Environmental Assessment

Talbot Energy Facility
Dual Fuel Conversion Project

Box Springs, Georgia

U.S. Department of Agriculture
Rural Utilities Service (RUS)

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November 2023

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LIST OF ABBREVIATIONS

Abbreviation	Term/Phrase/Name
AADT	Annual average daily traffic
BACT	Best Available Control Technology
BESS	Battery energy storage system
BG	block group
BMPs	Best Management Practices
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon monoxide
CO_2	Carbon dioxide
CO2e	Carbon dioxide equivalent
CT	Combustion turbine
CT1	Combustion turbine 1
CT2	Combustion turbine 2
CT3	Combustion turbine 3
CT4	Combustion turbine 4
CT5	Combustion turbine 5
CT6	Combustion turbine 6
EA	Environmental assessment
EMC	Electric membership corporation
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
Facility	Talbot Energy Facility
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact

Abbreviation	Term/Phrase/Name
FPPA	Farmland Protection Policy Act
FRP	Facility Response Plan
FRP – SPCCP	Facility Response Plan – Spill Prevention Control & Countermeasures Integrated Plan
GCPA	Georgia Council of Professional Archaeologists
GDNR	Georgia Department of Natural Resources
GDOT	Georgia Department of Transportation
GEPD	Georgia Environmental Protection Division
GHG	Greenhouse gas
gpm	Gallons per minute
GWP	Global warming potentials
H_2SO_4	Sulfuric Acid
HDPE	High-density polyethylene
HFCs	Hydrofluorocarbons
hp	Horsepower
HUC	Hydraulic unit code
IF	Isolated find
IPaC	Information for Planning & Consultation System
IPCC	Intergovernmental Panel on Climate Change
IWG	U.S. Interagency Working Group
K	thousand
MM	million
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
N_2O	Nitrous oxide
NFPA	National Fire Prevention Association
NHPA	National Historic Preservation Act
NO_2	Nitrogen dioxide
NO_X	Nitrogen oxides

Abbreviation	Term/Phrase/Name
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Registry of Historic Places
NSA	Noise Sensitive Area
NSR	New Source Review
O&M	Operations and Maintenance
Oglethorpe	Oglethorpe Power Corporation
OWS	Oil/water separators
PFCs	Perfluorochemicals
PM	Particulate matter
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter
PM_{10}	Particulate matter less than 10 microns in diameter
Program	RUS Electric Loan Program
Project	Dual Fuel Conversion Project
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
QI	Qualified Individual
RE Act	Rural Electrification Act
ROW	Right-of-way
RUS	Rural Utilities Service
SER	Significant Emission Rate
SF_6	Sulfur hexafluoride
SHPO	State Historic Preservation Office
SO_2	Sulfur dioxide
SPCCP	Spill Prevention Control and Countermeasures Plan
SSURGO	Soil Survey Geographic Database
TAC	Toxic air contaminants
TADA	Traffic Analysis and Data Application

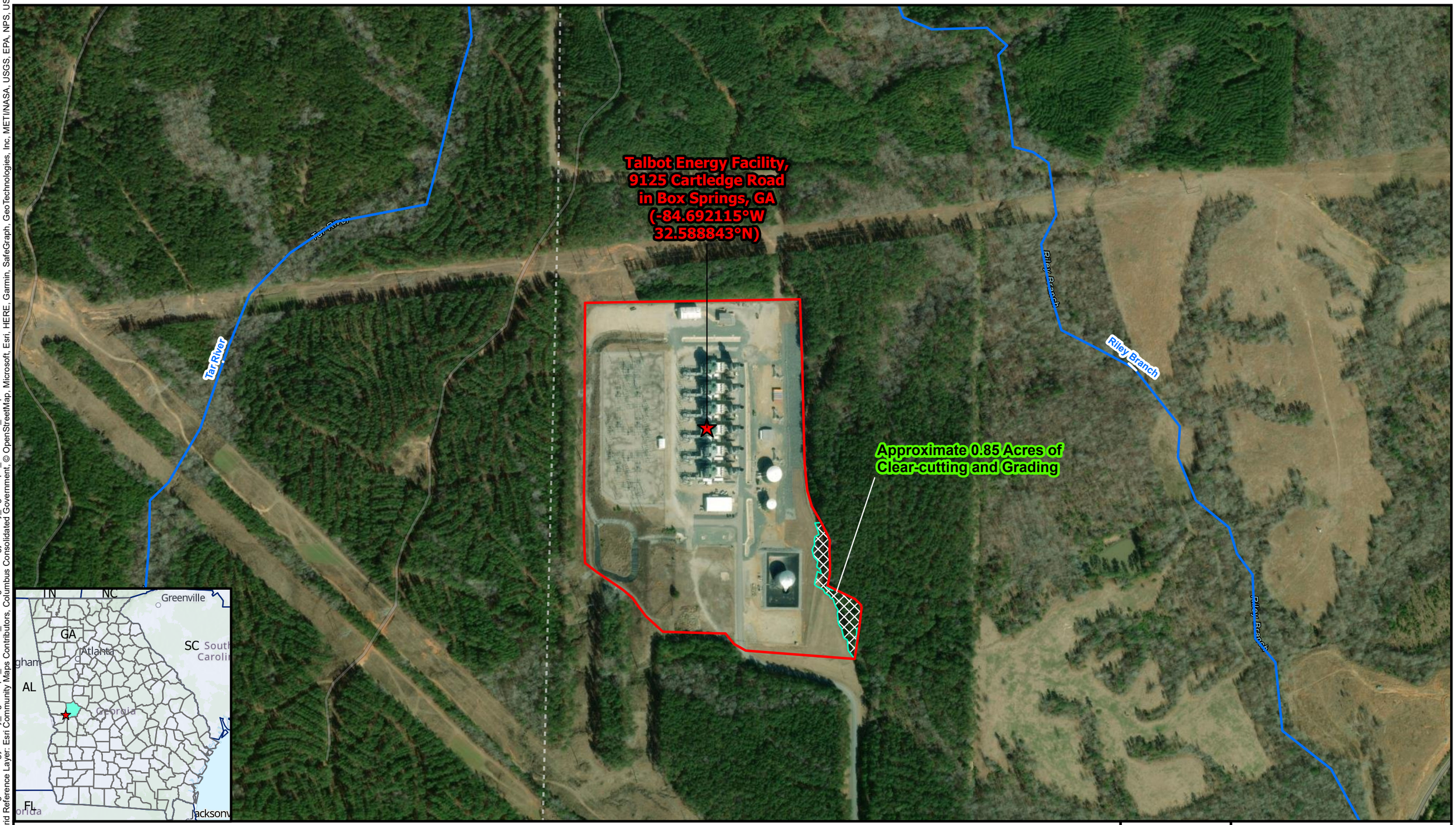
Abbreviation	Term/Phrase/Name
tpy	Tons per year
USC	U.S. Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
V	volts
VOC	Volatile organic compounds
WMA	Wildlife Management Area

1.0 INTRODUCTION

Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) has been contracted by Oglethorpe Power Corporation ("Oglethorpe") to prepare an Environmental Assessment (EA) for submittal to the Rural Utilities Service (RUS) for the Dual Fuel Conversion Project (the "Project") at Oglethorpe's Talbot Energy Facility located in Talbot County, near Box Springs, Georgia (the "Facility").The Project involves upgrading four of the Facility's existing natural gas-fired combustion turbine (CTs) to have dual fuel firing capabilities, with natural gas as the primary fuel and No. 2 diesel fuel oil as a backup fuel. This upgrade would increase reliability in case natural gas is curtailed, or cut-off, in times of high demand on the grid, and No. 2 diesel fuel would serve as a backup fuel source to maintain plant operations. This draft EA describes the alternatives evaluated, the affected environment, potential environmental consequences, cumulative effects, mitigation measures, and agency scoping for the Project.

The RUS action is the decision to provide financing assistance for the Project. Under the Rural Electrification Act (RE Act), 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 this electric loan program (7 USC § 6942).

Oglethorpe, which is headquartered in Tucker, Georgia, is a generation cooperative operating on a not-for-profit basis that generates electricity for 38 of Georgia's electric membership cooperatives (EMCs). Oglethorpe's objective is to provide reliable energy to its EMC members to meet their existing and expanding power supply needs. The Facility, near the city of Box Springs in Talbot County, Georgia, is a power plant consisting of six simple-cycle CTs that are owned and operated by Oglethorpe. The Facility is located on an estimated 197.5 acres across a single parcel, with the power plant operations comprising approximately 25 acres. The Facility is adjacent to two existing electric transmission line rights-of-way (ROWs) and is connected to the Southern Natural Gas South Mainline pipeline through approximately 5.5 miles of pipeline. The property primarily consists of undeveloped planted pine plantation, but also contains portions of mixed pine-hardwood and riparian areas. The Facility was constructed in 2002 and has always been referred to as "Talbot Energy Facility."



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Source: Esri, USGS, NHD, NWI, Oglethorpe Power Corporation, and Burns & McDonnell

Figure 1-1: Project Location Map
Oglethorpe Power
Talbot Energy Facility,
Dual Fuel Conversion Project
Oglethorpe Power Corporation
Talbot County, GA

Issued: 6/29/2023

Oglethorpe intends to finance this Project under the RUS Electric Loan Program (the "Program"). As a result, the Project represents a federal action that must be reviewed under the National Environmental Policy Act (NEPA) of 1969. The responsible agency will be the RUS. This EA has been prepared in compliance with RUS's Policies and Procedures, 7 Code of Federal Regulations (CFR) Part 1970 and the Council on Environmental Quality (CEQ) Regulations for implementation of NEPA 40 CFR Parts 1500-1508. As part of its broad environmental review process, RUS must also consider the effect of the Project on historic properties in accordance with the National Historic Preservation Act (NHPA) 54 U.S.C. 306108 (Section 106) and its implementing regulation, "Protection of Historic Properties" (36 CFR Part 800). Pursuant to 36 CFR § 800.2(d)(3), RUS is using its procedures for public involvement under NEPA to meet its responsibilities to solicit and consider the views of the public during Section 106 review. Accordingly, comments submitted in response to the EA will inform Agency decision making in Section 106 review.

1.1 Project Description

Oglethorpe owns and operates six units at the Facility located at 9125 Cartledge Road in Box Springs, Georgia. The proposed Project would include converting four of the existing simple-cycle natural gas CTs (CT1, CT2, CT3, CT4) into dual fuel capable CTs. The Facility's remaining two CTs (CT5, CT6) are already equipped and operated with dual fuel firing capabilities.

Turbines with dual fuel capabilities increase the resiliency and reliability of the Facility's electrical output by allowing for a back-up fuel source during times of heavy loads when natural gas supply is curtailed or cut off. Oglethorpe proposes to install demineralized water storage tanks and No. 2 diesel fuel oil tanks to provide dual fuel capability to the four CTs. The demineralized water storage tanks would be filled using water that originates from the local city water supply. The water enters the Facility at the meter and is stored in the raw water tank. It is then pumped through portable water treatment trailers to the demineralized water storage tanks, and then pumped to the CT's water-injection system when combusting fuel oil. The presence of water during the combustion process lowers the temperature of the reaction and reduces the formation of nitrogen oxides (NO_X) emissions.

As part of the air permit application, Oglethorpe has requested limits on annual hours of operation allowing each CT to run up to 4,200 hours per year total on any fuel, of which up to 450 hours per year can be on diesel fuel. Oglethorpe aims to utilize on-site fuel oil and demineralized water storage to support the full load operation of all CTs for approximately 70 hours. These improvements increase power reliability for Oglethorpe's 38 EMC members. While the purpose of this Project is not to expand overall short-term generating capacity, the annual generation of the Facility may subsequently increase as

a result of the additional fuel oil capacity, which would extend the run-time capacity during periods of natural gas curtailment or limited gas supply.

