the Project and offered suggestions for air quality control strategies to benefit the health of nearby residents.

6.2.3 Kentucky Heritage Council

A Section 106 Initiation letter was sent to the KHC on August 28, 2024, with details about the Project. Upon review, on Sept 24, 2024, the SHPO determined that the APE and study methodology was appropriate. On January 6, 2025, the Section 106 Finding letter and reports were submitted for review.

6.2.4 State Permitting

Appendix I provides the state permits and approvals required for the Project. The table includes permits that are related to the overall Project.

6.3 Tribal Coordination

On August 28, 2024, Section 106 Initiation Letters that provided preliminary Project details were mailed by RUS to the tribes listed below.

- Cherokee Nation
- Eastern Band of Cherokee Indians
- Osage Nation

On January 6, 2025, the Section 106 Consultation Findings letters and reports were submitted to these same tribes for review. No tribes have responded as of February 7, 2025.

6.4 Local Coordination

As noted in Section 6.1, EKPC held a briefing for public officials on September 12, 2024, and a public meeting in Casey County on December 11, 2024, to present information about the proposed Project to interested parties. Local public officials were invited to attend the briefing and the open house meeting. A Project information packet was included with the invitations.

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APPENDIX I – ANTICIPATED PERMITS AND APPROVALS