APPENDIX G – GREENHOUSE GAS EMISSIONS

Greenhouse Gas Analysis for the Westside Canal Storage Project

RECON

Greenhouse Gas Analysis for the Westside Canal Battery Storage Project Imperial County, California

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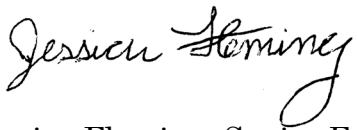

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Acronyms and Abbreviations

AB	Assembly Bill
APCD	Air Pollution Control District
APN	Assessor Parcel Number
AQMD	Air Quality Monitoring District
BAU	Business-as-usual
BLM	Bureau of Land Management
BTM	behind-the-meter
CAFE	Corporate Average Fuel Economy
CAISO	California Independent Service Operator
CalEEMod	California Emissions Estimator Model
CalGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CH_4	methane
CO_2	carbon dioxide
CO_2E	carbon dioxide equivalent
County	County of Imperial
EO	Executive Order
GHG	greenhouse gas
GWP	Global Warming Potential
HVAC	heating, ventilation, and air conditioning
IID	Imperial Irrigation District
IV Substation	Imperial Valley Substation
I-8	Interstate 8
SR-98	State Route 98
kV	kilovolt
MMT	million metric ton
mpg	miles per gallon
MPO	Metropolitan Planning Organization
MT	metric ton
MW	megawatt
MWh	megawatt per hour
N_2O	nitrous oxide
O&M	operations and maintenance
Project	Westside Canal Battery Storage Project
Project Proponent	Westside Canal Battery Storage, LLC
PV	photovoltaic
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
U.S. EPA	U.S. Environmental Protection Agency

Executive Summary

This report provides the results of the greenhouse gas (GHG) emissions analysis performed for the proposed Westside Canal Battery Storage Project (Project) in Imperial County, California. The Project site consists of approximately 148 acres of agriculturally-zoned land located in the unincorporated Mount Signal area of the County, approximately 8.0 miles southwest of the city of El Centro (Assessor Parcel Numbers [APNs] 051-350-010 and 051-350-011). The Project site is located approximately one-third mile north of the Imperial Valley Substation (IV Substation) and directly south of the intersection of Liebert Road and the Imperial Irrigation District's (IID) Westside Main Canal. The Project site is bounded by the Westside Main Canal to the north, Bureau of Land Management lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the Project site, across the Westside Main Canal.

The two Project parcels are proposed for development as a utility-scale energy storage complex. The Project would also utilize portions of two parcels located north of the Westside Main Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private landowner) for site access and as a temporary construction staging area. The Project would also access a small portion of APN 051-350-009 within an IID easement for connection to the existing IID Campo Verde – Imperial Valley 230 kilovolt (kV) radial gen-tie line during the construction of a switching station on the Project site.

This analysis evaluates the significance of the Project in accordance with the California Environmental Quality Act and guidance from the Imperial County Air Pollution Control District (APCD). The Project was evaluated to determine if it would (1) significantly contribute to cumulative statewide GHG emissions, or (2) conflict with regulations, plans, and policies aimed at reducing GHG emissions. Project emissions were calculated using the California Emissions Estimator Model Version 2016.3.2.

No GHG emission significance threshold has been adopted by the Imperial County APCD. Project GHG emissions were evaluated against the Antelope Valley Air Quality Management District (AQMD) and Mojave Desert APCD screening level of 100,000 short tons of carbon dioxide (CO_2E) (90,718 metric tons [MT] CO_2E). As calculated in this analysis, construction and operation of the Project would generate a maximum total of 83,370 MT CO_2E annually. A majority of the emissions (98.8 percent) would be associated with the Project's battery system energy losses and auxiliary load[1], which includes heating, ventilation, and air conditioning units necessary to control the temperature of the battery components, battery energy losses, inverter and transformer efficiencies, and alternating current and direct current wire losses. Therefore, Project GHG emissions would be less than the applicable screening threshold and impacts would be less than significant.

[1]Auxiliary load refers to electrical energy used to operate auxiliary equipment associated with the battery storage facility.

The Project would reduce these emissions by installing behind-the-meter[2] solar photovoltaic (PV) on the Project site to the extent feasible. The on-site solar PV would potentially offset 2,761 to 5,522 MT CO_2E per year of the Project's GHG emissions.

The Project would serve as an integral component of the State's overarching renewable energy strategy to utilize 100 percent renewable energy by 2045 by providing necessary energy storage. By assisting the State's effort to reach this goal, the Project would contribute towards a statewide net decrease in use of fossil fuel and GHG emissions. Therefore, the Project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs, and impacts would be less than significant.

1.0 Introduction

1.1 Purpose of the Report

This report evaluates the significance of greenhouse gas (GHG) emissions associated with the proposed Westside Canal Battery Storage Project (Project). This report characterizes existing conditions at the Project site and in the region, identifies applicable rules and regulations, and assesses impacts related to GHG emissions associated with construction and operation of the Project.

1.2 Understanding Global Climate Change

Global climate change is a change in the average weather of the earth, which can be measured by wind patterns, storms, precipitation, and temperature. The earth's climate is in a state of constant flux with periodic warming and cooling cycles. Extreme periods of cooling are termed "ice ages," which may then be followed by extended periods of warmth. For most of the earth's geologic history, these periods of warming and cooling have been the result of many complicated interacting natural factors that include: volcanic eruptions that spew gases and particles (dust) into the atmosphere; the amount of water, vegetation, and ice covering the earth's surface; subtle changes in the earth's orbit; and the amount of energy released by the sun (sun cycles). However, since the beginning of the Industrial Revolution around 1750, the average temperature of the earth has been increasing at a rate that is faster than can be explained by natural climate cycles alone.

With the Industrial Revolution came an increase in the combustion of carbon-based fuels such as wood, coal, oil, natural gas, and biomass. Industrial processes have also created emissions of substances not found in nature. This in turn has led to a marked increase in the emissions of gases shown to influence the world's climate. These gases, termed "greenhouse" gases, influence the amount of heat trapped in the earth's atmosphere. Because recently observed increased concentrations of GHGs in the atmosphere are related to increased emissions resulting from human activity, the current cycle of "global warming" is generally believed to be largely due to human activity. Of late, the issue of global warming or global

[2]Behind-the-meter generation refers to energy that is generated on-site for on-site use.

climate change has arguably become the most important and widely debated environmental issue in the United States and the world. Because it is the collective of human actions taking place throughout the world that contributes to climate change, it is quintessentially a global or cumulative issue.

1.3 Greenhouse Gases of Primary Concern

There are numerous GHGs, both naturally occurring and manmade. Each GHG has variable atmospheric lifetime and global warming potential (GWP). The atmospheric lifetime of the gas is the average time a molecule stays stable in the atmosphere. Most GHGs have long atmospheric lifetimes, staying in the atmosphere hundreds or thousands of years. GWP is a measure of the potential for a gas to trap heat and warm the atmosphere. Although GWP is related to its atmospheric lifetime, many other factors including chemical reactivity of the gas also influence GWP. GWP is reported as a unitless factor representing the potential for the gas to affect global climate relative to the potential of carbon dioxide (CO_2). Because CO_2 is the reference gas for establishing GWP, by definition its GWP is 1. Although methane (CH_4) has a shorter atmospheric lifetime than CO_2, it has a 100-year GWP of 25; this means that CH_4 has 25 times more effect on global warming than CO_2 on a molecule-by-molecule basis.

The GWP is officially defined as "[T]he cumulative radiative forcing—both direct and indirect effects—integrated over a period of time from the emission of a unit mass of gas relative to some reference gas" (U.S. Environmental Protection Agency [U.S. EPA] 2010). GHG emissions estimates are typically represented in terms of metric tons (MT) of CO_2 equivalent (CO_2E). CO_2E emissions are the product of the amount of each gas by its GWP. The effects of several GHGs may be discussed in terms of MT CO_2E and can be summed to represent the total potential of these gases to warm the global climate. Table 1 summarizes some of the most common GHGs.

All of the gases in Table 1 are produced by both biogenic (natural) and anthropogenic (human) sources. These are the GHGs of primary concern in this analysis. CO_2 would be emitted by the Project due to the combustion of fossil fuels in vehicles (including construction), from electricity consumption for battery system losses, auxiliary loads, water use, and from solid waste disposal. Smaller amounts of CH_4 and nitrous oxide (N_2O) would be emitted from these activities.

Table 1 Global Warming Potentials and Atmospheric Lifetimes			
Gas	Atmospheric Lifetime (years)	100-year GWP	20-year GWP
Carbon dioxide (CO_2)	50–200	1	1
Methane (CH_4)*	12.4	28	84
Nitrous oxide (N_2O)	121	265	264
HFC-23	222	12,400	10,800
HFC-32	5.2	677	2,430
HFC-125	28.2	3,170	6,090
HFC-134a	13.4	1,300	3,710
HFC-143a	47.1	4,800	6,940
HFC-152a	1.5	138	506
HFC-227ea	38.9	3,350	5,360
HFC-236fa	242	8,060	6,940
HFC-43-10mee	16.1	1,650	4,310
CF_4	50,000	6,630	4,880
C_2F_6	10,000	11,100	8,210
C_3F_8	2,600	8,900	6,640
C_4F_{10}	2,600	9,200	6,870
c-C_4F_8	3,200	9,540	7,110
C_5F_{12}	4,100	8,550	6,350
C_6F_{14}	3,100	7,910	5,890
SF_6	3,200	23,500	17,500
SOURCE: Intergovernmental Panel on Climate Change 2014.			

2.0 Project Description

Westside Canal Battery Storage, LLC (Project Proponent), a subsidiary of Con Edison Clean Energy Businesses, is proposing to develop, design, construct, own, operate, and maintain the Westside Canal Battery Storage Project (Project), a utility-scale energy storage complex with a capacity of up to 2,000 megawatts (MW). The Project would store energy generation from the electrical grid, and optimally discharge that energy back into the grid as firm, reliable generation and/or grid services.

The Project would be comprised of lithium-ion battery and/or flow battery energy storage facilities, a behind-the-meter solar energy facility, a new on-site 230 kilovolt (kV) loop-in switching station, a 34.5 kV to 230 kV substation, underground electrical cables, and permanent vehicular access to and from the site over a proposed bridge spanning Imperial Irrigation District's (IID's) Westside Main Canal. The proposed loop-in switching station would connect the Project to the existing IID Campo Verde – Imperial Valley 230 kV radial gen-tie line, which connects to the Imperial Valley Substation (IV Substation) and the California Independent System Operator (CAISO), approximately one-third mile south of the Project site. The Project Proponent has submitted the necessary Interconnection Request Applications to the CAISO and IID.

The Project would complement both the existing operational renewable energy facilities, as well as those planned for future development in Imperial County (County), and would support the broader southern California bulk electric transmission system by serving as a firm, dispatchable resource.

The Project is pursuing the following objectives:

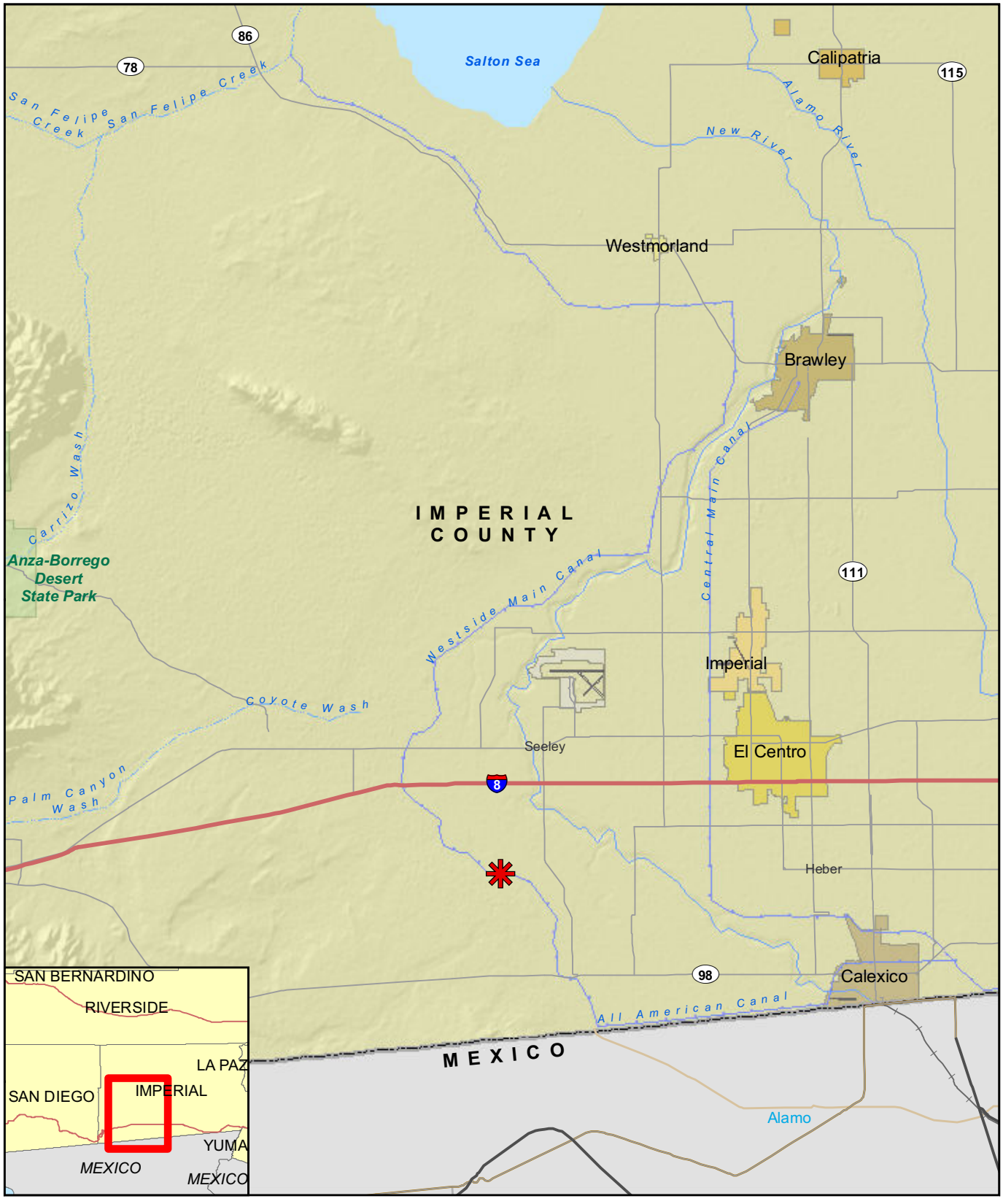
- To receive grid energy during beneficial market and operational periods and store that energy for dispatch when the customer (i.e., a load-serving entity) deems it to be more valuable.
- To be a valuable resource in allowing the customer and system operators to manage the effect of intermittent renewable generation on the grid and create reliable, dispatchable generation upon demand.
- To utilize available land that has not been used for agricultural production for more than 15 years and enhance the site location by providing for permanent vehicular access.