The Project would result in increases in maximum hourly rate of air emissions and expected annual air emissions. A small increase in water usage is also expected. Oglethorpe submitted an air permit application to the Georgia Environmental Protection Division (GEPD) on September 7, 2023, for the construction and operation of the Project. As part of the application, Oglethorpe has proposed as Best Available Control Technology (BACT) the use of dry low-NO_X combustors for periods of natural gas firing and water-injection systems for periods of fuel oil firing. The Facility is not currently required to hold any permits related to water use or discharge, as it receives city water for its operations, does not discharge wastewater, and is exempt from the requirement to hold a permit for storm water discharges. No new water use or discharge permits are expected to be required for future operations of the Facility as a result of the Project.

Implementation of the Project is not expected to increase the noise from the Facility above historical levels, nor would it require changes in the gas supply infrastructure for the Facility. The Project would involve mechanical and software upgrades to existing equipment. All infrastructure improvement and ground disturbing activities would occur within the existing Facility footprint, with the exception of approximately 0.85 acres on the southeast corner of the Facility that would be cleared and graded. As a result, the Project is not expected to impact biological resources, soils and geological resources, cultural resources, socioeconomic resources, hazardous materials, or wetlands.

1.2 Purpose and Need

1.2.1 Oglethorpe Power Purpose and Need

Oglethorpe is responsible for providing reliable, efficient, and low-cost power to the 38 EMC members of the not-for-profit generation cooperative who provide power to over 4 million Georgians. Oglethorpe continues to evaluate methods for increasing the reliability and efficiency of their power generation while continuing to lower costs to their members.

Over the past few years, the southeast has experienced unexpected cold snaps resulting in limited or cut-off supplies of natural gas due to high demand. This recent pattern of cold weather and curtailed natural gas supplies prompted the need for this Project, specifically the installation of a back-up fuel system. The proposed Project would increase the resiliency and reliability of the Facility's electrical output by allowing the existing units to continue operation from a back-up fuel source during times of high demand

when natural gas supply is curtailed or cut off rather than starting other less efficient units, purchasing power from others, or constructing or obtaining new generation.

The dual fuel system would meet the need of providing more efficient and reliable power to its members and the Georgians they serve.

1.2.2 RUS Potential Funding Action

Utilities can seek financial assistance for capital projects that meet the U.S. Department of Agriculture (USDA) Rural Development objectives. USDA Rural Development is a mission area that includes three federal agencies – Rural Business-Cooperative Service, Rural Housing Service, and RUS. 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 in order to accomplish program objectives. The RE Act of 1936 allows for the Secretary of Agriculture, through RUS, to approve loans, loan guarantees, grants, and other project financing to electric utilities and projects that serve rural communities. Oglethorpe is seeking financial assistance for the Project from this Program to increase reliability to its 38 EMC members. RUS's reviews of financial assistance applications include information ranging from purpose and need of the Project, engineering feasibility of the Project, cost, alternatives considered and environmental impacts. RUS uses these reviews and analyses to determine whether to provide financial assistance to a project, which is a federal action for RUS. RUS's financial decision for the Project is based on funds available in the agency's budget. Therefore, publication of the EA and execution of environmental findings does not constitute RUS's approval of funds for the Project but is required as part of the decision-making process to provide financial assistance.

2.0 ALTERNATIVES EVALUATED

In accordance with NEPA and RUS policies, Oglethorpe considered alternatives to the Project to determine if an alternative would be environmentally preferable, reasonable, and/or technically and economically feasible to the proposed action.

2.1 Proposed Action

Six simple-cycle CTs exist within the Facility, four of which (CT1 through CT4) are natural gas-fired units and two of which (CT5 and CT6) have dual fuel-firing capabilities with natural gas and diesel fuel oil. The proposed action would involve converting the four existing natural gas-fired CTs (CT1 through CT4) to dual fuel CTs, giving them the ability to operate on fuel oil in the event of a natural gas fuel supply disruption. This upgrade involves the installation of a two demineralized water storage tanks, two fuel oil storage tanks, the dual fuel modules for each unit and associated conversion equipment, and all supporting balance of plant infrastructure. The following table lists the proposed infrastructure needed for the Project. Additionally, the proposed action involves an estimated 0.85 acres of new ground disturbance that would occur in the southeastern section of the Facility.

Table 2.1-1: Proposed Construction Included in the Project

Proposed Construction (4-unit conversion)	Quantity
Liquid fuel atomizing package	4
Water injection package	4
Interconnecting piping and electrical + controls integration	4
1.6MM gallon fuel oil storage tank and containment	2
2MM gallon demineralized water storage tank	2
6- 4160V PDC buildings and 2- 480V PDC buildings and other electrical infrastructure (MCCs, breakers, conduit banks, switchgear, starters, etc.) to support new equipment	1
Fuel unloading bays	1 bay with 2 unloading locations, 2 pumps
Fuel forwarding equipment	6 pumps
Demineralized water trailer bays	3
Demineralized water supply pumps	6 pumps
CO_2 fire protection units	4
950K gallon fire water tank with pump house (primary electric, backup diesel, 2x jockey pumps)	1
Detention pond clean out and liner replacement and site storm water rehabilitation, liner replacement in existing fuel oil tank secondary containment area	1

Proposed Construction (4-unit conversion)	Quantity
Fire water monitors	8

Carbon dioxide (CO_2); Demineralized (DEMIN); Motor control center (MCC); Million (MM); Megavolt (MV); Power distribution center (PDC); Thousand (K); Volts (V)

The proposed dual fuel system infrastructure would be installed during one of the routine major outages at the Facility that occur after a certain number of operating hours, approximately every 6 years. Grading and other construction activities that would not affect the Facility's ability to function would begin in the Spring of 2024. Software and mechanical upgrades would take place during the routine outage scheduled during the Fall of 2025. During a major outage, the Facility is shut down for a longer period and a larger number of contractors and personnel are brought to the Facility to perform maintenance and upgrades, if applicable. The contractors performing the major outage would also perform the software and mechanical upgrades for the Project, and a permanent increase in personnel at the Facility is not proposed. Multiple one-time shipments of mechanical equipment would be required to install these upgrades, but no significant increases in traffic or equipment is proposed.

2.2 Other Alternatives Evaluated

Oglethorpe considered the following Project alternatives: construction of a new facility, use of an existing facility, use of an existing natural gas-fired facility or coal-fired facility, use of firm gas, and construction of a renewable energy resource. Oglethorpe determined the environmental and/or financial alternatives to be too significant to be considered feasible alternatives to the proposed Project.

2.2.1 Construction of a New Facility

Oglethorpe evaluated the option of constructing a new facility for this Project; however, developing a new energy facility would require construction of a large amount of infrastructure (transmission, water intake, etc.) at a new location, infrastructure which currently exists at the Facility and would increase the Project's financial costs and environmental impacts. Furthermore, the construction of a new simple-cycle natural gas plant would not fit the purpose of the Project, which is to provide support and meet demands during times of gas curtailment or supply interruption. The new facility would similarly need to have dual fuel firing capabilities to meet the Project's intended goals of improved reliability.

2.2.2 Use of an Existing Natural Gas-Fired Facility

Oglethorpe evaluated the option of using an existing natural gas-fired facility, either owned by Oglethorpe or another provider, to increase generating capacity during gas supply curtailment or interruption. This alternative was not considered further as the other facilities in the Oglethorpe fleet are either already at capacity for baseload units or may also not have gas supply available for peaking units

during times that fuel oil firing would be employed. When events occur that adversely impact grid reliability, power plants owned by other companies are similarly affected and do not have the capacity available to generate additional electricity to supplement Oglethorpe's demand.

2.2.3 Use of an Existing Coal-Fired Facility

Oglethorpe evaluated the option of increasing utilization at an existing coal-fired facility, rather than adding fuel oil firing capabilities for existing natural gas-fired turbines, to meet system demand during periods of heavy load when natural gas supply is curtailed or cut off. Coal plants have the benefit during these periods of having a fuel supply readily available on-site; however, coal boilers have longer startup times than simple-cycle CTs, so the boilers cannot meet the grid demands quickly as a CT. Further, Oglethorpe does not currently have enough spare capacity from coal-firing units in its portfolio to fully meet the heavy load demands of the grid when gas supply is limited, so additional coal units would need to be acquired or constructed to meet the intended purpose of the Project. Lastly, according to the United States Energy Information Administration (USEIA), coal consumption produces 1.25 times more pounds of carbon dioxide (CO_2) per million British thermal units than distillate fuel consumption (2021). For these reasons, this alternative was eliminated from further consideration as an alternative to the Project.

2.2.4 Use of Firm Gas

A firm gas contract would allow for established high priority fuel when requested by the Facility, and supply could not be curtailed except under unforeseeable circumstances. Firm gas contracts are legally binding agreements between natural gas producers, pipeline operators, and energy facilities, that ensure the transfer of natural gas from the producer to the facility upon the facilities' request (USEIA, 2018). Oglethorpe uses firm gas contracts for its combined cycle power plants that meet baseload demand for the grid year-round. However, the Facility does not have a firm gas contract in place with its gas supplier, as the Facility's primary operations occur during periods of high demand in the summer months. As such, the Facility is not guaranteed to have an available supply of natural gas fuel in the winter months. Oglethorpe has estimated the cost to establish a firm gas contract for the Facility to be approximately $33,797,283 annually over current gas costs. Further, the gas supply could still be curtailed during extraordinary circumstances, such as during a major winter storm, in which case the Facility would continue to not have a reliable source of fuel available on-site as compared with distillate fuel oil firing capabilities. As such, Oglethorpe has eliminated this alternative from consideration for the Project due to the significant annual costs and the diminished benefits in system reliability in comparison to the proposed Project.

2.2.5 Use of Renewable Energy

Oglethorpe evaluated multiple renewable energy alternatives for this Project; however, the construction of a solar and/or wind farm would not improve system resiliency and would introduce increased intermittency into the system. A solar facility would not provide sufficient support during winter peaking hours, which typically occur between 6:00 am and 9:00 am. Furthermore, Georgia does not have viable wind currents to allow for the successful operation of wind turbines to offset the resiliency need.

For an intermittent resource to be feasible for this purpose, a battery energy storage system (BESS) would need to be coupled to the plant to reduce variability and improve resiliency. At current market pricing, the inclusion of BESS with equivalent energy to the preferred alternative would add approximately $2,500,000,000 in capital costs. These projected costs are financially prohibitive. BESS is being pursued by Oglethorpe as part of an overall portfolio that also includes other resilient alternatives, such as dual fuel. Installing solar panels or wind turbines, and their associated battery storage facilities, would require a substantial amount of land clearing to house enough infrastructure to support demand during times of peak load. Additionally, the structures, parcels and clearing of land, and potential mitigation involved in constructing a renewable energy farm would significantly increase the Project's financial costs to Oglethorpe.

2.3 No Action Alternative

Oglethorpe evaluated a no action alternative and compared it to the proposed action using three criteria:

1. Would the no action alternative meet the objectives of the proposed action?
2. Would the no action alternative offer a significant environmental advantage over the proposed action?
3. Would the no action alternative be technically and economically feasible, reasonable, and practical?

