AIR QUALITY ASSESSMENT

Round Mountain 500 kV Dynamic Reactive Support
Shasta County, CA

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1.0 INTRODUCTION

1.1 Purpose of this Assessment

The purpose of this Air Quality Assessment is to determine potential air quality impacts (if any) that may be created during construction or operation of the proposed Round Mountain 500 kilovolt (kV) Dynamic Reactive Support Project (Project). The Project is located in the unincorporated area of Shasta County California. Should the potential for air quality impacts be identified, the intent of this assessment would be to recommend mitigation measures, which would reduce those impacts to less than significant.

1.2 Project Location

The proposed project would be located within an approximate 40-acre construction zone within an approximately 426-acre parcel located directly adjacent to the Round Mountain – Table Mountain #1 and #2 500 kV transmission line corridor. Actual disturbed construction areas would only be a small fraction of the 40-acre zone. The Proposed Project site is located east of Fern Road and east of the existing PG&E transmission right-of-way (ROW), approximately 1.6 miles northwest of the unincorporated community of Whitmore and approximately 9.3 miles north of State Highway 44 in unincorporated southern Shasta County. The Proposed Project site is zoned within a Habitat Protection District (HP-BA-80) and is currently used as grazing land. A site vicinity map is shown in Figure 1-A on Page 4 of this report.

1.3 Project Description

The proposed project which would be constructed and operated by LS Power Grid California (LSPGC). The main components of the Proposed Project's system consist of two new STATCOM units that would be independently connected to the existing, adjacent PG&E Round Mountain – Table Mountain #1 and #2 500 kV transmission lines. The STATCOM units would be contained within the new Fern Road Substation facility and would have a rated real power output of zero mega-watts (MW) and a nominal terminal voltage of 500 kV. The STATCOM units would not increase existing system capacity and would not serve any additional users beyond those already being served by the existing system. The Fern Road Substation facility would support the regional transmission system by providing voltage support and grid stability at the PG&E Round Mountain Substation 500 kV bus.

The Fern Road Substation's STATCOM units would be interconnected (i.e., looped-in) with the PG&E electrical transmission system via the Round Mountain – Table Mountain #1 and #2 500 kV transmission lines. The existing transmission lines would be reconfigured to connect

to bays located on the north and west sides of the proposed Fern Road Substation. The point of ownership demarcation for the conductor would be the connection to LSPGC's take-off towers on LSPGC property.

The project would also include upgrades at the existing PG&E Round Mountain Substation and the Table Mountain Substation. The Round Mountain Substation would require the reduction of the series capacitor banks and upgraded protection (i.e., adding additional relays) and PACI Remedial Action Scheme (RAS). The Table Mountain Substation would require additional series capacitor banks and upgraded protection and PACI RAS that would require the extension of an internal substation isolation fence.

Finally, a new PG&E microwave path communications are also planned as part of the upgrades, which would require the installation of two new microwave towers or monopoles. An approximately 30-foot-tall monopole would be constructed at the existing PG&E Redding Service Center and an approximately 100-foot-tall microwave tower at the existing PG&E Cottonwood Substation.

The Proposed Project will include the following main components:

- Lightning Shielding Masts;
- Nine 500 kV Gas-Insulated Circuit Breakers and associated Disconnect Switches, Current Transformers, Voltage Transformers;
- 500 kV Disconnect Switches;
- 500 kV Voltage Transformers;
- 500 kV Power line Carrier Equipment;
- 500 kV Station Service Transformers;
- 500 kV Bussing;
- 500 kV Surge Arresters;
- One approximately 10,150 square foot, 55 feet tall metal Gas Insulated Substation (GIS) Building;
- One Microwave Tower Communications Enclosure;
- One Control Enclosure;
- Four 500 kV Take-Off Towers;
- Three Three-Phase 500 kV Main Power Transformers (including One Installed Spare);
- Outdoor Heating Ventilation and Air Conditioning (HVAC) Equipment and insulated gas bipolar transistor (IGBT)/Converter Cooling Equipment;
- Outdoor Air Core Reactors;
- Outdoor Medium Voltage Bussing;
- Outdoor Medium Voltage Instrument/Auxiliary Transformers;
- Outdoor Medium Voltage Surge Arresters
- Outdoor Medium Voltage Group Operated Air Break Switches; and
- Two approximately 4,000 square feet STATCOM IGBT Valve/Control Enclosures containing the following equipment:
    - o IGBT Converters

    - o Protective Relaying and Control Equipment
    - o Supervisory Control and Data Acquisition (SCADA) Equipment
    - o Cooling Equipment
    - o Alternating Current/ Direct Current (AC/DC) Auxiliary Power Equipment
    - o Spare Parts and Maintenance Tool Storage
    - o Miscellaneous Support Facilities
- Signage and lighting;
- New access road construction;
- Chain link and barb wire security fencing approximately nine feet in height with secure gates accessible only by PG&E and LSPGC staff and emergency services personnel;
- Microwave tower approximately 199 feet in height and associated PG&E communications control building[1];
- Transformer oil containment basins designed to contain the oil volume of the transformers plus the 25-year 24-hour storm: and Electric distribution power connection
- Site access roads would be surfaced with dust resistant base rock or gravel to maintain an all-weather roadway.

In addition, PG&E would reconfigure approximately 1,000 feet of both the Round Mountain – Table Mountain #1 and #2 500 kV transmission lines for an overhead connection to the Fern Road Substation. Each transmission line circuit would be individually connected to one of the proposed STATCOM units.

PG&E distribution upgrades are planned to include the conversion of approximately eight wood poles on the west side of Fern Road from a single phase 12 kV to three phase 12 kV. This would require PG&E to replace approximately eight wood poles and reconductor approximately 1,600 feet of distribution line. The new wood or steel poles would be up to approximately 24-inches in diameter and 50 feet and in height and would be installed as close to the original pole location as feasible.

The Round Mountain 500 kV Dynamic Reactive Support Project (Proposed Project or Project) was approved by the California Independent System Operator Corporation (CAISO) to ensure the reliability of a major portion of the CAISO controlled grid and accommodate maintenance and contingencies of the reactive device. This would be accomplished through the construction of a dynamic reactive device between two equally sized blocks. The general project area is shown in Figure 1-B on Page 5 of this report.

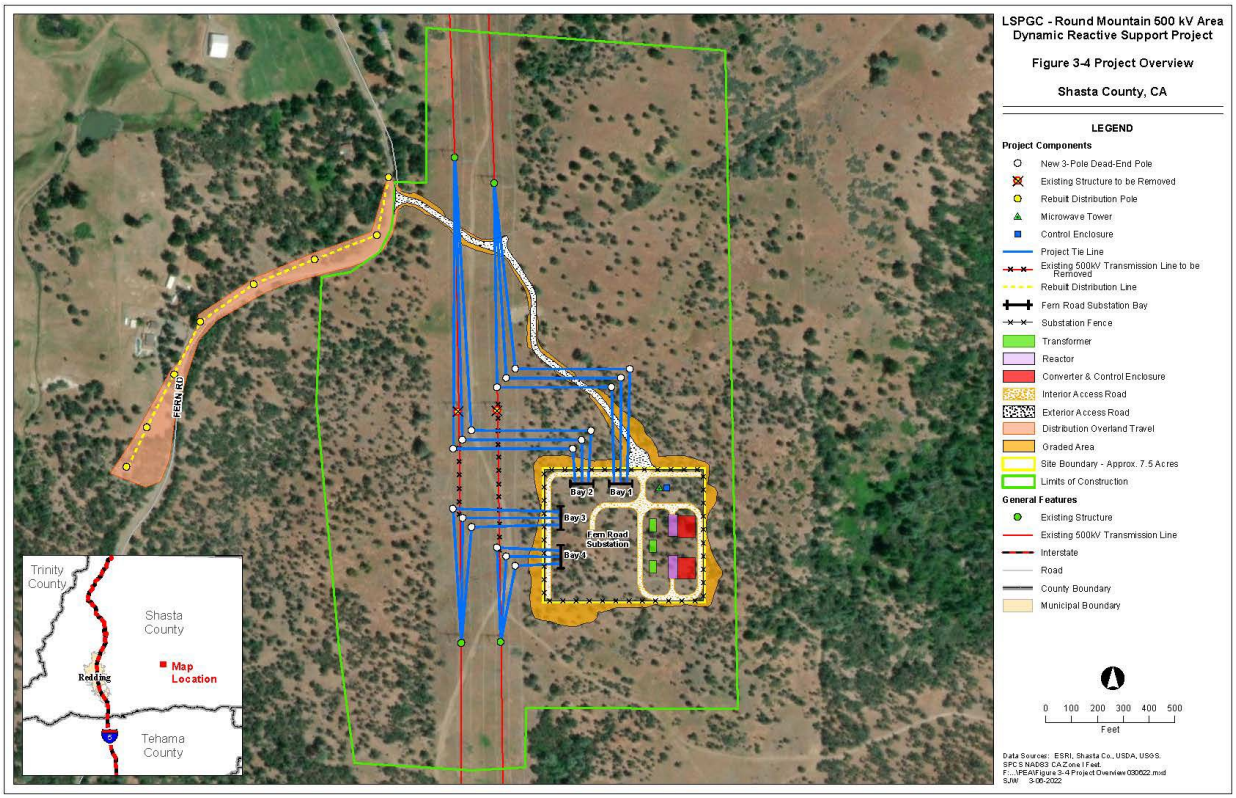
The Project will be operated, monitored and dispatched remotely on a day-to-day basis. Crews of two to four persons will periodically visit the site (approximately twice per month) for routine inspection and maintenance of the facilities and site. LSPGC will own and maintain the facility up to the point where the system enters PG&E property. Once the project lifecycle is completed, the project would be decommissioned.

[1] The microwave tower and associated communications control building would be in a separately fenced area within the larger Fern Road Substation. This area would be only accessed by PG&E maintenance and operations personnel.

Figure 1-A: Project Vicinity Map

Source: (Google, 2021)

Figure 1-B: Project Site and Preliminary Gen-tie Alignment Options



Source: (LS Power Grid California, 2021)

1.4 Project Construction

Project construction includes site preparation and grading, installation of drainage and retention basins, foundations/supports, setting of equipment, wiring and electrical system installation, and assembly of the accessory components.

The Proposed Project area would be roughly 40 acres but specific construction areas would encompass no more than 9 acres of which a 1.4-acre staging area located immediately north of the proposed Fern Road Substation is proposed. The construction of the substation would require grading, fill, and the installation of silt fencing that would extend beyond the proposed permanent impact area. In addition, work areas would be needed around the perimeter of the Fern Road Substation facility to facilitate construction and access.

It is anticipated that all major electrical and Fern Road Substation equipment such as power transformers, power circuit breakers, control enclosures, capacitors, and reactors would be delivered to the substation site and placed directly on previously constructed foundations. Other substation equipment, such as disconnect switches, instrument transformers,

transmission structures, insulators, conductors, bus, connectors, conduit, cable trench, rebar, etc. would be received and temporarily stored at the staging area prior to installation. All construction equipment and vehicles associated with Fern Road Substation construction would be parked within the staging area while inactive and at the completion of each workday, where practical.

The Project would require the grading of approximately 9 acres cumulatively and will require an import of roughly 19,000 CY of suitable site materials and export of roughly 21,000 CY of excess material. The Proposed Project plans to start grading and construction in the first quarter of 2023 and be completed in the fourth quarter of 2024. Additionally, the project will require 900,000 gallons of water in total and would be trucked to the site as needed.

2.0 EXISTING ENVIRONMENTAL SETTING

2.1 Existing Setting

The subject property is generally hilly and is mostly undisturbed land. Elevations onsite are at or around 1,850 feet above mean sea level (AMSL) on the southern boundary and 2,040 feet AMSL on the northern boundary. There are a few residential uses near the Project site, primarily to the west and one to the south.

2.2 Climate and Meteorology

Shasta County sits at the northern end of the Sacramento Valley. The County is surrounded by the Klamath and Coastal Mountains to the northwest and the Cascade Mountains to the northeast and east. The area has generally calm winds and fairly stable atmospheric conditions.

Weather is typically warm and dry in the summer and during the winter months, the high-pressure system drops to the south and brings cooler, moister weather from the north. It is common for inversion layers to develop within high-pressure areas over the County. These inversions are caused when a thin layer of the atmosphere increases in temperature with height. An inversion acts like a lid preventing vertical mixing of air through convective overturning.

Meteorological trends within the project area has average daytime highs ranging between 52ºF in the winter to approximately 93ºF in the summer with July usually being the hottest month. Precipitation is generally about 33.65 inches per year (WRCC, 2021). Prevailing wind patterns for the area vary during any given month during the year and also vary depending on the time of day or night. The predominant pattern though throughout the year is usually from the west or westerly (WRCC, 2018).

2.3 Regulatory Standards

2.3.1 Federal Standards and Definitions

The Federal Air Quality Standards were developed per the requirements of The Federal Clean Air Act, which is a federal law that was passed in 1970 and further amended in 1990. This law provides the basis for the national air pollution control effort. An important element of the act included the development of National Ambient Air Quality Standards (NAAQS) for major air pollutants.

The Clean Air Act established two types of air quality standards otherwise known as primary and secondary standards. ***Primary Standards*** set limits for the intention of protecting public health, which includes sensitive populations such as asthmatics, children and elderly. ***Secondary Standards*** set limits to protect public welfare to include the protection against decreased visibility, damage to animals, crops, vegetation and buildings.

The EPA Office of Air Quality Planning and Standards has set NAAQS for principal pollutants, which are called "criteria" pollutants. These pollutants are defined below:

1. ***Carbon Monoxide (CO):*** *is a colorless, odorless, and tasteless gas and is produced from the partial combustion of carbon-containing compounds, notably in internal-combustion engines. Carbon monoxide usually forms when there is a reduced availability of oxygen present during the combustion process. Exposure to CO near the levels of the ambient air quality standards can lead to fatigue, headaches, confusion, and dizziness. CO interferes with the blood's ability to carry oxygen.*
2. ***Lead (Pb):*** *is a potent neurotoxin that accumulates in soft tissues and bone over time. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Because lead is only slowly excreted, exposures to small amounts of lead from a variety of sources can accumulate to harmful levels. Effects from inhalation of lead near the level of the ambient air quality standard include impaired blood formation and nerve conduction. Lead can adversely affect the nervous, reproductive, digestive, immune, and blood-forming systems. Symptoms can include fatigue, anxiety, short-term memory loss, depression, weakness in the extremities, and learning disabilities in children.*
3. ***Nitrogen Dioxide (NO_2):*** *is a reactive, oxidizing gas capable of damaging cells lining the respiratory tract and is one of the nitrogen oxides emitted from high-temperature combustion, such as those occurring in trucks, cars, power plants, home heaters, and gas stoves. In the presence of other air contaminants, NO_2 is usually visible as a reddish-brown air layer over urban areas. NO_2 along with other traffic-related pollutants is associated with respiratory symptoms, respiratory illness and respiratory impairment. Studies in animals have reported biochemical, structural, and cellular changes in the lung when exposed to NO_2 above the level of the current state air quality standard. Clinical studies of human subjects suggest that NO_2 exposure to levels near the current standard may worsen the effect of allergens in allergic asthmatics, especially in children.*
4. ***Particulate Matter (PM_{10} or $PM_{2.5}$):*** *is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary in shape, size and chemical composition, and can be made up of multiple materials such as metal, soot, soil, and dust. PM_{10} particles are 10 microns (µm) or less and $PM_{2.5}$ particles are 2.5 (µm) or less. These particles can contribute significantly to regional haze and reduction of visibility in California. Exposure to PM levels exceeding current air quality standards increases the risk of allergies such as asthma and respiratory illness.*
5. ***Ozone (O_3)****: is a highly oxidative unstable gas capable of damaging the linings of the respiratory tract. This pollutant forms in the atmosphere through reactions between chemicals directly emitted from vehicles, industrial plants, and many other sources. Exposure to ozone above ambient air quality standards can lead to human health effects such as lung inflammation, tissue damage and impaired lung functioning. Ozone can also damage materials such as rubber, fabrics and plastics.*
6. ***Sulfur Dioxide (SO_2)****: is a gaseous compound of sulfur and oxygen and is formed when sulfur-containing fuel is burned by mobile sources, such as locomotives, ships, and off-road diesel equipment. SO_2 is also emitted from several industrial processes, such as petroleum*

refining and metal processing. Effects from SO_2 exposures at levels near the one-hour standard include bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, especially during exercise or physical activity. Children, the elderly, and people with asthma, cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most susceptible to these symptoms. Continued exposure at elevated levels of SO_2 results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality.

2.3.2 State Standards and Definitions

California Air Resource Board (CARB) sets the laws and regulations for air quality on the state level. The California Ambient Air Quality Standards (CAAQS) is similar to the NAAQS and also restricts four additional contaminants. Table 2.1 on the following page identifies both the NAAQS and CAAQS. The additional contaminants as regulated by the CAAQS are defined below:

1. ***Visibility Reducing Particles****: Particles in the Air that obstruct the visibility.*
2. ***Sulfates****: are salts of Sulfuric Acid. Sulfates occur as microscopic particles (aerosols) resulting from fossil fuel and biomass combustion. They increase the acidity of the atmosphere and form acid rain.*
3. ***Hydrogen Sulfide (H_2S)****: is a colorless, toxic and flammable gas with a recognizable smell of rotten eggs or flatulence. H_2S occurs naturally in crude petroleum, natural gas, volcanic gases, and hot springs. Usually, H_2S is formed from bacterial breakdown of organic matter. Exposure to low concentrations of hydrogen sulfide may cause irritation to the eyes, nose, or throat. It may also cause difficulty in breathing for some asthmatics. Brief exposures to high concentrations of hydrogen sulfide (greater than 500 Parts per Million (ppm)) can cause a loss of consciousness and possibly death.*
4. ***Vinyl Chloride****: also known as chloroethene and is a toxic, carcinogenic, colorless gas with a sweet odor. It is an industrial chemical mainly used to produce its polymer, polyvinyl chloride (PVC).*

Table 2.1: Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	**Average Time**	**California Standards[1]**		**Federal Standards[2]**		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	-	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m3)		0.070 ppm (137 µg/m3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m3	Gravimetric or Beta Attenuation	150 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m3		-		
Fine Particulate Matter (PM2.5)[9]	24 Hour	No Separate State Standard		35 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m3	Gravimetric or Beta Attenuation	12 µg/m3	15 µg/m3	
Carbon Monoxide (CO)	8 hour	9.0 ppm (10mg/m3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m3)	-	Non-Dispersive Infrared Photometry
	1 hour	20 ppm (23 mg/m3)		35 ppm (40 mg/m3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m3)		-	-	-
Nitrogen Dioxide (NO_2)[10]	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m3)[8]	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (339 µg/m3)		0.100 ppm[8] (188/ µg/m3)	-	
Sulfur Dioxide (SO_2)[11]	Annual Arithmetic Mean	-	Ultraviolet Fluorescence	0.030 ppm[10] (for Certain Areas)	-	Ultraviolet Flourescence; Spectrophotometry (Pararoosaniline Method)[9]
	24 Hour	0.04 ppm (105 µg/m3)		0.14 ppm[10] (for Certain Areas) (See Footnote 9)	-	
	3 Hour	-		-	0.5 ppm (1300 µg/m3)	
	1 Hour	0.25 ppm (655 µg/m3)		75 ppb (196 µg/m3)	-	
Lead[12,13]	30 Day Average	1.5 µg/m3	Atomic Absorption	-		-
	Calendar Quarter	-		1.5 µg/m3	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average	-		0.15 µg/m3		
Visibility Reducing Particles	8 Hour	See footnote 14				
Sulfates	24 Hour	25 µg/m3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m3)	Gas Chromatography			

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m3 to 12.0 µg/m3 . The existing national 24- hour PM2.5 standards (primary and secondary) were retained at 35 µg/m3 , as was the annual secondary standard of 15 µg/m3 . The existing 24-hour PM10 standards (primary and secondary) of 150 µg/m3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

2.3.3 Regional Standards

The State of California has 35 specific air districts, which are each responsible for ensuring that the criteria pollutants are below the NAAQS and CAAQS. Air basins that exceed either the NAAQS or the CAAQS for any criteria pollutants are designated as "non-attainment areas" for that pollutant. Currently, there are 15 non-attainment areas for the federal ozone standard and two non-attainment areas for the $PM_{2.5}$ standard and many areas are in non-attainment for PM_{10} as well. California therefore created the California State Implementation Plan (SIP), which is designed to provide control measures needed to attain ambient air quality standards.

The Air Pollution Control Districts and Air Quality Management Districts (Districts) for the counties located in the northern portion of the Sacramento Valley together establish the Northern Sacramento Valley Planning Area (NSVPA) which includes Shasta County. The NSVPA Districts were designated as nonattainment for the ozone (NSVPA, 2018). The attainment status for all pollutants monitored by CARB for the Shasta area is shown in Table 2.2 below (CARB, 2021).

The Shasta County Department of Resource Management (SCDRM) has an Air Quality Management District (AQMD) which has been designated by law to adopt and enforce regulations to achieve and maintain ambient air quality standards for ozone (O3), carbon monoxide (CO), particulate matter (PM10), and certain toxic air pollutants emitted by industrial and manufacturing sources (SCDRM, 2005).

Table 2.2: North Sacramento Valley Attainment Status by Pollutant

Criteria Pollutant	Federal Designation	State Designation
Ozone (8-Hour)	Unclassified/Attainment	Nonattainment
PM10	Unclassified	Attainment
PM2.5	Unclassified/Attainment	Attainment
Carbon Monoxide	Unclassified/Attainment	Unclassified
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide	Unclassified/Attainment	Attainment
Lead	Unclassified/Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility	No Federal Standard	Unclassified

2.4 California Environmental Quality Act (CEQA) Significance Thresholds

The California Environmental Quality Act has provided a checklist to identify the significance of air quality impacts. These guidelines are found in Appendix G of the CEQA guidelines and are as follows:

AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:

A: Conflict with or obstruct implementation of the applicable air quality plan?
B: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?
C: Expose sensitive receptors to substantial pollutant concentrations?
D: Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?