2.1 Project Location

The Project would be located in the unincorporated Mount Signal area of the County, approximately 8.0 miles southwest of the city of El Centro and approximately 5.3 miles north of the U.S.-Mexico border. Figure 1 shows the regional location of the Project. The Project site is comprised of two parcels owned by the Project Proponent, Assessor Parcel Number (APN) 051-350-010 and APN 051-350-011, totaling approximately 148 acres. These parcels have limited access corridors for vehicular traffic and are considered less desirable for agricultural production, as reflected by the last 15 years during which no farming activity has occurred.

The Project site is approximately one-third mile north of the IV Substation and directly south of the intersection of Liebert Road and the IID's Westside Main Canal. The Project site is bounded by the Westside Main Canal to the north, Bureau of Land Management (BLM) lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the Project site, across the Westside Main Canal. Figure 2 shows an aerial photograph of the Project site and the above-mentioned nearby facilities.

The two Project parcels are proposed for development as a utility-scale energy storage complex. The Project would also utilize portions of two parcels located north of the Westside Main Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private landowner) for site access and as a temporary construction staging area. The Project would also access a small portion of APN 051-350-009 within an IID easement for connection to the existing IID Campo Verde – Imperial Valley 230 kV radial gen-tie line during the construction of a substation on the Project site. The total proposed Project development footprint, encompassing both temporary and permanent impacts, would be approximately 163 acres.



Project Location

FIGURE 1
Regional Location

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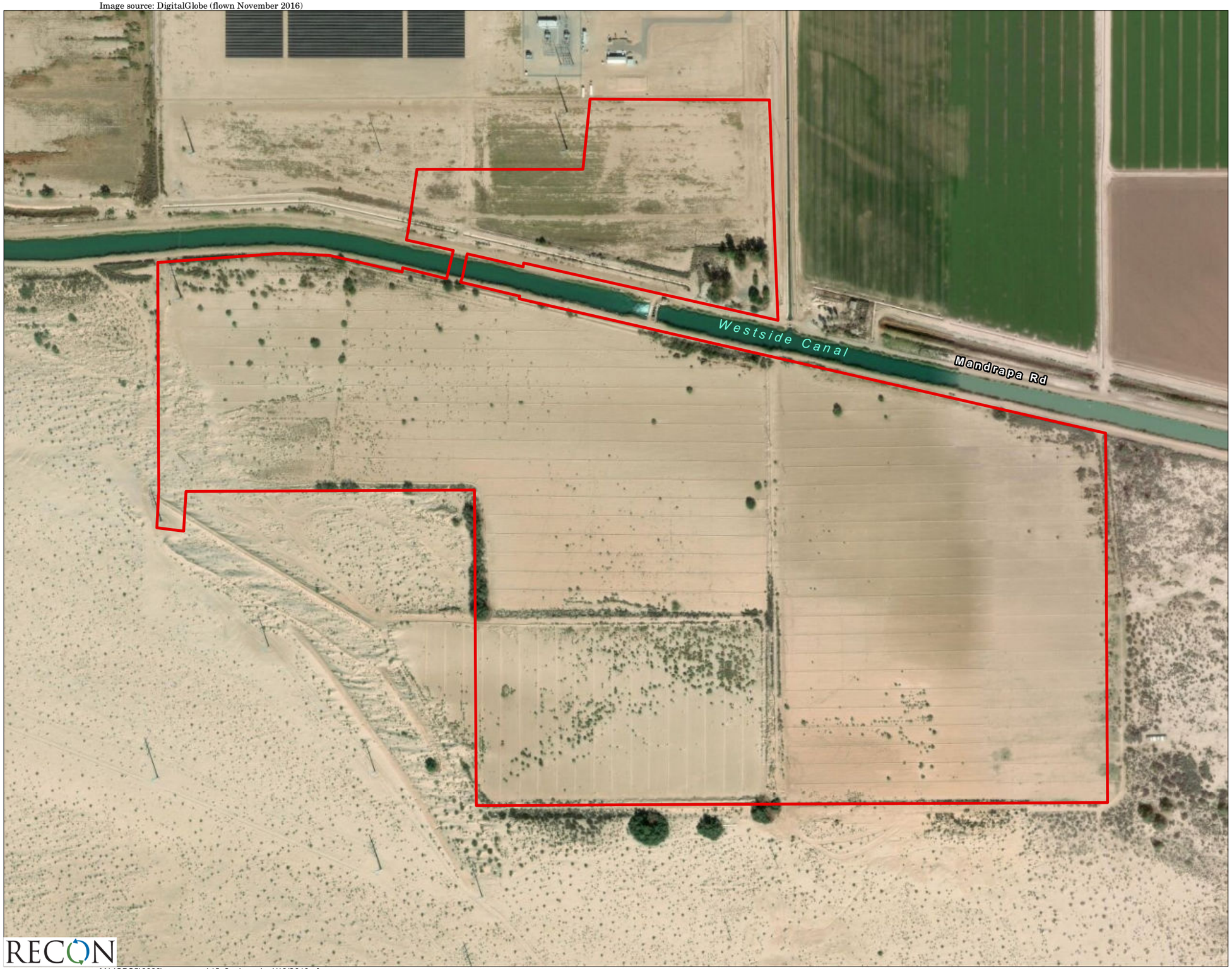
Image source: DigitalGlobe (flown November 2016)



Project Boundary

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FIGURE 2
Project Location on
Aerial Photograph

2.2 Project Components

Figure 3a shows the conceptual site plan for the Project with a representation of the various energy storage technologies, behind-the-meter ground- and roof-mounted solar, common facilities within the Project site, and permanent vehicular access to the Project site. The actual configuration of the Project would depend on the size of individual phases, and the type of battery technology deployed. Specific Project components are described below.

2.2.1 Phasing and Schedule

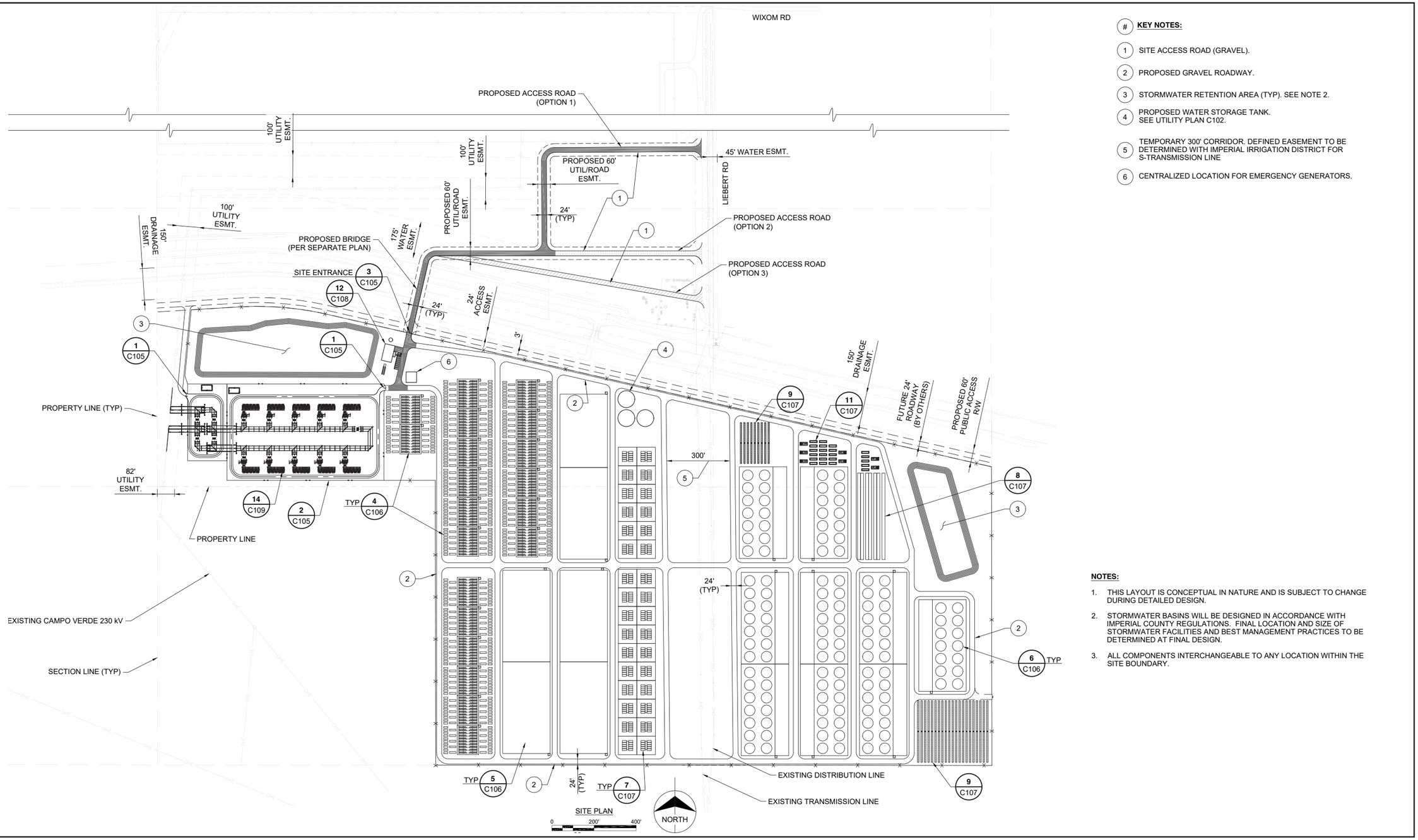
The Project would be constructed in three to five phases over a 10-year period, with each phase ranging from approximately 25 MW up to 400 MW per phase. Depending on the size of the battery system for a given phase, construction and commissioning (approval to operate) is anticipated to take approximately 6 to 12 months. For the purposes of this analysis, the applicant has assumed that construction activities would last for approximately 32 months to complete the full Project build-out.

Construction of the 100 to 200 MW first phase would include roads, a permanent clear-span bridge across the Westside Main Canal, the Operations and Maintenance (O&M) facilities, water connections and watermains, storm water retention, switching station and Project substation, legal permanent vehicle access, as well as the first energy storage facility. To access the Project site, construction workers would travel along Interstate 8 (I-8) and head 4.6 miles south to the Project site, and would utilize the IID Fern Check Bridge as a temporary pedestrian bridge until the permanent bridge is constructed. During peak construction activities, approximately 200 workers and approximately 30 daily deliveries would be required. It is anticipated that construction of the first phase would begin in 2021.

It is anticipated that each subsequent phase would be constructed within one to two years of each other, with the timing and size of each phase dependent on market conditions and the applicant's ability to secure commercial contracts with prospective customers. With the Project being built in phases, the necessary infrastructure, such as water mains, retention ponds, and access roads, would be built out to serve the Project phases from west to east and expanded over time to serve each phase. These subsequent phases would require improvements such as additional substation equipment, water main and site road extension, but would not require construction of additional common facilities which would be completed during the first phase. The total nameplate (or rated capacity) capacity of the Project at full build-out (all phases completed) would be approximately 2,000 MW.

Construction activities during all Project phases would only occur Monday through Friday, between the hours of 7:00 a.m. and 7:00 p.m. or Saturday between the hours of 9:00 a.m. and 5:00 p.m., excluding holidays, per County Ordinance.

Map Source: Burns McDonnell



KEY NOTES:

1. SITE ACCESS ROAD (GRAVEL).
2. PROPOSED GRAVEL ROADWAY.
3. STORMWATER RETENTION AREA (TYP). SEE NOTE 2.
4. PROPOSED WATER STORAGE TANK. SEE UTILITY PLAN C102.
5. TEMPORARY 300' CORRIDOR. DEFINED EASEMENT TO BE DETERMINED WITH IMPERIAL IRRIGATION DISTRICT FOR S-TRANSMISSION LINE
6. CENTRALIZED LOCATION FOR EMERGENCY GENERATORS.

NOTES:

1. THIS LAYOUT IS CONCEPTUAL IN NATURE AND IS SUBJECT TO CHANGE DURING DETAILED DESIGN.
2. STORMWATER BASINS WILL BE DESIGNED IN ACCORDANCE WITH IMPERIAL COUNTY REGULATIONS. FINAL LOCATION AND SIZE OF STORMWATER FACILITIES AND BEST MANAGEMENT PRACTICES TO BE DETERMINED AT FINAL DESIGN.
3. ALL COMPONENTS INTERCHANGEABLE TO ANY LOCATION WITHIN THE SITE BOUNDARY.

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FIGURE 3a
Site Plan

2.2.2 Common Components

As shown on the site plan (see Figure 3a), the northwest area of the Project serves as the location for the common facilities, which include the switching station and Project substation and the O&M facilities. A summary of the common facilities is presented below:

- 230 kV loop-in switching station
  - Connection to Campo Verde – Imperial Valley 230 kV radial transmission line
  - Located on applicant property
- Project substation
- O&M facilities
- Project parking
- Storm water retention basins
- Fencing and gates
- Interior access roads

Industrial buildings, warehouses, engineered containers, and/or electrolyte storage tanks would be the primary structures needed to house the main Project components. Other components to be located on the Project site and adjacent to the proposed buildings, warehouses, containers, and tanks include the following:

- Inverters, transformers, power distribution panels
- Underground water-main loop for Project operation and fire prevention
- Underground cable to connect to Project substation
- Project site access roads (unpaved/crushed rock)
- Fire water storage tanks
- Above ground water storage tanks
- Heating, Ventilation, and Air Conditioning (HVAC) units
- Ground-mounted or roof-mounted photovoltaic (PV) arrays
- Emergency backup generator(s)

2.2.2.1 O&M Facilities

The O&M facilities are expected to be the only manned facility on the site. It would include up to approximately 20 full-time employees depending upon the number of phases and type of energy storage facility constructed. O&M employees would work typical weekday hours but may work extended hours, including weekends and 24 hours a day, depending upon the operations and maintenance needs. No offices or staffed control centers would be located within the storage-specific warehouses/buildings. For sanitary waste, the Project would include a septic leach field to be located near the O&M facilities. The proposed O&M facilities would also require an HVAC unit.