Under the no action alternative, the Project would not be implemented, and the Facility would continue to operate in its current state. Therefore, the Facility would not maintain reliability during times of heavy loads and when natural gas supply is curtailed or cut off. This would result in potentially inadequate power supply to the grid and disruptions in meeting customer needs during peak demand. For these reasons, the no action alternative is not preferable to and does not provide a significant environmental advantage over the proposed action, and therefore, it is not recommended.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The Project involves software and mechanical upgrades to four (CT1, CT2, CT3, CT4) of the Facility's existing CTs and construction of new infrastructure. The Project scope also includes performing maintenance on the existing, lined storm water detention pond and conducting Facility storm water and erosion maintenance. The Project would occur primarily within the previously-disturbed, graded, and developed footprint of the current Facility fence line, with the exception of an estimated additional 0.85-acres in the southeast corner of the Facility that would require clear-cutting and grading. The following discusses a variety of natural and social resources and the potential Project-related consequences to each.

3.1 Aesthetics

3.1.1 Affected Environment

As shown in the aerial imagery on Figure 1-1, the Project would occur within the existing footprint of the Facility's fence line, with the exception of approximately 0.85 acres. The surrounding land use is primarily undeveloped planted pine plantation. The nearest surrounding structures are a collection of residences approximately three-quarters of a mile east of the Project site.

3.1.2 Environmental Consequences

The Project would include construction of new infrastructure, including large fuel and water storage tanks within the existing Facility footprint with an approximate 0.85-acre extension of the Facility's current fence line that would involve clearing and grading. However, the large infrastructure would be consistent in appearance with the existing Facility's structures, and visual impacts from the new infrastructure would be minimal and negligible.

3.1.3 Mitigation

Since no significant impacts on aesthetics would occur as the result of the Project, no adverse environmental consequences would occur, and no mitigation is proposed.

3.2 Air Quality

Ambient air quality is protected by federal and state regulations. The U.S. Environmental Protection Agency (EPA) established National Ambient Air Quality Standards (NAAQS) as well as the Prevention of Significant Deterioration (PSD) program to protect human health and welfare. Primary standards protect human health, including the health of defined sensitive populations, such as asthmatics, children, and the elderly. NAAQS have been developed for sulfur dioxide (SO_2), particulate matter (PM) with a diameter of 10 microns or less (PM_{10}), PM with a diameter of 2.5 microns or less ($PM_{2.5}$), nitrogen

dioxide (NO_2), carbon monoxide (CO), ozone, lead, and sulfuric acid mist (H_2SO_4) and include levels for short-term (acute) and long-term (chronic) exposures as applicable. The PSD program addresses emissions from proposed projects for all pollutants that have NAAQS as well as for greenhouse gases (GHGs).

Ozone is not a pollutant emitted directly into the air. It is formed from a chemical reaction involving NO_X and volatile organic compounds (VOC) in the presence of sunlight. Consequently, emissions of NO_X and VOCs are regulated by the EPA as "precursors" to the formation of ground-level ozone. VOC means any compound of carbon (excluding CO, CO_2, carbonic acid, metallic carbides or carbonates, and ammonium carbonate) which participates in atmospheric photochemical reactions (40 CFR 51.100s). The current NAAQS are listed on the EPA's website (EPA, 2022).

3.2.1 Affected Environment

New Source Review (NSR) is a pre-construction permitting program designed to protect air quality when air pollutant emissions are increased either through the modification of existing sources or through the construction of a new source of air pollution. In areas with good air quality, NSR ensures that the new emissions do not significantly degrade the air quality. This is achieved through the implementation of the PSD permitting program or state minor permit programs. In areas with poor air quality, Nonattainment NSR ensures that the new emissions do not inhibit progress toward cleaner air. In addition, NSR ensures that any new or modified large industrial source uses BACT to reduce its air emissions. Air permitting of stationary sources in the State of Georgia has been delegated to the GEPD. The Facility is categorized as a major source under the PSD permitting program, as it has potential emissions of certain regulated pollutants exceeding the PSD major source threshold of 250 tons per year (tpy). Therefore, an NSR-emissions increase analysis is required to determine whether PSD permitting applies to the Project. Nonattainment NSR permitting is not potentially applicable for the Project, as the Facility is located in Talbot County, which has been designated by EPA as "attainment" or "unclassifiable" for all NAAQS (40 CFR 81.311).

The Project would be located in an area containing a mix of undeveloped lands, residential developments, commercial and industrial activities and facilities. Many of these uses contribute emissions on the surrounding areas. Sources would include wood burning stoves and fireplaces, petroleum-fueled systems for heating and hot water, automobile and other vehicle emissions, and other activities that rely on combustion of fossil fuels. These activities generate a variety of air pollutants, many of which are identified, tracked, and regulated by the EPA under the Clean Air Act. In addition, several components of these emissions are identified as GHGs.

GHGs have been identified as contributing to 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. 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:

3.2.1.1 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, primarily from the combustion of fossil fuels such as coal, oil, and gas. The transportation and electricity sectors are the largest CO_2 emitters in the United States (EPA, 2021) and are the biggest CO_2 emitters in the Project area.

3.2.1.2 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 percent by volume. In 2019, CH_4 accounted for about 10 percent of all United States GHGs from human activities (EPA, 2021). 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 25 times greater than CO_2 over a 100-year period (EPA, 2021). CH_4 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 area are the transportation, electricity, and natural gas sectors.

Natural gas use is prevalent throughout the study area. Newer technology standards and mandated leak detection and repair programs are being implemented throughout the country to reduce the emissions of

CH_4 from oil and gas production. Low or negative cost CH_4 abatement is possible in the oil and gas subsector where captured CH_4 adds to revenue instead of being released to the atmosphere (U.N., 2021). On November 15, 2021, the EPA proposed standards to reduce CH_4 and other harmful pollution from the oil and gas industry. This proposed rule would expand and strengthen emissions reductions that are currently on the books for new, modified, and reconstructed oil and natural gas resources, and would require states to reduce CH_4 emissions existing sources nationwide for the first time. If this proposed rule is put in to place, the oil and gas industry would be required to lessen CH_4 emissions and therefore reduce its contribution to climate change. These expected reductions in GHGs from the oil and gas industry would in turn reduce the carbon intensity of natural gas as an energy source.

3.2.1.3 N_2O

N_2O is a clear, colorless gas with a slightly sweet odor. In 2017, N_2O accounted for about 7 percent of all United States GHGs emissions from human activities (EPA, 2021). 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 area. 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 300 times that of 1 pound of CO_2 (EPA, 2021).

3.2.1.4 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, 2021). 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 (HFCs), perfluorochemicals (PFCs), 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 23,500, making it the most potent GHG that the Intergovernmental Panel on Climate Change (IPCC) has evaluated (EPA, 2021).

3.2.1.5 Global Warming Potentials

GHGs vary widely in the power of their climatic effects; therefore, climate scientists have established a unit to quantify the GWP of a compound. 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. Carbon dioxide equivalent (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 3.2-1**.

Table 3.2-1: 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

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

3.2.1.6 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 °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. Certain 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, 2021). Ice caps and glaciers are melting, causing sea levels to rise. Other potential effects that have been attributed to warming 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 (EPA, 2021).

3.2.2 Environmental Consequences

The proposed dual fuel conversion of the four existing simple-cycle CTs requires a PSD major source construction air permit. Oglethorpe prepared and submitted to GEPD in September 2023 a PSD permit application for the Project. The PSD permit application contained the following analyses/assessments regarding emissions of regulated pollutants associated with the construction and operation of the Project:

- Evaluation of ambient air quality in the area for each regulated pollutant for which the Project would result in a significant net emissions increase
- Demonstration that emission increases resulting from the Project would not cause or contribute to an increase in ambient concentrations of pollutants exceeding the remaining available PSD increment and the NAAQS
- Assessment of any adverse impacts on soils, vegetation, visibility, and growth in the area
- A BACT analysis for each regulated pollutant for which the Project would result in a significant net emissions increase

The Project includes adding the option to burn fuel oil in the Facility's four simple-cycle CTs as a back-up fuel to natural gas along with installation of some fuel oil storage capacity and the addition of a 455 horsepower (hp) diesel fire water pump engine used as emergency backup to the primary electric pump. Oglethorpe would comply with the issued GEPD air permit that includes emission limitations, monitoring requirements, and other terms and conditions for its CTs.

A variety of strategies to control emissions from Project equipment would be implemented. These are discussed below for the simple-cycle CTs. The CTs would be controlled as follows:

- NO_X – dry low-NO_X burners (natural gas), water injection (fuel oil), and good combustion practices
- CO – Good combustion practices
- PM/ PM_{10}/ $PM_{2.5}$ – Good combustion practices and low sulfur fuels
- VOC – Good combustion practices
- GHGs (CO_{2e}) – Efficient turbine operation and good combustion practices
- Opacity – Good combustion practices and low sulfur fuels

The Project would result in increases in projected actual annual emissions from the dual fuel conversion on the simple-cycle CTs. Annual emission increases for the four modified CTs resulting from the Project were evaluated for the PSD application submittal using the actual-to-projected actual applicability test

defined in the federal PSD regulations. Specifically, emissions increases were calculated as the difference between projected actual and baseline actual emissions. The federal PSD regulations define "projected actual emissions" as the maximum annual rate at which an existing unit is projected to emit a regulated NSR pollutant in any of the 10 years following the date the unit resumes regular operation after the project (40 CFR 52.21(b)(41)(i)). As such, the emissions increase estimates for the Project are conservatively high, because they are based on the future *maximum* projection of actual emissions, not the future *expected* or most likely actual emissions. For the PSD application, baseline actual emissions from the four simple-cycle CTs were calculated based on past actual emissions (i.e., from approximately 1,200 hours annually of operation per unit while firing natural gas only). The projected actual emissions were based on future maximum emissions (i.e., from 3,750 hours of operation annually per unit while firing natural gas and 450 hours of operation annually while firing fuel oil).

The PSD analysis calculated increases for each pollutant regulated under the PSD program, and found that emissions increases for PM, PM_{10}, $PM_{2.5}$, NO_X, CO, and VOC exceed their respective PSD Significant Emission Rates (SER). Since the emissions increase for these pollutants triggered PSD review, PSD review was also required for CO_{2e} because the calculated CO_{2e} emission increase is greater than the applicable PSD SER. The PSD application is included in **Appendix A**.

A comparison of the emissions increases from the Project for each pollutant to its SER is provided in **Table 3.2-2**, below.

Table 3.2-2: Project Emission Estimates

Pollutant	Emissions Increase from Modified Units (tpy)[1]	New Unit Potential Emissions (tpy)[2]	Associated Units Emissions Increases (tpy)	Project Emissions Increase (tpy)[3]	PSD SER (tpy)	PSD Permitting Required?
Filterable PM	32.72	0.01	--	32.73	25	Yes
Total PM_{10}	107.79	0.02	--	107.81	15	Yes
Total $PM_{2.5}$	107.79	0.02	--	107.81	10	Yes
SO_2	5.67	0.23	--	5.90	40	No
NO_X	553.39	0.77	--	554.16	40	Yes
VOC	43.99	0.97	--	44.97	40	Yes
CO	313.72	0.46	--	314.18	100	Yes
CO_{2e}	954,832	132.28	--	954,964	75,000	Yes
Lead	0.017	--	--	0.017	0.60	No
H_2SO_4 mist	0.57	0.02	--	0.59	7.00	No

1) Emissions Increase from Modified Units (tpy) = Modified Unit Projected Actual Emissions (tpy) – Modified Unit Baseline Actual Emissions (tpy). Baseline Actual Emissions were calculated based on past actual emissions (i.e., from approximately 1,200 hours of operation per unit firing natural gas only). The Projected Actual Emissions were based on future maximum emissions (i.e., from 3,750 hours of operation per unit firing natural gas and 450 hours of operation firing fuel oil).
2) The fuel oil storage tank and emergency diesel fire pump are new units with respect to this PSD assessment.
3) Project Emissions Increases (tpy) = Emissions Increase from Modified Units (tpy) + New Unit Potential Emissions (tpy) + Associated Units Emissions Increases (tpy)

Source: PSD Permit Application Volume I (**Appendix A**)

The NAAQS are set by the EPA to protect human health and public welfare. The PSD increment constitutes the maximum allowable ambient air quality concentration increase that may occur for a given pollutant above a baseline concentration. To determine if the Project would contribute to a NAAQS or PSD Class II increment exceedance, the emissions increase was modeled along with the appropriate existing sources in the area. In addition, a contribution analysis showing the impact of the Project compared to the impact of neighboring sources was performed. The modeling analysis and results are presented in the second volume of the PSD application and are attached in **Appendix A**. Based on the modeling results, it has been predicted that the Project would have minimal effects on the NAAQS and PSD Class I and Class II Increment (**Appendix A**).