2.5 (SCDRM) Air Quality Impact Significance Thresholds

The County of Shasta published Environmental Review Guidelines for Implementing CEQA within Shasta County (Shasta County Air Quality Management District, 2003). Based on these guidelines, significance thresholds are published as shown in Table 2.3.

Table 2.3: AQMD Significance Thresholds for Criteria Pollutants

Pollutant/Precursor	Construction or Operational Emissions (lbs/Day)
Level "A" Thresholds	
Nitrogen Oxide (NO_x)	25
Reactive Organic Gases (ROG)	25
Respirable Particulate Matter (PM_{10})	80
Level "B" Thresholds	
Nitrogen Oxide (NO_x)	137
Reactive Organic Gases (ROG)	137
Respirable Particulate Matter (PM_{10})	137

With respect to indirect and area wide emissions of PM10 and ozone precursors, the District coordinates with the planning agency having jurisdiction over the proposed project to apply standard mitigation measures (SMMs) and best available mitigation measures (BAMMs) to the project as listed in the respective Air Quality Elements. SMMs are applied to all projects, while the list of BAMMs found in the respective Air Quality Element are reviewed by the planning agency staff for consideration of specific project applicability at two distinct indirect emission thresholds (Level A and B).

If the Project's indirect and area wide emissions are greater than the Level A thresholds but less than Level B thresholds, appropriate Level A mitigation as listed in the jurisdiction's Air Quality Element to the General Plan should be implemented by the project applicant.

Non-Criteria pollutants such as Hazardous Air Pollutants (HAP) or Toxic Air Contaminants (TACs) are also regulated by the AQMD for operational fixed source emission generators. These are broken out into Carcinogens and Non-Carcinogens (Acute and Chronic). A Project's fixed source operations which increases the cancer risk to greater than one per one million exposed would be required to install Best Available Control Technology (T-BACT) equipment. In addition, the air pollution control officer (APCO) can approve a new source if the cumulative excess cancer risk to the nearest sensitive receptor is less than 10 in a million and the total hazard index (THI) is less than or equal to one. Generally, this is done for fixed sources though in many air districts within California this is applied to construction sources.

2.6 Local Air Quality

Criteria pollutants are measured continuously over four monitoring stations within Shasta County and are used to track ambient air quality patterns throughout the area. As mentioned earlier, this data is also used to determine attainment status when compared to the NAAQS and CAAQS. The Shasta County AQMD is responsible for monitoring and reporting monitoring data and CARBs data is updated yearly (CARB, 2020). Table 2.4 on the following page identifies the criteria pollutants monitored at the stations. It should be noted that none of Shasta County AQMDs air quality monitors measure CO, Hydrogen Sulfide or Nitrogen Dioxide.

Table 2.4: Three-Year Ambient Air Quality Summary - Shasta County

Pollutant	Closest Recorded Ambient Monitoring Site	Averaging Time	CAAQS	NAAQS	2018	2019	2020	Days Exceeded over 3 years
O_3 (ppm)	Shasta County (Redding)	1 Hour	0.09 ppm	No Standard	0.089	0.072	0.077	0
		8 Hour	0.070 ppm	0.070 ppm	0.076	0.070	0.0689	1
PM_{10} ($\mu g/m^3$)		24 Hour	50 $\mu g/m^3$	150 $\mu g/m^3$	166.1	26.4	95.4	6.1
		Annual Arithmetic Mean	20 $\mu g/m^3$	No Standard	23.0	No data provided[1]	19.3	N/A
$PM_{2.5}$ ($\mu g/m^3$)		24 Hour	No Standard	35 $\mu g/m^3$	131	24.1	68.3	18.4
		Annual Arithmetic Mean	12 $\mu g/m^3$	15 $\mu g/m^3$	15.8	6.6	10.1	N/A

3.0 METHODOLOGY

3.1 Air Quality Modeling

Potential air quality impacts related to Project construction and operations were calculated using the latest CalEEMod 2020.4.0 air quality model, which was developed by BREEZE Software for South Coast Air Quality Management District (SCAQMD) in 2020. The construction module in CalEEMod is used to calculate the emissions associated with Project construction and uses methodologies presented in the U.S. EPA AP-42 document with emphasis on Chapter 11.9. The CalEEMod input/output model is shown in ***Attachment A*** to this Assessment.

The AERMOD dispersion model was used to determine the concentration for air pollutants at any location near the pollutant generator. The notable toxic air contaminant from construction is diesel exhaust, since exposure to diesel exhaust is known to cause cancer and acute and chronic health effects. Diesel exhaust emissions can be estimated using the annual PM_{10} exhaust emissions from onsite construction operations obtained from the annual CalEEMod model output by summing each onsite source for the construction duration. The AERMOD files for the Project are provided in ***Attachments B*** for the unmitigated scenario.

Cancer Risk Assessment (Construction)

Once the dispersed concentrations of diesel particulates are estimated in the surrounding air, they are used to evaluate estimated exposure to people. Exposure is evaluated by calculating the dose in milligrams per kilogram body weight per day (mg/kg/d). For residential exposure, the breathing rates are determined for specific age groups, so inhalation dose (Dose-air) is calculated for each of these age groups, 3rd trimester, 0<2, 2<9, 2<16, 16<30 and 16-70 years. The following algorithms calculate this dose through the inhalation pathways. The cancer risk dose calculation is defined in Equation 1 (OEHHA, February 2015).

Equation 1 $$Dose_{air} = C_{air} * (BR/BW) * A * EF * (1x10^{-6})$$

$Dose_{air}$	=	Dose through inhalation (mg/kg/d)
C_{air}	=	Concentration in air (µg/m3) Annual average DPM concentration in µg/m3 - AERMOD predicts annual averages.
BR/BW	=	Daily breathing rate normalized to body weight (L/kg BW-day). See Table I.2 for the daily breathing rate for each age range.
A	=	Inhalation absorption factor (assumed to be 1)
EF	=	Exposure frequency (unitless, days/365 days)
1x10-6	=	Milligrams to micrograms conversion (10^{-3} mg/ µg), cubic meters to liters conversion (10^{-3} m^3/l)

Cancer risk is calculated by multiplying the daily inhalation or oral dose, by a cancer potency factor, the age sensitivity factor, the frequency of time spent at home and the exposure duration divided by averaging time, to yield the excess cancer risk. As described below, the excess cancer risk is calculated separately for each age grouping and then summed to yield cancer risk for any given location. Specific factors as modeled are shown within the Project models attached to this Assessment. The worst-case cancer risk calculation is defined in Equation 2 below (OEHHA, February 2015):

Equation 2

$$RISK_{inh\text{-}res} = DOSE_{air} \times CPF \times ASF \times ED/AT \times FAH$$

$RISK_{inh\text{-}res}$	=	Residential inhalation cancer risk
$DOSE_{air}$	=	Daily inhalation dose (mg/kg-day)
CPF	=	Inhalation cancer potency factor ($mg/kg\text{-}day^{-1}$)
ASF	=	Age sensitivity factor for a specified age group (unitless)
ED	=	Exposure duration (in years) for a specified age group
AT	=	Averaging time for lifetime cancer risk (years)
FAH	=	Fraction of time spent at home (unitless)

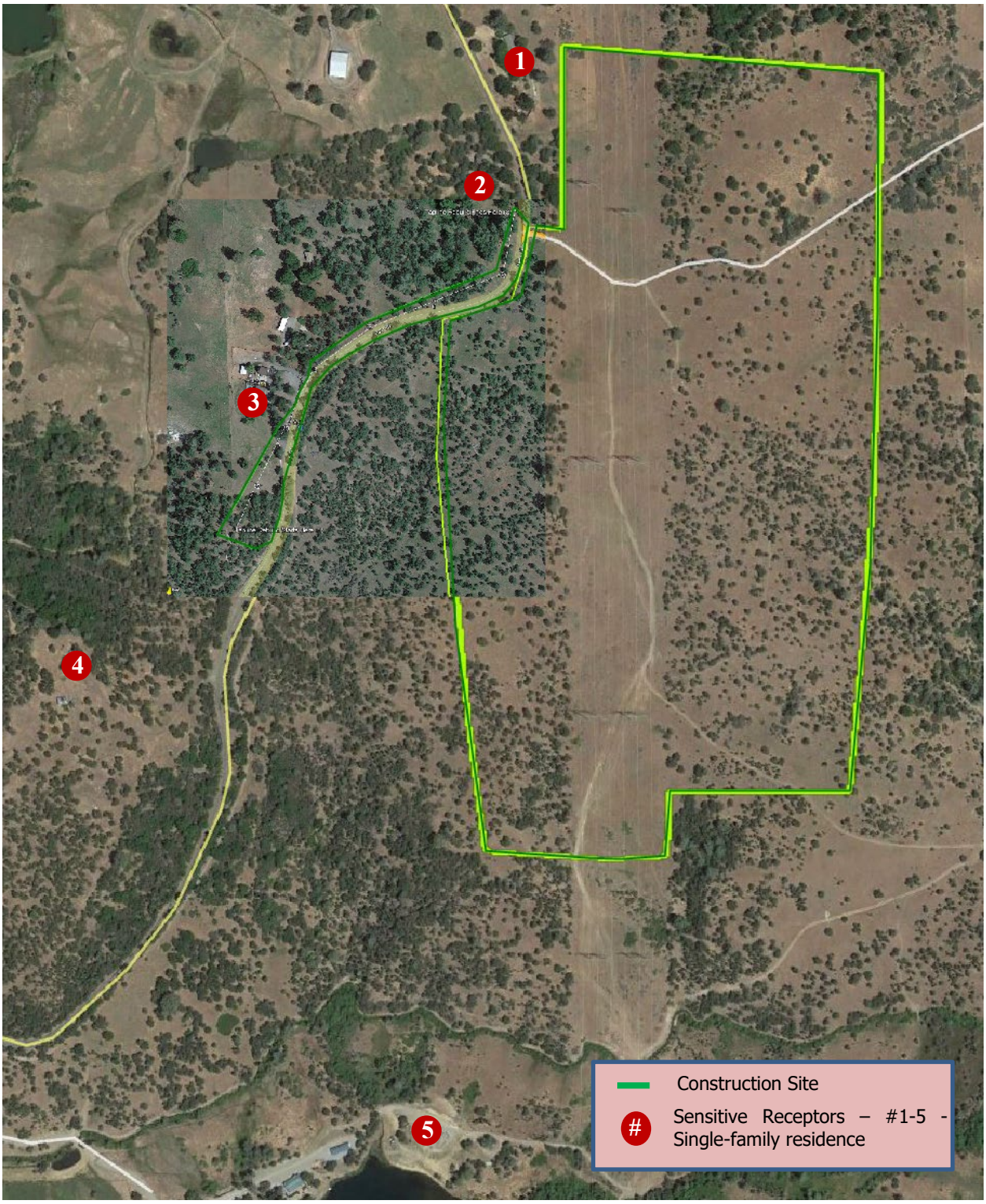
The California Office of Environmental Health Hazard Assessment (OEHHA) recommends that an exposure duration (residency time) of 30 years be used to estimate individual cancer risk for the Maximally Exposed Individual Resident (MEIR). OEHHA also recommends that the 30-year exposure duration be used as the basis for public notification and risk reduction audits and plans. Exposure durations of 9-years and 70-years are also recommended to be evaluated for the MEIR to show the range of cancer risk based on residency periods. If a facility is notifying the public regarding cancer risk, the 9-and 70-year cancer risk estimates are useful for people who have resided in their current residence for periods shorter and longer than 30 years. Health risk calculations are shown in ***Attachment C*** to this Assessment.

Non-Cancer Risk Assessment (Construction)

Non-Cancer risks or risks defined as chronic or acute are also known with respect to Diesel Particulate Matter (DPM) and are determined by the hazard index. To calculate THI, DPM concentration is divided by its chronic Reference Exposure Levels (REL). Where the total exceeds one, a health hazard is presumed to exist. RELs are published by the Office of Environmental Health Hazard Assessment (OEHHA, February 2015). Diesel Exhaust has a REL of 5 $\mu g/m^3$ and targets the respiratory system.

A graphical representation of the modeling locations for the Project is shown on an aerial of the Project site and vicinity below in Figure 3-A. The red points (#1-#5) represent the closest residential receptor locations near the project site. AERMOD was utilized to calculate emissions at these locations.

Figure 3-A: Construction Health Risk Model Setup



Source: (Google Earth Pro, 2022)

The California Air Resources Board (CARB) regulations require that – starting in 2020 – all off-road equipment produced needs to be Tier 4 with over one third of the total equipment in the state being Tier 4 Final (California Air Resouces Board, 2009). The project will be under construction in 2023 and 2024.

3.2 Construction Assumptions

Project construction includes site preparation and grading, installation of drainage and retention basins, foundations/supports, setting of equipment, wiring and electrical system installation, and assembly of the accessory components. The Project would require the grading of approximately 9 acres and will require an import of roughly 19,000 CY of suitable site materials and export of roughly 21,000 CY of excess material.

The Project plans to start grading and construction in the first quarter of 2023 and be completed in the fourth quarter of 2024 and was assumed to have a six-day working week. Material hauling/truck details along with worker trips were provided within the project description (See Table 3-7) and was manually updated within the CalEEMod software. Table 3.1 shows the expected equipment and durations as provided by the Project Engineer/Applicant.

Table 3.1: Anticipated Construction Equipment and Durations

Equipment Identification	Estimated Start	Estimated Completion	Quantity	HP
Survey	03/2023	08/2023		
Pick-up – ½ ton			2	395
Site Prep/Roadway Work/Staging	03/2023	06/2023		
Graders			1	250
Off-Highway Trucks (Dump Truck)			6	415
Off-Highway Trucks (Water Truck)			4	300
Rollers			1	405
Rubber Tired Loaders (4-5 yard)			2	275
Pick-up – ½ ton			1	395
Pick-up – 1 ton			1	410
PG&E Substation Upgrade	03/2023	09/2024		
Aerial Lifts			1	49
Bore/Drill Rigs/ Pressure digger			2	125
Mini Excavators			1	70
Forklifts			1	130
Rubber Tired Loaders (4-5 yard)			1	275
Welders			2	395
Pick-up – 1 ton			3	410
Below-Grade Construction	06/2023	12/2023		

Equipment Identification	Estimated Start	Estimated Completion	Quantity	HP
Bore/Drill Rig/Pressure Digger			2	125
Excavators			2	108
Mini Excavators			1	70
Forklifts			2	100
Generator Sets			2	84
Off-Highway Trucks (Water Truck)			2	300
Off-Highway Trucks (Dump Truck)			3	415
Rubber Tired Loaders (4-5 yard)			2	275
Skid Steer Loaders			2	74
Tractors/Loaders/Backhoes			2	68
Trenchers			2	75
Pick-up truck – 1/2 ton			4	395
Pick-up truck – 1 ton			4	410
Tool van			6	N/A
Above-Grade Construction	12/2023	08/2024		
Aerial Lifts (40-foot)			3	49
Aerial Lifts (120-foot)			2	74
Cranes (35 ton)			2	250
Forklifts			3	130
Generator Sets			2	84
Welders			2	395
Wire Trailer/ Tensioner			2	N/A
Wire Puller			2	N/A
Pick-up truck – ½ ton			4	395
Pick-up truck – 1 ton			4	410
PG&E Off-Site Distribution Upgrades	05/2024	07/2024		
Pressure Digger - Lo-Drill (Tracked)			2	125
Truck – Dump 5-6 Yd			1	210
Pickup - 1 Ton			2	410
Crane - 35 Ton			1	250
Forklift - 10 K Reach			1	130
Manlift - 40'			3	49
Wire Trailer/ Tensioner			1	
Wire Puller			1	
PG&E 500 KV Interconnection	08/2024	12/2024		
Aerial Lifts			3	49
Aerial Lifts			2	74
Bore/Drill Rig/Pressure Digger			2	125
Cranes (35 ton)			2	250
Wire Trailer/ Tensioner			2	N/A
Off-Highway Trucks (Water Truck)			4	300
Off-Highway Trucks (Dump Truck)			3	415
Pick-up truck – 1 ton			4	410
Commissioning and Testing	08/2024	12/2024		
Aerial Lifts (40-foot)			3	49
Generator sets – 25 kw			2	84

Equipment Identification	Estimated Start	Estimated Completion	Quantity	HP
Tool Van			6	N/A
Pick-up truck – ½ ton			4	395
Pick-up truck – 1 ton			4	410

3.3 Operational Assumptions

Operations of the Proposed Project would begin once construction is completed. Operational emissions sources would include the consumption of energy on-site from project auxiliary equipment, such as control room heating, ventilation, and air conditioning (HVAC) units, communications equipment, and lighting. It is assumed that the total demand on-site would be 22 kilowatts (kW) for the GIS enclosure, and 87 kW for each of the two STATCOM enclosures; this would equate to roughly 1,716,960 kilowatt hours (kWH) per year and was modeled as such within CalEEMod.

Mobile vehicle visits to the Project site associated with periodic operations and maintenance would also generate air emissions. Monthly operations staff operations and maintenance visits, with crews of two to four persons are expected to generate 2 to 4 trips twice per month. For purposes of preparing an overly conservative analysis, it was assumed that the Project would generate 4 trips per day using a rural setting. CalEEMod has been updated to reflect Project-related operational conditions.

The project would not install any fixed operational sources with a potential to generate HAPs TACs.

3.4 Odor (Onsite)

The Project may create temporary construction odors from combustion engine equipment but would not be considered significant due to the highly dispersive nature of diesel exhaust. Therefore, less than significant impacts are expected.

4.0 FINDINGS

4.1 Construction Emission Findings

Air quality emissions shown in pounds per day (lb/day) from the construction activities are shown in Table 4.1 below. Based on the modeling, the Project would exceed Level A thresholds of 25 lb/day of NO_X. Given this exceedance, the project would need to incorporate SMM per Shasta County AQMD requirements to mitigate emissions. It should be noted that emissions as analyzed are lower than Level B thresholds and would be less than significant under Level B thresholds which are 137 lb/day for NOx. Reductions from the SMM measures are not further quantified since emissions would be less than significant with SMM.

Table 4.1: Expected Construction Emissions Summary – Pounds per Day (lb/day)

Year	ROG	NOx	PM10 (Dust)	PM10 (Exhaust)	PM10 (Total)
2023 (Unmitigated)	13.29	111.61	3.74	4.24	7.97
2024 (Unmitigated)	5.96	51.22	2.57	1.73	4.30
Shasta County AQMD Level A Significance Threshold (lb/day)	25	25	-	-	80
Shasta County AQMD Leve B Significance Threshold (lb/day) after SMM applied	137	137	-	-	137

LDN Consulting reached out to Shasta County AQMD and the district provided SMM for NOx reductions. These measures shall be incorporated into the project and once incorporated, the project would generate less than significant impacts. The Project SMM are identified below:

1. *Maintain all construction equipment in proper tune according to manufacturer's specifications.*
2. *Fuel all off-road and portable diesel powered equipment with ARB certified motor vehicle diesel fuel (non-taxed version suitable for use off-road);*
3. *Use diesel construction equipment meeting ARB's Tier 2 certified engines or cleaner off-road heavy-duty diesel engines, and comply with the State off-Road Regulation;*
4. *Use on-road heavy-duty trucks that meet the ARB's 2007 or cleaner certification standard for on-road heavy-duty diesel engines and comply with the State On-Road Regulation.*
5. *All on and off-road diesel equipment shall not idle for more than 5 minutes. Signs shall be posted in the designated queuing areas and or job sites to remind drivers and operators of the 5-minute idling limit.*
6. *Diesel idling within 1,000 feet of sensitive receptors is not permitted.*
7. *Staging and queuing areas shall not be located within 1,000 feet of sensitive receptors.*
8. *Electrify equipment when feasible.*

9. *Substitute gasoline-powered in place of diesel-powered equipment, where feasible; and use alternatively fueled construction equipment on-site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel.*

4.2 Construction Health Risks

The nearest sensitive receptors to the Project site are identified in Figure 3-A above and the two closest residences are located approximately 130 feet and 250 feet from the Project boundary.

As mentioned in Section 3.1 above, Tier 4 construction equipment has been a requirement for all diesel construction equipment since 2014. Equipment newer than 2014 would meet these requirements. Based on Table 3.1 above, the horsepower of all the equipment identified sums up to 15,646 HP. It was found that a mix of equipment identified in CalEEMod having a total combined horsepower of 4,879 HP or roughly 30% by total HP of the fleet would be required to Meet Tier 4 standards since these standards are now fairly common and have been implemented since 2014.

Based upon the annual air quality modeling results attached to this report, worst-case unmitigated PM_{10} from exhaust emissions would cumulatively produce 0.1816 tons over 550 workdays under a 6-day work week and an elapsed duration of 642-days. Over the construction duration, the project would emit an average of 0.00297 grams/second. The average emission rate over the grading area is 8.35×10^{-9} g/m^2/s.

Utilizing the AERMOD dispersion model, the worst-case annual concentration of DPM from Project construction is estimated at 0.027 µg/m^3. Utilizing the risk equation identified above in Section 3.1, the inhalation cancer risk for the closest residential receptor was found to be 8.28 in one million exposed which would not exceed the typical 10 per one million exposed threshold for construction. Based on this, a less than significant health risk would be expected.

Acute and chronic health risks associated with diesel exhaust which are considered non-cancer risks. These risks are calculated based on methods identified in Section 3.1 of this report. The annual concentration of 0.027 µg/m^3 divided by the REL of 5 µg/m^3 yields a THI of less than one or 0.027/5=0.005. Therefore, no acute or chronic health risks are expected and all health risks are considered less than significant.