2.2.2.2 Permanent Vehicle Access

There are no circulation element roadways in the immediate vicinity of the Project site. The nearest freeways are I-8, located 4.6 miles north of the Project site, and State Route

98 (SR-98), located 5.2 miles south of the Project site. Drew Road, a two-lane collector, is located 1.3 miles east of the Project site. All other roadways in the immediate vicinity of the Project site are rural roadways. All roadways that would be used to access the Project site from I-8 are currently paved, except for the portion of Liebert Road south of Wixom Road. However, this segment would be paved or graveled prior to Project operation.

The Project is surrounded by private landowners to the east, BLM land to the south and west, and IID maintenance roads and Westside Main Canal to the north. Due to the Project site having no direct vehicular access routes, the applicant is proposing to construct roads on both the north and south sides of the Westside Main Canal on private land, and a new clear-span Imperial County-specified bridge over the Westside Main Canal.

The permanent new clear-span County-specified bridge would span the Westside Main Canal to connect to a proposed access road easement on the north side of the Westside Main Canal. The north side proposed access road would ultimately connect the Project to county road (CR) Liebert Road.

Construction of the permanent clear-span bridge spanning the IID's Westside Main Canal requires the Project Proponent to have access to both the north side and the south of the Canal to perform the necessary construction activities. In addition to being necessary to facilitate construction of the new permanent clear-span bridge, access from the south side of the Canal would allow the Project Proponent to commence construction on the first phase of the Project simultaneously, thereby shortening the duration of construction and potentially minimizing the associated impacts. The Project Proponent is evaluating various options for temporary construction access, including accessing the Project site from the south side of the Westside Main Canal off SR-98, as well as options involving access from the north side of the Westside Main Canal from I-8.

Option 1 would use the existing San Diego Gas & Electric maintenance road off Highway 98, which extends approximately 4.4 miles to the IV Substation. Option 1 would then continue along an existing 1.2-mile-long dirt access road that leads north, then east, outside the western and northern boundaries of the substation. Option 1 then continues northwest along an existing dirt access road that parallels two power lines until the access road connects with the western edge of the Project. The existing dirt road was constructed for the construction and maintenance of the existing Campo Verde – Imperial Valley gen-tie line. Option 2 would use the existing IID Westside Main Canal access road. The selected temporary access option would be used until construction of the permanent bridge is completed. Both temporary construction access routes are presented in Figure 3b.

Map Source: conEdison Development

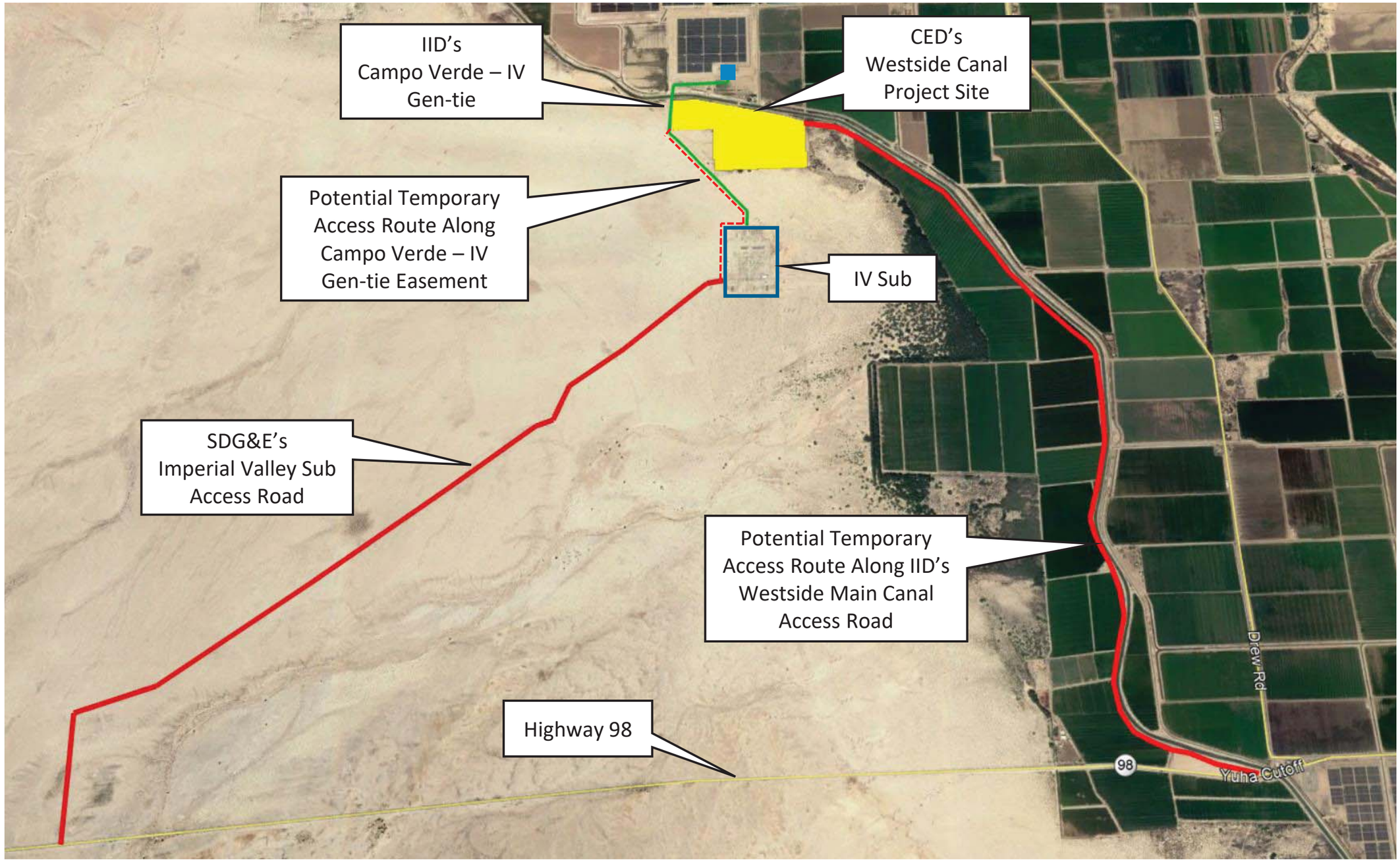

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FIGURE 3b
Temporary Construction Access Routes

2.2.3 Battery Storage Components

The first phase of site construction would consist of either a lithium-ion battery storage facility or a flow battery storage facility. This first phase would be dependent on the first commercial contract awarded to the applicant by a customer. Large industrial buildings, warehouses, and/or containers to house the storage equipment, including battery cells, modules, racks, and controls for lithium-ion technologies, would be needed. For flow battery technologies, cell stack modules, pumps, and controls may be installed inside industrial buildings or pre-engineered outdoor enclosures. Electrolyte storage tanks and associated piping may be located indoors or outdoors, depending on the technology.

2.2.3.1 Battery Modules Technology

a. Energy Storage

Energy storage is the capture of energy produced at one time for use at a later time. A device that stores energy is generally called an accumulator or battery. Energy storage involves converting energy from forms that are difficult to store to more conveniently or economically storable forms. For the purpose of grid connected energy storage, electrical energy will be stored in the form of chemical energy in lithium-ion and/or flow batteries. Energy storage technology may be centralized or may be distributed throughout the plant. Due to requirements for energy storage, the Project components such as the switching station, substation, transformers, and inverters would be energized at all times with the potential to charge or discharge.

b. Lithium-Ion Battery

A lithium-ion battery is a type of rechargeable battery in which lithium ions move from the negative electrode through an electrolyte to the positive electrode during discharge, and back when charging. Lithium-ion batteries use an intercalated lithium compound as the material at the positive electrode and typically graphite at the negative electrode. The batteries have a high energy density, no memory effect and low self-discharge.

c. Flow Battery

A flow battery is a rechargeable fuel cell in which an electrolyte containing one or more dissolved electroactive elements flows through an electrochemical cell that reversibly converts chemical energy directly to electricity. Additional electrolyte is stored externally, generally in tanks, and is usually pumped through the cell (or cells) of the reactor, although gravity feed systems are also known to be used. Flow batteries can be rapidly "recharged" by replacing the electrolyte liquid while simultaneously recovering the spent material for re-energization. Many flow batteries use carbon felt electrodes due to its low cost and adequate electrical conductivity.

2.2.3.2 Backup Generators

The Project would include emergency backup generator(s) to supply auxiliary power to the facility during rare events in which the entire facility or portions of the facility are disconnected from the electrical grid. The Project would use a hybrid approach to emergency backup power supply. Rather than relying exclusively on backup generators, the hybrid approach involves dedicating a portion of the battery storage system capacity as a source of emergency backup power. The reserved battery storage capacity would be approximately 3 to 4 percent of the size of the constructed battery storage system. This hybrid approach would also rely on the use of on-site, behind-the-meter (BTM) solar power generation to supplement the facility's backup power supply needs. Additionally, propane-fueled generators would augment the backup battery storage capacity and the BTM solar power generation.

The generators would be sized to accommodate control systems and HVAC system loads for equipment protection. Approximately 1.25 MW of backup power generation would be needed for every 100 MW of installed battery storage capacity. Each propane-fueled generator would have a capacity of 150 kilowatts or larger. The purpose of the generators would be to provide system safety for events in which the transmission interconnection and the on-site solar generation system are not available, by supplying the battery HVAC system to maintain battery safety and warranty temperature parameters.

The propane-fueled generators would be installed in a central location near the common facilities or distributed among individual buildings or containers. The generators would be periodically tested (monthly) to maintain backup capability in the event of a grid outage. All generators would be subject to Imperial County APCD review and permitting requirements.

2.2.4 Solar Facility Components

Photovoltaic solar cells, also called PV cells, convert sunlight directly into electricity. PV gets its name from the process of converting light (photons) to electricity (voltage), which is called the PV effect. The panels are mounted at a fixed angle facing south, or they can be mounted on a tracking device that follows the sun, allowing them to capture the most sunlight. Many solar panels combined together to create one system is called a solar array. On-site, behind-the-meter, PV solar generation would serve as station auxiliary power and be deployed throughout the Project site.

2.3 Site Security

A six-foot-tall fence (e.g., chain-link) topped with one-foot-tall barbed wire would be installed around the entire Project site for safety and in order to control access. The switching station and each substation proposed on the site plan would also have fences installed around its perimeter. A camera-equipped call button would be installed at the front entry gate to the site which would be monitored from the Project's O&M facilities. Throughout the site at various points, security cameras may be installed to monitor other areas of the Project site. During the construction of each Project phase, the applicant would have on-site security personnel between dusk and dawn and during hours of non-active construction.

2.4 Interconnection Options

The proposed point of interconnection for the Project is the IV Substation 230 kV bus. As reflected in the conceptual site plan, to achieve this, the applicant plans to build a new loop-in switching station on the Project site and connect to the existing IID Campo Verde –Imperial Valley 230 kV radial gen-tie line. This existing gen-tie line ultimately connects to the IV Substation one-third mile south of the Project site. This location would serve as the Project's point of interconnection to the CAISO grid. The applicant has submitted the necessary Interconnection Request Applications to the CAISO and IID.

2.5 Existing and Proposed Utility Easements

2.5.1 Existing Easements

The Project site (APNs 051-350-10 and 051-350-011) has three major easements lying across the site. The first is for overhead collector transmission circuits and utility facilities, as well as access. This is for the IID Campo Verde – Imperial Valley 230 kV transmission line easement, which lies inside and along the west property line and runs north/south.

The second major easement is a prescriptive easement for an overhead transmission circuit and a utility distribution line that runs north and south and lies directly in the center of the Project site. The IID transmission line within this prescriptive easement is known as the S-Transmission line (S-Line). The third major easement lies along the north property line. This easement was granted to IID for the purposes of the existing Westside Main Canal and appropriate infrastructure and operation and maintenance roads adjacent to the Westside Main Canal.

2.5.2 Proposed Easements

The applicant and IID are in the process of determining the width of this S-Line easement to create a non-exclusive easement. This easement would also include the existing distribution line that lies within the easement. Until this new easement agreement is in place, the applicant has planned for a 300-foot temporary corridor on the Project site plan (centerline of 300-foot corridor is the S-Line) to allow the IID energy engineering team to design and implement an appropriate new easement. Once the width and location of the new easement is determined, all other areas not part of the new S-Line easement lying within the 300-foot corridor will become part of the Project site.

2.6 Project Operation

Operation of the Project would require routine maintenance and security. It is anticipated that the Project would employ a plant manager and an O&M manager, as well as the addition of a facility manager once the complex deploys approximately 500 MW of generation. The complex will also employ staff technicians, with at least one additional technician for every approximately 250 MW of capacity.

Operation of the Project at full build-out would require up to approximately 20 full-time employees depending upon the number of phases and type of energy storage facility constructed. The Project may require fewer full-time equivalent employees, but 20 was assumed to provide a conservative estimate. O&M employees would work typical weekday hours but may work extended hours, including weekends and 24 hours a day, depending upon the operations and maintenance needs. Assuming two one-way trips per employee, the Project would be anticipated to generate up to 40 trips per day from all maintenance and security personnel.

Figure 3a shows the conceptual site plan for the Project with a representation of lithium-ion buildings and containers as well as flow buildings and containers. The components that make up the energy storage systems and common facilities require various preventative maintenance and at times corrective maintenance. The O&M staff would maintain the Project in accordance with manufacturer and industry best practice maintenance schedules and requirements. Depending on the technology selected for the energy storage component, the substation and transmission lines as well as the behind-the-meter solar inverters and transformers would be energized at all times.