GHG emissions from the Project equipment are due to CO_2, CH_4, and N_2O emissions. These calculated GHG emissions were ratioed with their appropriate GWP shown in **Table 3.2-1** and summed to obtain the overall Project CO_{2e} emissions. Consistent with GEPD and EPA guidance, air dispersion modeling of CO_{2e} was not conducted since there are no NAAQS or PSD Increment standards for this pollutant. A BACT analysis was performed for GHG. BACT is an emission limitation based on the maximum degree of reduction which the GEPD determines is achievable, on a case-by-case basis, considering energy, environmental, and economic impacts and other costs. A GHG BACT analysis was performed for all new and modified equipment proposed for the Project. A summary of the BACT for simple-cycle CTs for CO_2 is discussed in Section 3.1.1. The PSD application and operating permit stipulate a BACT emission limit of 313,253 tpy of CO_{2e} per rolling 12-months for each simple-cycle CT.

Additionally, the PSD application assessed the feasibility of incorporating various GHG mitigation control strategies. The following GHG mitigation strategies were evaluated: energy efficiency measures, carbon capture, and carbon sequestration. **Table 3.2-2** provides an overview of the findings in the PSD. The full PSD application, in **Appendix A**, contains a full discussion of the technologies considered.

The control technologies determined to be technically feasible include monitoring and control of excess air, and efficient turbine design. The use of aggressive energy-efficient design to reduce CO_2 emissions is inherent in the design of the CT and is considered the baseline condition. The design options would allow the simple-cycle CTs to not exceed the CO_{2e} permit limit.

While the NAAQS address effects of criteria pollutant emissions on human health and the environment, there is currently no standard methodology to determine how a project's relatively small incremental contribution to GHGs would translate into physical effects on the global environment. To address effects of carbon emissions, the U.S. Interagency Working Group (IWG) developed a social cost of GHG

emissions. The IWG was established pursuant to Executive Order 13990 and was tasked to establish interim estimates of the social cost of emitting one ton of GHG. The interim estimates from the IWG published in the *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide: Interim Estimates under Executive Order 13990* are used here to quantify the cost to society of a given amount of GHG emissions in terms of 2020 dollars.

The interim estimates published in the technical support document rely on harmonized inputs to an ensemble of peer reviewed models for the socioeconomic emissions scenarios and equilibrium climate sensitivity distribution used for similar U.S. Government social cost of GHGs (USG SC-GHG) estimates since 2013. The USG SC-GHG published with the Technical Support Document as well as the models and approach were open to public comment and so represent a consensus-based approach to quantifying the effects of carbon emissions on society. The analysis presented here utilized the unrounded values developed by the IWG and provided on the Office of Management and Budget website concerning the social cost of GHGs. The values used to calculate social carbon cost for 2023 to 2050, which is the expected operating time of the Project for which the interim estimates are available, are presented in **Table 3.2-3**.

Table 3.2-3: Annual Social Cost of CO_2 for 2023 – 2050 (in 2020 dollars per metric ton of CO_2)

Year	Discount Percentage		
	5.0%	3.0%	2.5%
2023	15.942	54.287	80.339
2024	16.431	55.355	81.645
2025	16.919	56.423	82.951
2026	17.408	57.491	84.257
2027	17.897	58.56	85.563
2028	18.386	59.628	86.869
2029	18.874	60.696	88.175
2030	19.363	61.764	89.481
2031	19.947	62.908	90.844
2032	20.53	64.052	92.207
2033	21.114	65.196	93.57
2034	21.697	66.34	94.934
2035	22.281	67.484	96.297
2036	22.864	68.628	97.66
2037	23.448	69.772	99.023
2038	24.031	70.916	100.387
2039	24.615	72.06	101.75
2040	25.199	73.204	103.113
2041	25.845	74.35	104.449
2042	26.491	75.496	105.785
2043	27.137	76.642	107.12
2044	27.783	77.788	108.456
2045	28.429	78.933	109.792
2046	29.076	80.079	111.128
2047	29.722	81.225	112.464
2048	30.368	82.371	113.799
2049	31.014	83.516	115.135

Year	Discount Percentage		
	5.0%	3.0%	2.5%
2050	31.66	84.662	116.471

For the analysis of the Project's social cost of carbon, the emissions increase in CO_{2e} was utilized along with the interim estimates of the cost of CO_2. This approach was conservative, as CO_{2e} includes CH_4 emissions and N_2O emissions by multiplying these emissions by their GWP factors. Also, the projected actual CO_{2e} emissions are used in the Project emission increase calculations for each year. The projected actual CO_{2e} emissions should represent an upper bound on CO_{2e} emissions and, in a given year, emissions would be expected to be lower than what was calculated for Project actuals. The emissions increase analysis included in the PSD permit application estimated projected annual increases in CO_{2e} emissions of 313,253 tpy from each of the four simple-cycle CTs being modified under the proposed Project. **Table 3.2-4** below shows the calculated total social cost for 2025 – 2050 of the Project for the 5%, 3%, and 2.5% discount rates and the projected annual increase in CO_{2e} emissions for the four simple-cycle CTs.

Table 3.2-4: Total Social Cost of Carbon from Project for 2025-2050 in 2020 Dollars

Discount Rate	5%	3%	2.5%
2025-2050 CO_2 Social Cost	779 million	2.29 billion	3.25 billion

The different discount rates provided with the IWG interim estimates represent variance in the expected effects of an action. If the emission of GHGs is considered to be less significant than present effects, then a higher discounted rate should be used. However, if they are closer to equivalent to present effects, then the lower rate should be used.

3.3 Mitigation

Construction activities are expected to have transient effects on air quality; therefore, no mitigation is proposed in connection with construction for the Project.

As part of the PSD application for the Project, the estimated emissions increase exceeded the PSD SERs for the following pollutants: NO_X, CO, PM, PM_{10}, $PM_{2.5}$, VOC, and CO_{2e}. As mitigation during the operational lifetime of the Project, the Facility would utilize air emission control measures, including dry low-NO_X combustors on the turbines during periods of natural gas combustion, water injection for NO_X emissions control during periods of fuel oil firing, and the use of low-sulfur fuels (natural gas and ultra-low sulfur diesel) for the four modified CTs, in accordance with the Facility's existing and anticipated air permits.

The PSD permit application (**Appendix A**) contains the following analyses/assessments regarding emissions of regulated pollutants associated with the construction and operation of the Project:

- Evaluation of ambient air quality in the area for each regulated pollutant for which the Project would result in a significant net emissions increase
- Demonstration that emissions increases resulting from the Project would not cause or contribute to an increase in ambient concentrations of pollutants exceeding the remaining available PSD increment and the NAAQS
- Assessment of any adverse impacts on soils, vegetation, visibility, and growth in the area
- A BACT analysis for each regulated pollutant for which the Project would result in a significant net emissions increase

3.4 Floodplains

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) identifies this area as one of minimal flood hazard (Zone X); therefore, no floodplain would be affected by the Project (associated maps/figures available in **Appendix B**). Since no impact on floodplains would occur as a result of the Project, no environmental consequences would occur, and no floodplain mitigation is proposed.

Additionally, since there are no watershed dams or associated structures downstream from the Project site, the Buena Vista District Conservationist of the Natural Resources Conservation Service (NRCS) has concluded that no further action is required with the PL-534 Flood Control Act of 1944 and PL-566 Watershed Protection and Flood Prevention Act.

3.5 Geology, Soils, and Farmland

3.5.1 Affected Environment

The Facility is in the Piedmont geologic province, just above the fall line, which is an area of rolling plains with sandy loam and clay loam soils that support agricultural crops such as cotton, corn, and peaches (GEPD, Reprinted 1988; UGA, 2022).

The soils within this area are comprised of Chewacla loam (0 to 2% slopes, frequently flooded), Pacolet sandy loam (6 to 10% slopes, moderately eroded), and Pacolet sandy loam (15 to 25% slopes, moderately eroded) by the USDA's NRCS Soil Survey Geographic Database (SSURGO) (USDA-NRCS, 2023).

The existing Facility is not located within prime farmland, however, the estimated 0.85 acres of ground disturbance to expand the Facility falls within farmland of statewide importance as identified utilizing online USDA SSURGO mapping resources. The USDA defines prime farmland as land with physical and chemical attributes that facilitate the production of agricultural crops. Land that has been industrialized and/or disturbed cannot be classified as prime farmland. Land that does not meet the criteria for prime or unique farmland is considered to be farmland of statewide importance for the production of food, feed, fiber forage, or oilseed crops, and is determined by the appropriate state agencies (USDA-NRCS, 2017).

The Facility's existing lined storm water detention pond has been inundated with sediment due to storm water runoff stemming from the Facility and the surrounding property. This storm water runoff has also resulted in the washout of soil and gravel into the Facility's drainage ditches and erosion around the existing fuel oil unloading area, raw water tank, existing demineralized water tanks, and storage shed. Additionally, the foundational integrity of the existing raw water tank may be compromised by the standing water in the surrounding area.

3.5.2 Environmental Consequences

The Project would occur within the existing footprint of the Facility fence line and within an additional 0.85-acres located adjacent to the southeastern corner of the Facility. The estimated 0.85 acres of land disturbance would occur on soil that is classified on the USDA NRCS website as farmland of statewide importance; however, this area consists of planted pine, and no impacts to active farmland is anticipated (USDA-NRCS, 2019).

The infrastructure upgrades that would occur within the existing footprint of the Facility fence line are anticipated to have no environmental consequences; however, the clear-cutting and grading of approximately 0.85 acres could results in temporary, adverse impacts to surrounding soils. Potential impacts may include the following: soil erosion, loss of soil productivity, and establishment of noxious weeds.

Burns & McDonnell corresponded with the NRCS Buena Vista District Office regarding the potential impact of the Project on farmland of statewide importance. After reviewing the proposed Project against the Farmland Protection Policy Act (FPPA), the Buena Vista NRCS determined that the Project would not convert farmland, and thus no further action with the NRCS is required. Additional information concerning the NRCS Buena Vista District Office's response to the Project is in section 6.1 of this EA and in **Appendix D**.

3.5.3 Mitigation

Since no impacts on geology, soils, and farmland are anticipated to occur with the existing footprint of the Facility fence line as a result of the Project, no environmental consequences would occur, and no mitigation for geology, soils, or farmland is proposed.

The 0.85 acres of ground disturbance proposed to occur in the southeastern section of the Facility may result in soil erosion. Oglethorpe would implement a site clearing specification plan during construction that would include, but not be limited to, Best Management Practices (BMPs) for the following: temporary erosion and sedimentation control, vegetation protection and/or removal, Project site clearing and grading, and topsoil stripping. The application of soil erosion BMPs would reduce the degree of soil erosion and/or compaction caused by the Project (GSWCC, 2016 Edition).