4.3 Operational Findings

The first full year of Project operations is expected to begin in 2025. To reflect potential worst-case trip generation, it was assumed that the Project would generate four daily trips. The expected daily pollutant generation from mobile sources is estimated in CalEEMod using emission factors from EMFAC2017. The daily pollutants calculated for summer and winter are shown in Table 4.2 below. Based upon these calculations, the Project would produce less than significant air quality impacts during operations.

The project would not install fixed emission sources and therefore would not emit HAP or TACs. Based on this a less than significant cancer and non-cancer health risk is expected.

Table 4.2: Expected Pollutant Generation (lb/day)

	ROG	NO_x	PM_{10}
Area	0.51	0.00	0.00
Energy	0.00	0.00	0.00
Mobile	0.02	0.04	0.05
Total (Unmitigated)	**0.54**	**0.04**	**0.05**
Shasta County AQMD Significance Threshold (lb/day)	25	25	80
Significant?	**No**	**No**	**No**

4.4 Odor Findings

The Project may create temporary construction odors from combustion engine equipment but would not be considered significant due to the highly dispersive nature of diesel exhaust. These odors would be generated only during a short period and would not occur following the completion of construction activities. Operational odors would not be expected.

4.5 Cumulative Construction Impacts

Cumulative construction impacts could exist if a project were to produce air quality emissions simultaneous to a nearby construction project such that the addition of both project emissions could exceed significance thresholds. This scenario would not be likely however, since the Project is remote and nearby construction projects are not expected. In addition, all other future projects developed in the project vicinity would be required to meet the same Shasta County AQMD rules and requirements to limit the generation of pollutant emissions from

construction activities. Given this, the cumulative air quality emissions impacts would be less than significant.

4.6 Cumulative Operations Impacts

The Project will have no significant sources of air emissions during operations as shown in Table 4.2 above. Based on this, the Project does not conflict with or prevent the implementation of Shasta County AQMD air quality management plans, NSVPA attainment plans and would be consistent with the SIP.

4.7 Conclusion of Findings

Construction of the Project is anticipated to start in 2023 and be completed in 2024. The Project was found to generate less than significant health risk impacts from diesel exhaust during construction and would also generate less than significant criteria pollutant air quality emissions. The project would require mitigation to reduce NO_X emissions. Mitigation would include Shasta County AQMD SMMs as follows:

1. *Maintain all construction equipment in proper tune according to manufacturer's specifications.*
2. *Fuel all off-road and portable diesel powered equipment with ARB certified motor vehicle diesel fuel (non-taxed version suitable for use off-road);*
3. *Use diesel construction equipment meeting ARB's Tier 2 certified engines or cleaner off-road heavy-duty diesel engines, and comply with the State off-Road Regulation;*
4. *Use on-road heavy-duty trucks that meet the ARB's 2007 or cleaner certification standard for on-road heavy-duty diesel engines and comply with the State On-Road Regulation.*
5. *All on and off-road diesel equipment shall not idle for more than 5 minutes. Signs shall be posted in the designated queuing areas and or job sites to remind drivers and operators of the 5-minute idling limit.*
6. *Diesel idling within 1,000 feet of sensitive receptors is not permitted.*
7. *Staging and queuing areas shall not be located within 1,000 feet of sensitive receptors.*
8. *Electrify equipment when feasible.*
9. *Substitute gasoline-powered in place of diesel-powered equipment, where feasible; and use alternatively fueled construction equipment on-site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel.*

Project operational activities would generate emissions from vehicle trips and ongoing maintenance activities. Based on the analysis provided, emissions generated during operations would be less than significant and no mitigation is required.

The Project may generate short-term odors from use of temporary construction equipment. Since odors from this equipment would be short-term, no significant odor impacts would be expected. Also, the Project would not produce long-term odors and would therefore result in less than significant odor impacts. No mitigation is required.

The project was found to generate less than significant construction and operational cumulative impacts and the project would not impede on Shasta County AQMD air quality management plans, NSVPA attainment plans and would be consistent with the SIP.

5.0 REFERENCES

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6.0 CERTIFICATIONS

The contents of this assessment represent an accurate depiction of the air quality environment and impacts within and surrounding the proposed development.

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jlouden@ldnconsulting.net
760-473-1253

Date April 4, 2022

ATTACHMENT A

CALEEMOD 2020.4.0

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025)

Shasta County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	9.20	18,500.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	82
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site area is 9.2 Acre; 2 small control buildings will be installed (Estimated to be 8,000 SF) and one 10,500 SF GIS building = 18500 SF

Construction Phase - LSPGC Round Mountain Schedule and includes Construction List provided by applicant.

Off-road Equipment - construction list overlaps entirely with PGE 500 KV Interconnection... duplicate equipment listed in PD are the same physical piece of equipment

Off-road Equipment - Construction Equipment

Off-road Equipment - Construction Equipment

Off-road Equipment - Construction Equipment

Off-road Equipment - Construction Equipment

Off-road Equipment - Construction Equipment

Off-road Equipment - Construction Schedule. Equipment listed for multiple phases within PD where overlap occurs are the same physical piece of equipment. Corrections have been appled to the list provided by applicant.

Trips and VMT - Daily vehicle trips identified in Table 3-7 of PD. Hauling trips incorporated in average ADT for Trucks and worker trips

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading - The project would import 16,000 CY of gravel and export 17,000 CY

Architectural Coating -

Vehicle Trips - 4 trips per weekday

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating -

Energy Use - 87 kw per STATCOM enclosure and 22 kw for GIS building Total 1,716,960 kWH or (1,716,960/18,500) or 92.80 kWH per SF

Construction Off-road Equipment Mitigation - 30% of HP will be Tier 4 with DPF

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
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tblConstructionPhase	NumDaysWeek	5.00	6.00
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tblConstructionPhase	NumDaysWeek	5.00	6.00
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tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblEnergyUse	NT24E	0.00	92.80
tblGrading	MaterialExported	0.00	17,000.00
tblGrading	MaterialImported	0.00	16,000.00
tblLandUse	LandUseSquareFeet	0.00	18,500.00
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tblOffRoadEquipment	HorsePower	89.00	130.00
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tblOffRoadEquipment	HorsePower	402.00	300.00

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	HorsePower	402.00	415.00
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tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	HorsePower	402.00	415.00
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tblOffRoadEquipment	HorsePower	203.00	275.00
tblOffRoadEquipment	HorsePower	203.00	275.00
tblOffRoadEquipment	HorsePower	203.00	275.00
tblOffRoadEquipment	HorsePower	65.00	74.00
tblOffRoadEquipment	HorsePower	97.00	68.00
tblOffRoadEquipment	HorsePower	78.00	75.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	5.00
tblOffRoadEquipment	UsageHours	7.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	4,125.00	0.00
tblTripsAndVMT	VendorTripLength	6.60	40.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripNumber	0.00	15.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	3.00	5.00
tblTripsAndVMT	VendorTripNumber	3.00	5.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripNumber	35.00	8.00
tblTripsAndVMT	WorkerTripNumber	8.00	3.00
tblTripsAndVMT	WorkerTripNumber	53.00	15.00
tblTripsAndVMT	WorkerTripNumber	8.00	15.00
tblTripsAndVMT	WorkerTripNumber	8.00	3.00
tblTripsAndVMT	WorkerTripNumber	8.00	3.00
tblTripsAndVMT	WorkerTripNumber	8.00	5.00
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	0.00	4.00

2.0 Emissions Summary

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2023	13.2857	111.6136	115.7707	0.3585	3.7359	4.2355	7.9714	0.9027	3.9294	4.8321	0.0000	35,155.5169	35,155.5169	9.0897	0.4893	35,528.5584
2024	5.9609	51.2192	65.1297	0.1776	2.5679	1.7289	4.2968	0.6941	1.6207	2.3148	0.0000	17,608.0993	17,608.0993	3.7311	0.2876	17,787.0636
Maximum	**13.2857**	**111.6136**	**115.7707**	**0.3585**	**3.7359**	**4.2355**	**7.9714**	**0.9027**	**3.9294**	**4.8321**	**0.0000**	**35,155.5169**	**35,155.5169**	**9.0897**	**0.4893**	**35,528.5584**

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	lb/day										lb/day					
2023	10.6829	106.6862	127.3926	0.3585	3.7359	2.3425	6.0784	0.9027	2.1674	3.0701	0.0000	35,155.5169	35,155.5169	9.0897	0.4893	35,528.5584
2024	4.2895	56.2245	76.5869	0.1776	2.5679	0.6815	3.2495	0.6941	0.6412	1.3353	0.0000	17,608.0993	17,608.0993	3.7311	0.2876	17,787.0635
Maximum	**10.6829**	**106.6862**	**127.3926**	**0.3585**	**3.7359**	**2.3425**	**6.0784**	**0.9027**	**2.1674**	**3.0701**	**0.0000**	**35,155.5169**	**35,155.5169**	**9.0897**	**0.4893**	**35,528.5584**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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	22.21	-0.05	-12.76	0.00	0.00	49.30	23.97	0.00	49.39	38.36	0.00	0.00	0.00	0.00	0.00	0.00

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	lb/day										lb/day					
Area	0.5134	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0248	0.0395	0.2355	4.8000e-004	0.0453	5.0000e-004	0.0458	0.0121	4.7000e-004	0.0126		49.7909	49.7909	2.5300e-003	2.4500e-003	50.5855
Total	**0.5382**	**0.0395**	**0.2356**	**4.8000e-004**	**0.0453**	**5.0000e-004**	**0.0458**	**0.0121**	**4.7000e-004**	**0.0126**		**49.7911**	**49.7911**	**2.5300e-003**	**2.4500e-003**	**50.5857**

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	lb/day										lb/day					
Area	0.5134	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0248	0.0395	0.2355	4.8000e-004	0.0453	5.0000e-004	0.0458	0.0121	4.7000e-004	0.0126		49.7909	49.7909	2.5300e-003	2.4500e-003	50.5855
Total	**0.5382**	**0.0395**	**0.2356**	**4.8000e-004**	**0.0453**	**5.0000e-004**	**0.0458**	**0.0121**	**4.7000e-004**	**0.0126**		**49.7911**	**49.7911**	**2.5300e-003**	**2.4500e-003**	**50.5857**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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	Road work, site and staging	Grading	3/1/2023	6/1/2023	6	80	
2	PGE Substation Upgrade	Building Construction	3/1/2023	9/1/2024	6	472	
3	Below Grade Const	Trenching	6/1/2023	12/1/2023	6	158	
4	Above Grade Construction	Building Construction	12/1/2023	8/1/2024	6	210	
5	PGE Distribution Uptrades	Building Construction	5/1/2024	7/1/2024	6	53	
6	PGE 500 KV Interconnection	Building Construction	8/1/2024	12/2/2024	6	106	
7	Commisioning and Testing	Building Construction	8/1/2024	12/1/2024	6	105	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 50

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Road work, site and staging	Graders	1	10.00	250	0.41
Road work, site and staging	Off-Highway Trucks	4	10.00	300	0.38
Road work, site and staging	Off-Highway Trucks	6	5.00	415	0.38
Road work, site and staging	Rollers	1	10.00	405	0.38

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Road work, site and staging	Rubber Tired Loaders	2	10.00	275	0.36
PGE Substation Upgrade	Aerial Lifts	1	10.00	49	0.31
PGE Substation Upgrade	Bore/Drill Rigs	2	10.00	125	0.50
PGE Substation Upgrade	Excavators	1	5.00	70	0.38
PGE Substation Upgrade	Forklifts	1	10.00	130	0.20
PGE Substation Upgrade	Rubber Tired Loaders	1	5.00	275	0.36
PGE Substation Upgrade	Welders	2	2.00	395	0.45
Below Grade Const	Bore/Drill Rigs	2	8.00	125	0.50
Below Grade Const	Excavators	2	10.00	108	0.38
Below Grade Const	Excavators	1	5.00	70	0.38
Below Grade Const	Forklifts	2	4.00	100	0.20
Below Grade Const	Generator Sets	2	10.00	84	0.74
Below Grade Const	Off-Highway Trucks	2	10.00	300	0.38
Below Grade Const	Off-Highway Trucks	3	8.00	415	0.38
Below Grade Const	Rubber Tired Loaders	1	10.00	275	0.36
Below Grade Const	Skid Steer Loaders	2	10.00	74	0.37
Below Grade Const	Tractors/Loaders/Backhoes	2	5.00	68	0.37
Below Grade Const	Trenchers	2	5.00	75	0.50
Above Grade Construction	Forklifts	3	4.00	130	0.20
Above Grade Construction	Generator Sets	2	10.00	84	0.74
Above Grade Construction	Welders	1	2.00	395	0.45
PGE Distribution Uptrades	Aerial Lifts	1	8.00	49	0.31
PGE Distribution Uptrades	Bore/Drill Rigs	2	8.00	125	0.50
PGE Distribution Uptrades	Cranes	2	5.00	250	0.29
PGE Distribution Uptrades	Forklifts	1	2.00	130	0.20
PGE Distribution Uptrades	Off-Highway Trucks	1	1.00	210	0.38
PGE 500 KV Interconnection	Aerial Lifts	3	10.00	49	0.31
PGE 500 KV Interconnection	Aerial Lifts	2	10.00	74	0.31
PGE 500 KV Interconnection	Bore/Drill Rigs	2	8.00	125	0.50

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

PGE 500 KV Interconnection	Cranes	2	10.00	250	0.29
PGE 500 KV Interconnection	Off-Highway Trucks	4	4.00	300	0.38
PGE 500 KV Interconnection	Off-Highway Trucks	3	5.00	415	0.38
Commisioning and Testing	Aerial Lifts	3	8.00	49	0.31

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
Road work, site and staging	14	8.00	15.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT
PGE Substation Upgrade	8	3.00	3.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT
Below Grade Const	21	15.00	10.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT
Above Grade Construction	6	15.00	5.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT
PGE Distribution Intrades	7	3.00	3.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT
PGE 500 KV Interconnection	16	3.00	3.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT
Commisioning and Testing	3	5.00	5.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Road work, site and staging - 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	lb/day										lb/day					
Fugitive Dust					0.7237	0.0000	0.7237	0.0808	0.0000	0.0808			0.0000			0.0000
Off-Road	6.1367	50.8177	40.5083	0.1495		1.8499	1.8499		1.7019	1.7019		14,469.2094	14,469.2094	4.6796		14,586.2003
Total	**6.1367**	**50.8177**	**40.5083**	**0.1495**	**0.7237**	**1.8499**	**2.5736**	**0.0808**	**1.7019**	**1.7827**		**14,469.2094**	**14,469.2094**	**4.6796**		**14,586.2003**

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	lb/day										lb/day					
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
Vendor	0.0680	3.1027	0.5498	0.0160	0.5554	0.0263	0.5817	0.1597	0.0252	0.1849		1,683.2866	1,683.2866	3.4800e-003	0.2432	1,755.8328
Worker	0.1515	0.1158	1.9751	5.6200e-003	0.6079	3.0300e-003	0.6109	0.1611	2.7900e-003	0.1639		575.6728	575.6728	8.6300e-003	0.0109	579.1325
Total	**0.2195**	**3.2186**	**2.5249**	**0.0216**	**1.1632**	**0.0294**	**1.1926**	**0.3209**	**0.0280**	**0.3489**		**2,258.9594**	**2,258.9594**	**0.0121**	**0.2540**	**2,334.9652**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Road work, site and staging - 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	lb/day										lb/day					
Fugitive Dust					0.7237	0.0000	0.7237	0.0808	0.0000	0.0808			0.0000			0.0000
Off-Road	5.2308	42.5639	45.7392	0.1495		1.2907	1.2907		1.1880	1.1880	0.0000	14,469.2094	14,469.2094	4.6796		14,586.2003
Total	**5.2308**	**42.5639**	**45.7392**	**0.1495**	**0.7237**	**1.2907**	**2.0144**	**0.0808**	**1.1880**	**1.2688**	**0.0000**	**14,469.2094**	**14,469.2094**	**4.6796**		**14,586.2003**

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	lb/day										lb/day					
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
Vendor	0.0680	3.1027	0.5498	0.0160	0.5554	0.0263	0.5817	0.1597	0.0252	0.1849		1,683.2866	1,683.2866	3.4800e-003	0.2432	1,755.8328
Worker	0.1515	0.1158	1.9751	5.6200e-003	0.6079	3.0300e-003	0.6109	0.1611	2.7900e-003	0.1639		575.6728	575.6728	8.6300e-003	0.0109	579.1325
Total	**0.2195**	**3.2186**	**2.5249**	**0.0216**	**1.1632**	**0.0294**	**1.1926**	**0.3209**	**0.0280**	**0.3489**		**2,258.9594**	**2,258.9594**	**0.0121**	**0.2540**	**2,334.9652**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 PGE Substation Upgrade - 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	lb/day										lb/day					
Off-Road	1.1807	9.9061	15.1947	0.0328		0.3785	0.3785		0.3535	0.3535		3,307.2595	3,307.2595	0.8113		3,327.5423
Total	**1.1807**	**9.9061**	**15.1947**	**0.0328**		**0.3785**	**0.3785**		**0.3535**	**0.3535**		**3,307.2595**	**3,307.2595**	**0.8113**		**3,327.5423**

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	lb/day										lb/day					
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
Vendor	0.0136	0.6205	0.1100	3.1900e-003	0.1111	5.2600e-003	0.1163	0.0320	5.0400e-003	0.0370		336.6573	336.6573	7.0000e-004	0.0486	351.1666
Worker	0.0568	0.0434	0.7407	2.1100e-003	0.2279	1.1400e-003	0.2291	0.0604	1.0500e-003	0.0615		215.8773	215.8773	3.2400e-003	4.0800e-003	217.1747
Total	**0.0704**	**0.6640**	**0.8506**	**5.3000e-003**	**0.3390**	**6.4000e-003**	**0.3454**	**0.0924**	**6.0900e-003**	**0.0985**		**552.5346**	**552.5346**	**3.9400e-003**	**0.0527**	**568.3412**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 PGE Substation Upgrade - 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	lb/day										lb/day					
Off-Road	0.8491	13.5416	17.9062	0.0328		0.1570	0.1570		0.1509	0.1509	0.0000	3,307.2595	3,307.2595	0.8113		3,327.5423
Total	**0.8491**	**13.5416**	**17.9062**	**0.0328**		**0.1570**	**0.1570**		**0.1509**	**0.1509**	**0.0000**	**3,307.2595**	**3,307.2595**	**0.8113**		**3,327.5423**

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	lb/day										lb/day					
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
Vendor	0.0136	0.6205	0.1100	3.1900e-003	0.1111	5.2600e-003	0.1163	0.0320	5.0400e-003	0.0370		336.6573	336.6573	7.0000e-004	0.0486	351.1666
Worker	0.0568	0.0434	0.7407	2.1100e-003	0.2279	1.1400e-003	0.2291	0.0604	1.0500e-003	0.0615		215.8773	215.8773	3.2400e-003	4.0800e-003	217.1747
Total	**0.0704**	**0.6640**	**0.8506**	**5.3000e-003**	**0.3390**	**6.4000e-003**	**0.3454**	**0.0924**	**6.0900e-003**	**0.0985**		**552.5346**	**552.5346**	**3.9400e-003**	**0.0527**	**568.3412**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 PGE Substation Upgrade - 2024

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	lb/day										lb/day					
Off-Road	1.1398	9.1638	15.1739	0.0328		0.3467	0.3467		0.3236	0.3236		3,305.4423	3,305.4423	0.8092		3,325.6713
Total	**1.1398**	**9.1638**	**15.1739**	**0.0328**		**0.3467**	**0.3467**		**0.3236**	**0.3236**		**3,305.4423**	**3,305.4423**	**0.8092**		**3,325.6713**

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	lb/day										lb/day					
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
Vendor	0.0130	0.6129	0.1046	3.1400e-003	0.1111	5.2300e-003	0.1163	0.0320	5.0000e-003	0.0370		331.3810	331.3810	6.4000e-004	0.0478	345.6492
Worker	0.0530	0.0381	0.6806	2.0400e-003	0.2279	1.0800e-003	0.2290	0.0604	9.9000e-004	0.0614		210.3962	210.3962	2.8500e-003	3.7500e-003	211.5839
Total	**0.0660**	**0.6509**	**0.7852**	**5.1800e-003**	**0.3390**	**6.3100e-003**	**0.3453**	**0.0924**	**5.9900e-003**	**0.0984**		**541.7772**	**541.7772**	**3.4900e-003**	**0.0516**	**557.2331**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 PGE Substation Upgrade - 2024

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	lb/day										lb/day					
Off-Road	0.8265	13.1205	17.8680	0.0328		0.1422	0.1422		0.1367	0.1367	0.0000	3,305.4423	3,305.4423	0.8092		3,325.6713
Total	**0.8265**	**13.1205**	**17.8680**	**0.0328**		**0.1422**	**0.1422**		**0.1367**	**0.1367**	**0.0000**	**3,305.4423**	**3,305.4423**	**0.8092**		**3,325.6713**

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	lb/day										lb/day					
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
Vendor	0.0130	0.6129	0.1046	3.1400e-003	0.1111	5.2300e-003	0.1163	0.0320	5.0000e-003	0.0370		331.3810	331.3810	6.4000e-004	0.0478	345.6492
Worker	0.0530	0.0381	0.6806	2.0400e-003	0.2279	1.0800e-003	0.2290	0.0604	9.9000e-004	0.0614		210.3962	210.3962	2.8500e-003	3.7500e-003	211.5839
Total	**0.0660**	**0.6509**	**0.7852**	**5.1800e-003**	**0.3390**	**6.3100e-003**	**0.3453**	**0.0924**	**5.9900e-003**	**0.0984**		**541.7772**	**541.7772**	**3.4900e-003**	**0.0516**	**557.2331**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Below Grade Const - 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	lb/day										lb/day					
Off-Road	5.3489	44.7216	52.6223	0.1281		1.9481	1.9481		1.8179	1.8179		12,365.9765	12,365.9765	3.5642		12,455.0808
Total	**5.3489**	**44.7216**	**52.6223**	**0.1281**		**1.9481**	**1.9481**		**1.8179**	**1.8179**		**12,365.9765**	**12,365.9765**	**3.5642**		**12,455.0808**