2.7 Discretionary Actions

2.7.1 General Plan Amendment and Rezone

The Project proposes a General Plan Amendment and Rezone to change the land use designation and zoning for the Project site from Agriculture (A3) to Industrial. The Industrial zoning would be limited to Energy Production/Use.

2.7.2 Development Agreement

The applicant may pursue a development agreement with the County of Imperial for this Project.

3.0 Existing Conditions

3.1 Land Use Environment

The Project site was previously graded and used as farmland and has been fallow for more than 15 years. The General Plan land use designation and zoning for the Project site and all surrounding parcels to the north and east is Agriculture (A3). The General Plan land use designation for parcels to the south and west are designated open space/recreation areas; zoning does not apply to these BLM lands. The Campo Verde solar generation facility is located north of the Project site and agricultural uses are located northeast of the Project site. Parcels farther north of the Project site also include a mix of agricultural uses and solar generation facilities. The parcel immediately east of the Project site is undeveloped. BLM land south and west of the Project site is generally undeveloped, relatively flat, and barren.

The IV Substation is located approximately one-third mile south of the southern property line of the site.

3.2 State Greenhouse Gas Emissions

The California Air Resources Board (CARB) performs statewide GHG inventories. The inventory is divided into nine broad sectors of economic activity: agriculture, commercial, electricity generation, forestry, high GWP emitters, industrial, recycling and waste, residential, and transportation. Emissions are quantified in million metric tons (MMT) of CO_2E. Table 2 shows the estimated statewide GHG emissions for the years 1990 and 2017.

Table 2
California GHG Emissions by Sector in 1990 and 2017

Sector	1990[1] Emissions in MMT CO_2E (% total)[2]	2017[3] Emissions in MMT CO_2E (% total)[2]
Electricity Generation	110.5 (25.7%)	62.6 (14.8%)
Transportation	150.6 (35.0%)	174.3 (41.1%)
Industrial	105.3 (24.4%)	101.1 (23.8%)
Commercial	14.4 (3.4%)	23.3 (5.5%)
Residential	29.7 (6.9%)	30.4 (7.2%)
Agriculture & Forestry	18.9 (4.4%)	32.4 (7.6%)
Not Specified	1.3 (0.3%)	--
TOTAL[4]	**430.7**	**424.1**

SOURCE: CARB 2007 and 2019.
[1]1990 data was obtained from the CARB 2007 source and are based on IPCC fourth assessment report GWPs.
[2]Percentages may not total 100 due to rounding.
[3]2017 data was retrieved from the CARB 2019 source and are based on IPCC fourth assessment report GWPs.
[4]Totals may vary due to independent rounding.

As shown in Table 2, statewide GHG source emissions totaled about 430.7 MMT CO_2E in 1990, and 424.1 MMT CO_2E in 2017. Many factors affect year-to-year changes in GHG emissions, including economic activity, demographic influences, environmental conditions such as drought, and the impact of regulatory efforts to control GHG emissions. However, transportation-related emissions consistently contribute the most GHG emissions, followed by electricity generation and industrial emissions.

4.0 Regulatory Framework

In response to rising concern associated with increasing GHG emissions and global climate change impacts, several plans and regulations have been adopted at the international, national, and state levels with the aim of reducing GHG emissions. The following is a discussion of the federal, state, and local plans and regulations most applicable to the Project.

4.1 Federal Regulations

The federal government, U.S. EPA, and other federal agencies have many federal level programs and projects to reduce GHG emissions. In June 2012, the Council on Environmental Quality (CEQ) revised the Federal Greenhouse Gas Accounting and Reporting Guidance originally issued in October 2010. The CEQ guidance identifies ways in which federal agencies can improve consideration of GHG emissions and climate change for federal actions. The guidance states that National Environmental Policy Act documents should provide decision makers with relevant and timely information and should consider (1) GHG emissions of a Proposed Action and alternative actions, and (2) the relationship of climate change effects to a Proposed Action or alternatives. Specifically, if a Proposed Action would be reasonably anticipated to cause direct emissions of 25,000 MT CO_2E GHG emissions on an annual basis, agencies should consider this as an indicator that a quantitative assessment may be meaningful to decision makers and the public (CEQ 2012).

4.1.1 U.S. Environmental Protection Agency

The U.S. EPA has many federal level programs and projects to reduce GHG emissions. The U.S. EPA provides technical expertise and encourages voluntary reductions from the private sector. One of the voluntary programs applicable to the Project is the Energy Star program.

Energy Star is a joint program of U.S. EPA and the U.S. Department of Energy, which promotes energy efficient products and practices. Tools and initiatives include the Energy Star Portfolio Manager, which helps track and assess energy and water consumption across an entire portfolio of buildings, and the Energy Star Most Efficient 2020, which provides information on exceptional products which represent the leading edge in energy efficient products in the year 2020 (U.S. EPA 2020a).

The U.S. EPA also collaborates with the public sector, including states, tribes, localities and resource managers, to encourage smart growth, sustainability preparation, and renewable energy and climate change preparation. These initiatives include the Clean Energy – Environment State Partnership Program, the Climate Ready Water Utilities Initiative, the Climate Ready Estuaries Program, and the Sustainable Communities Partnership (U.S. EPA 2020b).

4.1.2 Corporate Average Fuel Economy Standards

The federal Corporate Average Fuel Economy (CAFE) standards determine the fuel efficiency of certain vehicle classes in the U.S. The first phase of the program applied to passenger cars, new light-duty trucks, and medium-duty passenger cars with model years 2012 through 2016 and required these vehicles to achieve a standard equivalent to 35.5 miles per gallon (mpg). The second phase of the program applies to model years 2017 through 2025 and increased the standards to 54.5 mpg. Separate standards were also established for medium- and heavy-duty vehicles. The first phase applied to model years 2014 through 2018 and the second phase applies to model years 2018 through 2027. With improved gas mileage, fewer gallons of

transportation fuel would be combusted to travel the same distance, thereby reducing nationwide GHG emissions associated with vehicle travel.

4.2 State Regulations

The State of California has adopted a number of plans and regulations aimed at identifying statewide and regional GHG emissions caps, GHG emissions reduction targets, and actions and timelines to achieve the target GHG reductions.

4.2.1 Executive Orders and Statewide GHG Emission Targets

S-3-05

This Executive Order (EO) established the following GHG emission reduction targets for the State of California:

- by 2010, reduce GHG emissions to 2000 levels;
- by 2020, reduce GHG emissions to 1990 levels; and
- by 2050, reduce GHG emissions to 80 percent below 1990 levels.

This EO also directs the secretary of the California Environmental Protection Agency to oversee the efforts made to reach these targets, and to prepare biannual reports on the progress made toward meeting the targets and on the impacts to California related to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. With regard to impacts, the report shall also prepare and report on mitigation and adaptation plans to combat the impacts. The first Climate Action Team Assessment Report was produced in March 2006, and has been updated every two years.

B-30-15

This EO, issued on April 29, 2015, establishes an interim GHG emission reduction goal for the state of California by 2030 of 40 percent below 1990 levels. This EO also directed all state agencies with jurisdiction over GHG emitting sources to implement measures designed to achieve the new interim 2030 goal, as well as the pre-existing, long-term 2050 goal identified in EO S-3-05. Additionally, this EO directed CARB to update its Climate Change Scoping Plan to address the 2030 goal.

4.2.2 California Global Warming Solutions Act

In response to EO S-3-05, the California Legislature passed AB 32, the California Global Warming Solutions Act of 2006, and thereby enacted Sections 38500–38599 of the California Health and Safety Code. The heart of AB 32 is its requirement that CARB establish an emissions cap and adopt rules and regulations that would reduce GHG emissions to 1990 levels by 2020. AB 32 also required CARB to adopt a plan by January 1, 2009 indicating how

emission reductions would be achieved from significant GHG sources via regulations, market mechanisms, and other actions.

In 2008, CARB estimated that annual statewide GHG emissions were 427 MMT CO_2E in 1990 and would reach 596 MMT CO_2E by 2020 under a business as usual (BAU) condition (CARB 2008). To achieve the mandate of AB 32, CARB determined that a 169 MMT CO_2E (or approximate 28.5 percent) reduction in BAU emissions was needed by 2020. In 2010, CARB prepared an updated 2020 forecast to account for the recession and slower forecasted growth. CARB determined that the economic downturn reduced the 2020 BAU by 55 MMT CO_2E; as a result, achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7 (not 28.5) percent from the 2020 BAU. California has been on track to achieve 1990 levels, and based on the GHG inventories shown in Table 2, achieved the goal by 2017.

Approved in September 2016, SB 32 updates the California Global Warming Solutions Act of 2006 and enacts EO B-30-15. Under SB 32, the state would reduce its GHG emissions to 40 percent below 1990 levels by 2030. In implementing the 40 percent reduction goal, CARB is required to prioritize emissions reductions to consider the social costs of the emissions of GHGs; where "social costs" is defined as "an estimate of the economic damages, including, but not limited to, changes in net agricultural productivity; impacts to public health; climate adaptation impacts, such as property damages from increased flood risk; and changes in energy system costs, per metric ton of greenhouse gas emission per year."

4.2.3 Climate Change Scoping Plan

As directed by the California Global Warming Solutions Act of 2006, in 2008, CARB adopted the Climate Change Scoping Plan: A Framework for Change (Scoping Plan), which identifies the main strategies California will implement to achieve the GHG reductions necessary to reduce forecasted BAU emissions in 2020 to the state's historic 1990 emissions level (CARB 2008). In November 2017, CARB released the 2017 Climate Change Scoping Plan Update, the Strategy for Achieving California's 2030 Greenhouse Gas Target (2017 Scoping Plan; CARB 2017). The 2017 Scoping Plan identifies state strategies for achieving the state's 2030 interim GHG emissions reduction target codified by Senate Bill (SB) 32. Measures under the 2017 Scoping Plan Scenario build on existing programs such as the Low Carbon Fuel Standard, Advanced Clean Cars Program, Renewables Portfolio Standard (RPS), Sustainable Communities Strategy, Short-Lived Climate Pollutant Reduction Strategy, and the Cap-and-Trade Program. Additionally, the 2017 Scoping Plan proposes new policies to address GHG emissions from natural and working lands.

4.2.4 Cap-and-Trade Program

The California Cap-and-Trade Program began in January 2013 and is authorized to continue until the end of 2030. The program is a market-based regulation that is designed to reduce GHG emissions associated with major sources by setting a firm cap on overall GHG emissions from covered entities and gradually reducing that cap over time. The program defines major sources as facilities that generate more than 25,000 MT CO_2E per year, which includes many

electricity generators, refineries, cement production facilities, oil and gas production facilities, glass manufacturing facilities, and food processing plants. Each entity covered by the program is allocated specific GHG emission allowances and is able to buy or sell additional offset credits to other major sources-covered entities. Thus, the program employs market mechanisms to cost-effectively reduce overall GHG emissions. Throughout the program's duration, CARB continues to adjust the overall GHG emissions cap to achieve emission levels consistent with 2020 statewide GHG emission reduction targets established by AB 32 and the 2030 statewide GHG emission reduction targets established by SB 32.

4.2.5 Regional Emissions Targets—SB 375

SB 375, the 2008 Sustainable Communities and Climate Protection Act, was signed into law in September 2008 and requires CARB to set regional targets for reducing passenger vehicle GHG emissions in accordance with the Original Scoping Plan. The purpose of SB 375 is to align regional transportation planning efforts, regional GHG emissions reduction targets and fair-share housing allocations under state housing law. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy to address GHG reduction targets from cars and light-duty trucks in the context of that MPO's Regional Transportation Plan (RTP).

The Southern California Association of Governments (SCAG) adopted the 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy, A Plan for Mobility, Accessibility, Sustainability and a High Quality of Life (2016 RTP/SCS) in April 2016. The main goal of the 2016 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. CARB's targets for the SCAG region call for an 8 percent reduction in GHG emissions per capita from automobiles and light-duty trucks compared to 2005 levels by 2020, and a 19 percent reduction by 2035. The overarching strategy of the 2016 RTP/SCS is create more compact communities in existing urban areas, providing neighborhoods with efficient and plentiful public transit, abundant and safe opportunities to walk, bike and pursue other forms of active transportation, and preserving more of the region's remaining natural lands.

Pursuant to Government Code Section 65080(b)(2)(K), a Sustainable Communities Strategy does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a City's or County's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

4.2.6 Renewables Portfolio Standard

The RPS promotes diversification of the state's electricity supply and decreased reliance on fossil fuel energy sources. Renewable energy includes (but is not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas. Originally adopted in 2002 with a goal to achieve a 20 percent renewable energy mix by 2020 (referred

to as the "Initial RPS"), the goal has been accelerated and increased by EOs S-14-08 and S-21-09 to a goal of 33 percent by 2020. In April 2011, SB 2 (1X) codified California's 33 percent RPS goal. SB 350 (2015) increased California's renewable energy mix goal to 50 percent by year 2030. SB 100 (2018) further increased the standard set by SB 350 establishing the RPS goal of 44 percent by the end of 2024, 52 percent by the end of 2027, and 60 percent by 2030. This bill also states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045.

4.2.7 Assembly Bill 341 – Solid Waste Diversion

The Commercial Recycling Requirements mandate that businesses (including public entities) that generate 4 cubic yards or more of commercial solid waste per week and multi-family residential with five units or more arrange for recycling services. Businesses can take one or any combination of the following in order to reuse, recycle, compost, or otherwise divert solid waste from disposal. Additionally, Assembly Bill (AB) 341 mandates that 75 percent of the solid waste generated be reduced, recycled, or composted by 2020.

4.2.8 California Code of Regulations, Title 24 – California Building Code

The California Code of Regulations, Title 24, is referred to as the California Building Code, or CBC. It consists of a compilation of several distinct standards and codes related to building construction, including plumbing, electrical, interior acoustics, energy efficiency, handicap accessibility, and so on. Of particular relevance to GHG reductions are the CBC's energy efficiency and green building standards as outlined below.

Title 24, Part 6 – Energy Efficiency Standards

The California Code of Regulations, Title 24, Part 6 is the California Energy Efficiency Standards for Residential and Nonresidential Buildings (also known as the California Energy Code). This code, originally enacted in 1978, establishes energy efficiency standards for residential and non-residential buildings in order to reduce California's energy consumption. The Energy Code is updated periodically to incorporate and consider new energy-efficient technologies and methodologies as they become available, and incentives in the form of rebates and tax breaks are provided on a sliding scale for buildings achieving energy efficiency above the minimum standards.