The sediment build-up within the Facility's existing, lined storm water detention pond would be removed, and the lining would be replaced. In addition, upgrades to the existing site drainage system would be designed and constructed based on the results of a previously conducted site drainage study, which evaluated the following elements: location and quantity of water flow both onto and within the Facility, drainage modification recommendations, flow capacity of detention pond conduits, and size of the existing storm water detention pond.

3.6 Historic and Cultural Resources

3.6.1 Affected Environment

The Project would occur within the existing footprint of the Facility fence line and an additional 0.85-acre area located in the Facility's southeastern corner. A Phase I cultural resource survey, commissioned by Oglethorpe, was conducted in August of 2000 by New South Associates prior to the construction of the original Facility (Joseph et al., 2000). At the time of this cultural survey, the entire 190-acre survey area was a commercial pine plantation owned by Mead Paper Company. In their report, *A Cultural Resources Survey of a 190 Acre Tract of Land in Talbot County, Georgia*, Joseph et al. states that the Phase I cultural resource survey was completed following the protocol of the Georgia Council of Professional Archaeologists (GCPA) *Georgia Standards and Guidelines for Archaeological Investigations* (GCPA, revised 2019) and involved approximately 750 shovel tests within what is now the Facility, and a surface-level assessment on the surrounding then-proposed project area. Two archaeological sites were identified during field work, and one isolated find (IF), IF1. The two archaeological sites were evaluated for National Register of Historic Places (NRHP) eligibility and were both found ineligible for NRHP status. The IF was not evaluated as per GCPA 2019. An additional cultural resources survey, titled "A Survey of

a 4.5-mile Pipeline Corridor, Harris and Talbot Counties," was conducted in April of 2001 by New South Associates. No cultural resource report was compiled as a result of this survey, but a Georgia Archaeological Site Form was completed for one NRHP ineligible archaeological site (Matternes, 2001). **Table 3.6-1** contains a summary of the archeological sites identified in Joseph et al.'s Phase I cultural resources survey and Matternes's cultural resource survey.

Table 3.6-1: Results of Previous Phase I Cultural Resource Survey

Site Type	NRHP Eligibility
Archaic lithic scatter	Not eligible
Archaic quartz lithic scatter	Not eligible
Remnants of early- to mid- twentieth century house site and artifacts	Not eligible

Sources: Joseph et al., 2000; Matternes, 2001

3.6.2 Environmental Consequences

The Project would occur mainly within the existing, previously disturbed and gravel footprint of the Facility fence line. Since the existing footprint is previously disturbed, graded, and graveled, there are no anticipated impacts to Historic Properties from the construction of the proposed dual fuel infrastructure.

Previously conducted cultural resource surveys found no archaeological or architectural sites within the 0.85-acre undisturbed area that is proposed to be included in the Project. A Burns & McDonnell Senior Cultural Resources Specialist corresponded with the Office of the State Archaeologist within the Georgia Department of Natural Resources (GDNR) State Parks and Historic Sites Division and the State Historic Preservation Office (SHPO) Division to confirm that the previous survey conducted by Joseph et al. in 2000 provided sufficient coverage of the Project area per GCPA 2019. The Office of the State Archaeologist and the SHPO confirmed that because the methodologies used to conduct the previous surveys have not been updated, the results of the previous survey are relevant and no additional cultural resource surveys are required for this Project. The SHPO provided a letter concurring with the recommendation of no Historic Properties effected for the Project area.

3.6.3 Mitigation

Since no impacts would occur to Historic Properties as a result of the Project, no environmental consequences would occur, and no mitigation is proposed.

3.7 Human Health and Safety

3.7.1 Affected Environment

3.7.1.1 Air Quality

A PSD analysis for the proposed Project showed the emissions increases of SO_2, lead, and H_2SO_2 mist to be below their respective PSD SER thresholds, while the emissions increases of following pollutants were found to exceed their respective PSD SER thresholds: PM, PM_{10}, $PM_{2.5}$, NO_X, CO, and VOC. Since emissions increases for these pollutants trigger PSD review, PSD review is also required for CO_{2e} because the calculated CO_{2e} emission increases exceed the applicable PSD SER.

The permit major modification application included a toxic impact assessment as required by Georgia regulations. The toxic impact assessment evaluated the emissions of all toxic air contaminants (TAC) emitted by the Facility that are listed in the GEPD toxic impact assessment guidelines. Ambient air quality modeling of the TAC emitted by the Facility determined that the concentration of all TAC were below their associated Georgia Acceptable Ambient Concentrations, and therefore have a minimal impact on human health.

Air emission control measures determined to be BACT for the proposed Project include utilizing dry low-NO_X combustors during periods of natural gas firing, the use of water injection to reduce the formation of NO_X emissions during periods of fuel oil firing, good combustion practices, and the use of low sulfur fuels.

3.7.1.2 Spill Prevention Control and Countermeasures Plan and Facility Response Plan

According to 40 CFR Part 112, the Facility is required to maintain a Spill Prevention Control & Countermeasures Plan (SPCCP) because the aboveground oil storage exceeds 1,320 gallons and poses a risk of discharging harmful quantities of oil into navigable waters. The Facility is also responsible for employing a Facility Response Plan (FRP), because the total oil storage capacity exceeds 1 million gallons and a discharge event may result in detrimental impacts to surrounding fish, wildlife, and/or sensitive environments (40 CFR Part 112). The Facility currently maintains a Facility Response Plan – Spill Prevention Control & Countermeasures Integrated Plan (FRP – SPCCP) outlining the procedures, methods, and equipment used for preventing the discharge of oil into or upon navigable waters and from impacting fish, wildlife, and sensitive environments in proximity to the Facility.

The Facility currently holds 35 oil-containing vessels, in addition to a varying number of 55-gallon drums. All oil-containing vessels within the Facility are located aboveground. The quantities and volumes of the Facility's existing oil-filled containers, with the exception of the 55-gallon drums, are as follows: one No. 2 Fuel Oil Storage Tank (1,200,000 gallons), six Turbine Lube Oil Tanks (3,500 gallons each), six Step-Up Electrical Transformers (10,990 gallons each), six Auxiliary Power Electrical Transformers (580 gallons each), six Lube Oil Coolers (238 gallons each), two Fuel Booster Pump Overflow Tanks (370 gallons each), six Rexroth Hydraulic Skids (80 gallons each), one portable Double Walled Steel Tank (960 gallons), one portable Diesel Fuel Tank (95 gallons), and three Fuel Gas Skid Drain Tanks (245 gallons each).

Facility personnel receive training on the plans and procedures described in the Facility's FRP – SPCCP and according to Occupational Safety and Health Administration Regulations (OSHA) regulations 29 CFR 1910.120 (q). Employees may be required to complete additional training(s) depending on their role at the Facility. Facility personnel also conduct internal and external drills/exercises in accordance with the Oil Pollution Act regulations (40 CFR 110). The Facility's internal drills/exercises include the following: quarterly Qualified Individual (QI) notification drills, annual spill management team tabletop exercises, annual material deployment exercises, semi-annual response materials inspection, semi-annual fire evacuation drills, and semi-annual severe weather drills. The Facility's external drills/exercises are government-initiated, unannounced exercises that evaluate Facility personal's response to small discharge scenarios.

The Facility's FRP – SPCCP outlines the response plans for small (<2,100 gallons), medium (2,100 to 36,000 gallons), and worst-case (>36,000 gallons) oil discharge events. Facility personnel are trained to utilize the on-site spill response materials to address small oil discharge events. Depending on the type of spill, the QI and/or Operations and Maintenance (O&M) Supervisor may contact the Talbot County Emergency Management Agency, or a qualified third-party Spill Response Contractor for additional assistance. Talbot County also has a Mutual Aid Agreement in place with the City of Columbus and can request the City of Columbus Fire and EMS services if needed. During a medium- or worst-case spill, it is expected that the QI and/or O&M Supervisor would immediately contact Talbot County Emergency Management Agency and the Facility's Spill Response Contractor for assistance. Facility personnel are not equipped to handle medium- or worst-case oil discharge events but may use their training and on-site spill response materials to aid in stopping, or containing, an oil spill to the best of their abilities without endangering themselves or the environment. During a worse-case release, the Spill Response Contractor evaluates the oil spill based on the geographic proximity to waterways and the Facility's calculated worst-

case oil discharge event. The result of this evaluation determines the Spill Response Contractor's level of response (i.e., Tier 1, Tier 2, or Tier 3) and the oil recovery/response equipment employed at the spill site.

Secondary containment structures are present for all oil-containing vessels in the Facility. The No. 2 Fuel Oil Storage Tank is equipped with a foundation liner, leak detection boot, underground dual-walled high-density polyethylene (HDPE) containment piping with leak detection fittings, and an impervious berm that drains to one of the Facility's oil/water separators (OWS). The Turbine Lube Oil Tanks, Fuel Booster Pump Overflow Tanks, and Rexroth Hydraulic Skids are surrounded by concrete containments that drain to a waste sump tank, and the Step-Up Electrical Transformers, Auxiliary Power Electrical Transformers, Lube Oil Coolers are located in concrete pads that drain to an OWS. The Fuel Gas Skid Drain Tanks are single-walled, steel tanks at the fuel gas skid and are taken off-site to be emptied regularly. The portable Double Walled Steel Tank is placed in various secondary containment locations but is most frequently stored in a containment dike that drains to an OWS. Lastly, when not in use, the portable Diesel Fuel Tank is kept in the bed of a pickup truck parked at the Fuel Oil Unloading containment area which drains to an OWS.

If a spill/release event occurs, the Facility's secondary containment mechanisms serve to capture oil discharges. In accordance with the FRP – SPCCP, the fuel oil storage tanks are contained by a HDPE lined earthen berm designed to contain the volume of the fuel oil storage tank, plus an additional estimated 150,000 gallons. The berm containment area surrounding the fuel oil storage tank is normally closed and locked with a manually operated positive cut-off valve. When unlocked, the contents of the berm containment area are drained to one of the Facility's OWS before being emptied into the lined, detention pond.

Facility personnel conduct daily inspections on oil-containing vessels, transfer lines, and operating equipment. The O&M Supervisor oversees trained Facility personnel in completing comprehensive monthly, semi-annual, annual, biennial, and 3-year inspections and testing. During inspections, Facility structures are checked for leaks, and the structural integrity is evaluated in accordance with regulations and industry standards. Checklists and logs are completed during each inspection, and maintenance is promptly scheduled if maintenance is necessary. The Facility's spill response materials are inspected on a semi-annual basis, and items are stocked when supplies are low.

3.7.1.3 Fire Safety

The existing fire water loop is supplied by the city water header and runs through the entire Facility. It is connected to the fire monitoring stations lining the secondary containment area of the fuel oil storage

tank. All six existing CTs are equipped with CO_2 fire protection systems, each containing 13 tons of CO_2 (combustion turbine 1 [CT1], combustion turbine 2 [CT2], combustion turbine 3 [CT3], and combustion turbine 4 [CT4]) or 17 tons of CO_2 (combustion turbine 5 [CT5] and combustion turbine 6 [CT6]). The Facility's fire hydrant test data show that the static pressure and residual flow rate of the current city water/fire water supply and system are 65 pounds per square inch gauge (psig) and 690 gallons per minute (gpm), respectively.

3.7.1.4 Water Resources

An existing, lined storm water detention pond at the Facility collects storm water from the Facility. The detention pond is designed to collect up to a 100-year rainfall with a foot of freeboard. It is inspected annually for sediment accumulation, erosion, and presence of oil and debris, and undergoes cleaning and maintenance as needed.