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	lb/day										lb/day					
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
Vendor	0.0453	2.0685	0.3666	0.0107	0.3703	0.0176	0.3878	0.1065	0.0168	0.1233		1,122.1911	1,122.1911	2.3200e-003	0.1621	1,170.5552
Worker	0.2841	0.2172	3.7033	0.0106	1.1397	5.6900e-003	1.1454	0.3022	5.2400e-003	0.3074		1,079.3864	1,079.3864	0.0162	0.0204	1,085.8734
Total	**0.3294**	**2.2857**	**4.0699**	**0.0212**	**1.5100**	**0.0232**	**1.5332**	**0.4086**	**0.0220**	**0.4307**		**2,201.5775**	**2,201.5775**	**0.0185**	**0.1825**	**2,256.4286**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Below Grade Const - 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	lb/day										lb/day					
Off-Road	3.9837	44.4125	56.3018	0.1281		0.8358	0.8358		0.7725	0.7725	0.0000	12,365.9765	12,365.9765	3.5642		12,455.0808
Total	**3.9837**	**44.4125**	**56.3018**	**0.1281**		**0.8358**	**0.8358**		**0.7725**	**0.7725**	**0.0000**	**12,365.9765**	**12,365.9765**	**3.5642**		**12,455.0808**

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	lb/day										lb/day					
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
Vendor	0.0453	2.0685	0.3666	0.0107	0.3703	0.0176	0.3878	0.1065	0.0168	0.1233		1,122.1911	1,122.1911	2.3200e-003	0.1621	1,170.5552
Worker	0.2841	0.2172	3.7033	0.0106	1.1397	5.6900e-003	1.1454	0.3022	5.2400e-003	0.3074		1,079.3864	1,079.3864	0.0162	0.0204	1,085.8734
Total	**0.3294**	**2.2857**	**4.0699**	**0.0212**	**1.5100**	**0.0232**	**1.5332**	**0.4086**	**0.0220**	**0.4307**		**2,201.5775**	**2,201.5775**	**0.0185**	**0.1825**	**2,256.4286**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Above Grade Construction - 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	lb/day										lb/day					
Off-Road	1.1008	9.2520	12.1711	0.0237		0.4296	0.4296		0.4235	0.4235		2,327.7216	2,327.7216	0.1884		2,332.4325
Total	**1.1008**	**9.2520**	**12.1711**	**0.0237**		**0.4296**	**0.4296**		**0.4235**	**0.4235**		**2,327.7216**	**2,327.7216**	**0.1884**		**2,332.4325**

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	lb/day										lb/day					
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
Vendor	0.0227	1.0342	0.1833	5.3200e-003	0.1851	8.7700e-003	0.1939	0.0533	8.3900e-003	0.0616		561.0956	561.0956	1.1600e-003	0.0811	585.2776
Worker	0.2841	0.2172	3.7033	0.0106	1.1397	5.6900e-003	1.1454	0.3022	5.2400e-003	0.3074		1,079.3864	1,079.3864	0.0162	0.0204	1,085.8734
Total	**0.3068**	**1.2514**	**3.8866**	**0.0159**	**1.3249**	**0.0145**	**1.3393**	**0.3554**	**0.0136**	**0.3690**		**1,640.4820**	**1,640.4820**	**0.0174**	**0.1015**	**1,671.1510**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Above Grade Construction - 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	lb/day										lb/day					
Off-Road	0.5113	8.3544	13.4963	0.0237		0.0370	0.0370		0.0370	0.0370	0.0000	2,327.7216	2,327.7216	0.1884		2,332.4325
Total	**0.5113**	**8.3544**	**13.4963**	**0.0237**		**0.0370**	**0.0370**		**0.0370**	**0.0370**	**0.0000**	**2,327.7216**	**2,327.7216**	**0.1884**		**2,332.4325**

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	lb/day										lb/day					
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
Vendor	0.0227	1.0342	0.1833	5.3200e-003	0.1851	8.7700e-003	0.1939	0.0533	8.3900e-003	0.0616		561.0956	561.0956	1.1600e-003	0.0811	585.2776
Worker	0.2841	0.2172	3.7033	0.0106	1.1397	5.6900e-003	1.1454	0.3022	5.2400e-003	0.3074		1,079.3864	1,079.3864	0.0162	0.0204	1,085.8734
Total	**0.3068**	**1.2514**	**3.8866**	**0.0159**	**1.3249**	**0.0145**	**1.3393**	**0.3554**	**0.0136**	**0.3690**		**1,640.4820**	**1,640.4820**	**0.0174**	**0.1015**	**1,671.1510**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Above Grade Construction - 2024

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	lb/day										lb/day					
Off-Road	1.0282	8.5312	12.1517	0.0237		0.3715	0.3715		0.3663	0.3663		2,327.7216	2,327.7216	0.1822		2,332.2759
Total	**1.0282**	**8.5312**	**12.1517**	**0.0237**		**0.3715**	**0.3715**		**0.3663**	**0.3663**		**2,327.7216**	**2,327.7216**	**0.1822**		**2,332.2759**

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	lb/day										lb/day					
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
Vendor	0.0217	1.0215	0.1744	5.2400e-003	0.1851	8.7100e-003	0.1938	0.0533	8.3400e-003	0.0616		552.3016	552.3016	1.0700e-003	0.0797	576.0820
Worker	0.2649	0.1904	3.4031	0.0102	1.1397	5.3900e-003	1.1451	0.3022	4.9600e-003	0.3071		1,051.9810	1,051.9810	0.0143	0.0187	1,057.9196
Total	**0.2866**	**1.2118**	**3.5774**	**0.0154**	**1.3249**	**0.0141**	**1.3390**	**0.3554**	**0.0133**	**0.3687**		**1,604.2826**	**1,604.2826**	**0.0153**	**0.0984**	**1,634.0016**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Above Grade Construction - 2024

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	lb/day										lb/day					
Off-Road	0.5042	8.2337	13.4948	0.0237		0.0331	0.0331		0.0331	0.0331	0.0000	2,327.7216	2,327.7216	0.1822		2,332.2759
Total	**0.5042**	**8.2337**	**13.4948**	**0.0237**		**0.0331**	**0.0331**		**0.0331**	**0.0331**	**0.0000**	**2,327.7216**	**2,327.7216**	**0.1822**		**2,332.2759**

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	lb/day										lb/day					
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
Vendor	0.0217	1.0215	0.1744	5.2400e-003	0.1851	8.7100e-003	0.1938	0.0533	8.3400e-003	0.0616		552.3016	552.3016	1.0700e-003	0.0797	576.0820
Worker	0.2649	0.1904	3.4031	0.0102	1.1397	5.3900e-003	1.1451	0.3022	4.9600e-003	0.3071		1,051.9810	1,051.9810	0.0143	0.0187	1,057.9196
Total	**0.2866**	**1.2118**	**3.5774**	**0.0154**	**1.3249**	**0.0141**	**1.3390**	**0.3554**	**0.0133**	**0.3687**		**1,604.2826**	**1,604.2826**	**0.0153**	**0.0984**	**1,634.0016**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 PGE Distribution Uptrades - 2024

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	lb/day										lb/day					
Off-Road	0.8270	8.2338	10.3856	0.0216		0.3258	0.3258		0.2997	0.2997		2,089.1768	2,089.1768	0.6757		2,106.0688
Total	**0.8270**	**8.2338**	**10.3856**	**0.0216**		**0.3258**	**0.3258**		**0.2997**	**0.2997**		**2,089.1768**	**2,089.1768**	**0.6757**		**2,106.0688**

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	lb/day										lb/day					
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
Vendor	0.0130	0.6129	0.1046	3.1400e-003	0.1111	5.2300e-003	0.1163	0.0320	5.0000e-003	0.0370		331.3810	331.3810	6.4000e-004	0.0478	345.6492
Worker	0.0530	0.0381	0.6806	2.0400e-003	0.2279	1.0800e-003	0.2290	0.0604	9.9000e-004	0.0614		210.3962	210.3962	2.8500e-003	3.7500e-003	211.5839
Total	**0.0660**	**0.6509**	**0.7852**	**5.1800e-003**	**0.3390**	**6.3100e-003**	**0.3453**	**0.0924**	**5.9900e-003**	**0.0984**		**541.7772**	**541.7772**	**3.4900e-003**	**0.0516**	**557.2331**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 PGE Distribution Uptrades - 2024

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	lb/day										lb/day					
Off-Road	0.3347	8.5057	14.0569	0.0216		0.0194	0.0194		0.0186	0.0186	0.0000	2,089.1768	2,089.1768	0.6757		2,106.0688
Total	**0.3347**	**8.5057**	**14.0569**	**0.0216**		**0.0194**	**0.0194**		**0.0186**	**0.0186**	**0.0000**	**2,089.1768**	**2,089.1768**	**0.6757**		**2,106.0688**

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	lb/day										lb/day					
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
Vendor	0.0130	0.6129	0.1046	3.1400e-003	0.1111	5.2300e-003	0.1163	0.0320	5.0000e-003	0.0370		331.3810	331.3810	6.4000e-004	0.0478	345.6492
Worker	0.0530	0.0381	0.6806	2.0400e-003	0.2279	1.0800e-003	0.2290	0.0604	9.9000e-004	0.0614		210.3962	210.3962	2.8500e-003	3.7500e-003	211.5839
Total	**0.0660**	**0.6509**	**0.7852**	**5.1800e-003**	**0.3390**	**6.3100e-003**	**0.3453**	**0.0924**	**5.9900e-003**	**0.0984**		**541.7772**	**541.7772**	**3.4900e-003**	**0.0516**	**557.2331**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 PGE 500 KV Interconnection - 2024

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	lb/day										lb/day					
Off-Road	3.1369	27.6044	28.8458	0.0823		0.9560	0.9560		0.8795	0.8795		7,962.1254	7,962.1254	2.5751		8,026.5032
Total	**3.1369**	**27.6044**	**28.8458**	**0.0823**		**0.9560**	**0.9560**		**0.8795**	**0.8795**		**7,962.1254**	**7,962.1254**	**2.5751**		**8,026.5032**

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	lb/day										lb/day					
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
Vendor	0.0130	0.6129	0.1046	3.1400e-003	0.1111	5.2300e-003	0.1163	0.0320	5.0000e-003	0.0370		331.3810	331.3810	6.4000e-004	0.0478	345.6492
Worker	0.0530	0.0381	0.6806	2.0400e-003	0.2279	1.0800e-003	0.2290	0.0604	9.9000e-004	0.0614		210.3962	210.3962	2.8500e-003	3.7500e-003	211.5839
Total	**0.0660**	**0.6509**	**0.7852**	**5.1800e-003**	**0.3390**	**6.3100e-003**	**0.3453**	**0.0924**	**5.9900e-003**	**0.0984**		**541.7772**	**541.7772**	**3.4900e-003**	**0.0516**	**557.2331**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 PGE 500 KV Interconnection - 2024

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	lb/day										lb/day					
Off-Road	2.3338	27.6148	35.4724	0.0823		0.4535	0.4535		0.4207	0.4207	0.0000	7,962.1253	7,962.1253	2.5751		8,026.5032
Total	**2.3338**	**27.6148**	**35.4724**	**0.0823**		**0.4535**	**0.4535**		**0.4207**	**0.4207**	**0.0000**	**7,962.1253**	**7,962.1253**	**2.5751**		**8,026.5032**

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	lb/day										lb/day					
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
Vendor	0.0130	0.6129	0.1046	3.1400e-003	0.1111	5.2300e-003	0.1163	0.0320	5.0000e-003	0.0370		331.3810	331.3810	6.4000e-004	0.0478	345.6492
Worker	0.0530	0.0381	0.6806	2.0400e-003	0.2279	1.0800e-003	0.2290	0.0604	9.9000e-004	0.0614		210.3962	210.3962	2.8500e-003	3.7500e-003	211.5839
Total	**0.0660**	**0.6509**	**0.7852**	**5.1800e-003**	**0.3390**	**6.3100e-003**	**0.3453**	**0.0924**	**5.9900e-003**	**0.0984**		**541.7772**	**541.7772**	**3.4900e-003**	**0.0516**	**557.2331**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.8 Commisioning and Testing - 2024

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	lb/day										lb/day					
Off-Road	0.1275	2.3213	2.5019	4.3600e-003		0.0174	0.0174		0.0160	0.0160		422.0113	422.0113	0.1365		425.4235
Total	**0.1275**	**2.3213**	**2.5019**	**4.3600e-003**		**0.0174**	**0.0174**		**0.0160**	**0.0160**		**422.0113**	**422.0113**	**0.1365**		**425.4235**

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	lb/day										lb/day					
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
Vendor	0.0217	1.0215	0.1744	5.2400e-003	0.1851	8.7100e-003	0.1938	0.0533	8.3400e-003	0.0616		552.3016	552.3016	1.0700e-003	0.0797	576.0820
Worker	0.0883	0.0635	1.1344	3.4000e-003	0.3799	1.8000e-003	0.3817	0.1007	1.6500e-003	0.1024		350.6603	350.6603	4.7500e-003	6.2400e-003	352.6399
Total	**0.1100**	**1.0849**	**1.3087**	**8.6400e-003**	**0.5650**	**0.0105**	**0.5755**	**0.1540**	**9.9900e-003**	**0.1640**		**902.9619**	**902.9619**	**5.8200e-003**	**0.0860**	**928.7219**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.8 Commisioning and Testing - 2024

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	lb/day										lb/day					
Off-Road	0.0965	3.6569	3.2952	4.3600e-003		0.0154	0.0154		0.0154	0.0154	0.0000	422.0113	422.0113	0.1365		425.4235
Total	**0.0965**	**3.6569**	**3.2952**	**4.3600e-003**		**0.0154**	**0.0154**		**0.0154**	**0.0154**	**0.0000**	**422.0113**	**422.0113**	**0.1365**		**425.4235**

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	lb/day										lb/day					
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
Vendor	0.0217	1.0215	0.1744	5.2400e-003	0.1851	8.7100e-003	0.1938	0.0533	8.3400e-003	0.0616		552.3016	552.3016	1.0700e-003	0.0797	576.0820
Worker	0.0883	0.0635	1.1344	3.4000e-003	0.3799	1.8000e-003	0.3817	0.1007	1.6500e-003	0.1024		350.6603	350.6603	4.7500e-003	6.2400e-003	352.6399
Total	**0.1100**	**1.0849**	**1.3087**	**8.6400e-003**	**0.5650**	**0.0105**	**0.5755**	**0.1540**	**9.9900e-003**	**0.1640**		**902.9619**	**902.9619**	**5.8200e-003**	**0.0860**	**928.7219**

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	lb/day										lb/day					
Mitigated	0.0248	0.0395	0.2355	4.8000e-004	0.0453	5.0000e-004	0.0458	0.0121	4.7000e-004	0.0126		49.7909	49.7909	2.5300e-003	2.4500e-003	50.5855
Unmitigated	0.0248	0.0395	0.2355	4.8000e-004	0.0453	5.0000e-004	0.0458	0.0121	4.7000e-004	0.0126		49.7909	49.7909	2.5300e-003	2.4500e-003	50.5855

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	4.00	0.00	0.00	15,288	15,288
Total	4.00	0.00	0.00	15,288	15,288

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
User Defined Industrial	14.70	6.60	6.60	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.489904	0.053513	0.186430	0.142392	0.042996	0.009122	0.009394	0.022860	0.000635	0.000162	0.035216	0.001418	0.005957

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	lb/day										lb/day					
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

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	lb/day										lb/day					
User Defined Industrial	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
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**

5.2 Energy by Land Use - NaturalGas

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	lb/day										lb/day					
User Defined Industrial	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
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**

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	lb/day										lb/day					
Mitigated	0.5134	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.5134	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	lb/day										lb/day					
Architectural Coating	0.1175					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3959					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.5134**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	lb/day										lb/day					
Architectural Coating	0.1175					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3959					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.5134**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

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

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025)

Shasta County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	9.20	18,500.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	82
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site area is 9.2 Acre; 2 small control buildings will be installed (Estimated to be 8,000 SF) and one 10,500 SF GIS building = 18500 SF

Construction Phase - LSPGC Round Mountain Schedule and includes Construction List provided by applicant.

Off-road Equipment - construction list overlaps entirely with PGE 500 KV Interconnection... duplicate equipment listed in PD are the same physical piece of equipment

Off-road Equipment - Construction Equipment

Off-road Equipment - Construction Equipment

Off-road Equipment - Construction Equipment

Off-road Equipment - Construction Equipment

Off-road Equipment - Construction Equipment

Off-road Equipment - Construction Schedule. Equipment listed for multiple phases within PD where overlap occurs are the same physical piece of equipment. Corrections have been appled to the list provided by applicant.

Trips and VMT - Daily vehicle trips identified in Table 3-7 of PD. Hauling trips incorporated in average ADT for Trucks and worker trips

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading - The project would import 16,000 CY of gravel and export 17,000 CY

Architectural Coating -

Vehicle Trips - 4 trips per weekday

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating -

Energy Use - 87 kw per STATCOM enclosure and 22 kw for GIS building Total 1,716,960 kWH or (1,716,960/18,500) or 92.80 kWH per SF

Construction Off-road Equipment Mitigation - 30% of HP will be Tier 4 with DPF

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	230.00	472.00
tblConstructionPhase	NumDays	230.00	210.00
tblConstructionPhase	NumDays	230.00	53.00
tblConstructionPhase	NumDays	230.00	106.00
tblConstructionPhase	NumDays	230.00	105.00
tblConstructionPhase	NumDays	20.00	80.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblEnergyUse	NT24E	0.00	92.80
tblGrading	MaterialExported	0.00	17,000.00
tblGrading	MaterialImported	0.00	16,000.00
tblLandUse	LandUseSquareFeet	0.00	18,500.00
tblLandUse	LotAcreage	0.00	9.20
tblOffRoadEquipment	HorsePower	231.00	250.00
tblOffRoadEquipment	HorsePower	231.00	250.00
tblOffRoadEquipment	HorsePower	89.00	130.00
tblOffRoadEquipment	HorsePower	89.00	130.00
tblOffRoadEquipment	HorsePower	89.00	130.00
tblOffRoadEquipment	HorsePower	187.00	250.00
tblOffRoadEquipment	HorsePower	46.00	395.00
tblOffRoadEquipment	HorsePower	46.00	395.00
tblOffRoadEquipment	HorsePower	63.00	49.00
tblOffRoadEquipment	HorsePower	63.00	49.00
tblOffRoadEquipment	HorsePower	63.00	49.00
tblOffRoadEquipment	HorsePower	63.00	74.00
tblOffRoadEquipment	HorsePower	63.00	49.00
tblOffRoadEquipment	HorsePower	221.00	125.00
tblOffRoadEquipment	HorsePower	221.00	125.00
tblOffRoadEquipment	HorsePower	221.00	125.00
tblOffRoadEquipment	HorsePower	221.00	125.00
tblOffRoadEquipment	HorsePower	158.00	70.00
tblOffRoadEquipment	HorsePower	158.00	108.00
tblOffRoadEquipment	HorsePower	158.00	70.00
tblOffRoadEquipment	HorsePower	89.00	100.00
tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	HorsePower	402.00	415.00
tblOffRoadEquipment	HorsePower	402.00	300.00

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	HorsePower	402.00	415.00
tblOffRoadEquipment	HorsePower	402.00	210.00
tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	HorsePower	402.00	415.00
tblOffRoadEquipment	HorsePower	80.00	405.00
tblOffRoadEquipment	HorsePower	203.00	275.00
tblOffRoadEquipment	HorsePower	203.00	275.00
tblOffRoadEquipment	HorsePower	203.00	275.00
tblOffRoadEquipment	HorsePower	65.00	74.00
tblOffRoadEquipment	HorsePower	97.00	68.00
tblOffRoadEquipment	HorsePower	78.00	75.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	5.00
tblOffRoadEquipment	UsageHours	7.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	4,125.00	0.00
tblTripsAndVMT	VendorTripLength	6.60	40.00

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripNumber	0.00	15.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	3.00	5.00
tblTripsAndVMT	VendorTripNumber	3.00	5.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripNumber	35.00	8.00
tblTripsAndVMT	WorkerTripNumber	8.00	3.00
tblTripsAndVMT	WorkerTripNumber	53.00	15.00
tblTripsAndVMT	WorkerTripNumber	8.00	15.00
tblTripsAndVMT	WorkerTripNumber	8.00	3.00
tblTripsAndVMT	WorkerTripNumber	8.00	3.00
tblTripsAndVMT	WorkerTripNumber	8.00	5.00
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	0.00	4.00

2.0 Emissions Summary

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2023	13.3070	112.1562	114.0744	0.3563	3.7359	4.2356	7.9715	0.9027	3.9294	4.8321	0.0000	34,926.3613	34,926.3613	9.0852	0.4944	35,300.8254
2024	5.9843	51.5469	63.5692	0.1754	2.5679	1.7289	4.2968	0.6941	1.6207	2.3148	0.0000	17,384.8635	17,384.8635	3.7273	0.2919	17,565.0315
Maximum	**13.3070**	**112.1562**	**114.0744**	**0.3563**	**3.7359**	**4.2356**	**7.9715**	**0.9027**	**3.9294**	**4.8321**	**0.0000**	**34,926.3613**	**34,926.3613**	**9.0852**	**0.4944**	**35,300.8254**