The current version of the Energy Code, known as 2019 Title 24, or the 2019 Energy Code, became effective January 1, 2020. The Energy Code provides mandatory energy-efficiency measures as well as voluntary tiers for increased energy efficiency. The California Energy Commission (CEC), in conjunction with the California Public Utilities Commission, has adopted a goal that all new residential and commercial construction achieve zero net energy by 2020 and 2030, respectively

New construction and major renovations must demonstrate their compliance with the current Energy Code through submission and approval of a Title 24 Compliance Report to the local building permit review authority and the CEC. The compliance reports must demonstrate a building's energy performance through use of CEC approved energy performance software that shows iterative increases in energy efficiency given the selection of various heating, ventilation, and air conditioning; sealing; glazing; insulation; and other components related to the building envelope.

Title 24, Part 11 – California Green Building Standards

The California Green Building Standards Code, referred to as CALGreen, was added to Title 24 as Part 11 first in 2009 as a voluntary code, which then became mandatory effective January 1, 2011 (as part of the 2010 CBC). The 2016 CALGreen institutes mandatory minimum environmental performance standards for all ground-up new construction of non-residential and residential structures. Local jurisdictions must enforce the minimum mandatory Green Building Standards and may adopt additional amendments for stricter requirements.

The mandatory standards require:

- Outdoor water use requirements as outlined in local water efficient landscaping ordinances or current Model Water Efficient Landscape Ordinance standards, whichever is more stringent;
- Requirements for water conserving plumbing fixtures and fittings;
- 65 percent construction/demolition waste diverted from landfills;
- Infrastructure requirements for electric vehicle charging stations;
- Mandatory inspections of energy systems to ensure optimal working efficiency; and
- Requirements for low-pollutant emitting exterior and interior finish materials such as paints, carpets, vinyl flooring, and particleboards.

Similar to the reporting procedure for demonstrating Energy Code compliance in new buildings and major renovations, compliance with the CALGreen mandatory requirements must be demonstrated through completion of compliance forms and worksheets.

4.3 Local Regulations

4.3.1 Imperial County General Plan

The Imperial County General Plan Renewable Energy and Transmission Element was adopted in October 2015. As stated in the element, the benefits of renewable energy development include reduction in potential GHG by displacing fossil-fuel-generated electricity with renewable energy, which does not add to the greenhouse effect; contribution towards meeting the state's RPS mandate; and minimization of impacts to local communities, agriculture and sensitive resources (Imperial County 2015).

5.0 Significance Criteria and Analysis Methodology

5.1 Determining Significance

The California Natural Resources Agency maintains State of California Environmental Quality Act (CEQA) Guidelines to assist lead agencies in developing significance thresholds for assessing potentially significant environmental impacts. According to CEQA Guidelines Appendix G Environmental Checklist, implementation of the Project would have significant environmental impacts on GHG emissions if it would:

1) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

2) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of GHGs.

As stated in the CEQA Guidelines, these questions are "intended to encourage thoughtful assessment of impacts and do not necessarily represent thresholds of significance" (Title 14, Division 6, Chapter 3 Guidelines for Implementation of the CEQA, Appendix G, Environmental Checklist Form). The CEQA Guidelines encourage lead agencies to adopt regionally specific thresholds of significance. When adopting these thresholds, the amended Guidelines allow lead agencies to consider thresholds of significance adopted or recommended by other public agencies, or recommended by experts, provided that the thresholds are supported by substantial evidence.

The Project site is in the Salton Sea Air Basin. The Imperial County APCD is responsible for regulating air quality within the Imperial County portion of the Salton Sea Air Basin. No GHG emission significance threshold has been adopted by the County or the Imperial County APCD for land development projects. Thus, in the absence of a threshold of significance for GHG emissions that has been adopted in a public process following environmental review, this analysis considers guidance promulgated by other agencies.

The County is a member of SCAG. SCAG is comprised of several different counties including Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. Air districts responsible for managing air quality within the SCAG boundaries include the South Coast Air Quality Management District (AQMD), the Mojave Desert APCD, Ventura County APCD, and the Antelope Valley AQMD.

Due to the climate and land use patterns, the Antelope Valley AQMD and Mojave Desert APCD are air districts that are most similar to the Imperial County APCD's jurisdiction. The Antelope Valley AQMD is within the northern part of Los Angeles County, and the Mojave Desert APCD contains San Bernardino County's high desert region and Riverside County's Palo Verde Valley region. These jurisdictions are in inland desert regions with rural land use patterns; with a substantial number large-scale agricultural, warehousing/distribution,

industrial, and military operations. Additionally, both of these agencies have adopted GHG thresholds for use in CEQA analysis. As outlined in the Antelope Valley AQMD's 2016 *California Environmental Quality Act (CEQA) and Federal Conformity Guidelines and Mojave Desert APCD's 2016 California Environmental Quality Act (CEQA) and Federal Conformity Guidelines,* the two air districts both recommend use of a GHG emissions significance threshold of 100,000 short tons of CO_2E per year (90,718 MT CO_2E). Projects with emissions that exceed this threshold are required to incorporate mitigation sufficient to reduce emissions to less than this significance threshold or must incorporate all feasible mitigation.

This recommended significance threshold is consistent with the federal trigger level for GHG emissions "subject to regulation" under the U.S. EPA's Clean Air Act Title V Permitting requirements (40 Code of Federal Regulations 70.2). Additionally, as Imperial County APCD Title IX Regulations are based on Clean Air Act Title V Permitting requirements, this recommended significance threshold is also consistent with local Imperial County APCD Rule 900–Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal Clean Air Act Amendments of 1990 and Rule 904–Prevention of Significant Deterioration Permit Program.

In the absence of adopted GHG significance thresholds, the threshold of 90,718 MT CO_2E is an appropriate CEQA significance threshold for the assessment of GHG emissions for the purposes of this Project.

5.2 Calculation Methodology

Implementation of the Project would result in GHG emissions associated with the construction and operation of the Project. GHG emissions were calculated using California Emissions Estimator Model (CalEEMod) Version 2016.3.2 (California Air Pollution Control Officers Association 2017). The CalEEMod program is a tool used to estimate emissions resulting from land development projects in the state of California.

CalEEMod estimates parameters such as the type and amount of construction equipment required, trip generation, and utility consumption based on the size and type of each specific land use using data collected from surveys performed in South Coast AQMD. Where available, parameters were modified to reflect Project-specific data.

5.2.1 Construction Emissions

Construction activities emit GHGs primarily though combustion of fuels (mostly diesel) in the engines of off-road construction equipment and through combustion of diesel and gasoline in on-road construction vehicles and the commute vehicles of the construction workers. Smaller amounts of GHGs are also emitted through the energy use embodied in water use for fugitive dust control.

Construction emissions are calculated for construction activity based on the construction equipment profile and other factors determined as needed to complete all phases of

construction. Based on Guidance from the South Coast AQMD, total construction GHG emissions resulting from a project should be amortized over a period of 30 years and added to operational GHG emissions to account for their contribution to GHG emissions over the lifetime of a project (South Coast AQMD 2009).

The Project would be constructed in three to five phases over a 10-year period. For the purposes of this CEQA analysis, it was assumed that construction activities would last for a total of approximately 32 months to complete the full Project build-out. Construction of the access road from the north of the Project site, the bridge over the IID canal, and common facilities (including site grading and infrastructure, O&M building construction and substation construction) on the Project site south of the IID canal would occur simultaneously in order to reduce the overall construction schedule. This first phase of construction is anticipated to last for 12 months. Total construction of the subsequent battery storage phases is anticipated to last for 20 months. Construction emissions were calculated assuming construction activities would begin in 2021 and last for 32 consecutive months. This is conservative because if sequential construction activities were to occur at a later date, emissions would be less since construction equipment gets cleaner over time due to statewide rules and regulations.

In order to begin construction on the Project site prior to completion of the bridge, construction equipment would be hauled to the Project site. The Project Proponent is evaluating various options for temporary construction access, including accessing the Project site from the south side of the Westside Main Canal off SR-98, as well as options involving access from the north side of the Westside Main Canal from I-8. Under access Option 1, all construction equipment and material deliveries would access the site from the south along the 5.6-mile unpaved road until completion of the access road and bridge north of the Project site. The first 4.4 miles of the access road is an existing unpaved service road consisting of well compacted dirt and crushed rock, and the last 1.2 miles is an unpaved dirt road that would be covered with construction mats. To access the Project site, construction workers would travel along I-8 and head 4.6 miles south to the Project site, and would utilize the IID Fern Check Bridge as a pedestrian bridge until the permanent bridge is constructed. A majority of this worker access route is paved, and the last approximately 0.3 mile is an unpaved dirt road. Under access Option 2, all material deliveries would access the site using the IID Westside Main Canal access road. As the Option 1 distance is longer than Option 2, emissions were calculated using access Option 1. During peak construction activities, approximately 200 workers and 30 daily deliveries would be required. Table 3 summarizes the anticipated construction schedule and equipment.

CalEEMod calculates emissions of all pollutants from construction equipment using emission factors from CARB's off-road diesel equipment emission factors database, OFFROAD 2011 (CARB 2011). Consistent with CARB requirements, all equipment was assumed to meet CARB Tier 3 In-Use Off-Road Diesel Engine Standards.

Table 3
Anticipated Construction Schedule and Equipment

Construction Equipment	Phase 1 (12 months)			Phases 2–5 (20 months)	Horse-power	Load Factor
	Bridge	Substation	Battery Storage	Battery Storage		
Wheeled Loader	--	--	1	1	97	0.37
Scraper	--	--	1	1	367	0.48
Grader	--	--	1	1	187	0.41
Dozer	--	--	1	1	247	0.40
Excavator	--	--	1	1	158	0.38
Backhoe	1	1	1	1	97	0.37
Rollers	1	1	1	1	80	0.38
Forklift	1	1	1	1	89	0.20
Crane	--	3	3	3	231	0.29
Skid Steer	--	1	2	2	97	0.37
Water Truck[1]	--	--	1	1	402	0.38
Drill Rig	1	--	--	--	221	0.50

NOTE: Each construction activity would also require a number of pick-up trucks. Emissions associated with pick-up trucks are included in the worker commute calculations.
[1]Water truck modeled as off-highway truck.

Water would be used for fugitive dust control during construction activities. Typically, water use would have indirect GHG emissions associated with it. These emissions are a result of the energy used to supply, treat, and distribute water. However, during all construction activities, the water truck would get water directly from the IID canal immediately adjacent to the Project site, and therefore, there would be not be any emissions associated with transporting water to the Project site.

5.2.2 Mobile Emissions

CalEEMod calculates mobile source emissions using emission factors derived from CARB's motor vehicle emission inventory program, EMFAC2014 (CARB 2014). Operation of the Project would require up to 20 employees. Assuming two one-way trips per employee, the Project would be anticipated to generate up to 40 trips per day. A 20-mile trip length was modeled.

5.2.3 Energy Use Emissions

Energy use emissions typically include indirect GHG emissions associated with the generation of electricity from off-site fossil fuel power plants that supply energy to the CAISO electricity grid. A majority of the Project's energy demand would be associated with the battery system energy losses and auxiliary load necessary to operate the battery storage system. The battery system energy losses and auxiliary load includes energy needed to power HVAC units to control the temperature of the battery components, battery energy losses, inverter and transformer energy losses, and AC and DC wire losses. Based on modeling provided by the Project Proponent, it is estimated that 676,059 megawatts per hour (MWh) annually would be required due to battery system energy losses and to serve the required auxiliary power needs. This is based on full build-out of a 2,000 MW capacity lithium-ion

battery storage facility. Lithium-ion technology has the highest demand for auxiliary load due to greater HVAC needs.

A majority of the Project's operational GHG emissions would be associated with the Project's battery system energy losses and auxiliary load. The auxiliary load associated with Li-ion and flow battery technologies is largely attributed to the operation of HVAC systems. Battery system energy losses include battery energy losses, inverter and transformer losses, and AC and DC wire losses. The Project's battery system and auxiliary load would be served primarily by CAISO. GHG emissions associated with the battery system energy losses and auxiliary load were calculated using an emissions rate of 0.428 MT CO_2E MWh as identified in CAISO's Greenhouse Gas Emission Tracking Methodology (CAISO 2016). This emission rate was assigned by CARB and is established in Section 95111(b)(1) of CARB's February 2014 update to the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions. This rate was established in 2014 when only 22.77 percent of California's total system power was comprised of renewable energy sources. As of 2018, 32.35 percent of California's total system power was derived from renewable sources, and with the approval of SB 100, 100 percent of California's total system power will be derived from renewable sources by the year 2045.

The emissions rate of 0.428 MT CO_2E per MWh assigned by CARB in 2014 does not reflect the State's renewable resources targets established in SB 100 (see Section 4.2.6). Thus, the analysis adjusts the assigned emission rate proportionally to the RPS target schedule established in SB 100. Table 4 summarizes the RPS schedule targets.

Table 4
CAISO GHG Emission Rates

RPS Target	Target Date	GHG Emission Rate (MT CO_2E per MWh)
22.77%*	February 2014	0.428
33%	December 31, 2020	0.2953
44%	December 31, 2024	0.2215
50%	December 31, 2026	0.1949
52%	December 31, 2027	0.1874
60%	December 31, 2030	0.1624
100%	December 31, 2045	0.0975
*Actual 2014 renewables percentage		

As discussed in Section 2.2.1 above, the Project would be constructed in three to five phases over a 10-year period, with each phase ranging from approximately 25 MW up to 400 MW per phase. The total nameplate (or rated capacity) capacity of the Project at full build-out (all phases completed) would be approximately 2,000 MW. Energy-related GHG emissions were calculated through 2045 as project phases would be constructed and RPS goals reached. Table 5 summarizes the total energy-related GHG emissions.