Oglethorpe does not currently hold any water usage or water discharge permits for the Facility. The Facility is exempt from the requirement to obtain a National Pollutant Discharge Elimination System (NPDES) Industrial Storm Water General Permit. The Facility receives city water through a header pipe which is connected to the raw water tank, the fire water loop, the Facility's buildings, and the containment area fire water loop attached to the monitoring stations.

3.7.2 Environmental Consequences

3.7.2.1 Air Quality

As previously stated in section 3.2, air quality is regulated by the NAAQS and the PSD program to protect human health and safety. A PSD analysis determined that the Project emissions increase exceeds the PSD SERs for PM, PM_{10}, $PM_{2.5}$, NO_X, CO, VOC, and CO_{2e}. PSD modeling was subsequently conducted to determine if the Project would contribute to a NAAQS or PSD Class II increment exceedance. The modeling included relevant existing pollutants at the Facility and the surrounding area. The results of the modeling predicted that the Project would not cause or contribute to violations of the NAAQS and PSD Class I and Class II Increment (**Appendix A**).

The Project would result in a potential increase of air emissions. Oglethorpe has applied for a major modification to their Title V Air Quality Permit for the Project from the GEPD (**Appendix A**). The GEPD is the agency responsible for protecting Georgia's air quality through the regulation of air emissions from industrial and mobile sources.

3.7.2.2 Spill Prevention Control and Countermeasures Plan and Facility Response Plan

The Facility currently holds an FRP – SPCCP for its operations. The FRP – SPCCP is reevaluated and amended when 1) there is a change in the design, construction, operation, and/or maintenance of the Facility that has the potential to affect the Facility's oil discharge, and 2) at least once every five years. As Oglethorpe proposes to install two 1.5 million (MM) gallon above ground fuel oil storage tanks for the Project, the Facility would be required to update its FRP – SPCCP according to 40 CFR Part 112 to demonstrate the Facility's preparedness to respond to a worst-case oil discharge event.

3.7.2.3 Fire Safety

The National Fire Prevention Association's (NFPA) 241: Standard for Safeguarding Construction, Alteration, and Demolition Operations (NFPA 241) is a fire code that promotes human health and safety at work sites. NFPA 241 "provides measures for preventing or minimizing fire damage to structures, including those in underground locations, during construction, alteration, or demolition" (NFPA, 2022a).

In accordance with NFPA 241, Oglethorpe would enact the following temporary fire protection measures during construction: 1) smoking would be prohibited in construction areas and subject to limitations throughout the Project site, 2) an authority would supervise operations involving fire ignition, and 3) fire-prevention and fire-protection programs would be developed in coordination with the local fire department and implemented at the Project site. In compliance with NFPA 10: Standard for Portable Fire Extinguishers (NFPA 10), during Project construction, portable, Underwriter Laboratories rated (UL-rated) fire extinguishers would be placed in areas considered to be temporary fire hazards (NFPA, 2022b).

To comply with the NFPA codes associated with the operation of the proposed fuel oil tanks, Oglethorpe proposes to construct a new approximately 850,000-gallon fire water storage tank and a new fire water pump house. Modifications are proposed to the city water header including disconnecting the existing plant fire water loop and connecting a new fire water pump. The fire water monitors would be updated to automatic/remote operation. Additionally, a fire water loop would be provided around the new Fuel Oil Storage Area to feed the new fire water monitors installed on the berm.

Additional NFPA codes that the Site would comply during operation of the Project are as follows: NFPA 1: Fire Code, NFPA 25: Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, NFPA 30: Flammable and Combustible Liquids, NFPA 31: Standard for Installation of Oil Burning Equipment, NFPA 70E: National Electric Code, NFPA 79: Electrical Standard for Industrial Machinery, NFPA 101: Life Safety Code, NFPA 220: Standard Types of Building

Construction, NFPA 780: Lightning Assessment and Standard for Installation of Lightning Protection Equipment, and NFPA 850: Recommended Practice for Fire Protection of Electric Generating Plants and High Voltage Direct Current Converter Stations.

In compliance with Ga Rule 120-3-11.03 Submission of Plans for Storage Installations (Ga Rule 120-3-11.03), the Facility's BOP Contractor would obtain approval of the fuel oil storage tank plans from the state Fire Marshall prior to construction.

3.7.2.4 Water Resources

While the Project would result in minor increases in water intake from the city, the future quantities of water withdrawal are not expected to require additional permitting, and the increase would not have an impact on current or future available water supply.

The Project would affect the Facility's infrastructure for water usage and discharge through the installation, and application, of a water-injection system and two 2 MM gallon demineralized (DEMIN) water storage tanks. The DEMIN water would be transferred from the DEMIN water storage tanks to a new DEMIN water forwarding system with six pumps, divided into two groups. DEMIN water storage tank No. 2A would supply water to CT1, CT2, and CT3 while DEMIN water storage tank No. 2B would supply water to CT4, CT5, and CT6. The flow rate and design pressure of the water would be 559 gpm/ 139 feet and 120 psig, respectively.

With the addition of diesel fuel oil and two DEMIN water storage tanks, the Project is expected to increase the Facility's water use; thus, the Facility would require an additional OWS. The Facility currently has two OWSs. The three OWSs, two existing and one proposed, would all output to the existing lined, storm water detention pond. Oglethorpe does not hold (and is not required to hold) any withdrawal or discharge permits for this Facility, and no additional permits are anticipated to be required as a result of this Project.

3.7.3 Mitigation

Oglethorpe would continue to comply with all applicable air regulations and permit requirements and applicable NFPA codes, to protect public health. Additionally, Oglethorpe would implement BMPs during the construction phase of the Project to reduce ground disturbance, erosion and sediment runoff, and potential impacts to groundwater. As a result, there would be no impacts or environmental consequence to human health and safety as a result of the Project, and no mitigation is proposed.

3.8 Land Use

3.8.1 Affected Environment

The Project site is located in Talbot County, GA, and operates as the Facility. Land use adjacent to the site consists of pine plantation, utility rights-of way, wooded areas, and river systems. The nearest road is Cartledge Road, which travels from north to south, intersecting US Highway 80.

3.8.2 Environmental Consequences

Construction and operation of the proposed Project would take place primarily within the current Facility fence line, with an additional 0.85 acres on the southeastern corner planned to be cleared and graded for expansion of the developed land within the fence line. The area is zoned as industrial (Talbot County Board of Assessors, 2005). The Project would not change or impact the current industrial zoning of the site. The 0.85-acre expansion would have a negligible impact to land use by changing the area from planted pine to cleared and graded land.

3.8.3 Mitigation

Since negligible impacts would occur to land use as a result of the Project, no mitigation is proposed.

3.9 Noise

The Project would not result in increased noise levels above historical levels at noise sensitive areas (NSAs). The nearest NSAs (a collection of residences off Cartledge Road, Box Springs, Georgia) are approximately ¾ mile east from the Facility.

3.10 Socioeconomics and Environmental Justice

3.10.1 Socioeconomics

Socioeconomics includes population growth trends, racial and ethnic characteristics, employment, income, public services (education facilities, medical facilities, fire protection, police protection), and recreation and open space. The Project includes software and mechanical upgrades to existing equipment during a routine outage and would not result in any changes or impacts to population trends, racial and ethnic characteristics, employment, public services, or recreational spaces. The Project includes mechanical upgrades to existing equipment during a routine outage and would not result in any changes or impacts to population trends, racial and ethnic characteristics, employment, public services, or recreational spaces.

3.10.2 Environmental Justice

Environmental Justice is the analysis of human health or environmental effects of a proposed project on minority or low-income populations to determine if they would be disproportionately adversely impacted by the proposed project. The Project would allow the Facility to operate with increased reliability during periods of gas supply curtailment or interruption, thus reducing the need to rely on less cost-effective sources of power generation and the potential for loss of power to customers during those periods. The increased reliability would benefit the local EMCs and thus could reduce costs to the local community.

Table 3.10-1: Demographic Indicators within 1,000 feet of the Project Lines' Route

Block Group ID	Population	Demographic Indicator	Value	Distance
Georgia BG Averages		Minority Population	48%	Statewide
		Low Income Population	33%	
132639603002	881	Minority Population	38%	0.28 mile
		Low Income Population	40%	

Source: EPA, 2023

A Block Group (BG) is the lowest level of granularity for which accurate demographic data is available. Any BG that touched the Facility was included for analysis. The population of the BG in **Table 3.10-1** represents the entire population both within and outside the immediate Facility. The distance in the above table shows the geographic size, in miles, of the BG that the Facility is located within.

The average minority population for a typical BG in Georgia is 48% according to EJSCREEN, and the average low-income population for a typical BG Georgia is 33%. The Facility is located within a BG that is considered an environmental justice community based on the percentage of low-income households that are present. With the average Georgia BG having a 33% low-income population and the affected BG has an average low-income population of 40%, this BG has a low-income population that is approximately 7% higher than the Georgia average. However, since the Project would not result in significant adverse impacts, it would also not result in disproportionately adverse impacts on this environmental justice community.

3.11 Utilities

3.11.1 Affected Environment

Public utilities include water supply, treated wastewater, sanitary sewer, electricity, gas, and solid waste services. The Facility obtains city water which provides potable water to the site buildings. The Facility does not hold a NPDES Industrial Storm Water General Permit.

3.11.2 Environmental Consequences

The Project would result in minimal, long-term increased water usage, as depicted in **Table 3.11-1**. It is anticipated that the Facility's water usage and discharge would not require permitting. **Table 3.11-1** provides the Facility's current and proposed water usage during normal and maximum operations in the summertime.

Table 3.11-1: Current and Predicted Water Usage of the Facility (gallons per minute)

Normal Facility Water Usage (annual average gpm)			Maximum Facility Water Usage (annual average gpm)		
Current	**Proposed**	**Change**	**Current**	**Proposed**	**Change**
38*	45**	7	122†	176‡	54

* Based on 1,750 hours per year of natural gas firing for all units. Assuming 70 hours per year of fuel oil firing for CT5 and CT6.
** Based on 1,750 hours per year of natural gas firing for all units. Assuming 70 hours per year of fuel oil firing for all units.
† Based on 3,750 hours per year of natural gas firing for CT1 through CT4. Based on 4,200 hours per year for CT5 and CT6. Assuming 450 hours per year of fuel oil firing for CT5 and CT6.
‡ Based on 4,200 hours per year of natural gas firing for all units. Assuming 450 hours per year of fuel oil firing for all units.

The Facility's current maximum usage and current normal usage when the evaporative coolers are in operation were calculated under the assumption that the evaporative coolers would be functioning at 100 percent and 75 percent capacity, respectively. Estimates show that the Project would increase the annual average water usage by 54 gpm under maximum usage and 7 gpm under normal usage. This minimal increase in water usage would not affect the existing water supply from Talbot County and would not require the Facility to obtain a water withdrawal permit.

The Project would not affect the Facility's water discharge. The Facility does not currently hold a discharge permit and would not be required to obtain one as a result of this Project.

3.11.3 Mitigation

The Project would only result in minor increases in water use and would not impact water discharge. The Project would have increased daily water usage but would not affect the effluent composition and does not have an associated permit for water intake. Therefore, there are no mitigation measures for the increased withdrawals or discharges.

3.12 Threatened and Endangered Species

3.12.1 Affected Environment

There are two federally endangered species and one candidate species listed as having potential to occur within the Project footprint, as listed in **Table 3.12-1**. Protected species information was obtained from the U.S. Fish and Wildlife Service (USFWS) Information for Planning & Consultation System (IPaC) for the Project site.