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	lb/day										lb/day					
2023	10.7042	107.2289	125.6963	0.3563	3.7359	2.3425	6.0784	0.9027	2.1675	3.0702	0.0000	34,926.3612	34,926.3612	9.0852	0.4944	35,300.8254
2024	4.3130	56.5521	75.0264	0.1754	2.5679	0.6816	3.2495	0.6941	0.6412	1.3353	0.0000	17,384.8635	17,384.8635	3.7273	0.2919	17,565.0314
Maximum	**10.7042**	**107.2289**	**125.6963**	**0.3563**	**3.7359**	**2.3425**	**6.0784**	**0.9027**	**2.1675**	**3.0702**	**0.0000**	**34,926.3612**	**34,926.3612**	**9.0852**	**0.4944**	**35,300.8254**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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	22.16	-0.05	-12.99	0.00	0.00	49.30	23.97	0.00	49.39	38.36	0.00	0.00	0.00	0.00	0.00	0.00

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	lb/day										lb/day					
Area	0.5134	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0208	0.0446	0.2210	4.4000e-004	0.0453	5.0000e-004	0.0458	0.0121	4.8000e-004	0.0126		45.5296	45.5296	2.7300e-003	2.6200e-003	46.3774
Total	**0.5342**	**0.0446**	**0.2211**	**4.4000e-004**	**0.0453**	**5.0000e-004**	**0.0458**	**0.0121**	**4.8000e-004**	**0.0126**		**45.5299**	**45.5299**	**2.7300e-003**	**2.6200e-003**	**46.3776**

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	lb/day										lb/day					
Area	0.5134	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0208	0.0446	0.2210	4.4000e-004	0.0453	5.0000e-004	0.0458	0.0121	4.8000e-004	0.0126		45.5296	45.5296	2.7300e-003	2.6200e-003	46.3774
Total	**0.5342**	**0.0446**	**0.2211**	**4.4000e-004**	**0.0453**	**5.0000e-004**	**0.0458**	**0.0121**	**4.8000e-004**	**0.0126**		**45.5299**	**45.5299**	**2.7300e-003**	**2.6200e-003**	**46.3776**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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	Road work, site and staging	Grading	3/1/2023	6/1/2023	6	80	
2	PGE Substation Upgrade	Building Construction	3/1/2023	9/1/2024	6	472	
3	Below Grade Const	Trenching	6/1/2023	12/1/2023	6	158	
4	Above Grade Construction	Building Construction	12/1/2023	8/1/2024	6	210	
5	PGE Distribution Uptrades	Building Construction	5/1/2024	7/1/2024	6	53	
6	PGE 500 KV Interconnection	Building Construction	8/1/2024	12/2/2024	6	106	
7	Commisioning and Testing	Building Construction	8/1/2024	12/1/2024	6	105	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 50

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Road work, site and staging	Graders	1	10.00	250	0.41
Road work, site and staging	Off-Highway Trucks	4	10.00	300	0.38
Road work, site and staging	Off-Highway Trucks	6	5.00	415	0.38
Road work, site and staging	Rollers	1	10.00	405	0.38

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Road work, site and staging	Rubber Tired Loaders	2	10.00	275	0.36
PGE Substation Upgrade	Aerial Lifts	1	10.00	49	0.31
PGE Substation Upgrade	Bore/Drill Rigs	2	10.00	125	0.50
PGE Substation Upgrade	Excavators	1	5.00	70	0.38
PGE Substation Upgrade	Forklifts	1	10.00	130	0.20
PGE Substation Upgrade	Rubber Tired Loaders	1	5.00	275	0.36
PGE Substation Upgrade	Welders	2	2.00	395	0.45
Below Grade Const	Bore/Drill Rigs	2	8.00	125	0.50
Below Grade Const	Excavators	2	10.00	108	0.38
Below Grade Const	Excavators	1	5.00	70	0.38
Below Grade Const	Forklifts	2	4.00	100	0.20
Below Grade Const	Generator Sets	2	10.00	84	0.74
Below Grade Const	Off-Highway Trucks	2	10.00	300	0.38
Below Grade Const	Off-Highway Trucks	3	8.00	415	0.38
Below Grade Const	Rubber Tired Loaders	1	10.00	275	0.36
Below Grade Const	Skid Steer Loaders	2	10.00	74	0.37
Below Grade Const	Tractors/Loaders/Backhoes	2	5.00	68	0.37
Below Grade Const	Trenchers	2	5.00	75	0.50
Above Grade Construction	Forklifts	3	4.00	130	0.20
Above Grade Construction	Generator Sets	2	10.00	84	0.74
Above Grade Construction	Welders	1	2.00	395	0.45
PGE Distribution Uptrades	Aerial Lifts	1	8.00	49	0.31
PGE Distribution Uptrades	Bore/Drill Rigs	2	8.00	125	0.50
PGE Distribution Uptrades	Cranes	2	5.00	250	0.29
PGE Distribution Uptrades	Forklifts	1	2.00	130	0.20
PGE Distribution Uptrades	Off-Highway Trucks	1	1.00	210	0.38
PGE 500 KV Interconnection	Aerial Lifts	3	10.00	49	0.31
PGE 500 KV Interconnection	Aerial Lifts	2	10.00	74	0.31
PGE 500 KV Interconnection	Bore/Drill Rigs	2	8.00	125	0.50

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

PGE 500 KV Interconnection	Cranes	2	10.00	250	0.29
PGE 500 KV Interconnection	Off-Highway Trucks	4	4.00	300	0.38
PGE 500 KV Interconnection	Off-Highway Trucks	3	5.00	415	0.38
Commisioning and Testing	Aerial Lifts	3	8.00	49	0.31

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
Road work, site and staging	14	8.00	15.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT
PGE Substation Upgrade	8	3.00	3.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT
Below Grade Const	21	15.00	10.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT
Above Grade Construction	6	15.00	5.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT
PGE Distribution Intrades	7	3.00	3.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT
PGE 500 KV Interconnection	16	3.00	3.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT
Commisioning and Testing	3	5.00	5.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Road work, site and staging - 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	lb/day										lb/day					
Fugitive Dust					0.7237	0.0000	0.7237	0.0808	0.0000	0.0808			0.0000			0.0000
Off-Road	6.1367	50.8177	40.5083	0.1495		1.8499	1.8499		1.7019	1.7019		14,469.2094	14,469.2094	4.6796		14,586.2003
Total	**6.1367**	**50.8177**	**40.5083**	**0.1495**	**0.7237**	**1.8499**	**2.5736**	**0.0808**	**1.7019**	**1.7827**		**14,469.2094**	**14,469.2094**	**4.6796**		**14,586.2003**

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	lb/day										lb/day					
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
Vendor	0.0678	3.3546	0.5509	0.0160	0.5554	0.0263	0.5817	0.1597	0.0252	0.1849		1,683.9299	1,683.9299	3.3500e-003	0.2436	1,756.6093
Worker	0.1582	0.1381	1.4525	4.9300e-003	0.6079	3.0300e-003	0.6109	0.1611	2.7900e-003	0.1639		504.7939	504.7939	7.3300e-003	0.0122	508.6148
Total	**0.2260**	**3.4927**	**2.0034**	**0.0209**	**1.1632**	**0.0294**	**1.1926**	**0.3209**	**0.0280**	**0.3489**		**2,188.7238**	**2,188.7238**	**0.0107**	**0.2558**	**2,265.2241**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Road work, site and staging - 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	lb/day										lb/day					
Fugitive Dust					0.7237	0.0000	0.7237	0.0808	0.0000	0.0808			0.0000			0.0000
Off-Road	5.2308	42.5639	45.7392	0.1495		1.2907	1.2907		1.1880	1.1880	0.0000	14,469.2094	14,469.2094	4.6796		14,586.2003
Total	**5.2308**	**42.5639**	**45.7392**	**0.1495**	**0.7237**	**1.2907**	**2.0144**	**0.0808**	**1.1880**	**1.2688**	**0.0000**	**14,469.2094**	**14,469.2094**	**4.6796**		**14,586.2003**

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	lb/day										lb/day					
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
Vendor	0.0678	3.3546	0.5509	0.0160	0.5554	0.0263	0.5817	0.1597	0.0252	0.1849		1,683.9299	1,683.9299	3.3500e-003	0.2436	1,756.6093
Worker	0.1582	0.1381	1.4525	4.9300e-003	0.6079	3.0300e-003	0.6109	0.1611	2.7900e-003	0.1639		504.7939	504.7939	7.3300e-003	0.0122	508.6148
Total	**0.2260**	**3.4927**	**2.0034**	**0.0209**	**1.1632**	**0.0294**	**1.1926**	**0.3209**	**0.0280**	**0.3489**		**2,188.7238**	**2,188.7238**	**0.0107**	**0.2558**	**2,265.2241**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 PGE Substation Upgrade - 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	lb/day										lb/day					
Off-Road	1.1807	9.9061	15.1947	0.0328		0.3785	0.3785		0.3535	0.3535		3,307.2595	3,307.2595	0.8113		3,327.5423
Total	**1.1807**	**9.9061**	**15.1947**	**0.0328**		**0.3785**	**0.3785**		**0.3535**	**0.3535**		**3,307.2595**	**3,307.2595**	**0.8113**		**3,327.5423**

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	lb/day										lb/day					
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
Vendor	0.0136	0.6709	0.1102	3.2000e-003	0.1111	5.2700e-003	0.1163	0.0320	5.0400e-003	0.0370		336.7860	336.7860	6.7000e-004	0.0487	351.3219
Worker	0.0593	0.0518	0.5447	1.8500e-003	0.2279	1.1400e-003	0.2291	0.0604	1.0500e-003	0.0615		189.2977	189.2977	2.7500e-003	4.5800e-003	190.7305
Total	**0.0729**	**0.7227**	**0.6549**	**5.0500e-003**	**0.3390**	**6.4100e-003**	**0.3454**	**0.0924**	**6.0900e-003**	**0.0985**		**526.0837**	**526.0837**	**3.4200e-003**	**0.0533**	**542.0524**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 PGE Substation Upgrade - 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	lb/day										lb/day					
Off-Road	0.8491	13.5416	17.9062	0.0328		0.1570	0.1570		0.1509	0.1509	0.0000	3,307.2595	3,307.2595	0.8113		3,327.5423
Total	**0.8491**	**13.5416**	**17.9062**	**0.0328**		**0.1570**	**0.1570**		**0.1509**	**0.1509**	**0.0000**	**3,307.2595**	**3,307.2595**	**0.8113**		**3,327.5423**

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	lb/day										lb/day					
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
Vendor	0.0136	0.6709	0.1102	3.2000e-003	0.1111	5.2700e-003	0.1163	0.0320	5.0400e-003	0.0370		336.7860	336.7860	6.7000e-004	0.0487	351.3219
Worker	0.0593	0.0518	0.5447	1.8500e-003	0.2279	1.1400e-003	0.2291	0.0604	1.0500e-003	0.0615		189.2977	189.2977	2.7500e-003	4.5800e-003	190.7305
Total	**0.0729**	**0.7227**	**0.6549**	**5.0500e-003**	**0.3390**	**6.4100e-003**	**0.3454**	**0.0924**	**6.0900e-003**	**0.0985**		**526.0837**	**526.0837**	**3.4200e-003**	**0.0533**	**542.0524**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 PGE Substation Upgrade - 2024

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	lb/day										lb/day					
Off-Road	1.1398	9.1638	15.1739	0.0328		0.3467	0.3467		0.3236	0.3236		3,305.4423	3,305.4423	0.8092		3,325.6713
Total	**1.1398**	**9.1638**	**15.1739**	**0.0328**		**0.3467**	**0.3467**		**0.3236**	**0.3236**		**3,305.4423**	**3,305.4423**	**0.8092**		**3,325.6713**

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	lb/day										lb/day					
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
Vendor	0.0130	0.6625	0.1051	3.1500e-003	0.1111	5.2300e-003	0.1163	0.0320	5.0000e-003	0.0370		331.5104	331.5104	6.2000e-004	0.0479	345.8030
Worker	0.0557	0.0454	0.5002	1.7900e-003	0.2279	1.0800e-003	0.2290	0.0604	9.9000e-004	0.0614		184.5586	184.5586	2.4300e-003	4.2000e-003	185.8702
Total	**0.0687**	**0.7078**	**0.6054**	**4.9400e-003**	**0.3390**	**6.3100e-003**	**0.3453**	**0.0924**	**5.9900e-003**	**0.0984**		**516.0690**	**516.0690**	**3.0500e-003**	**0.0521**	**531.6732**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 PGE Substation Upgrade - 2024

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	lb/day										lb/day					
Off-Road	0.8265	13.1205	17.8680	0.0328		0.1422	0.1422		0.1367	0.1367	0.0000	3,305.4423	3,305.4423	0.8092		3,325.6713
Total	**0.8265**	**13.1205**	**17.8680**	**0.0328**		**0.1422**	**0.1422**		**0.1367**	**0.1367**	**0.0000**	**3,305.4423**	**3,305.4423**	**0.8092**		**3,325.6713**

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	lb/day										lb/day					
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
Vendor	0.0130	0.6625	0.1051	3.1500e-003	0.1111	5.2300e-003	0.1163	0.0320	5.0000e-003	0.0370		331.5104	331.5104	6.2000e-004	0.0479	345.8030
Worker	0.0557	0.0454	0.5002	1.7900e-003	0.2279	1.0800e-003	0.2290	0.0604	9.9000e-004	0.0614		184.5586	184.5586	2.4300e-003	4.2000e-003	185.8702
Total	**0.0687**	**0.7078**	**0.6054**	**4.9400e-003**	**0.3390**	**6.3100e-003**	**0.3453**	**0.0924**	**5.9900e-003**	**0.0984**		**516.0690**	**516.0690**	**3.0500e-003**	**0.0521**	**531.6732**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Below Grade Const - 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	lb/day										lb/day					
Off-Road	5.3489	44.7216	52.6223	0.1281		1.9481	1.9481		1.8179	1.8179		12,365.9765	12,365.9765	3.5642		12,455.0808
Total	**5.3489**	**44.7216**	**52.6223**	**0.1281**		**1.9481**	**1.9481**		**1.8179**	**1.8179**		**12,365.9765**	**12,365.9765**	**3.5642**		**12,455.0808**

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	lb/day										lb/day					
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
Vendor	0.0452	2.2364	0.3672	0.0107	0.3703	0.0176	0.3878	0.1065	0.0168	0.1233		1,122.6199	1,122.6199	2.2300e-003	0.1624	1,171.0729
Worker	0.2967	0.2590	2.7235	9.2500e-003	1.1397	5.6900e-003	1.1454	0.3022	5.2400e-003	0.3074		946.4885	946.4885	0.0137	0.0229	953.6527
Total	**0.3418**	**2.4954**	**3.0908**	**0.0199**	**1.5100**	**0.0233**	**1.5332**	**0.4086**	**0.0220**	**0.4307**		**2,069.1085**	**2,069.1085**	**0.0160**	**0.1853**	**2,124.7256**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Below Grade Const - 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	lb/day										lb/day					
Off-Road	3.9837	44.4125	56.3018	0.1281		0.8358	0.8358		0.7725	0.7725	0.0000	12,365.9765	12,365.9765	3.5642		12,455.0808
Total	**3.9837**	**44.4125**	**56.3018**	**0.1281**		**0.8358**	**0.8358**		**0.7725**	**0.7725**	**0.0000**	**12,365.9765**	**12,365.9765**	**3.5642**		**12,455.0808**

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	lb/day										lb/day					
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
Vendor	0.0452	2.2364	0.3672	0.0107	0.3703	0.0176	0.3878	0.1065	0.0168	0.1233		1,122.6199	1,122.6199	2.2300e-003	0.1624	1,171.0729
Worker	0.2967	0.2590	2.7235	9.2500e-003	1.1397	5.6900e-003	1.1454	0.3022	5.2400e-003	0.3074		946.4885	946.4885	0.0137	0.0229	953.6527
Total	**0.3418**	**2.4954**	**3.0908**	**0.0199**	**1.5100**	**0.0233**	**1.5332**	**0.4086**	**0.0220**	**0.4307**		**2,069.1085**	**2,069.1085**	**0.0160**	**0.1853**	**2,124.7256**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Above Grade Construction - 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	lb/day										lb/day					
Off-Road	1.1008	9.2520	12.1711	0.0237		0.4296	0.4296		0.4235	0.4235		2,327.7216	2,327.7216	0.1884		2,332.4325
Total	**1.1008**	**9.2520**	**12.1711**	**0.0237**		**0.4296**	**0.4296**		**0.4235**	**0.4235**		**2,327.7216**	**2,327.7216**	**0.1884**		**2,332.4325**

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	lb/day										lb/day					
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
Vendor	0.0226	1.1182	0.1836	5.3300e-003	0.1851	8.7800e-003	0.1939	0.0533	8.4000e-003	0.0616		561.3100	561.3100	1.1200e-003	0.0812	585.5364
Worker	0.2967	0.2590	2.7235	9.2500e-003	1.1397	5.6900e-003	1.1454	0.3022	5.2400e-003	0.3074		946.4885	946.4885	0.0137	0.0229	953.6527
Total	**0.3192**	**1.3772**	**2.9071**	**0.0146**	**1.3249**	**0.0145**	**1.3393**	**0.3554**	**0.0136**	**0.3690**		**1,507.7985**	**1,507.7985**	**0.0149**	**0.1041**	**1,539.1891**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Above Grade Construction - 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	lb/day										lb/day					
Off-Road	0.5113	8.3544	13.4963	0.0237		0.0370	0.0370		0.0370	0.0370	0.0000	2,327.7216	2,327.7216	0.1884		2,332.4325
Total	**0.5113**	**8.3544**	**13.4963**	**0.0237**		**0.0370**	**0.0370**		**0.0370**	**0.0370**	**0.0000**	**2,327.7216**	**2,327.7216**	**0.1884**		**2,332.4325**

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	lb/day										lb/day					
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
Vendor	0.0226	1.1182	0.1836	5.3300e-003	0.1851	8.7800e-003	0.1939	0.0533	8.4000e-003	0.0616		561.3100	561.3100	1.1200e-003	0.0812	585.5364
Worker	0.2967	0.2590	2.7235	9.2500e-003	1.1397	5.6900e-003	1.1454	0.3022	5.2400e-003	0.3074		946.4885	946.4885	0.0137	0.0229	953.6527
Total	**0.3192**	**1.3772**	**2.9071**	**0.0146**	**1.3249**	**0.0145**	**1.3393**	**0.3554**	**0.0136**	**0.3690**		**1,507.7985**	**1,507.7985**	**0.0149**	**0.1041**	**1,539.1891**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Above Grade Construction - 2024

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	lb/day										lb/day					
Off-Road	1.0282	8.5312	12.1517	0.0237		0.3715	0.3715		0.3663	0.3663		2,327.7216	2,327.7216	0.1822		2,332.2759
Total	**1.0282**	**8.5312**	**12.1517**	**0.0237**		**0.3715**	**0.3715**		**0.3663**	**0.3663**		**2,327.7216**	**2,327.7216**	**0.1822**		**2,332.2759**

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	lb/day										lb/day					
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
Vendor	0.0216	1.1041	0.1752	5.2400e-003	0.1851	8.7200e-003	0.1939	0.0533	8.3400e-003	0.0616		552.5173	552.5173	1.0400e-003	0.0799	576.3384
Worker	0.2786	0.2268	2.5012	8.9500e-003	1.1397	5.3900e-003	1.1451	0.3022	4.9600e-003	0.3071		922.7928	922.7928	0.0121	0.0210	929.3509
Total	**0.3002**	**1.3309**	**2.6764**	**0.0142**	**1.3249**	**0.0141**	**1.3390**	**0.3554**	**0.0133**	**0.3687**		**1,475.3101**	**1,475.3101**	**0.0132**	**0.1008**	**1,505.6893**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Above Grade Construction - 2024

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	lb/day										lb/day					
Off-Road	0.5042	8.2337	13.4948	0.0237		0.0331	0.0331		0.0331	0.0331	0.0000	2,327.7216	2,327.7216	0.1822		2,332.2759
Total	**0.5042**	**8.2337**	**13.4948**	**0.0237**		**0.0331**	**0.0331**		**0.0331**	**0.0331**	**0.0000**	**2,327.7216**	**2,327.7216**	**0.1822**		**2,332.2759**

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	lb/day										lb/day					
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
Vendor	0.0216	1.1041	0.1752	5.2400e-003	0.1851	8.7200e-003	0.1939	0.0533	8.3400e-003	0.0616		552.5173	552.5173	1.0400e-003	0.0799	576.3384
Worker	0.2786	0.2268	2.5012	8.9500e-003	1.1397	5.3900e-003	1.1451	0.3022	4.9600e-003	0.3071		922.7928	922.7928	0.0121	0.0210	929.3509
Total	**0.3002**	**1.3309**	**2.6764**	**0.0142**	**1.3249**	**0.0141**	**1.3390**	**0.3554**	**0.0133**	**0.3687**		**1,475.3101**	**1,475.3101**	**0.0132**	**0.1008**	**1,505.6893**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 PGE Distribution Uptrades - 2024

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	lb/day										lb/day					
Off-Road	0.8270	8.2338	10.3856	0.0216		0.3258	0.3258		0.2997	0.2997		2,089.1768	2,089.1768	0.6757		2,106.0688
Total	**0.8270**	**8.2338**	**10.3856**	**0.0216**		**0.3258**	**0.3258**		**0.2997**	**0.2997**		**2,089.1768**	**2,089.1768**	**0.6757**		**2,106.0688**