Table 5 Energy-Related GHG Emissions						
	2022	2024	2026	2028	2030	2045
Capacity (MW)	100	300	600	1,000	1,500	2,000
Duration (hours)	4	4	4	4	4	4
Energy (MWh)	400	1,200	2,400	4,000	6,000	8,000
Round-Trip Efficiency*	81%	81%	81%	81%	81%	81%
Charge Energy (MWh)	493	1,478	2,956	4,926	7,389	9,852
Energy Usage (MWh)	93	278	556	926	1,389	1,852
Annual Cycle (Days)	365	365	365	365	365	365
Annual Loss (MWh)	33,803	101,409	202,818	338,030	507,044	676,059
Emission Rate (MT CO_2E per MWh)	0.2953	0.2215	0.1949	0.1874	0.1624	0.0975
GHG Emissions (MT CO_2E)	9,982	22,462	39,529	63,347	82,344	65,916
*Round-trip efficiency is the energy put into the storage system that can be retrieved.						

It should be noted that these calculations are a conservative estimate for the Project's battery system losses and auxiliary load because they assume that only the Li-ion battery technology would be used for the full buildout capacity (2,000 MW) of the Project and that no technological advancements that would reduce the round-trip efficiency would occur over the 40-year life of the Project. Certain flow battery technologies have significantly lower demand for temperature control (HVAC) than the Li-ion technology.

The Project would also install behind-the-meter solar PV facilities to offset as much of the battery system auxiliary loads as feasible. The installed capacity would depend on a number of factors including the amount of available space (rooftop and ground), and other economic and technological considerations. The energy-related GHG emissions that would be offset by the Project's behind-the-meter solar PV systems were calculated using CAISO emissions factors, and it is estimated that a range of 17,000 to 34,000 MWh would be produced annually at full build-out. This energy production equates to installed solar PV capacity ranging from 6 to 12 MW at full build-out.

5.2.4 Area Source Emissions

An area source is any non-permitted stationary source of emission. Common area sources include fireplaces, natural gas used in space and water heating, consumer products, architectural coatings, dust from farming operations, landscaping equipment, and small combustion equipment such as boilers or backup generators. The Project does not include measurable amounts of fireplace use, natural gas use, consumer products, architectural coatings, or other area sources.

Routine weed abatement and landscape maintenance would occur as needed. The Project site is bounded by roads, agricultural uses, and solar generation facilities. As the Project is not adjacent to natural lands, landscaping maintenance for maintaining a fire-clearing zone would be minimal and would result in less than measurable emissions.

5.2.5 Water and Wastewater Emissions

Water usage for the O&M facilities and personnel would be less than 10,000 gallons per day. Potable water would be delivered to the project site from a third-party water supplier that would require a maximum of two truck deliveries per month. Therefore, emissions associated with potable water deliver would be negligeable. Additionally, approximately 1,000,000 gallons of water would be stored on site in storage tanks for fire suppression. The water use of a project has indirect GHG emissions associated with it. These emissions are a result of the energy used to supply, distribute, and treat water. Water use emissions are estimated based on regional efficiency factors for water supply, treatment, and distribution.

5.2.6 Solid Waste Emissions

The disposal of solid waste produces GHG emissions from anaerobic decomposition in landfills, incineration, and transportation of waste. Energy storage facilities are not known to generate substantial quantities of biodegradable waste. Some amount of solid waste would be generated by employees and maintenance staff at the maintenance and operations building. The amount of solid waste generated was modeled using standard generation rates for light industrial uses.

5.2.7 Propane-Fueled Emergency Generator Emissions

As discussed in Section 2.2.3.2, the Project would include propane-fueled emergency backup generators to augment the backup battery storage capacity, as well as BTM solar power generation during rare events in which the entire facility, or portions of the facility, are disconnected from the electrical grid. The generators would be periodically tested (monthly) to maintain backup capability in the event of a grid emergency. Emissions due to emergency generator testing were calculated using emission factors provided in the generator specifications. The Project would include up to 20 propane-fueled generators. The exact testing schedule is not known at this time. For the purposes of the GHG emission calculations, it was assumed that each of the 20 generators would be tested once per month for a total operation time of two hours each per month. This results in a total annual operation time of 480 hours. GHG emissions were calculated using U.S. EPA AP-42 emission factors and a fuel consumption rate of approximately 23 gallons per hour, based on specifications for a representative propane-fueled generator. This calculation determined that generator testing would result in total annual emissions of 62 MT CO_2E.

6.0 GHG Impact Analysis

1. *Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.*

Table 6 provides a summary of the GHG emissions generated by the Project construction, battery system energy losses and auxiliary load (worst-case), operations, and emergency propane-fueled generator testing. GHG emission calculations are contained in Attachment 1.

Table 6 Worst-Case Annual GHG Emissions	
Emission Source	GHG Emissions (MT CO_2E)
Construction	
Total Construction	5,687
Amortized Construction	190
Operation	
Maximum Battery Energy Losses and Auxiliary Load	82,344
Emergency Propane-Fueled Generators (Testing)	62
Mobile	741
Area Sources	<1
Water Use	30
Solid Waste Disposal	3
Total Operation	83,181
Total Construction and Operation	83,370
Significance Threshold	*90,718*
SOURCE: Attachment 1. NOTE: Totals may vary due to independent rounding.	

As shown in Table 6, maximum annual GHG emissions would total 83,370 MT CO_2E. A majority of the emissions (98.8 percent) would be associated with the Project's battery system losses and auxiliary load. Therefore, Project GHG emissions would be less than the applicable screening threshold and impacts would be less than significant.

The Project would reduce these emissions by providing solar PV on the Project site to the extent feasible. As discussed in Section 5.2.3, it is estimated that a range of 17,000 to 34,000 MWh would be produced annually by on-site solar PV at full build-out. As with energy-related emissions, the GHG off-set emissions associated with on-site solar depends on the state's progress towards RPS goals. As discussed in Section 2.2.1, the Project would be constructed over a 10-year period. GHG off-set emissions were calculated assuming an RPS target of 60 percent by year 2030. For informational purposes, the energy offset associated with on-site solar PV was calculated and is summarized in Table 7.

Table 7 Solar PV GHG Emission Off-Set	
Solar PV Electricity Generation (MWh/year)	Off-Set GHG Emissions (MT CO_2E/year)
17,000	2,761
34,000	5,522

As shown in Table 7, on-site solar PV would offset 2,761 to 5,522 MT CO_2E per year of the Project's GHG emissions. The installation of more solar PV would not be feasible due to spaces requirements.

2. *Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of GHGs.*

EO S-3-05 and B-30-15 establish the GHG emission reduction policy of the Executive Branch for the state. AB 32 codified the 2020 goal of EO S-3-05 and launched the Original Scoping Plan (CARB 2008) that outlined the reduction measures needed to reach these goals. As noted, the State has achieved the 2020 goal. SB 32 codified the 2030 goal of B-30-15 and directed CARB to prepare a subsequent update to the Scoping Plan.

Subsequent to the adoption of AB 32 and the development of the Original Scoping Plan, several state agencies, including CARB, CEC, California Public Utilities Commission, Department of Resources Recycling and Recovery, California Department of Transportation, California Department of Forestry and Fire, the Department of Water Resources, the Department of Food and Agriculture, and the Department of Goods and Services have developed regulatory and incentive programs to reduce GHG emissions statewide. Policies related to the California Department of Food and Agriculture and California Department of Forestry and Fire are primarily related to the agriculture business and forest and rangeland management.

As shown in Table 6 above, the Project's annual GHG emissions would be less than the screening threshold of 90,718 MT CO_2E per year. Additionally, the Project would support the State's goal to increase use of renewable energy. In September 2018, the California Legislature passed SB 100, which set a goal that "renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045." As California procures increasing amounts of renewable energy to meet the goals of SB 100, the state will need to deploy a significant amount of energy storage capability. Renewable energy resources such as wind and solar generate electricity intermittently. Energy storage allows utilities and system operators to manage the effect of intermittent renewable generation on the grid and create reliable, dispatchable generation upon demand. Energy storage also allows excess solar energy produced during the day to be stored and dispatched optimally during peak evening hours or other periods of high demand. The Project would therefore serve as an integral component of the State's overarching renewable energy strategy that would reduce use of fossil fuel and associated GHG emissions by providing necessary energy storage. The Project would assist the State's goal of utilizing 100 percent renewable energy by 2045, which would result in a net decrease in use of fossil fuel and GHG emissions. Therefore, the Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs, and impacts would be less than significant.

7.0 Conclusions and Recommendations

This report evaluates the significance of GHG emissions associated with the Project using criteria from the California Natural Resources Agency State CEQA Guidelines and GHG emission screening levels from the South Coast AQMD's Interim CEQA GHG Significance Thresholds for Stationary Sources, Rules, and Plans.

No GHG emissions significance threshold has been adopted by the Imperial County APCD. Project GHG emissions were evaluated against the Antelope Valley AQMD and Mojave Desert APCD screening level of 100,000 short tons of CO_2E (90,718 MT CO_2E). As shown in Table 6, annual GHG emissions would total 83,370 MT CO_2E. A majority of the emissions (98.8 percent) would be associated with the Project's battery system losses and auxiliary load, which includes HVAC units necessary to control the temperature of the battery components, battery energy losses, inverter and transformer efficiencies, and AC and DC wire loses. Therefore, Project GHG emissions would be less than the applicable screening threshold and impacts would be less than significant.

The Project would reduce these emissions by providing behind-the-meter solar PV on the Project site to the extent feasible. On-site solar PV would potentially off-set 2,761 to 5,522 MT CO_2E per year of the Project's GHG emissions.

The Project would serve as an integral component of the State's overarching renewable energy strategy to utilize 100 percent renewable energy by 2045 by providing necessary energy storage. By assisting the State's effort to reach this goal, the Project would contribute towards a statewide net decrease in the use of fossil fuel and GHG emissions. Therefore, the Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs, and impacts would be less than significant.

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ATTACHMENT 1

GHG Emission Calculations

GHG EMISSION SUMMARY

Source	**MT CO2E**	**% of Total**
Construction		
Total	5,687	
Amortized Over 30 Years	190	0.2%
Operation		
Auxiliary Load Electricity	82,344	98.8%
Emergency Generator Testing	62	0.1%
Mobile	741	0.9%
Area	0	0.0%
Water	30	0.0%
Waste	3	0.0%
Total Operation	83,181	99.8%
Total Gross Emission	83,370	100.0%

Auxiliary Load Electricity Emissions
Li-Ion Energy Usage

Year	**2020* (full buildout)**	**2022**	**2024**	**2026**	**2028**	**2030**	**2045**
Capacity (MW)	2000	100	300	600	1000	1500	2000
Duration (h)	4	4	4	4	4	4	4
Energy (MWh)	8000	400	1200	2400	4000	6000	8000
RTE	81%	81%	81%	81%	81%	81%	81%
Charge Energy (MWh)	9,852	493	1,478	2,956	4,926	7,389	9,852
Energy Usage (MWh)	1,852	93	278	556	926	1,389	1,852
Annual Cycles	365	365	365	365	365	365	365
Annual Loss (MWh)	676,059	33,803	101,409	202,818	338,030	507,044	676,059
Emissions Rate	0.4280	0.2953	0.2215	0.1949	0.1874	0.1624	0.0975
MT CO2E	289,353	9,982	22,462	39,529	63,347	82,344	65,916

*Uses Emissions Rate of 0.428 for full buildout

% RPS Target	Target Date	Emmissions Rate
0.2277	1-Feb-14	0.428
0.3300	31-Dec-20	0.2953
0.4400	31-Dec-24	0.2215
0.5000	31-Dec-26	0.1949
0.5200	31-Dec-27	0.1874
0.6000	31-Dec-30	0.1624
1.0000	31-Dec-45	0.0975

On-Site Renewable Energy Calculation

	2030
Solar PV Electricity Generation (MWh/year)	17,000
GHG Emission Rate	0.1624
GHG Emissions	2,760.80
Solar PV Electricity Generation (MWh/year)	34,000
GHG Emission Rate	0.1624
GHG Emissions	5,521.60

Construction Emissions

Year	MT CO2E
2021	2,372.80
2022	1,998.29
2023	1,316.19
Total	5,687.27
Amortized Over 30 Years	189.58

AP-42 Emission Factor	lb/1,000 gal		
Fuel Type	CO2	CH4	N2O
Propane	12,500	0.2	0.9

Fuel Consumption Rate

Load		
50%	11.72	gal/hr
100%	22.57	gal/hr

# of Generators	20	generators
Testing time per month per generator	2	hours
Total testing hours per month	40	hours
Total testing hours per year	480	hours
Annual Fuel Consumption	10,834	gallons

GHG Emissions

CO2		
Annual CO2 Emissions	135,420.00	lbs
Annual CO2 Emissions	61.43	MT
GWP	1	

CH4		
Annual CH4 Emissions	27.08	lbs
Annual CH4 Emissions	0.01	MT
GWP	28	

N2O		
Annual N2O Emissions	0.02	lbs
Annual N2O Emissions	0.00	MT
GWP	265	

Total MT CO2E	61.77	MT CO2E/Year

Source:
AP42 Section 1.5 Liquefied Petroleum Gas Combustion, update July 2008 (epa.gov)

Generac Commercial QT15068GVAC Series 150kW Standby Generator 120/208V 3-PhaseLP SCAQMD Compliant (electricgeneratorsdirect.com)

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	5.00	1000sqft	1.00	5,000.00	0
Unrefrigerated Warehouse-No Rail	500.00	1000sqft	147.00	500,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2022
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	956.99	**CH4 Intensity (lb/MWhr)**	0.022	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Energy intensity factors reduced to reflect RPS 2020 mandate (956.99, 0.022, 0.005)

Land Use - 5,000 sf O&M Building
500,000 sf storage warehouses
148 acres

Construction Phase - Construction schedule per applicant

Off-road Equipment - Project equipment list

Off-road Equipment - Project equipment list

Off-road Equipment - Project equipment list

Off-road Equipment - Project equipment list

Off-road Equipment - Project equipment list
Off-road Equipment - Construciton equipment list

Off-road Equipment - Project equipment list

Trips and VMT - Max 200 workers, 30 deliveries
Trip length increased to 20 miles

On-road Fugitive Dust - Workers - last 0.3 miles of 20 mile trip would be dirt road (98.5% paved)
Materials - 4.4 miles of 20 miles trip over service road (78% paved or construction mats)
Service road silt content = 4.3%
Access road dust emissions calculated separately