Table 3.12-1: Federally Protected Species Potentially occurring in Talbot Energy Facility

Common Name	Scientific Name	Federal Status	State Status
Insects			
Monarch Butterfly	*Danaus plexippus*	C[1, 2]	-
Plants			
Relict Trillium	*Trillium reliquum*	E	E
Fringed Campion	*Silene polypetala*	E	E

1) Candidate species have sufficient information to propose them as threatened or endangered under the Endangered Species Act (ESA) but receive no protection under the ESA.
2) The monarch butterfly was returned to the USFWS IPaC as a candidate species. GDNR does not track this species.

Candidate (C); Endangered (E)
Source: USFWS, 2023

The Facility is located within the hydraulic unit code (HUC) 10 Upper Upatoi Creek (HUC 0313000301) watershed. There are currently 19 state-protected species of plants and animals with potential to occur in this watershed (GDNR, 2023).

3.12.2 Environmental Consequences

Any impacts from the Project would be limited to the existing Facility fence line and an additional 0.85 acres to be clear-cut and graded in the southeast corner of the Facility. There is no known habitat or previous occurrences documented for federal or state protected species within the Facility footprint, as documented in the IPaC documentation attached in **Appendix C**. There also is no designated critical habitat for protected species within the area (USFWS, 2023). Minor land disturbance activities would occur in 0.85 acres of the Project area; however, no critical habitat would be disturbed, and no protected species have been documented in the area.

3.12.3 Mitigation

The USFWS stated that the Project is not expected to significantly impact federally protected fish and wildlife resources. No habitat for federally or state listed species occur at the Project site therefore, the Project would have no effect on protected species or their critical habitat, nor would it have any short- or long-term impacts.

3.13 Transportation

3.13.1 Affected Environment

According to the Georgia Department of Transportation (GDOT) Traffic Analysis and Data Application (TADA), Cartledge Road serves as a rural minor collector road connecting another rural minor collector road, Patterson Road/Waverly Hall Road, in Talbot County to a principal arterial road, Macon Road, in Muscogee County (GDOT, 2023). Macon Roads transitions to Columbus Highway when entering Talbot

County. Layfield Road is approximately 1.29 miles west of the Facility in Muscogee County, and Hut Road is located approximately 2.64 miles east of the Facility in Talbot County.

A review of GDOT TADA data indicated an annual average daily traffic (AADT) count of 17,200 vehicles utilizing Columbus Hwy/Macon Road and an AADT count of 30 vehicles using Patterson Road/Waverly Hall Road.

3.13.2 Environmental Consequences

Temporary and minor traffic increases would begin when preliminary construction activity begins approximately a year and a half prior to the Site's routine major outage, when Project upgrades would be installed. The construction activities do not propose to impact traffic patterns, nor have any impact on the existing roadway. The anticipated transportation routes to the Facility are from major highways, such as US Highway 80, to provide access to the site. No additional full-time employees would be hired for the operation of the Facility once the Project is complete, therefore, no long-term or permanent traffic impacts are anticipated.

3.13.3 Mitigation

Since no significant impact on transportation would occur as a result of the Project, no adverse environmental consequences would occur, and no mitigation is proposed.

3.14 Vegetation

3.14.1 Affected Environment

Vegetation within the current Facility boundaries is limited to manicured grass lawn and gravel/paved areas, with most of the Facility void of vegetation due to operations. The additional 0.85 acre area that is part of the expansion of the developed portion of the Facility consists of pine. Land adjacent to the proposed Project consists of pine plantation, utility rights-of way, wooded areas, and river systems.

3.14.2 Environmental Consequences

The Project would occur entirely within the existing Facility footprint with the exception 0.85 acres, in which vegetation would be cleared and the surface would be graded. Qualified biologists performed a site assessment in July 2023 of the Facility and the additional 0.85 acre expansion, and found that the vegetation consisted of upland planted pine within the additional expansion area and surrounding the Facility. Therefore, impacts to vegetation would be negligible.

3.14.3 Mitigation

The Project's impact on vegetation would be negligible; therefore, no mitigation is proposed.

3.15 Water Resources and Wetlands

Tar River is approximately 900 feet from the western boundary of the existing Facility. Riley Branch is over 1,000 feet away from the eastern boundary of the existing Facility and proposed additional clearing. Qualified biologists determined that no water resources or wetlands occurred within or immediately adjacent to the proposed Project boundaries. The Project would not result in impacts to water resources or wetlands, therefore no mitigation is required.

3.16 Wildlife

3.16.1 Affected Environment

The property is entirely fenced for security purposes. The existing fence is approximately six feet high, which deters wildlife from entering the Facility. According to iNaturalist, mammals in Talbot County and neighboring Muscogee and Harris Counties include the white-tailed deer, common raccoon, coyote, nine-banded armadillo, and eastern gray squirrel (iNaturalist, 2023a-c). Additionally, the nearest Wildlife Management Area (WMA) is the Chattahoochee Fall Line WMA, approximately seven miles southeast (GDNR 2023).

3.16.2 Environmental Consequences

As part of the expansion of the developed portion of the Facility, the additional 0.85 acres along the southeastern section of the Facility's current fence line would include clearing, grading, and expanding the fence line. The Project could result in temporary and negligible impacts to wildlife during construction and grading of the 0.85 acres of new land and from noise, construction activities, and heavy equipment use.

3.16.3 Mitigation

No impacts to WMAs are anticipated. Minimal clearing for the 0.85-acre expansion is anticipated to have negligible effects on surrounding wildlife. Therefore, no mitigation is proposed.

4.0 CUMULATIVE EFFECTS

In accordance with NEPA, Oglethorpe considered the cumulative impacts of the Project and other projects or actions in the area. As defined by the CEQ, a cumulative effect is the impact on the environment that results from the incremental impact of the proposed action when added to other past (completed five or less years ago), present, or reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions (CEQ, 1997). Although the individual impact of each separate project may be minor, the additive or synergistic effects of multiple projects could be significant. This section focuses on recent past, ongoing/current, and reasonably foreseeable future projects that have or would impact the same resources that would be impacted by this Project.

In order to understand the contribution of past actions to the cumulative impacts of the proposed action, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects. In this analysis, RUS has generally considered the impacts of past projects within the resource-specific geographic scopes as part of the affected environment (environmental baseline), which was described under the specific resources discussed throughout section 3.0. This cumulative impact analysis includes other actions meeting the following three criteria:

- the action impacts a resource that is also potentially affected by the Facility's Dual Fuel Conversion Project;
- the action causes impacts within all or part of the same geographic scope as the Facility's Dual Fuel Conversion Project; and
- the action causes impacts within all or part of the temporal scope for the potential impacts from the Facility's Dual Fuel Conversion Project.

4.1 Cumulative Impacts by Resource

The geographic scope for each resource is unique and is generally more localized for somewhat stationary resources such as geological and soil resources; more expansive for resources with a large geographic area, such as visual impacts and air emissions; and based on jurisdictional boundaries for resources such as socioeconomics and public lands. Cumulative impacts were evaluated from a geographical perspective, as the proximity of other actions to the Project is a major predictor of whether cumulative impacts would occur. In general, the closer another action is to the Project, the greater the potential for cumulative

impacts. **Table 4.1-1** summarizes resource-specific geographic boundaries considered in this analysis, and the justification for each. Actions occurring outside these geographical boundaries were generally not evaluated because their potential to contribute to a cumulative impact in a significant way diminishes with the increasing distance from the Project. When combined with other past, present, and reasonably foreseeable future projects, the Facility's planned Project could only contribute toward cumulative impacts on air quality and water use. For the Project to contribute towards a cumulative impact on these resources, the other contributing project(s) must overlap with the same geographic and temporal scope as the planned Project.

Table 4.1-1: Geographic Scope by Resource for Cumulative Impacts Associated with the Project

Resource	Geographic Scope	Justification for Geographic Scope
Geological Resources and Soils	For geological resources, the area of disturbance of the Project and other projects would be overlapping or immediately abutting one another and involve excavation. Potential soils impact would be limited to within 0.25 mile of the Project workspaces.	Impacts on geological resources and soils would be highly localized and primarily limited to the respective project footprints during active construction. Cumulative impacts would only occur if other geographically overlapping or abutting projects were constructed at the same time as the Project.
Surface Water, Groundwater, and Aquatic Resources	Upper Upatoi Creek (HUC 0313000301) watershed boundary.	Impacts on surface waters can result in downstream contamination or turbidity; therefore, the geographic scope used to assess cumulative impacts on water and aquatic resources includes the Upper Upatoi Creek watershed within the Facility.
Wetlands		
Vegetation and Wildlife	2 miles from the Facility. For less-transient species, such as reptiles and amphibians, the geographic scope would be the area immediately within and abutting the Project's construction areas.	Due to the transient nature of wildlife, cumulative impacts on vegetation and wildlife have been considered within a 2-mile buffer of the Facility.
Cultural Resources	The area of potential effect of the Project and other projects would be overlapping or immediately abutting one another and involve excavation, or within the viewshed.	Project impacts on cultural resources would be restricted to the existing confines of the Facility and additional 0.85 acre workspace; therefore, the geographic scope for cumulative impacts is also confined to the Facility.
Land Use and Special Interest Areas	Within 0.5 miles of the Project area.	Project impacts on general land uses would be restricted to the existing confines of the Facility and additional 0.85-acre workspace; therefore, the geographic scope for land use and recreation is 0.5 mile from the centerline of the Facility boundary.
Aesthetics/Visual Resources	Within 0.5 miles of aboveground facilities.	Assessing the impact based on the viewshed allows for the impact to be considered with any other feature that could influence visual resources.
Socioeconomics	Counties where Project activities are proposed.	The geographic scope of potential impact for socioeconomics was considered to include the counties affected by the projects where most workers would be expected to reside during construction and operation of the Project. Affected counties would experience the greatest impacts associated with employment, housing, public services, transportation, traffic, property values, economy, and taxes.

Resource	Geographic Scope	Justification for Geographic Scope
Environmental Justice	United States Census Bureau defined BGs affected by Project.	The geographic scope of potential impacts for environmental justice includes all BGs affected by the Project.
Air Quality – Construction[1]	Within 0.25 mile of all active construction (pipeline, road crossing, and aboveground facilities).	Air emissions during construction would be limited to vehicle and construction equipment emissions and dust and would be localized to the Project's active construction work areas.
Air Quality – Operation[1]	50 kilometers (~31.1 miles) from Facility.	EPA's distance for modeling of large PSD sources, at 40 CFR 51, **Appendix A**.
Noise - Construction	Within 0.25 mile of any construction workspaces.	Areas in the immediate proximity of aboveground Facility construction activities would have the potential to be affected by construction-generated noise.
Noise - Operation	Other facilities that would impact NSAs within 1 mile of any noise-emitting permanent aboveground facility.	Noise from the Project's permanent aboveground facilities could result in cumulative noise impacts on NSAs within 1 mile.

(1) GHGs do not have a localized geographic scope. GHG emissions from the Project combined with projects all over the planet lead to increased CO_2, CH_4, and other GHG concentrations in the atmosphere.

4.2 Projects and Activities Considered

Given the limited impacts resulting from construction and operation of the Project and the confined area where impact would occur, the Project is not expected to contribute towards the cumulative impact on the majority of resources discussed throughout Section 3.0 of this EA. The Project can only contribute towards a cumulative impact if it would also result in direct or indirect impacts alone. Based on the analysis in Section 3.0, the Project would not result in direct or indirect impacts on the following resources: aesthetics, floodplains, prime farmlands or farmlands of statewide importance, historic properties, human health and safety, land use, noise, and socioeconomics. The Project may result in negligible or minor impacts on soils and geology, vegetation, wildlife, and air quality. The cumulative impacts analysis looks at the potential impacts of other actions as described in relevant guidance. NEPA requires reasonable forecasting, but an agency is not required to engage in speculative analysis or to do the impractical, if not enough information is available to permit meaningful consideration. The scope of the cumulative impact assessment depends in part on the availability of information about other projects. For this assessment, other projects were identified from information obtained from publicly available database searches and public notices. This section will only consider other projects that would also contribute to cumulative impact on air quality along within the same geographic and temporal scope of the proposed Project. Cumulative impacts were typically derived from our approximation of project boundaries as interpreted from publicly available project descriptions, maps, and aerial photography.