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	lb/day										lb/day					
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
Vendor	0.0130	0.6625	0.1051	3.1500e-003	0.1111	5.2300e-003	0.1163	0.0320	5.0000e-003	0.0370		331.5104	331.5104	6.2000e-004	0.0479	345.8030
Worker	0.0557	0.0454	0.5002	1.7900e-003	0.2279	1.0800e-003	0.2290	0.0604	9.9000e-004	0.0614		184.5586	184.5586	2.4300e-003	4.2000e-003	185.8702
Total	**0.0687**	**0.7078**	**0.6054**	**4.9400e-003**	**0.3390**	**6.3100e-003**	**0.3453**	**0.0924**	**5.9900e-003**	**0.0984**		**516.0690**	**516.0690**	**3.0500e-003**	**0.0521**	**531.6732**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 PGE Distribution Uptrades - 2024

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	lb/day										lb/day					
Off-Road	0.3347	8.5057	14.0569	0.0216		0.0194	0.0194		0.0186	0.0186	0.0000	2,089.1768	2,089.1768	0.6757		2,106.0688
Total	**0.3347**	**8.5057**	**14.0569**	**0.0216**		**0.0194**	**0.0194**		**0.0186**	**0.0186**	**0.0000**	**2,089.1768**	**2,089.1768**	**0.6757**		**2,106.0688**

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	lb/day										lb/day					
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
Vendor	0.0130	0.6625	0.1051	3.1500e-003	0.1111	5.2300e-003	0.1163	0.0320	5.0000e-003	0.0370		331.5104	331.5104	6.2000e-004	0.0479	345.8030
Worker	0.0557	0.0454	0.5002	1.7900e-003	0.2279	1.0800e-003	0.2290	0.0604	9.9000e-004	0.0614		184.5586	184.5586	2.4300e-003	4.2000e-003	185.8702
Total	**0.0687**	**0.7078**	**0.6054**	**4.9400e-003**	**0.3390**	**6.3100e-003**	**0.3453**	**0.0924**	**5.9900e-003**	**0.0984**		**516.0690**	**516.0690**	**3.0500e-003**	**0.0521**	**531.6732**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 PGE 500 KV Interconnection - 2024

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	lb/day										lb/day					
Off-Road	3.1369	27.6044	28.8458	0.0823		0.9560	0.9560		0.8795	0.8795		7,962.1254	7,962.1254	2.5751		8,026.5032
Total	**3.1369**	**27.6044**	**28.8458**	**0.0823**		**0.9560**	**0.9560**		**0.8795**	**0.8795**		**7,962.1254**	**7,962.1254**	**2.5751**		**8,026.5032**

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	lb/day										lb/day					
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
Vendor	0.0130	0.6625	0.1051	3.1500e-003	0.1111	5.2300e-003	0.1163	0.0320	5.0000e-003	0.0370		331.5104	331.5104	6.2000e-004	0.0479	345.8030
Worker	0.0557	0.0454	0.5002	1.7900e-003	0.2279	1.0800e-003	0.2290	0.0604	9.9000e-004	0.0614		184.5586	184.5586	2.4300e-003	4.2000e-003	185.8702
Total	**0.0687**	**0.7078**	**0.6054**	**4.9400e-003**	**0.3390**	**6.3100e-003**	**0.3453**	**0.0924**	**5.9900e-003**	**0.0984**		**516.0690**	**516.0690**	**3.0500e-003**	**0.0521**	**531.6732**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 PGE 500 KV Interconnection - 2024

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	lb/day										lb/day					
Off-Road	2.3338	27.6148	35.4724	0.0823		0.4535	0.4535		0.4207	0.4207	0.0000	7,962.1253	7,962.1253	2.5751		8,026.5032
Total	**2.3338**	**27.6148**	**35.4724**	**0.0823**		**0.4535**	**0.4535**		**0.4207**	**0.4207**	**0.0000**	**7,962.1253**	**7,962.1253**	**2.5751**		**8,026.5032**

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	lb/day										lb/day					
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
Vendor	0.0130	0.6625	0.1051	3.1500e-003	0.1111	5.2300e-003	0.1163	0.0320	5.0000e-003	0.0370		331.5104	331.5104	6.2000e-004	0.0479	345.8030
Worker	0.0557	0.0454	0.5002	1.7900e-003	0.2279	1.0800e-003	0.2290	0.0604	9.9000e-004	0.0614		184.5586	184.5586	2.4300e-003	4.2000e-003	185.8702
Total	**0.0687**	**0.7078**	**0.6054**	**4.9400e-003**	**0.3390**	**6.3100e-003**	**0.3453**	**0.0924**	**5.9900e-003**	**0.0984**		**516.0690**	**516.0690**	**3.0500e-003**	**0.0521**	**531.6732**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.8 Commisioning and Testing - 2024

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	lb/day										lb/day					
Off-Road	0.1275	2.3213	2.5019	4.3600e-003		0.0174	0.0174		0.0160	0.0160		422.0113	422.0113	0.1365		425.4235
Total	**0.1275**	**2.3213**	**2.5019**	**4.3600e-003**		**0.0174**	**0.0174**		**0.0160**	**0.0160**		**422.0113**	**422.0113**	**0.1365**		**425.4235**

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	lb/day										lb/day					
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
Vendor	0.0216	1.1041	0.1752	5.2400e-003	0.1851	8.7200e-003	0.1939	0.0533	8.3400e-003	0.0616		552.5173	552.5173	1.0400e-003	0.0799	576.3384
Worker	0.0929	0.0756	0.8337	2.9800e-003	0.3799	1.8000e-003	0.3817	0.1007	1.6500e-003	0.1024		307.5976	307.5976	4.0400e-003	7.0000e-003	309.7836
Total	**0.1145**	**1.1797**	**1.0089**	**8.2200e-003**	**0.5650**	**0.0105**	**0.5756**	**0.1540**	**9.9900e-003**	**0.1640**		**860.1149**	**860.1149**	**5.0800e-003**	**0.0869**	**886.1220**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.8 Commisioning and Testing - 2024

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	lb/day										lb/day					
Off-Road	0.0965	3.6569	3.2952	4.3600e-003		0.0154	0.0154		0.0154	0.0154	0.0000	422.0113	422.0113	0.1365		425.4235
Total	**0.0965**	**3.6569**	**3.2952**	**4.3600e-003**		**0.0154**	**0.0154**		**0.0154**	**0.0154**	**0.0000**	**422.0113**	**422.0113**	**0.1365**		**425.4235**

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	lb/day										lb/day					
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
Vendor	0.0216	1.1041	0.1752	5.2400e-003	0.1851	8.7200e-003	0.1939	0.0533	8.3400e-003	0.0616		552.5173	552.5173	1.0400e-003	0.0799	576.3384
Worker	0.0929	0.0756	0.8337	2.9800e-003	0.3799	1.8000e-003	0.3817	0.1007	1.6500e-003	0.1024		307.5976	307.5976	4.0400e-003	7.0000e-003	309.7836
Total	**0.1145**	**1.1797**	**1.0089**	**8.2200e-003**	**0.5650**	**0.0105**	**0.5756**	**0.1540**	**9.9900e-003**	**0.1640**		**860.1149**	**860.1149**	**5.0800e-003**	**0.0869**	**886.1220**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	lb/day										lb/day					
Mitigated	0.0208	0.0446	0.2210	4.4000e-004	0.0453	5.0000e-004	0.0458	0.0121	4.8000e-004	0.0126		45.5296	45.5296	2.7300e-003	2.6200e-003	46.3774
Unmitigated	0.0208	0.0446	0.2210	4.4000e-004	0.0453	5.0000e-004	0.0458	0.0121	4.8000e-004	0.0126		45.5296	45.5296	2.7300e-003	2.6200e-003	46.3774

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	4.00	0.00	0.00	15,288	15,288
Total	4.00	0.00	0.00	15,288	15,288

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
User Defined Industrial	14.70	6.60	6.60	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.489904	0.053513	0.186430	0.142392	0.042996	0.009122	0.009394	0.022860	0.000635	0.000162	0.035216	0.001418	0.005957

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	lb/day										lb/day					
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

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	lb/day										lb/day					
User Defined Industrial	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
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**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

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	lb/day										lb/day					
User Defined Industrial	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
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**

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	lb/day										lb/day					
Mitigated	0.5134	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.5134	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	lb/day										lb/day					
Architectural Coating	0.1175					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3959					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.5134**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	lb/day										lb/day					
Architectural Coating	0.1175					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3959					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.5134**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

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

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025)

Shasta County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	9.20	18,500.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	82
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site area is 9.2 Acre; 2 small control buildings will be installed (Estimated to be 8,000 SF) and one 10,500 SF GIS building = 18500 SF

Construction Phase - LSPGC Round Mountain Schedule and includes Construction List provided by applicant.

Off-road Equipment - construction list overlaps entirely with PGE 500 KV Interconnection... duplicate equipment listed in PD are the same physical piece of equipment

Off-road Equipment - Construction Equipment

Off-road Equipment - Construction Equipment

Off-road Equipment - Construction Equipment

Off-road Equipment - Construction Equipment

Off-road Equipment - Construction Equipment

Off-road Equipment - Construction Schedule. Equipment listed for multiple phases within PD where overlap occurs are the same physical piece of equipment. Corrections have been appled to the list provided by applicant.

Trips and VMT - Daily vehicle trips identified in Table 3-7 of PD. Hauling trips incorporated in average ADT for Trucks and worker trips

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading - The project would import 16,000 CY of gravel and export 17,000 CY

Architectural Coating -

Vehicle Trips - 4 trips per weekday

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating -

Energy Use - 87 kw per STATCOM enclosure and 22 kw for GIS building Total 1,716,960 kWH or (1,716,960/18,500) or 92.80 kWH per SF

Construction Off-road Equipment Mitigation - 30% of HP will be Tier 4 with DPF

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	230.00	472.00
tblConstructionPhase	NumDays	230.00	210.00
tblConstructionPhase	NumDays	230.00	53.00
tblConstructionPhase	NumDays	230.00	106.00
tblConstructionPhase	NumDays	230.00	105.00
tblConstructionPhase	NumDays	20.00	80.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblEnergyUse	NT24E	0.00	92.80
tblGrading	MaterialExported	0.00	17,000.00
tblGrading	MaterialImported	0.00	16,000.00
tblLandUse	LandUseSquareFeet	0.00	18,500.00
tblLandUse	LotAcreage	0.00	9.20
tblOffRoadEquipment	HorsePower	231.00	250.00
tblOffRoadEquipment	HorsePower	231.00	250.00
tblOffRoadEquipment	HorsePower	89.00	130.00
tblOffRoadEquipment	HorsePower	89.00	130.00
tblOffRoadEquipment	HorsePower	89.00	130.00
tblOffRoadEquipment	HorsePower	187.00	250.00
tblOffRoadEquipment	HorsePower	46.00	395.00
tblOffRoadEquipment	HorsePower	46.00	395.00
tblOffRoadEquipment	HorsePower	63.00	49.00
tblOffRoadEquipment	HorsePower	63.00	49.00
tblOffRoadEquipment	HorsePower	63.00	49.00
tblOffRoadEquipment	HorsePower	63.00	74.00
tblOffRoadEquipment	HorsePower	63.00	49.00
tblOffRoadEquipment	HorsePower	221.00	125.00
tblOffRoadEquipment	HorsePower	221.00	125.00
tblOffRoadEquipment	HorsePower	221.00	125.00
tblOffRoadEquipment	HorsePower	221.00	125.00
tblOffRoadEquipment	HorsePower	158.00	70.00
tblOffRoadEquipment	HorsePower	158.00	108.00
tblOffRoadEquipment	HorsePower	158.00	70.00
tblOffRoadEquipment	HorsePower	89.00	100.00
tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	HorsePower	402.00	415.00
tblOffRoadEquipment	HorsePower	402.00	300.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	HorsePower	402.00	415.00
tblOffRoadEquipment	HorsePower	402.00	210.00
tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	HorsePower	402.00	415.00
tblOffRoadEquipment	HorsePower	80.00	405.00
tblOffRoadEquipment	HorsePower	203.00	275.00
tblOffRoadEquipment	HorsePower	203.00	275.00
tblOffRoadEquipment	HorsePower	203.00	275.00
tblOffRoadEquipment	HorsePower	65.00	74.00
tblOffRoadEquipment	HorsePower	97.00	68.00
tblOffRoadEquipment	HorsePower	78.00	75.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	5.00
tblOffRoadEquipment	UsageHours	7.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	4,125.00	0.00
tblTripsAndVMT	VendorTripLength	6.60	40.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripLength	6.60	40.00
tblTripsAndVMT	VendorTripNumber	0.00	15.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	3.00	5.00
tblTripsAndVMT	VendorTripNumber	3.00	5.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripLength	16.80	100.00
tblTripsAndVMT	WorkerTripNumber	35.00	8.00
tblTripsAndVMT	WorkerTripNumber	8.00	3.00
tblTripsAndVMT	WorkerTripNumber	53.00	15.00
tblTripsAndVMT	WorkerTripNumber	8.00	15.00
tblTripsAndVMT	WorkerTripNumber	8.00	3.00
tblTripsAndVMT	WorkerTripNumber	8.00	3.00
tblTripsAndVMT	WorkerTripNumber	8.00	5.00
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	0.00	4.00

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
2023	0.8822	7.4197	8.3951	0.0240	0.2459	0.2871	0.5330	0.0625	0.2673	0.3298	0.0000	2,143.3909	2,143.3909	0.5261	0.0299	2,165.4537
2024	0.4508	3.8551	5.0778	0.0135	0.2041	0.1338	0.3379	0.0554	0.1259	0.1813	0.0000	1,216.4373	1,216.4373	0.2408	0.0211	1,228.7346
Maximum	**0.8822**	**7.4197**	**8.3951**	**0.0240**	**0.2459**	**0.2871**	**0.5330**	**0.0625**	**0.2673**	**0.3298**	**0.0000**	**2,143.3909**	**2,143.3909**	**0.5261**	**0.0299**	**2,165.4537**

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					
2023	0.6870	7.5297	9.2674	0.0240	0.2459	0.1427	0.3886	0.0625	0.1326	0.1951	0.0000	2,143.3887	2,143.3887	0.5261	0.0299	2,165.4515
2024	0.3125	4.3211	5.9743	0.0135	0.2041	0.0464	0.2504	0.0554	0.0439	0.0992	0.0000	1,216.4362	1,216.4362	0.2408	0.0211	1,228.7335
Maximum	**0.6870**	**7.5297**	**9.2674**	**0.0240**	**0.2459**	**0.1427**	**0.3886**	**0.0625**	**0.1326**	**0.1951**	**0.0000**	**2,143.3887**	**2,143.3887**	**0.5261**	**0.0299**	**2,165.4515**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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	**25.02**	**-5.11**	**-13.13**	**0.00**	**0.00**	**55.07**	**26.62**	**0.00**	**55.12**	**42.41**	**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)
9	**1-1-2023**	**3-31-2023**	0.9640	0.8862
10	**4-1-2023**	**6-30-2023**	2.7431	2.6071
11	**7-1-2023**	**9-30-2023**	2.5434	2.6077
12	**10-1-2023**	**12-31-2023**	2.0344	2.1004
13	**1-1-2024**	**3-31-2024**	0.8685	0.9786
14	**4-1-2024**	**6-30-2024**	1.1167	1.2210
15	**7-1-2024**	**9-30-2024**	1.3711	1.4715
		Highest	2.7431	2.6077

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0937	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	158.8448	158.8448	0.0257	3.1100e-003	160.4155
Mobile	2.7300e-003	5.5100e-003	0.0276	6.0000e-005	5.6100e-003	7.0000e-005	5.6700e-003	1.5000e-003	6.0000e-005	1.5700e-003	0.0000	5.4693	5.4693	3.1000e-004	3.0000e-004	5.5657
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0964**	**5.5100e-003**	**0.0276**	**6.0000e-005**	**5.6100e-003**	**7.0000e-005**	**5.6700e-003**	**1.5000e-003**	**6.0000e-005**	**1.5700e-003**	**0.0000**	**164.3141**	**164.3141**	**0.0260**	**3.4100e-003**	**165.9812**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0937	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	158.8448	158.8448	0.0257	3.1100e-003	160.4155
Mobile	2.7300e-003	5.5100e-003	0.0276	6.0000e-005	5.6100e-003	7.0000e-005	5.6700e-003	1.5000e-003	6.0000e-005	1.5700e-003	0.0000	5.4693	5.4693	3.1000e-004	3.0000e-004	5.5657
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0964**	**5.5100e-003**	**0.0276**	**6.0000e-005**	**5.6100e-003**	**7.0000e-005**	**5.6700e-003**	**1.5000e-003**	**6.0000e-005**	**1.5700e-003**	**0.0000**	**164.3141**	**164.3141**	**0.0260**	**3.4100e-003**	**165.9812**

	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	Road work, site and staging	Grading	3/1/2023	6/1/2023	6	80	
2	PGE Substation Upgrade	Building Construction	3/1/2023	9/1/2024	6	472	
3	Below Grade Const	Trenching	6/1/2023	12/1/2023	6	158	

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Above Grade Construction	Building Construction	12/1/2023	8/1/2024	6	210	
5	PGE Distribution Uptrades	Building Construction	5/1/2024	7/1/2024	6	53	
6	PGE 500 KV Interconnection	Building Construction	8/1/2024	12/2/2024	6	106	
7	Commisioning and Testing	Building Construction	8/1/2024	12/1/2024	6	105	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 50

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Road work, site and staging	Graders	1	10.00	250	0.41
Road work, site and staging	Off-Highway Trucks	4	10.00	300	0.38
Road work, site and staging	Off-Highway Trucks	6	5.00	415	0.38
Road work, site and staging	Rollers	1	10.00	405	0.38
Road work, site and staging	Rubber Tired Loaders	2	10.00	275	0.36
PGE Substation Upgrade	Aerial Lifts	1	10.00	49	0.31
PGE Substation Upgrade	Bore/Drill Rigs	2	10.00	125	0.50
PGE Substation Upgrade	Excavators	1	5.00	70	0.38
PGE Substation Upgrade	Forklifts	1	10.00	130	0.20
PGE Substation Upgrade	Rubber Tired Loaders	1	5.00	275	0.36
PGE Substation Upgrade	Welders	2	2.00	395	0.45
Below Grade Const	Bore/Drill Rigs	2	8.00	125	0.50
Below Grade Const	Excavators	2	10.00	108	0.38
Below Grade Const	Excavators	1	5.00	70	0.38
Below Grade Const	Forklifts	2	4.00	100	0.20
Below Grade Const	Generator Sets	2	10.00	84	0.74

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Below Grade Const	Off-Highway Trucks	2	10.00	300	0.38
Below Grade Const	Off-Highway Trucks	3	8.00	415	0.38
Below Grade Const	Rubber Tired Loaders	1	10.00	275	0.36
Below Grade Const	Skid Steer Loaders	2	10.00	74	0.37
Below Grade Const	Tractors/Loaders/Backhoes	2	5.00	68	0.37
Below Grade Const	Trenchers	2	5.00	75	0.50
Above Grade Construction	Forklifts	3	4.00	130	0.20
Above Grade Construction	Generator Sets	2	10.00	84	0.74
Above Grade Construction	Welders	1	2.00	395	0.45
PGE Distribution Uptrades	Aerial Lifts	1	8.00	49	0.31
PGE Distribution Uptrades	Bore/Drill Rigs	2	8.00	125	0.50
PGE Distribution Uptrades	Cranes	2	5.00	250	0.29
PGE Distribution Uptrades	Forklifts	1	2.00	130	0.20
PGE Distribution Uptrades	Off-Highway Trucks	1	1.00	210	0.38
PGE 500 KV Interconnection	Aerial Lifts	3	10.00	49	0.31
PGE 500 KV Interconnection	Aerial Lifts	2	10.00	74	0.31
PGE 500 KV Interconnection	Bore/Drill Rigs	2	8.00	125	0.50
PGE 500 KV Interconnection	Cranes	2	10.00	250	0.29
PGE 500 KV Interconnection	Off-Highway Trucks	4	4.00	300	0.38
PGE 500 KV Interconnection	Off-Highway Trucks	3	5.00	415	0.38
Commisioning and Testing	Aerial Lifts	3	8.00	49	0.31

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
Road work, site and staging	14	8.00	15.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT
PGE Substation Upgrade	8	3.00	3.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT
Below Grade Const	21	15.00	10.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT

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Above Grade Construction	6	15.00	5.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT
PGE Distribution Utrades	7	3.00	3.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT
PGE 500 KV Interconnection	16	3.00	3.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT
Commisioning and Testing	3	5.00	5.00	0.00	100.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

3.2 Road work, site and staging - 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					
Fugitive Dust					0.0290	0.0000	0.0290	3.2300e-003	0.0000	3.2300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2455	2.0327	1.6203	5.9800e-003		0.0740	0.0740		0.0681	0.0681	0.0000	525.0498	525.0498	0.1698	0.0000	529.2951
Total	**0.2455**	**2.0327**	**1.6203**	**5.9800e-003**	**0.0290**	**0.0740**	**0.1030**	**3.2300e-003**	**0.0681**	**0.0713**	**0.0000**	**525.0498**	**525.0498**	**0.1698**	**0.0000**	**529.2951**

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3.2 Road work, site and staging - 2023

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	2.6700e-003	0.1310	0.0220	6.4000e-004	0.0213	1.0500e-003	0.0224	6.1700e-003	1.0100e-003	7.1800e-003	0.0000	61.0918	61.0918	1.2000e-004	8.8300e-003	63.7271
Worker	5.6400e-003	4.9600e-003	0.0613	2.0000e-004	0.0231	1.2000e-004	0.0233	6.1500e-003	1.1000e-004	6.2700e-003	0.0000	18.8741	18.8741	2.7000e-004	4.1000e-004	19.0039
Total	**8.3100e-003**	**0.1360**	**0.0833**	**8.4000e-004**	**0.0445**	**1.1700e-003**	**0.0456**	**0.0123**	**1.1200e-003**	**0.0135**	**0.0000**	**79.9658**	**79.9658**	**3.9000e-004**	**9.2400e-003**	**82.7309**