Grading - 148 acres

Vehicle Trips - 20 full time employees

Road Dust - Workers - last 0.3 miles of 20 mile trip would be gravel (98.5% paved)

Energy Use - No storage warehouse heating
Warehouse lighting included in aux load calculations

Water And Wastewater - 10,000 gallons per day (3,650,000 per year)
1,000,000 stored for fire protection

Construction Off-road Equipment Mitigation - Tier 3 engines per CARB regulations
Water exposed grading areas
Water unpaved roads (61% reduction due to water applied rather than soil stabilizer reduction of 84%)

Operational Off-Road Equipment -

Stationary Sources - Emergency Generators and Fire Pumps -

Architectural Coating - O&M Building only

Solid Waste - No additional solid waste generated by storage warehouses

Area Coating -

Table Name	Column Name	Default Value	New Value
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tblArchitecturalCoating	ConstArea_Nonresidential_Interior	457,500.00	7,500.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstructionPhase	NumDays	3,100.00	434.00
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tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	0.37	0.00
tblEnergyUse	T24NG	2.00	0.00
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tblOnRoadDust	WorkerPercentPave	50.00	98.50
tblOnRoadDust	WorkerPercentPave	50.00	98.50
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	1270.9	956.99

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tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
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tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	128.00	0.00
tblTripsAndVMT	WorkerTripNumber	128.00	400.00
tblTripsAndVMT	WorkerTripNumber	26.00	0.00
tblTripsAndVMT	WorkerTripNumber	128.00	400.00
tblVehicleTrips	CC_TL	5.00	20.00
tblVehicleTrips	CC_TL	5.00	0.00

tblVehicleTrips	CNW_TL	8.90	20.00
tblVehicleTrips	CNW_TL	8.90	0.00
tblVehicleTrips	CW_TL	6.70	20.00
tblVehicleTrips	CW_TL	6.70	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.32	40.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	0.68	40.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	6.97	40.00
tblVehicleTrips	WD_TR	1.68	0.00
tblWater	IndoorWaterUseRate	1,156,250.00	3,650,000.00
tblWater	IndoorWaterUseRate	69,375,000.00	0.00
tblWater	OutdoorWaterUseRate	0.00	1,000,000.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	1.6141	12.3798	11.3488	0.0264	20.7747	0.4946	21.2692	2.2027	0.4552	2.6579	0.0000	2,360.3130	2,360.3130	0.4994	0.0000	2,372.7976
2022	1.2184	8.1399	9.0782	0.0221	8.8214	0.2962	9.1176	1.0318	0.2726	1.3044	0.0000	1,989.3210	1,989.3210	0.3588	0.0000	1,998.2899
2023	0.7535	4.7078	5.7381	0.0146	5.9035	0.1717	6.0753	0.6905	0.1580	0.8485	0.0000	1,310.2940	1,310.2940	0.2357	0.0000	1,316.1876
Maximum	**1.6141**	**12.3798**	**11.3488**	**0.0264**	**20.7747**	**0.4946**	**21.2692**	**2.2027**	**0.4552**	**2.6579**	**0.0000**	**2,360.3130**	**2,360.3130**	**0.4994**	**0.0000**	**2,372.7976**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.9887	9.3123	13.6907	0.0264	8.5989	0.3722	8.9711	0.9930	0.3717	1.3648	0.0000	2,360.3114	2,360.3114	0.4994	0.0000	2,372.7959
2022	0.8499	6.8092	10.7475	0.0221	3.9996	0.2502	4.2498	0.5529	0.2497	0.8026	0.0000	1,989.3199	1,989.3199	0.3588	0.0000	1,998.2888
2023	0.5415	4.2942	6.9447	0.0146	2.6767	0.1659	2.8425	0.3700	0.1656	0.5356	0.0000	1,310.2933	1,310.2933	0.2357	0.0000	1,316.1869
Maximum	**0.9887**	**9.3123**	**13.6907**	**0.0264**	**8.5989**	**0.3722**	**8.9711**	**0.9930**	**0.3717**	**1.3648**	**0.0000**	**2,360.3114**	**2,360.3114**	**0.4994**	**0.0000**	**2,372.7959**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**33.63**	**19.07**	**-19.94**	**0.00**	**56.97**	**18.10**	**55.94**	**51.18**	**11.16**	**43.81**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-4-2021**	**4-3-2021**	2.5135	1.8657
2	**4-4-2021**	**7-3-2021**	3.9528	2.9463
3	**7-4-2021**	**10-3-2021**	3.8142	2.7923
4	**10-4-2021**	**1-3-2022**	3.6421	2.6456
5	**1-4-2022**	**4-3-2022**	2.3165	1.8964
6	**4-4-2022**	**7-3-2022**	2.3425	1.9177
7	**7-4-2022**	**10-3-2022**	2.3682	1.9388
8	**10-4-2022**	**1-3-2023**	2.3581	1.9350
9	**1-4-2023**	**4-3-2023**	2.0205	1.7893
10	**4-4-2023**	**7-3-2023**	2.0480	1.8143
11	**7-4-2023**	**9-30-2023**	1.3278	1.1763
		Highest	3.9528	2.9463

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.1848	4.0000e-005	4.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0200e-003	9.0200e-003	2.0000e-005	0.0000	9.6200e-003
Energy	8.8000e-004	7.9600e-003	6.6900e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	30.6987	30.6987	6.7000e-004	2.7000e-004	30.7972
Mobile	0.1656	1.3219	2.7038	8.0100e-003	8.6862	5.6000e-003	8.6918	0.9594	5.2800e-003	0.9647	0.0000	740.2800	740.2800	0.0408	0.0000	741.2989
Waste						0.0000	0.0000		0.0000	0.0000	1.2585	0.0000	1.2585	0.0744	0.0000	3.1180
Water						0.0000	0.0000		0.0000	0.0000	1.1580	25.4532	26.6112	0.1195	2.9400e-003	30.4757
Total	**2.3513**	**1.3299**	**2.7151**	**8.0600e-003**	**8.6862**	**6.2300e-003**	**8.6925**	**0.9594**	**5.9100e-003**	**0.9654**	**2.4165**	**796.4409**	**798.8574**	**0.2354**	**3.2100e-003**	**805.6994**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.1848	4.0000e-005	4.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0200e-003	9.0200e-003	2.0000e-005	0.0000	9.6200e-003
Energy	8.8000e-004	7.9600e-003	6.6900e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	30.6987	30.6987	6.7000e-004	2.7000e-004	30.7972
Mobile	0.1656	1.3219	2.7038	8.0100e-003	8.6862	5.6000e-003	8.6918	0.9594	5.2800e-003	0.9647	0.0000	740.2800	740.2800	0.0408	0.0000	741.2989
Waste						0.0000	0.0000		0.0000	0.0000	1.2585	0.0000	1.2585	0.0744	0.0000	3.1180
Water						0.0000	0.0000		0.0000	0.0000	1.1580	25.4532	26.6112	0.1195	2.9400e-003	30.4757
Total	**2.3513**	**1.3299**	**2.7151**	**8.0600e-003**	**8.6862**	**6.2300e-003**	**8.6925**	**0.9594**	**5.9100e-003**	**0.9654**	**2.4165**	**796.4409**	**798.8574**	**0.2354**	**3.2100e-003**	**805.6994**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Common Facilities - Acess Road	Site Preparation	1/4/2021	2/5/2021	5	25	
2	Common Facilities - Substation	Grading	2/8/2021	12/31/2021	5	235	
3	Common Facilities - Bridge Construction	Building Construction	2/8/2021	8/6/2021	5	130	
4	Battery Storage 1	Building Construction	2/8/2021	12/31/2021	5	235	
5	O&M Building - Architectural Coating	Architectural Coating	12/27/2021	12/31/2021	5	5	
6	Battery Storage 2-5	Building Construction	1/3/2022	8/31/2023	5	434	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 7,500; Non-Residential Outdoor: 2,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Common Facilities - Acess Road	Graders	1	8.00	187	0.41
Common Facilities - Acess Road	Rubber Tired Dozers	0	8.00	247	0.40
Common Facilities - Acess Road	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Common Facilities - Substation	Bore/Drill Rigs	0	8.00	221	0.50
Common Facilities - Substation	Cranes	3	8.00	231	0.29
Common Facilities - Substation	Excavators	0	8.00	158	0.38
Common Facilities - Substation	Forklifts	1	8.00	89	0.20
Common Facilities - Substation	Graders	0	8.00	187	0.41
Common Facilities - Substation	Off-Highway Trucks	1	8.00	402	0.38
Common Facilities - Substation	Rollers	1	8.00	80	0.38

Common Facilities - Substation	Rubber Tired Dozers	0	8.00	247	0.40
Common Facilities - Substation	Scrapers	0	8.00	367	0.48
Common Facilities - Substation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Common Facilities - Bridge Construction	Bore/Drill Rigs	1	8.00	221	0.50
Common Facilities - Bridge Construction	Cranes	0	7.00	231	0.29
Common Facilities - Bridge Construction	Forklifts	1	8.00	89	0.20
Common Facilities - Bridge Construction	Rollers	1	8.00	80	0.38
Common Facilities - Bridge Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Common Facilities - Bridge Construction	Welders	0	8.00	46	0.45
Battery Storage 1	Cranes	3	8.00	231	0.29
Battery Storage 1	Excavators	1	8.00	158	0.38
Battery Storage 1	Forklifts	1	8.00	89	0.20
Battery Storage 1	Generator Sets	0	8.00	84	0.74
Battery Storage 1	Graders	1	8.00	187	0.41
Battery Storage 1	Off-Highway Trucks	1	8.00	402	0.38
Battery Storage 1	Pumps	0	8.00	84	0.74
Battery Storage 1	Rollers	1	8.00	80	0.38
Battery Storage 1	Rubber Tired Dozers	1	8.00	247	0.40
Battery Storage 1	Scrapers	1	8.00	367	0.48
Battery Storage 1	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Battery Storage 1	Welders	0	8.00	46	0.45
O&M Building - Architectural Coating	Air Compressors	1	8.00	78	0.48
Battery Storage 2-5	Cranes	3	8.00	231	0.29
Battery Storage 2-5	Excavators	1	8.00	158	0.38
Battery Storage 2-5	Forklifts	1	8.00	89	0.20
Battery Storage 2-5	Generator Sets	0	8.00	84	0.74

Battery Storage 2-5	Graders	1	8.00	187	0.41
Battery Storage 2-5	Off-Highway Trucks	1	8.00	402	0.38
Battery Storage 2-5	Pumps	0	8.00	84	0.74
Battery Storage 2-5	Rollers	1	8.00	80	0.38
Battery Storage 2-5	Rubber Tired Dozers	1	8.00	247	0.40
Battery Storage 2-5	Scrapers	1	8.00	367	0.48
Battery Storage 2-5	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Battery Storage 2-5	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Common Facilities - Access Road	2	10.00	12.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Common Facilities - Substation	8	0.00	0.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Common Facilities - Bridge Construction	4	0.00	0.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Battery Storage 1	14	400.00	60.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
O&M Building - Architectural Coating	1	0.00	0.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Battery Storage 2-5	14	400.00	60.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Common Facilities - Acess Road - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.5900e-003	0.0000	1.5900e-003	1.7000e-004	0.0000	1.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0000e-003	0.0978	0.0503	1.2000e-004		3.7400e-003	3.7400e-003		3.4400e-003	3.4400e-003	0.0000	10.6887	10.6887	3.4600e-003	0.0000	10.7752
Total	**8.0000e-003**	**0.0978**	**0.0503**	**1.2000e-004**	**1.5900e-003**	**3.7400e-003**	**5.3300e-003**	**1.7000e-004**	**3.4400e-003**	**3.6100e-003**	**0.0000**	**10.6887**	**10.6887**	**3.4600e-003**	**0.0000**	**10.7752**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.1000e-004	0.0222	6.2300e-003	9.0000e-005	2.7600e-003	8.0000e-005	2.8500e-003	8.0000e-004	8.0000e-005	8.8000e-004	0.0000	8.6570	8.6570	2.6000e-004	0.0000	8.6635
Worker	1.3900e-003	1.2500e-003	0.0108	2.0000e-005	1.8900e-003	1.0000e-005	1.9000e-003	5.0000e-004	1.0000e-005	5.1000e-004	0.0000	1.4948	1.4948	1.1000e-004	0.0000	1.4975
Total	**2.3000e-003**	**0.0235**	**0.0170**	**1.1000e-004**	**4.6500e-003**	**9.0000e-005**	**4.7500e-003**	**1.3000e-003**	**9.0000e-005**	**1.3900e-003**	**0.0000**	**10.1518**	**10.1518**	**3.7000e-004**	**0.0000**	**10.1610**

3.2 Common Facilities - Acess Road - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.2000e-004	0.0000	6.2000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9800e-003	0.0609	0.0732	1.2000e-004		3.0100e-003	3.0100e-003		3.0100e-003	3.0100e-003	0.0000	10.6887	10.6887	3.4600e-003	0.0000	10.7751
Total	**2.9800e-003**	**0.0609**	**0.0732**	**1.2000e-004**	**6.2000e-004**	**3.0100e-003**	**3.6300e-003**	**7.0000e-005**	**3.0100e-003**	**3.0800e-003**	**0.0000**	**10.6887**	**10.6887**	**3.4600e-003**	**0.0000**	**10.7751**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.1000e-004	0.0222	6.2300e-003	9.0000e-005	2.7600e-003	8.0000e-005	2.8500e-003	8.0000e-004	8.0000e-005	8.8000e-004	0.0000	8.6570	8.6570	2.6000e-004	0.0000	8.6635
Worker	1.3900e-003	1.2500e-003	0.0108	2.0000e-005	1.8900e-003	1.0000e-005	1.9000e-003	5.0000e-004	1.0000e-005	5.1000e-004	0.0000	1.4948	1.4948	1.1000e-004	0.0000	1.4975
Total	**2.3000e-003**	**0.0235**	**0.0170**	**1.1000e-004**	**4.6500e-003**	**9.0000e-005**	**4.7500e-003**	**1.3000e-003**	**9.0000e-005**	**1.3900e-003**	**0.0000**	**10.1518**	**10.1518**	**3.7000e-004**	**0.0000**	**10.1610**