Table 4.2-1: Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Impacts with the Project

Project Description	Project Category	Resource Impacted	County
Past Projects			
HPPE, LLC (2020)[1]	Renovation	Air Quality	Muscogee
Fort Benning (2022) [1]	Renovation	Air Quality	Chattahoochee
Current Projects			
No current projects within the geographic scope of the Project were identified.			
Future Project			
No foreseeable future projects within the geographic scope of the Project were identified.			

Source: [1]PSD Permit Application Volume II (**Appendix A**)

The Facility is an industrial site owned and operated by Oglethorpe, which started operations in 2002. Based on the previous findings discussed throughout Section 3.0, the Project would only result in minor impacts on air quality and water use. Therefore, when combined with other past, present, and reasonably foreseeable future projects, the Facility's planned Project could only contribute toward cumulative impacts on air quality and water use. For the Project to contribute towards a cumulative impact on air quality and/or water use, the other contributing project(s) must overlap the same geographic and temporal scope as the planned Project.

For air quality, the distance used to establish a geographic scope was derived from the EPA's cumulative modeling of large PSD sources during permitting and follows 40 CFR 51, Appendix W, Section 4.1. This references a 31-mile (50-kilometer) radius of current or proposed sources of operational emissions. Although PSD modeling was not required or performed for this Project, if there is another ongoing or newly proposed emission source within the Facility's 31-mile radius, a cumulative impact could occur when the other project(s) is combined with the Project.

Oglethorpe then reviewed other proposed or pending projects within that 31-mile radius. Oglethorpe is unaware of any newly proposed or pending power generating facilities within that geographic scope. Other proposed or pending non-energy projects identified within the same geographic scope as the proposed Project include:

- General residential, commercial, and manufacturing/industrial development and construction.
- New and existing roadway construction and maintenance through the funds received from the Transportation Special Purpose Local Option Sales Tax (TSPLOST) program; and
- Landfills currently operating under a Title V permit.

5.0 SUMMARY OF MITIGATION

The Facility would properly maintain and operate emissions controls selected as BACT, including dry low-NO_X combustors on the turbines during periods of natural gas combustion, water injection to minimize the formation of NO_X emissions during periods of fuel oil combustion, good combustion practices, and the use of low-sulfur fuels.

Mitigation would be performed to reduce impacts to environmental resources, as described in **Table 5-1**.

Table 5-1: Summary of Mitigation

Resource	Mitigation
Aesthetics	Proposed Facility improvements would be of similar aesthetic. No significant impacts and no mitigation proposed.
Air Quality	The Facility would properly maintain and operate emissions controls selected as BACT, including dry low-NO_X combustors on the turbines during periods of natural gas combustion, water injection to minimize the formation of NO_X emissions during periods of fuel oil combustion, good combustion practices, and the use of low-sulfur fuels.
Floodplains	No floodplains are within the Project area. No effect anticipated and therefore, no mitigation required.
Geology, Soils, and Farmland	Expansion of the Facility would expose soils to erosion. BMPs would be utilized during construction. The additional 0.85 acre expansion would be a permanent impact, but is not expected to have environmental consequences.
Historic Properties	No impacts would occur to historic properties, therefore no mitigation required. Proposed Facility improvements would be of similar aesthetic so the view shed of any standing structures would not be diminished. No significant impacts and no mitigation proposed.
Human Health and Safety	Oglethorpe would continue to comply with all applicable air regulations and permit requirements and applicable NFPA codes to protect public health. Additionally, Oglethorpe would implement BMPs during the construction phase of the Project to reduce ground disturbance, erosion and sediment runoff, and potential impacts to groundwater. As a result, there would be no impacts or environmental consequence to human health and safety as a result of the Project, and no mitigation is proposed.
Land Use	Since negligible impacts would occur to land use as a result of the Project, no mitigation is proposed.
Noise	The Project would not result in increased noise levels above historical levels; therefore, no mitigation is required.
Socioeconomics and Environmental Justice	Project is not an environmental risk and is not controversial. It would not displace any current residents and would not adversely impact local public facilities or public services. No negative effect anticipated and therefore, no mitigation required.
Threatened and Endangered Species	The Project is not expected to significantly impact federally or state protected fish and wildlife resources and therefore, no mitigation is required.
Transportation	Since no significant impact on transportation would occur as the result of the Project, no adverse environmental consequences would occur, and no mitigation is proposed.
Vegetation	The Project's impact to vegetation would be negligible; therefore, no mitigation is proposed.
Water Resources and Wetlands	No wetlands or water resources are within the Project Area. No effect anticipated and therefore, no mitigation required.
Wildlife	The 0.85-acre expansion is minimal and therefore unlikely to have impacts on wildlife, therefore no mitigation is proposed.

Oglethorpe will comply with all required County, State, and Federal permits.

6.0 COORDINATION, CONSULTATION, AND CORRESPONDENCE

This section describes the consultation and coordination RUS and Oglethorpe have had with the public, public officials, and government agencies during the preparation of this document. This section describes the steps taken to inform these groups of the Project, summarizes comments received, and outlines further coordination and consultation with the public and other interested parties.

6.1 Agency Coordination

RUS notified SHPO and Tribal representatives regarding the Project's use and purpose, as well as its potential to impact historic and cultural resources within the Project's footprint on July 10, 2023, and due to returned mail, were resent to the Alabama-Quassarte Tribe of Texas and the Muscogee (Creek) Nation on August 10, 2023. A cultural background review of the Project area was conducted and a Section 106 Environmental Review Package was submitted to SHPO on July 20, 2023. No responses were received from tribal representatives, and SHPO concurrence was received on August 10, 2023.

Federal, state, and local government agencies as well as tribes were sent a scoping letter on July 10, 2023, requesting assistance in identifying specific resources and issues at and around the Facility (the Project site) that should be considered during the environmental review for the Project. **Table 6.1-1** includes the names of the agencies and tribes that were sent scoping letters for this Project.

Table 6.1-1: Scoping Contacts

Agency/ Organization	Department	Position
Federal Agencies		
National Park Service	Air Resource Division	Southeast Regional Air Resource Coordinator
National Resources Conservation Service	Georgia State Office	State Conservationist
	Buena Vista Service Center	District Conservationist
U.S. Army Corps of Engineers	Savannah District, Regulatory Division	Chief, Coastal Branch
U.S. Department of the Interior	Office of Environmental Policy and Compliance	Regional Environmental Officer (Atlanta)
U.S. Environmental Protection Agency	Atlanta Federal Center	Chief, NEPA Program Office
U.S. Fish and Wildlife Service	Georgia Ecological Services	Supervisory Biologist
State Agencies		
Georgia Department of Natural Resources	Georgia Environmental Protection Division, Air Protection Branch	Stationary Source Permitting Manager
	Georgia Environmental Protection Division, Watershed Protection Branch	Branch Chief
	Historic Preservation Division	Division Director
Georgia Department of Transportation	Environmental Services	Administrator
		District Engineers

Agency/ Organization	Department	Position
Local Government		
Talbot County, Georgia	County Board of Commissioners	Chairman, District 5
		Vice Chairman, District 2
		Vice Chairman, District 4
		Commissioner, District 1
		Commissioner, District 3
Talbotton, Georgia		Mayor
Tribes		
Alabama-Coushatta Tribe of Texas		Tribal Historic Preservation Officer (THPO)
Alabama-Quassarte Tribal Town		THPO
Muscogee (Creek) Nation		THPO
Poarch Band of Creek Indians		THPO
Seminole Nation of Oklahoma		Historic Preservation Officer
Thlopthlocco Tribal Town		THPO
Coushatta Tribe of Louisiana		THPO
Kialegee Tribal Town		Tribal Administrator
Seminole Tribe of Florida		Senior Director of the Heritage and Environment Resources Office (HERO)

The letters sent, as well as copies of the responses received, are included in **Appendix D**. The following summarizes the comments of those agencies responding.

The following is a brief overview of responses:

- The USFWS Georgia Ecological Services Field Office responded that based on the information provided, the proposed action is not expected to significantly impact protected resources under the jurisdiction of USFWS. Beginning in 2023, this USFWS office requires the generation of an official species list through the USFWS IPaC system, completion of applicable determination keys, and submittal of project information for USFWS review. No further recommendations were given for the Project.
- The Buena Vista District Conservationist of the NRCS reviewed the proposed Project with respect to FPPA and found that, because the Project does not convert farmland, no further action with FPPA is required. The Buena Vista NRCS also reviewed the proposed Project's potential to affect NRCS watershed dams and easements. Because there are no watershed dams or associated structures downstream from the Project site, no further action is required with the PL-534 Flood Control Act of 1944 and PL-566 Watershed Protection and Flood Prevention Act. Additionally,

since there are no NRCS easements downstream, and within the vicinity of, the Project site, no further action is required with the NRCS Wetland Reserve Program and the NRCS Farm and Ranchland Protection Program.

- GDOT District 3 and GDOT Environmental Office indicated they do not need to provide input on the Project.

6.2 Public Involvement

This EA will be made available to the public for a 14-day public review and comment period. Availability of the document for review and comment will be published in the Talbotton New Era newspaper. Copies of the EA will be made available for public review on the RUS project website, https://www.rd.usda.gov/resources/environmental-studies/assessments, and at the headquarters of Oglethorpe at 2100 E Exchange Pl., Tucker, GA 30084.

All questions and comments should be emailed to the U.S. Department of Agriculture, Rural Utilities Service website at:

RUSPublicComments@usda.gov

All mailed questions and comments should be post marked within the 14-day comment period and sent to:

Sara Kent
Department Manager, Environmental Services
Burns & McDonnell Engineering Company, Inc.
4004 Summit Boulevard
Suite 1200
Atlanta, GA 30319

Once RUS has reviewed the comments, it will issue its decision related to the Proposal. Should RUS choose to issue a Finding of No Significant Impact (FONSI) for the Proposal, a newspaper notice will be published informing the public of the RUS finding and the availability of the EA and FONSI. The notice shall be prepared in accordance with RUS guidance.

7.0 LIST OF PREPARERS

The EA for the Project was prepared by Burns & McDonnell under contract with Oglethorpe on behalf of RUS, who reviewed the document for sufficiency. . The following is a list of preparers of this document.

Oglethorpe

- Josh Hubbard, Project Manager
- Courtney Adcock, Manager of Special Projects, Permitting & Reporting – Environmental Affairs
- Doell Jackson, Talbot Energy Facility O&M Supervisor
- Jeff Wilson, Director, Gas Turbine Fleet Major Maintenance
- Jeff Swartz, Sr. Vice President, Plant Operations

Burns & McDonnell

- Sara Kent, Project Manager
- Fawn Armagost, Environmental Scientist
- Madeline Long, Environmental Scientist

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APPENDIX A – TITLE V OPERATING PERMIT MODIFICATION WITH STATE CONSTRUCTION APPLICATION

APPENDIX B – FEMA AND NWI MAPS

APPENDIX C – USFWS IPAC REPORT AND STATE PROTECTED SPECIES

APPENDIX D – AGENCY COORDINATION LETTERS