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					0.0290	0.0000	0.0290	3.2300e-003	0.0000	3.2300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2092	1.7026	1.8296	5.9800e-003		0.0516	0.0516		0.0475	0.0475	0.0000	525.0492	525.0492	0.1698	0.0000	529.2945
Total	**0.2092**	**1.7026**	**1.8296**	**5.9800e-003**	**0.0290**	**0.0516**	**0.0806**	**3.2300e-003**	**0.0475**	**0.0508**	**0.0000**	**525.0492**	**525.0492**	**0.1698**	**0.0000**	**529.2945**

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3.2 Road work, site and staging - 2023

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	2.6700e-003	0.1310	0.0220	6.4000e-004	0.0213	1.0500e-003	0.0224	6.1700e-003	1.0100e-003	7.1800e-003	0.0000	61.0918	61.0918	1.2000e-004	8.8300e-003	63.7271
Worker	5.6400e-003	4.9600e-003	0.0613	2.0000e-004	0.0231	1.2000e-004	0.0233	6.1500e-003	1.1000e-004	6.2700e-003	0.0000	18.8741	18.8741	2.7000e-004	4.1000e-004	19.0039
Total	**8.3100e-003**	**0.1360**	**0.0833**	**8.4000e-004**	**0.0445**	**1.1700e-003**	**0.0456**	**0.0123**	**1.1200e-003**	**0.0135**	**0.0000**	**79.9658**	**79.9658**	**3.9000e-004**	**9.2400e-003**	**82.7309**

3.3 PGE Substation Upgrade - 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	0.1547	1.2977	1.9905	4.3000e-003		0.0496	0.0496		0.0463	0.0463	0.0000	393.0387	393.0387	0.0964	0.0000	395.4491
Total	**0.1547**	**1.2977**	**1.9905**	**4.3000e-003**		**0.0496**	**0.0496**		**0.0463**	**0.0463**	**0.0000**	**393.0387**	**393.0387**	**0.0964**	**0.0000**	**395.4491**

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3.3 PGE Substation Upgrade - 2023

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	1.7500e-003	0.0858	0.0144	4.2000e-004	0.0140	6.9000e-004	0.0147	4.0400e-003	6.6000e-004	4.7000e-003	0.0000	40.0151	40.0151	8.0000e-005	5.7900e-003	41.7412
Worker	6.9300e-003	6.1000e-003	0.0753	2.5000e-004	0.0284	1.5000e-004	0.0286	7.5600e-003	1.4000e-004	7.7000e-003	0.0000	23.1797	23.1797	3.4000e-004	5.1000e-004	23.3391
Total	**8.6800e-003**	**0.0919**	**0.0897**	**6.7000e-004**	**0.0424**	**8.4000e-004**	**0.0432**	**0.0116**	**8.0000e-004**	**0.0124**	**0.0000**	**63.1948**	**63.1948**	**4.2000e-004**	**6.3000e-003**	**65.0803**

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	0.1112	1.7740	2.3457	4.3000e-003		0.0206	0.0206		0.0198	0.0198	0.0000	393.0382	393.0382	0.0964	0.0000	395.4487
Total	**0.1112**	**1.7740**	**2.3457**	**4.3000e-003**		**0.0206**	**0.0206**		**0.0198**	**0.0198**	**0.0000**	**393.0382**	**393.0382**	**0.0964**	**0.0000**	**395.4487**

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3.3 PGE Substation Upgrade - 2023

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	1.7500e-003	0.0858	0.0144	4.2000e-004	0.0140	6.9000e-004	0.0147	4.0400e-003	6.6000e-004	4.7000e-003	0.0000	40.0151	40.0151	8.0000e-005	5.7900e-003	41.7412
Worker	6.9300e-003	6.1000e-003	0.0753	2.5000e-004	0.0284	1.5000e-004	0.0286	7.5600e-003	1.4000e-004	7.7000e-003	0.0000	23.1797	23.1797	3.4000e-004	5.1000e-004	23.3391
Total	**8.6800e-003**	**0.0919**	**0.0897**	**6.7000e-004**	**0.0424**	**8.4000e-004**	**0.0432**	**0.0116**	**8.0000e-004**	**0.0124**	**0.0000**	**63.1948**	**63.1948**	**4.2000e-004**	**6.3000e-003**	**65.0803**

3.3 PGE Substation Upgrade - 2024

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	0.1197	0.9622	1.5933	3.4400e-003		0.0364	0.0364		0.0340	0.0340	0.0000	314.8579	314.8579	0.0771	0.0000	316.7848
Total	**0.1197**	**0.9622**	**1.5933**	**3.4400e-003**		**0.0364**	**0.0364**		**0.0340**	**0.0340**	**0.0000**	**314.8579**	**314.8579**	**0.0771**	**0.0000**	**316.7848**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 PGE Substation Upgrade - 2024

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	1.3400e-003	0.0679	0.0110	3.3000e-004	0.0112	5.5000e-004	0.0117	3.2400e-003	5.3000e-004	3.7600e-003	0.0000	31.5706	31.5706	6.0000e-005	4.5600e-003	32.9311
Worker	5.2000e-003	4.2800e-003	0.0555	1.9000e-004	0.0228	1.1000e-004	0.0229	6.0600e-003	1.0000e-004	6.1600e-003	0.0000	18.1125	18.1125	2.4000e-004	3.7000e-004	18.2295
Total	**6.5400e-003**	**0.0722**	**0.0665**	**5.2000e-004**	**0.0340**	**6.6000e-004**	**0.0346**	**9.3000e-003**	**6.3000e-004**	**9.9200e-003**	**0.0000**	**49.6832**	**49.6832**	**3.0000e-004**	**4.9300e-003**	**51.1606**

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	0.0868	1.3777	1.8761	3.4400e-003		0.0149	0.0149		0.0144	0.0144	0.0000	314.8575	314.8575	0.0771	0.0000	316.7844
Total	**0.0868**	**1.3777**	**1.8761**	**3.4400e-003**		**0.0149**	**0.0149**		**0.0144**	**0.0144**	**0.0000**	**314.8575**	**314.8575**	**0.0771**	**0.0000**	**316.7844**

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3.3 PGE Substation Upgrade - 2024

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	1.3400e-003	0.0679	0.0110	3.3000e-004	0.0112	5.5000e-004	0.0117	3.2400e-003	5.3000e-004	3.7600e-003	0.0000	31.5706	31.5706	6.0000e-005	4.5600e-003	32.9311
Worker	5.2000e-003	4.2800e-003	0.0555	1.9000e-004	0.0228	1.1000e-004	0.0229	6.0600e-003	1.0000e-004	6.1600e-003	0.0000	18.1125	18.1125	2.4000e-004	3.7000e-004	18.2295
Total	**6.5400e-003**	**0.0722**	**0.0665**	**5.2000e-004**	**0.0340**	**6.6000e-004**	**0.0346**	**9.3000e-003**	**6.3000e-004**	**9.9200e-003**	**0.0000**	**49.6832**	**49.6832**	**3.0000e-004**	**4.9300e-003**	**51.1606**

3.4 Below Grade Const - 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	0.4226	3.5330	4.1572	0.0101		0.1539	0.1539		0.1436	0.1436	0.0000	886.2398	886.2398	0.2554	0.0000	892.6257
Total	**0.4226**	**3.5330**	**4.1572**	**0.0101**		**0.1539**	**0.1539**		**0.1436**	**0.1436**	**0.0000**	**886.2398**	**886.2398**	**0.2554**	**0.0000**	**892.6257**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Below Grade Const - 2023

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	3.5100e-003	0.1725	0.0289	8.4000e-004	0.0281	1.3900e-003	0.0295	8.1200e-003	1.3300e-003	9.4500e-003	0.0000	80.4375	80.4375	1.6000e-004	0.0116	83.9073
Worker	0.0209	0.0184	0.2271	7.5000e-004	0.0856	4.5000e-004	0.0861	0.0228	4.1000e-004	0.0232	0.0000	69.8930	69.8930	1.0200e-003	1.5300e-003	70.3736
Total	**0.0244**	**0.1909**	**0.2561**	**1.5900e-003**	**0.1137**	**1.8400e-003**	**0.1156**	**0.0309**	**1.7400e-003**	**0.0327**	**0.0000**	**150.3305**	**150.3305**	**1.1800e-003**	**0.0132**	**154.2809**

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	0.3147	3.5086	4.4478	0.0101		0.0660	0.0660		0.0610	0.0610	0.0000	886.2387	886.2387	0.2554	0.0000	892.6246
Total	**0.3147**	**3.5086**	**4.4478**	**0.0101**		**0.0660**	**0.0660**		**0.0610**	**0.0610**	**0.0000**	**886.2387**	**886.2387**	**0.2554**	**0.0000**	**892.6246**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Below Grade Const - 2023

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	3.5100e-003	0.1725	0.0289	8.4000e-004	0.0281	1.3900e-003	0.0295	8.1200e-003	1.3300e-003	9.4500e-003	0.0000	80.4375	80.4375	1.6000e-004	0.0116	83.9073
Worker	0.0209	0.0184	0.2271	7.5000e-004	0.0856	4.5000e-004	0.0861	0.0228	4.1000e-004	0.0232	0.0000	69.8930	69.8930	1.0200e-003	1.5300e-003	70.3736
Total	**0.0244**	**0.1909**	**0.2561**	**1.5900e-003**	**0.1137**	**1.8400e-003**	**0.1156**	**0.0309**	**1.7400e-003**	**0.0327**	**0.0000**	**150.3305**	**150.3305**	**1.1800e-003**	**0.0132**	**154.2809**

3.5 Above Grade Construction - 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	0.0143	0.1203	0.1582	3.1000e-004		5.5800e-003	5.5800e-003		5.5100e-003	5.5100e-003	0.0000	27.4518	27.4518	2.2200e-003	0.0000	27.5073
Total	**0.0143**	**0.1203**	**0.1582**	**3.1000e-004**		**5.5800e-003**	**5.5800e-003**		**5.5100e-003**	**5.5100e-003**	**0.0000**	**27.4518**	**27.4518**	**2.2200e-003**	**0.0000**	**27.5073**

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3.5 Above Grade Construction - 2023

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	2.9000e-004	0.0142	2.3800e-003	7.0000e-005	2.3100e-003	1.1000e-004	2.4200e-003	6.7000e-004	1.1000e-004	7.8000e-004	0.0000	6.6183	6.6183	1.0000e-005	9.6000e-004	6.9038
Worker	3.4400e-003	3.0200e-003	0.0374	1.2000e-004	0.0141	7.0000e-005	0.0142	3.7500e-003	7.0000e-005	3.8200e-003	0.0000	11.5014	11.5014	1.7000e-004	2.5000e-004	11.5805
Total	**3.7300e-003**	**0.0172**	**0.0398**	**1.9000e-004**	**0.0164**	**1.8000e-004**	**0.0166**	**4.4200e-003**	**1.8000e-004**	**4.6000e-003**	**0.0000**	**18.1197**	**18.1197**	**1.8000e-004**	**1.2100e-003**	**18.4842**

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	6.6500e-003	0.1086	0.1755	3.1000e-004		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004	0.0000	27.4517	27.4517	2.2200e-003	0.0000	27.5073
Total	**6.6500e-003**	**0.1086**	**0.1755**	**3.1000e-004**		**4.8000e-004**	**4.8000e-004**		**4.8000e-004**	**4.8000e-004**	**0.0000**	**27.4517**	**27.4517**	**2.2200e-003**	**0.0000**	**27.5073**

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3.5 Above Grade Construction - 2023

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	2.9000e-004	0.0142	2.3800e-003	7.0000e-005	2.3100e-003	1.1000e-004	2.4200e-003	6.7000e-004	1.1000e-004	7.8000e-004	0.0000	6.6183	6.6183	1.0000e-005	9.6000e-004	6.9038
Worker	3.4400e-003	3.0200e-003	0.0374	1.2000e-004	0.0141	7.0000e-005	0.0142	3.7500e-003	7.0000e-005	3.8200e-003	0.0000	11.5014	11.5014	1.7000e-004	2.5000e-004	11.5805
Total	**3.7300e-003**	**0.0172**	**0.0398**	**1.9000e-004**	**0.0164**	**1.8000e-004**	**0.0166**	**4.4200e-003**	**1.8000e-004**	**4.6000e-003**	**0.0000**	**18.1197**	**18.1197**	**1.8000e-004**	**1.2100e-003**	**18.4842**

3.5 Above Grade Construction - 2024

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	0.0946	0.7849	1.1180	2.1800e-003		0.0342	0.0342		0.0337	0.0337	0.0000	194.2740	194.2740	0.0152	0.0000	194.6541
Total	**0.0946**	**0.7849**	**1.1180**	**2.1800e-003**		**0.0342**	**0.0342**		**0.0337**	**0.0337**	**0.0000**	**194.2740**	**194.2740**	**0.0152**	**0.0000**	**194.6541**

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3.5 Above Grade Construction - 2024

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	1.9600e-003	0.0992	0.0161	4.8000e-004	0.0164	8.0000e-004	0.0172	4.7300e-003	7.7000e-004	5.5000e-003	0.0000	46.1031	46.1031	9.0000e-005	6.6600e-003	48.0898
Worker	0.0228	0.0188	0.2430	8.5000e-004	0.0997	5.0000e-004	0.1002	0.0265	4.6000e-004	0.0270	0.0000	79.3501	79.3501	1.0500e-003	1.6300e-003	79.8626
Total	**0.0247**	**0.1179**	**0.2590**	**1.3300e-003**	**0.1161**	**1.3000e-003**	**0.1174**	**0.0313**	**1.2300e-003**	**0.0325**	**0.0000**	**125.4533**	**125.4533**	**1.1400e-003**	**8.2900e-003**	**127.9524**

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	0.0464	0.7575	1.2415	2.1800e-003		3.0500e-003	3.0500e-003		3.0500e-003	3.0500e-003	0.0000	194.2737	194.2737	0.0152	0.0000	194.6538
Total	**0.0464**	**0.7575**	**1.2415**	**2.1800e-003**		**3.0500e-003**	**3.0500e-003**		**3.0500e-003**	**3.0500e-003**	**0.0000**	**194.2737**	**194.2737**	**0.0152**	**0.0000**	**194.6538**

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3.5 Above Grade Construction - 2024

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	1.9600e-003	0.0992	0.0161	4.8000e-004	0.0164	8.0000e-004	0.0172	4.7300e-003	7.7000e-004	5.5000e-003	0.0000	46.1031	46.1031	9.0000e-005	6.6600e-003	48.0898
Worker	0.0228	0.0188	0.2430	8.5000e-004	0.0997	5.0000e-004	0.1002	0.0265	4.6000e-004	0.0270	0.0000	79.3501	79.3501	1.0500e-003	1.6300e-003	79.8626
Total	**0.0247**	**0.1179**	**0.2590**	**1.3300e-003**	**0.1161**	**1.3000e-003**	**0.1174**	**0.0313**	**1.2300e-003**	**0.0325**	**0.0000**	**125.4533**	**125.4533**	**1.1400e-003**	**8.2900e-003**	**127.9524**

3.6 PGE Distribution Uptrades - 2024

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	0.0219	0.2182	0.2752	5.7000e-004		8.6300e-003	8.6300e-003		7.9400e-003	7.9400e-003	0.0000	50.2246	50.2246	0.0162	0.0000	50.6307
Total	**0.0219**	**0.2182**	**0.2752**	**5.7000e-004**		**8.6300e-003**	**8.6300e-003**		**7.9400e-003**	**7.9400e-003**	**0.0000**	**50.2246**	**50.2246**	**0.0162**	**0.0000**	**50.6307**

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3.6 PGE Distribution Uptrades - 2024

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	3.4000e-004	0.0171	2.7800e-003	8.0000e-005	2.8300e-003	1.4000e-004	2.9600e-003	8.2000e-004	1.3000e-004	9.5000e-004	0.0000	7.9678	7.9678	2.0000e-005	1.1500e-003	8.3112
Worker	1.3100e-003	1.0800e-003	0.0140	5.0000e-005	5.7500e-003	3.0000e-005	5.7700e-003	1.5300e-003	3.0000e-005	1.5600e-003	0.0000	4.5713	4.5713	6.0000e-005	9.0000e-005	4.6008
Total	**1.6500e-003**	**0.0182**	**0.0168**	**1.3000e-004**	**8.5800e-003**	**1.7000e-004**	**8.7300e-003**	**2.3500e-003**	**1.6000e-004**	**2.5100e-003**	**0.0000**	**12.5391**	**12.5391**	**8.0000e-005**	**1.2400e-003**	**12.9120**

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	8.8700e-003	0.2254	0.3725	5.7000e-004		5.1000e-004	5.1000e-004		4.9000e-004	4.9000e-004	0.0000	50.2246	50.2246	0.0162	0.0000	50.6307
Total	**8.8700e-003**	**0.2254**	**0.3725**	**5.7000e-004**		**5.1000e-004**	**5.1000e-004**		**4.9000e-004**	**4.9000e-004**	**0.0000**	**50.2246**	**50.2246**	**0.0162**	**0.0000**	**50.6307**

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3.6 PGE Distribution Uptrades - 2024

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	3.4000e-004	0.0171	2.7800e-003	8.0000e-005	2.8300e-003	1.4000e-004	2.9600e-003	8.2000e-004	1.3000e-004	9.5000e-004	0.0000	7.9678	7.9678	2.0000e-005	1.1500e-003	8.3112
Worker	1.3100e-003	1.0800e-003	0.0140	5.0000e-005	5.7500e-003	3.0000e-005	5.7700e-003	1.5300e-003	3.0000e-005	1.5600e-003	0.0000	4.5713	4.5713	6.0000e-005	9.0000e-005	4.6008
Total	**1.6500e-003**	**0.0182**	**0.0168**	**1.3000e-004**	**8.5800e-003**	**1.7000e-004**	**8.7300e-003**	**2.3500e-003**	**1.6000e-004**	**2.5100e-003**	**0.0000**	**12.5391**	**12.5391**	**8.0000e-005**	**1.2400e-003**	**12.9120**

3.7 PGE 500 KV Interconnection - 2024

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	0.1663	1.4630	1.5288	4.3600e-003		0.0507	0.0507		0.0466	0.0466	0.0000	382.8253	382.8253	0.1238	0.0000	385.9206
Total	**0.1663**	**1.4630**	**1.5288**	**4.3600e-003**		**0.0507**	**0.0507**		**0.0466**	**0.0466**	**0.0000**	**382.8253**	**382.8253**	**0.1238**	**0.0000**	**385.9206**

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3.7 PGE 500 KV Interconnection - 2024

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	6.8000e-004	0.0343	5.5500e-003	1.7000e-004	5.6500e-003	2.8000e-004	5.9300e-003	1.6400e-003	2.7000e-004	1.9000e-003	0.0000	15.9357	15.9357	3.0000e-005	2.3000e-003	16.6224
Worker	2.6200e-003	2.1600e-003	0.0280	1.0000e-004	0.0115	6.0000e-005	0.0116	3.0600e-003	5.0000e-005	3.1100e-003	0.0000	9.1425	9.1425	1.2000e-004	1.9000e-004	9.2016
Total	**3.3000e-003**	**0.0364**	**0.0335**	**2.7000e-004**	**0.0171**	**3.4000e-004**	**0.0175**	**4.7000e-003**	**3.2000e-004**	**5.0100e-003**	**0.0000**	**25.0782**	**25.0782**	**1.5000e-004**	**2.4900e-003**	**25.8239**

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	0.1237	1.4636	1.8800	4.3600e-003		0.0240	0.0240		0.0223	0.0223	0.0000	382.8248	382.8248	0.1238	0.0000	385.9202
Total	**0.1237**	**1.4636**	**1.8800**	**4.3600e-003**		**0.0240**	**0.0240**		**0.0223**	**0.0223**	**0.0000**	**382.8248**	**382.8248**	**0.1238**	**0.0000**	**385.9202**

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3.7 PGE 500 KV Interconnection - 2024

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	6.8000e-004	0.0343	5.5500e-003	1.7000e-004	5.6500e-003	2.8000e-004	5.9300e-003	1.6400e-003	2.7000e-004	1.9000e-003	0.0000	15.9357	15.9357	3.0000e-005	2.3000e-003	16.6224
Worker	2.6200e-003	2.1600e-003	0.0280	1.0000e-004	0.0115	6.0000e-005	0.0116	3.0600e-003	5.0000e-005	3.1100e-003	0.0000	9.1425	9.1425	1.2000e-004	1.9000e-004	9.2016
Total	**3.3000e-003**	**0.0364**	**0.0335**	**2.7000e-004**	**0.0171**	**3.4000e-004**	**0.0175**	**4.7000e-003**	**3.2000e-004**	**5.0100e-003**	**0.0000**	**25.0782**	**25.0782**	**1.5000e-004**	**2.4900e-003**	**25.8239**

3.8 Commisioning and Testing - 2024

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	6.6900e-003	0.1219	0.1314	2.3000e-004		9.1000e-004	9.1000e-004		8.4000e-004	8.4000e-004	0.0000	20.0992	20.0992	6.5000e-003	0.0000	20.2617
Total	**6.6900e-003**	**0.1219**	**0.1314**	**2.3000e-004**		**9.1000e-004**	**9.1000e-004**		**8.4000e-004**	**8.4000e-004**	**0.0000**	**20.0992**	**20.0992**	**6.5000e-003**	**0.0000**	**20.2617**

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3.8 Commisioning and Testing - 2024

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	1.1200e-003	0.0566	9.1600e-003	2.8000e-004	9.3300e-003	4.6000e-004	9.7900e-003	2.7000e-003	4.4000e-004	3.1400e-003	0.0000	26.3089	26.3089	5.0000e-005	3.8000e-003	27.4426
Worker	4.3300e-003	3.5700e-003	0.0462	1.6000e-004	0.0190	9.0000e-005	0.0191	5.0500e-003	9.0000e-005	5.1400e-003	0.0000	15.0938	15.0938	2.0000e-004	3.1000e-004	15.1913
Total	**5.4500e-003**	**0.0602**	**0.0554**	**4.4000e-004**	**0.0283**	**5.5000e-004**	**0.0289**	**7.7500e-003**	**5.3000e-004**	**8.2800e-003**	**0.0000**	**41.4026**	**41.4026**	**2.5000e-004**	**4.1100e-003**	**42.6338**

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	5.0600e-003	0.1920	0.1730	2.3000e-004		8.1000e-004	8.1000e-004		8.1000e-004	8.1000e-004	0.0000	20.0992	20.0992	6.5000e-003	0.0000	20.2617
Total	**5.0600e-003**	**0.1920**	**0.1730**	**2.3000e-004**		**8.1000e-004**	**8.1000e-004**		**8.1000e-004**	**8.1000e-004**	**0.0000**	**20.0992**	**20.0992**	**6.5000e-003**	**0.0000**	**20.2617**

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3.8 Commisioning and Testing - 2024

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	1.1200e-003	0.0566	9.1600e-003	2.8000e-004	9.3300e-003	4.6000e-004	9.7900e-003	2.7000e-003	4.4000e-004	3.1400e-003	0.0000	26.3089	26.3089	5.0000e-005	3.8000e-003	27.4426
Worker	4.3300e-003	3.5700e-003	0.0462	1.6000e-004	0.0190	9.0000e-005	0.0191	5.0500e-003	9.0000e-005	5.1400e-003	0.0000	15.0938	15.0938	2.0000e-004	3.1000e-004	15.1913
Total	**5.4500e-003**	**0.0602**	**0.0554**	**4.4000e-004**	**0.0283**	**5.5000e-004**	**0.0289**	**7.7500e-003**	**5.3000e-004**	**8.2800e-003**	**0.0000**	**41.4026**	**41.4026**	**2.5000e-004**	**4.1100e-003**	**42.6338**

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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	2.7300e-003	5.5100e-003	0.0276	6.0000e-005	5.6100e-003	7.0000e-005	5.6700e-003	1.5000e-003	6.0000e-005	1.5700e-003	0.0000	5.4693	5.4693	3.1000e-004	3.0000e-004	5.5657
Unmitigated	2.7300e-003	5.5100e-003	0.0276	6.0000e-005	5.6100e-003	7.0000e-005	5.6700e-003	1.5000e-003	6.0000e-005	1.5700e-003	0.0000	5.4693	5.4693	3.1000e-004	3.0000e-004	5.5657

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	4.00	0.00	0.00	15,288	15,288
Total	4.00	0.00	0.00	15,288	15,288

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
User Defined Industrial	14.70	6.60	6.60	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.489904	0.053513	0.186430	0.142392	0.042996	0.009122	0.009394	0.022860	0.000635	0.000162	0.035216	0.001418	0.005957

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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	158.8448	158.8448	0.0257	3.1100e-003	160.4155
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	158.8448	158.8448	0.0257	3.1100e-003	160.4155
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

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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					
User Defined Industrial	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		**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**

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					
User Defined Industrial	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		**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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	1.7168e+006	158.8448	0.0257	3.1100e-003	160.4155
Total		**158.8448**	**0.0257**	**3.1100e-003**	**160.4155**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	1.7168e+006	158.8448	0.0257	3.1100e-003	160.4155
Total		**158.8448**	**0.0257**	**3.1100e-003**	**160.4155**

6.0 Area Detail

6.1 Mitigation Measures Area

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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	0.0937	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	0.0937	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

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	0.0214					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0723					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0937**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0214					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0723					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0937**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

Round Mountain 500 kV Dynamic Reactive Support Project (Operational 2025) - Shasta County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

ATTACHMENT B

AERMOD Dispersion Model

```
1                    AERMOD PRIME - (DATED  19191)

                   AERMODPrMSPx VERSION
             (C) COPYRIGHT 1998-2017, Trinity Consultants

 Run Began on  3/29/2022 at 16:14:24

** BREEZE AERMOD
** Trinity Consultants
** VERSION  10.0

CO STARTING
CO TITLEONE  DPM from Construction Mitigated with Tier 4 and DPF
CO MODELOPT  DFAULT  CONC  NODRYDPLT  NOWETDPLT
CO RUNORNOT  RUN
CO AVERTIME  ANNUAL
CO POLLUTID  OTHER
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  0FYR6000  AREAPOLY  589641  4500263.1  0
** SRCDESCR  Construction Footprint
SO LOCATION  A12WX000  AREAPOLY  589588.9  4500089.1  0
** SRCDESCR  Offsite PGE Distribution Area
SO SRCPARAM  0FYR6000  8.35E-09  3  20  1
SO SRCPARAM  A12WX000  8.35E-09  3  30  1
SO AREAVERT  0FYR6000  589641 4500263.1  589982.1 4500234.4  589980.2 4499971.8  589976.4 4499826.1
SO AREAVERT  0FYR6000  589972.5 4499701.6  589951.5 4499458.1  589756 4499458.1  589750.2 4499387.2
SO AREAVERT  0FYR6000  589704.2 4499383.4  589667.8 4499385.3  589556.6 4499393  589524.1 4499636.4
SO AREAVERT  0FYR6000  589514.5 4499787.8  589510.6 4499854.9  589518.3 4499966  589587.3 4499989
SO AREAVERT  0FYR6000  589595 4499994.8  589612.2 4500069.5  589641 4500065.7  589641 4500263.1
SO AREAVERT  A12WX000  589588.9 4500089.1  589602.8 4500072  589599 4500048  589595.3 4500030.3
SO AREAVERT  A12WX000  589589.6 4500011.4  589575.7 4499994.3  589549.1 4499982.3  589473.3 4499962.1
SO AREAVERT  A12WX000  589435.4 4499945  589408.2 4499929.9  589388 4499917.2  589367.1 4499893.2
SO AREAVERT  A12WX000  589358.3 4499861  589345.6 4499818  589338.1 4499791.5  589336.8 4499773.1
SO AREAVERT  A12WX000  589333.6 4499754.8  589324.2 4499727  589308.4 4499720.1  589266 4499735.2
SO AREAVERT  A12WX000  589332.4 4499852.8  589343.7 4499867.9  589350.1 4499875.5  589355.8 4499890
SO AREAVERT  A12WX000  589364.6 4499905.8  589367.8 4499922.3  589427.8 4499965.2  589568.1 4500021.5
SO AREAVERT  A12WX000  589586.4 4500087.8  589588.9 4500089.1
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE ELEVUNIT  METERS
RE DISCCART  589587.7  4500251.6  0  0
** SENSITIV
** RCPDESCR  R1
RE DISCCART  589548.6  4500120.6  0  0
** SENSITIV
** RCPDESCR  R2
RE DISCCART  589311.3  4499883.6  0  0
** SENSITIV
** RCPDESCR  R3
RE DISCCART  589115.5  4499592  0  0
** SENSITIV
** RCPDESCR  R4
RE DISCCART  589491.5  4499086.3  0  0
** SENSITIV
** RCPDESCR  R5
RE FINISHED

ME STARTING
ME SURFFILE  "C:\USERS\RYAN\ONEDRIVE\LDNONE~1\COUNTY~1\21-45R~1\11-15-21\AERMOD\725920.SFC"
** SURFFILE  "C:\USERS\RYAN\ONEDRIVE\LDNONE~1\COUNTY~1\21-45R~1\11-15-21\AERMOD\725920.SFC"
ME PROFFILE  "C:\USERS\RYAN\ONEDRIVE\LDNONE~1\COUNTY~1\21-45R~1\11-15-21\AERMOD\725920.PFL"
** PROFFILE  "C:\USERS\RYAN\ONEDRIVE\LDNONE~1\COUNTY~1\21-45R~1\11-15-21\AERMOD\725920.PFL"
ME SURFDATA  24257 2009
ME UAIRDATA  24225 2009
ME PROFBASE  0  METERS
ME FINISHED

OU STARTING
OU FILEFORM  FIX
OU PLOTFILE  ANNUAL  ALL  ALL`ANNUAL.plt  10000
OU FINISHED

** ************************************************************************
** It is recommended that the user not edit any data below this line
** ************************************************************************


** AMPTYPE
** AMPDATUM  -1
** AMPZONE  -1
** AMPHEMISPHERE

** PROJECTIONWKT
PROJCS["UTM_6326_Zone10",GEOGCS["WGS_84",DATUM["World_Geodetic_System_1984",SPHEROID["WGS_1984",6378137,298.257223563],TOWGS84[0,0,0,0,0,0,0]],PRIMEM["G
reenwich",0],UNIT["Degree",0.0174532925199433]],PROJECTION["Universal_Transverse_Mercator"],PARAMETER["Zone",10],UNIT["Meter",1,AUTHORITY["EPSG","9001"]
]]
** PROJECTION  UTM
```

```
** DATUM  WGE
** UNITS  METER
** ZONE  10
** HEMISPHERE  N
** ORIGINLON  0
** ORIGINLAT  0
** PARALLEL1  0
** PARALLEL2  0
** AZIMUTH  0
** SCALEFACT  0
** FALSEEAST  0
** FALSENORTH  0

** POSTFMT  UNFORM
** TEMPLATE USERDEFINED
** AERMODEXE  AERMOD_BREEZE_19191_64.EXE
** AERMAPEXE  AERMAP_EPA_18081_64.EXE


 ***********************************
 *** SETUP Finishes Successfully ***
 ***********************************

 *** AERMOD - VERSION  19191 ***   ***  DPM from Construction Mitigated with Tier 4 and DPF                 ***        03/29/22
 *** AERMET - VERSION  14134 ***   ***                                                                     ***       16:14:24
                                                                                                                    PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL

                                        ***     MODEL SETUP OPTIONS SUMMARY       ***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 **Model Is Setup For Calculation of Average CONCentration Values.

   --  DEPOSITION LOGIC  --
 **NO GAS DEPOSITION Data Provided.
 **NO PARTICLE DEPOSITION Data Provided.
 **Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
 **Model Uses NO WET DEPLETION.  WETDPLT  =  F

 **Model Uses RURAL Dispersion Only.

 **Model Uses Regulatory DEFAULT Options:
        1. Stack-tip Downwash.
        2. Model Accounts for ELEVated Terrain Effects.
        3. Use Calms Processing Routine.
        4. Use Missing Data Processing Routine.
        5. No Exponential Decay.

 **Other Options Specified:
        CCVR_Sub - Meteorological data includes CCVR substitutions
        TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Assumes No FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  OTHER

 **Model Calculates ANNUAL Averages Only

 **This Run Includes:      2 Source(s);       1 Source Group(s); and       5 Receptor(s)

               with:       0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                and:       0 VOLUME source(s)
                and:       2 AREA type source(s)
                and:       0 LINE source(s)
                and:       0 RLINE/RLINEXT source(s)
                and:       0 OPENPIT source(s)
                and:       0 BUOYANT LINE source(s) with      0 line(s)


 **Model Set To Continue RUNning After the Setup Testing.

 **The AERMET Input Meteorological Data Version Date:  14134

 **Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing Hours
                                                                 b for Both Calm and Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =     0.00 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC                              ;  Emission Rate Unit Factor =   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.5 MB of RAM.

 **Input Runstream File:          aermod.inp
 **Output Print File:             aermod.out

 *** AERMOD - VERSION  19191 ***   ***  DPM from Construction Mitigated with Tier 4 and DPF                 ***        03/29/22
```

*** AERMET - VERSION 14134 *** *** *** 16:14:24
PAGE 2

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	LOCATION OF AREA Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
0FYR6000	0	0.83500E-08	589641.0	4500263.1	0.0	3.00	20	1.00	NO	
A12WX000	0	0.83500E-08	589588.9	4500089.1	0.0	3.00	30	1.00	NO	

*** AERMOD - VERSION 19191 *** *** DPM from Construction Mitigated with Tier 4 and DPF *** 03/29/22
*** AERMET - VERSION 14134 *** *** *** 16:14:24
PAGE 3

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	0FYR6000 , A12WX000 ,

*** AERMOD - VERSION 19191 *** *** DPM from Construction Mitigated with Tier 4 and DPF *** 03/29/22
*** AERMET - VERSION 14134 *** *** *** 16:14:24
PAGE 4

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

```
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** AERMOD - VERSION 19191 *** *** DPM from Construction Mitigated with Tier 4 and DPF *** 03/29/22
*** AERMET - VERSION 14134 *** *** *** 16:14:24
PAGE 5

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: C:\USERS\RYAN\ONEDRIVE\LDNONE~1\COUNTY~1\21-45R~1\11-15-21\AERMOD\725920.SFC Met Version: 14134
Profile file: C:\USERS\RYAN\ONEDRIVE\LDNONE~1\COUNTY~1\21-45R~1\11-15-21\AERMOD\725920.PFL
Surface format: FREE
Profile format: FREE
Surface station no.: 24257 Upper air station no.: 24225
Name: UNKNOWN Name: UNKNOWN
Year: 2009 Year: 2009

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
09	01	01	1	01	-2.6	0.057	-9.000	-9.000	-999.	33.	6.4	0.02	0.87	1.00	1.76	151.	10.0	276.4	2.0
09	01	01	1	02	-2.5	0.057	-9.000	-9.000	-999.	32.	6.4	0.02	0.87	1.00	1.76	188.	10.0	277.0	2.0
09	01	01	1	03	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.05	0.87	1.00	0.00	0.	10.0	277.0	2.0
09	01	01	1	04	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.05	0.87	1.00	0.00	0.	10.0	277.0	2.0
09	01	01	1	05	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.05	0.87	1.00	0.00	0.	10.0	277.0	2.0
09	01	01	1	06	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.05	0.87	1.00	0.00	0.	10.0	276.4	2.0
09	01	01	1	07	-10.6	0.186	-9.000	-9.000	-999.	192.	54.1	0.16	0.87	1.00	2.36	35.	10.0	276.4	2.0
09	01	01	1	08	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.05	0.87	1.00	0.00	0.	10.0	277.0	2.0
09	01	01	1	09	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.05	0.87	0.45	0.00	0.	10.0	277.0	2.0
09	01	01	1	10	3.0	0.178	0.178	0.010	67.	179.	-164.9	0.16	0.87	0.30	1.76	1.	10.0	277.5	2.0
09	01	01	1	11	11.1	-9.000	-9.000	-9.000	144.	-999.	-99999.0	0.05	0.87	0.25	0.00	0.	10.0	277.5	2.0
09	01	01	1	12	15.9	-9.000	-9.000	-9.000	210.	-999.	-99999.0	0.05	0.87	0.23	0.00	0.	10.0	278.1	2.0
09	01	01	1	13	16.7	-9.000	-9.000	-9.000	262.	-999.	-99999.0	0.05	0.87	0.22	0.00	0.	10.0	278.1	2.0
09	01	01	1	14	13.7	0.170	0.486	0.012	298.	168.	-31.8	0.02	0.87	0.24	2.36	139.	10.0	278.8	2.0
09	01	01	1	15	7.0	0.163	0.396	0.012	315.	158.	-55.2	0.02	0.87	0.27	2.36	192.	10.0	278.8	2.0
09	01	01	1	16	-1.5	0.100	-9.000	-9.000	-999.	77.	59.6	0.02	0.87	0.37	1.76	154.	10.0	279.2	2.0
09	01	01	1	17	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.05	0.87	0.63	0.00	0.	10.0	279.2	2.0
09	01	01	1	18	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.05	0.87	1.00	0.00	0.	10.0	278.8	2.0
09	01	01	1	19	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.05	0.87	1.00	0.00	0.	10.0	278.8	2.0
09	01	01	1	20	-8.5	0.151	-9.000	-9.000	-999.	141.	36.2	0.02	0.87	1.00	2.86	167.	10.0	278.8	2.0
09	01	01	1	21	-16.7	0.295	-9.000	-9.000	-999.	385.	137.1	0.02	0.87	1.00	4.86	180.	10.0	277.5	2.0
09	01	01	1	22	-16.9	0.298	-9.000	-9.000	-999.	390.	139.4	0.02	0.87	1.00	4.86	172.	10.0	277.5	2.0

```
09 01 01   1 23  -14.8  0.261 -9.000 -9.000 -999.  320.    107.0  0.02   0.87   1.00    4.36  190.   10.0  277.5    2.0
09 01 01   1 24  -21.1  0.373 -9.000 -9.000 -999.  546.    218.3  0.02   0.87   1.00    5.96  170.   10.0  277.5    2.0


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
09 01 01 01   10.0 1  151.    1.76   276.5   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
 *** AERMOD - VERSION  19191 ***   ***  DPM from Construction Mitigated with Tier 4 and DPF                 ***        03/29/22
*** AERMET - VERSION  14134 ***   ***                                                                      ***        16:14:24
                                                                                                                      PAGE   6
*** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL

                  *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   5 YEARS FOR SOURCE GROUP: ALL      ***
                                 INCLUDING SOURCE(S):     0FYR6000    , A12WX000    ,

                                            *** SENSITIVE DISCRETE RECEPTOR POINTS ***

                                       ** CONC OF OTHER    IN MICROGRAMS/M**3                         **

      X-COORD (M)   Y-COORD (M)        CONC                       X-COORD (M)   Y-COORD (M)        CONC
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
        589587.70    4500251.60       0.02240                       589548.60    4500120.60       0.02735
        589311.30    4499883.60       0.01457                       589115.50    4499592.00       0.00494
        589491.50    4499086.30       0.01568
 *** AERMOD - VERSION  19191 ***   ***  DPM from Construction Mitigated with Tier 4 and DPF                 ***        03/29/22
*** AERMET - VERSION  14134 ***   ***                                                                      ***        16:14:24
                                                                                                                      PAGE   7
*** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL

                                 *** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER   5 YEARS ***


                                   ** CONC OF OTHER    IN MICROGRAMS/M**3                         **

                                                                                                           NETWORK
GROUP ID                     AVERAGE CONC              RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)  OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL       1ST HIGHEST VALUE IS       0.02735 AT (  589548.60,  4500120.60,      0.00,     0.00,     0.00)  SR
          2ND HIGHEST VALUE IS       0.02240 AT (  589587.70,  4500251.60,      0.00,     0.00,     0.00)  SR
          3RD HIGHEST VALUE IS       0.01568 AT (  589491.50,  4499086.30,      0.00,     0.00,     0.00)  SR
          4TH HIGHEST VALUE IS       0.01457 AT (  589311.30,  4499883.60,      0.00,     0.00,     0.00)  SR
          5TH HIGHEST VALUE IS       0.00494 AT (  589115.50,  4499592.00,      0.00,     0.00,     0.00)  SR
          6TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,     0.00,     0.00)
          7TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,     0.00,     0.00)
          8TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,     0.00,     0.00)
          9TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,     0.00,     0.00)
         10TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,     0.00,     0.00)


*** RECEPTOR TYPES:  GC = GRIDCART
                     GP = GRIDPOLR
                     DC = DISCCART
                     DP = DISCPOLR
 *** AERMOD - VERSION  19191 ***   ***  DPM from Construction Mitigated with Tier 4 and DPF                 ***        03/29/22
*** AERMET - VERSION  14134 ***   ***                                                                      ***        16:14:24
                                                                                                                      PAGE   8
*** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL

*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of           0 Fatal Error Message(s)
A Total of           1 Warning Message(s)
A Total of       16697 Informational Message(s)

A Total of       43872 Hours Were Processed

A Total of       14924 Calm Hours Identified

A Total of        1773 Missing Hours Identified (  4.04 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
MX W481   43873         MAIN: Data Remaining After End of Year. Number of Hours=          48

   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
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ATTACHMENT C

Cancer Risk Calculations

Air Quality Health Risk Calculations (Worst-Case)
Round Mountain 500KV 29% T4 with DPF

From CalEE Annual Output	Emission per day (Ton/Total Construction Duration)	**0.1816**
	Construction Start	**3/1/2023**
	Construction Complete	**12/2/2024**
	Days	**642**
	Construction Emission per day (lb/day)	**0.565732087**
	Annual Duration (Days)	**365**
	Annualized Emission Rate (Grams/Second)	**0.002966165**
	Project Site Size (Acres)	**87.8**
	Project Site Size (meters^2)	**355313.9939**
	Length of Smalles Side (meters)	**596.082204**
Used as an input to AERMOD	Emission Rate over Grading Area(g/s-m^2)	**8.35E-09**
From AERMOD	Concentration Annual (Ug/M^3)	**0.027**

	Days	Days to years					
Duration	642	1.75890411					
Age (Years)	3rd Trimester (0.25)	0-2	2-9	2-16	16-30	16-70	
Cair (annual) - From F15	0.027	0.027	0.027	0.027	0.027	0.027	
Breathing Rate per agegroup BR/BW (Page 5-25)	361	1090	861	745	335	290	
A (Default is 1)	1	1	1	1	1	1	
Exposure Frequency = EF (days/365days)	0.96	0.96	0.96	0.96	0.96	0.96	
10^-6 Microgram to Milligram / liters to m3	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	
Dose-inh	0.00000936	0.00002825	0.00002232	0.00001931	0.00000868	0.00000752	
Construction Days	642	1.75890411					
potency factor for Diesel	1.1	1.1	1.1	1.1	1.1	1.1	
Age Sensitivity Factor	10	10	3	3	1	1	
ED	0.25	1.75890411	1.75890411	1.75890411	1.75890411	1.75890411	
AT	70	70	70	70	70	70	
FAH	0.85	0.85	0.72	0.72	0.73	0.73	
Risk for Each Age Group	3.12461E-07	6.63769E-06	1.33238E-06	1.15287E-06	1.75202E-07	1.51668E-07	
Risk per million Exposed	0.312460971	6.637694034	1.332381852	1.15287396	0.175202167	0.151667547	
Cancer Risk Per Million 9-years	8.28						
Cancer Risk Per Million 30-years	8.28						
Cancer Risk Per Million 70-years	**8.25**						