3.3 Common Facilities - Substation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0785	0.0000	0.0785	8.4700e-003	0.0000	8.4700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2982	3.1380	2.0118	4.8000e-003		0.1420	0.1420		0.1307	0.1307	0.0000	421.9701	421.9701	0.1365	0.0000	425.3820
Total	**0.2982**	**3.1380**	**2.0118**	**4.8000e-003**	**0.0785**	**0.1420**	**0.2205**	**8.4700e-003**	**0.1307**	**0.1391**	**0.0000**	**421.9701**	**421.9701**	**0.1365**	**0.0000**	**425.3820**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Common Facilities - Substation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0306	0.0000	0.0306	3.3000e-003	0.0000	3.3000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1178	2.3820	2.8259	4.8000e-003		0.1123	0.1123		0.1123	0.1123	0.0000	421.9696	421.9696	0.1365	0.0000	425.3815
Total	**0.1178**	**2.3820**	**2.8259**	**4.8000e-003**	**0.0306**	**0.1123**	**0.1429**	**3.3000e-003**	**0.1123**	**0.1156**	**0.0000**	**421.9696**	**421.9696**	**0.1365**	**0.0000**	**425.3815**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Common Facilities - Bridge Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0497	0.5214	0.4799	1.0800e-003		0.0263	0.0263		0.0242	0.0242	0.0000	95.2366	95.2366	0.0308	0.0000	96.0066
Total	**0.0497**	**0.5214**	**0.4799**	**1.0800e-003**		**0.0263**	**0.0263**		**0.0242**	**0.0242**	**0.0000**	**95.2366**	**95.2366**	**0.0308**	**0.0000**	**96.0066**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Common Facilities - Bridge Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0268	0.5580	0.6861	1.0800e-003		0.0297	0.0297		0.0297	0.0297	0.0000	95.2365	95.2365	0.0308	0.0000	96.0065
Total	**0.0268**	**0.5580**	**0.6861**	**1.0800e-003**		**0.0297**	**0.0297**		**0.0297**	**0.0297**	**0.0000**	**95.2365**	**95.2365**	**0.0308**	**0.0000**	**96.0065**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Battery Storage 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.6545	7.0794	4.4325	9.7000e-003		0.3141	0.3141		0.2890	0.2890	0.0000	852.4977	852.4977	0.2757	0.0000	859.3906
Total	**0.6545**	**7.0794**	**4.4325**	**9.7000e-003**		**0.3141**	**0.3141**		**0.2890**	**0.2890**	**0.0000**	**852.4977**	**852.4977**	**0.2757**	**0.0000**	**859.3906**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0428	1.0435	0.2926	4.2900e-003	13.7771	3.9100e-003	13.7810	1.3898	3.7300e-003	1.3935	0.0000	406.8777	406.8777	0.0123	0.0000	407.1863
Worker	0.5231	0.4712	4.0586	6.2500e-003	6.9128	4.1200e-003	6.9169	0.8030	3.8000e-003	0.8068	0.0000	562.0393	562.0393	0.0402	0.0000	563.0435
Total	**0.5659**	**1.5147**	**4.3512**	**0.0105**	**20.6899**	**8.0300e-003**	**20.6980**	**2.1927**	**7.5300e-003**	**2.2003**	**0.0000**	**968.9170**	**968.9170**	**0.0525**	**0.0000**	**970.2297**

3.5 Battery Storage 1 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2380	4.7688	5.7313	9.7000e-003		0.2189	0.2189		0.2189	0.2189	0.0000	852.4967	852.4967	0.2757	0.0000	859.3896
Total	**0.2380**	**4.7688**	**5.7313**	**9.7000e-003**		**0.2189**	**0.2189**		**0.2189**	**0.2189**	**0.0000**	**852.4967**	**852.4967**	**0.2757**	**0.0000**	**859.3896**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0428	1.0435	0.2926	4.2900e-003	5.4399	3.9100e-003	5.4438	0.5618	3.7300e-003	0.5655	0.0000	406.8777	406.8777	0.0123	0.0000	407.1863
Worker	0.5231	0.4712	4.0586	6.2500e-003	3.1231	4.1200e-003	3.1273	0.4266	3.8000e-003	0.4304	0.0000	562.0393	562.0393	0.0402	0.0000	563.0435
Total	**0.5659**	**1.5147**	**4.3512**	**0.0105**	**8.5630**	**8.0300e-003**	**8.5711**	**0.9884**	**7.5300e-003**	**0.9959**	**0.0000**	**968.9170**	**968.9170**	**0.0525**	**0.0000**	**970.2297**

3.6 O&M Building - Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0348					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.3000e-004	5.0900e-003	6.0600e-003	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.8511	0.8511	6.0000e-005	0.0000	0.8525
Total	**0.0355**	**5.0900e-003**	**6.0600e-003**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.8511**	**0.8511**	**6.0000e-005**	**0.0000**	**0.8525**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 O&M Building - Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0348					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0000e-004	4.5200e-003	6.1100e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	0.8511	0.8511	6.0000e-005	0.0000	0.8525
Total	**0.0350**	**4.5200e-003**	**6.1100e-003**	**1.0000e-005**		**3.2000e-004**	**3.2000e-004**		**3.2000e-004**	**3.2000e-004**	**0.0000**	**0.8511**	**0.8511**	**6.0000e-005**	**0.0000**	**0.8525**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Battery Storage 2-5 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.6318	6.6068	4.6717	0.0107		0.2882	0.2882		0.2651	0.2651	0.0000	943.6125	943.6125	0.3052	0.0000	951.2421
Total	**0.6318**	**6.6068**	**4.6717**	**0.0107**		**0.2882**	**0.2882**		**0.2651**	**0.2651**	**0.0000**	**943.6125**	**943.6125**	**0.3052**	**0.0000**	**951.2421**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0439	1.0548	0.2931	4.7100e-003	1.1732	3.6800e-003	1.1768	0.1434	3.5200e-003	0.1469	0.0000	446.6060	446.6060	0.0128	0.0000	446.9271
Worker	0.5427	0.4783	4.1134	6.6600e-003	7.6482	4.3600e-003	7.6526	0.8884	4.0200e-003	0.8924	0.0000	599.1025	599.1025	0.0407	0.0000	600.1207
Total	**0.5866**	**1.5331**	**4.4065**	**0.0114**	**8.8214**	**8.0400e-003**	**8.8294**	**1.0318**	**7.5400e-003**	**1.0393**	**0.0000**	**1,045.7085**	**1,045.7085**	**0.0536**	**0.0000**	**1,047.0478**

3.7 Battery Storage 2-5 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2634	5.2761	6.3410	0.0107		0.2422	0.2422		0.2422	0.2422	0.0000	943.6114	943.6114	0.3052	0.0000	951.2410
Total	**0.2634**	**5.2761**	**6.3410**	**0.0107**		**0.2422**	**0.2422**		**0.2422**	**0.2422**	**0.0000**	**943.6114**	**943.6114**	**0.3052**	**0.0000**	**951.2410**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0439	1.0548	0.2931	4.7100e-003	0.5442	3.6800e-003	0.5479	0.0809	3.5200e-003	0.0845	0.0000	446.6060	446.6060	0.0128	0.0000	446.9271
Worker	0.5427	0.4783	4.1134	6.6600e-003	3.4554	4.3600e-003	3.4598	0.4720	4.0200e-003	0.4760	0.0000	599.1025	599.1025	0.0407	0.0000	600.1207
Total	**0.5866**	**1.5331**	**4.4065**	**0.0114**	**3.9996**	**8.0400e-003**	**4.0077**	**0.5529**	**7.5400e-003**	**0.5604**	**0.0000**	**1,045.7085**	**1,045.7085**	**0.0536**	**0.0000**	**1,047.0478**

3.7 Battery Storage 2-5 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3883	3.9445	3.0370	7.1900e-003		0.1680	0.1680		0.1545	0.1545	0.0000	631.6280	631.6280	0.2043	0.0000	636.7350
Total	**0.3883**	**3.9445**	**3.0370**	**7.1900e-003**		**0.1680**	**0.1680**		**0.1545**	**0.1545**	**0.0000**	**631.6280**	**631.6280**	**0.2043**	**0.0000**	**636.7350**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0238	0.4683	0.1694	3.0900e-003	0.7851	9.9000e-004	0.7861	0.0960	9.4000e-004	0.0969	0.0000	292.9548	292.9548	6.3900e-003	0.0000	293.1145
Worker	0.3415	0.2950	2.5317	4.2900e-003	5.1184	2.8000e-003	5.1212	0.5945	2.5800e-003	0.5971	0.0000	385.7113	385.7113	0.0251	0.0000	386.3381
Total	**0.3652**	**0.7633**	**2.7011**	**7.3800e-003**	**5.9035**	**3.7900e-003**	**5.9073**	**0.6905**	**3.5200e-003**	**0.6940**	**0.0000**	**678.6661**	**678.6661**	**0.0315**	**0.0000**	**679.4526**

3.7 Battery Storage 2-5 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1762	3.5309	4.2436	7.1900e-003		0.1621	0.1621		0.1621	0.1621	0.0000	631.6272	631.6272	0.2043	0.0000	636.7342
Total	**0.1762**	**3.5309**	**4.2436**	**7.1900e-003**		**0.1621**	**0.1621**		**0.1621**	**0.1621**	**0.0000**	**631.6272**	**631.6272**	**0.2043**	**0.0000**	**636.7342**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0238	0.4683	0.1694	3.0900e-003	0.3642	9.9000e-004	0.3652	0.0542	9.4000e-004	0.0551	0.0000	292.9548	292.9548	6.3900e-003	0.0000	293.1145
Worker	0.3415	0.2950	2.5317	4.2900e-003	2.3125	2.8000e-003	2.3153	0.3159	2.5800e-003	0.3184	0.0000	385.7113	385.7113	0.0251	0.0000	386.3381
Total	**0.3652**	**0.7633**	**2.7011**	**7.3800e-003**	**2.6767**	**3.7900e-003**	**2.6805**	**0.3700**	**3.5200e-003**	**0.3735**	**0.0000**	**678.6661**	**678.6661**	**0.0315**	**0.0000**	**679.4526**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1656	1.3219	2.7038	8.0100e-003	8.6862	5.6000e-003	8.6918	0.9594	5.2800e-003	0.9647	0.0000	740.2800	740.2800	0.0408	0.0000	741.2989
Unmitigated	0.1656	1.3219	2.7038	8.0100e-003	8.6862	5.6000e-003	8.6918	0.9594	5.2800e-003	0.9647	0.0000	740.2800	740.2800	0.0408	0.0000	741.2989

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	200.00	200.00	200.00	1,456,000	1,456,000
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	200.00	200.00	200.00	1,456,000	1,456,000

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	20.00	20.00	20.00	59.00	28.00	13.00	100	0	0
Unrefrigerated Warehouse-No	0.00	0.00	0.00	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.514862	0.031726	0.160627	0.119887	0.016529	0.004969	0.019101	0.120993	0.003465	0.001214	0.005236	0.000734	0.000658
Unrefrigerated Warehouse-No Rail	0.514862	0.031726	0.160627	0.119887	0.016529	0.004969	0.019101	0.120993	0.003465	0.001214	0.005236	0.000734	0.000658

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	22.0297	22.0297	5.1000e-004	1.2000e-004	22.0767
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	22.0297	22.0297	5.1000e-004	1.2000e-004	22.0767
NaturalGas Mitigated	8.8000e-004	7.9600e-003	6.6900e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	8.6690	8.6690	1.7000e-004	1.6000e-004	8.7205
NaturalGas Unmitigated	8.8000e-004	7.9600e-003	6.6900e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	8.6690	8.6690	1.7000e-004	1.6000e-004	8.7205

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	162450	8.8000e-004	7.9600e-003	6.6900e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	8.6690	8.6690	1.7000e-004	1.6000e-004	8.7205
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.8000e-004**	**7.9600e-003**	**6.6900e-003**	**5.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**8.6690**	**8.6690**	**1.7000e-004**	**1.6000e-004**	**8.7205**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	162450	8.8000e-004	7.9600e-003	6.6900e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	8.6690	8.6690	1.7000e-004	1.6000e-004	8.7205
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.8000e-004**	**7.9600e-003**	**6.6900e-003**	**5.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**8.6690**	**8.6690**	**1.7000e-004**	**1.6000e-004**	**8.7205**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	50750	22.0297	5.1000e-004	1.2000e-004	22.0767
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**22.0297**	**5.1000e-004**	**1.2000e-004**	**22.0767**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	50750	22.0297	5.1000e-004	1.2000e-004	22.0767
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**22.0297**	**5.1000e-004**	**1.2000e-004**	**22.0767**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.1848	4.0000e-005	4.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0200e-003	9.0200e-003	2.0000e-005	0.0000	9.6200e-003
Unmitigated	2.1848	4.0000e-005	4.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0200e-003	9.0200e-003	2.0000e-005	0.0000	9.6200e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2121					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.9723					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.3000e-004	4.0000e-005	4.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0200e-003	9.0200e-003	2.0000e-005	0.0000	9.6200e-003
Total	**2.1848**	**4.0000e-005**	**4.6500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.0200e-003**	**9.0200e-003**	**2.0000e-005**	**0.0000**	**9.6200e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2121					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.9723					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.3000e-004	4.0000e-005	4.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0200e-003	9.0200e-003	2.0000e-005	0.0000	9.6200e-003
Total	**2.1848**	**4.0000e-005**	**4.6500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.0200e-003**	**9.0200e-003**	**2.0000e-005**	**0.0000**	**9.6200e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	26.6112	0.1195	2.9400e-003	30.4757
Unmitigated	26.6112	0.1195	2.9400e-003	30.4757

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	3.65 / 1	26.6112	0.1195	2.9400e-003	30.4757
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**26.6112**	**0.1195**	**2.9400e-003**	**30.4757**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	3.65 / 1	26.6112	0.1195	2.9400e-003	30.4757
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**26.6112**	**0.1195**	**2.9400e-003**	**30.4757**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.2585	0.0744	0.0000	3.1180
Unmitigated	1.2585	0.0744	0.0000	3.1180

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	6.2	1.2585	0.0744	0.0000	3.1180
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**1.2585**	**0.0744**	**0.0000**	**3.1180**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	6.2	1.2585	0.0744	0.0000	3.1180
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**1.2585**	**0.0744**	**0.0000**	**3.1180**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation