

CalEEMod Emission Summary

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SUBJECT: Summary of Air Quality/Greenhouse Gas/Energy Analysis for the North Coast Highway Solar Project

SECTION 1: PROJECT INFORMATION

1.1 - Project Name

North Coast Highway Solar Project (Project)

1.2 - Project Location

The Project is located within the Hydesville Community Plan of unincorporated Humboldt County, California, near County Route 36 and River Bar Road. Access to the site is provided by County Route 36.

1.3 - Project Description

The Project would install and operate photovoltaic solar power generation facilities totaling approximately 2.8 MWac (subject to final design and site optimization) on approximately 12 acres of undeveloped land. The solar facility would include single-axis trackers, arrays of solar panels, string inverters, transformers, and associated electrical equipment to optimize efficiency and performance. Single-axis trackers are designed to rotate the arrays in the east-to-west plane to track the sun's movement across the horizon. The ground-mounted arrays would be supported on driven pipe piles, driven H-piles, or reinforced-concrete cast-in-drilled-hole (CIDH) piers, with the foundation design to be finalized following completion of onsite geotechnical surveys and structural engineering. Once installed, the ground-mounted solar arrays would be up to approximately 8 feet in height, depending on the time of day to which a tracking system is utilized. The Project would include the installation of approximately 4,800 modules on ground-mounted solar arrays within the two areas that would convert sunlight to direct current (DC) electrical power. The DC power would then be converted to alternating current (AC) by string inverters before being delivered to the electrical system.

The power generated by the solar system and battery would be exported onto the Pacific Gas and Electric Company's (PG&E) existing electricity grid. The energy produced will feed into PG&E's system and, at times, may flow back into the transmission system. The Project would largely rely upon PG&E's existing wires and poles, so construction outside the project area would be minimal. A pole-mounted computer-controlled switch would be used to disconnect and reconnect the microgrid from the PG&E grid when the islanded microgrid operation is required due to a PG&E outage or another reason. The pole-mounted switch would be mounted on an existing power pole on the 12 kV power line on SR-36, along with the battery and power conversion devices.

After construction, the facility would be automated to allow operation with no onsite staffing present. The Project would operate year-round and generate electricity during daylight hours. Production and system health data and onsite weather data would be monitored and gathered electronically. Washing of the solar panels, which would be necessary to maintain efficiency, is anticipated to occur approximately two times per year. Such maintenance would require temporary staffing onsite and using a water truck. Additionally, maintenance staff would visit the site as needed when dispatched by the offsite operations center, which would continuously monitor the system.

The Project's onsite solar operations would run for approximately 20 years, which is the duration of the Power Purchase Agreement (PPA) with PG&E. During that period, some components such as the battery and power conversion devices may need to be replaced. Regular maintenance items over the system's life will include washing the dust off the panels during the summer and managing vegetation.

1.4 - Purpose of the Report

This report summarizes the results of the Project construction and operational criteria pollutant and greenhouse gas (GHG) emissions and energy usage estimates using the California Emissions Estimator Model (CalEEMod Version 2022.1) land use emission model. The estimated Project emissions were compared to the air quality and GHG significance thresholds recommended by the North Coast Unified Air Quality Management District (NCUAQMD).

1.5 - Conclusions

- The Project construction and operation would not exceed any project-level criteria pollutant significance threshold recommended by the NUAQMD.
- The Project construction and operation would not result in a cumulatively significant impact on the region's air quality.
- The Project construction and operation would not exceed the greenhouse gas significance threshold adopted for this Project.
- The Project operation would create renewable energy over its planned lifetime and decrease the need for energy from fossil fuel-based power plants in the State, which is considered a beneficial impact on statewide air quality. The energy produced by the Project would displace the greenhouse gas emissions that would otherwise be produced by existing business-as-usual (power generation resources (including natural gas fuel oil, and coal).
- The Project construction and operation would not result in the wasteful, inefficient, and unnecessary consumption of energy, especially fossil fuels such as coal, natural gas, and petroleum, associated with Project design, Project location, the use of electricity and natural gas, and the use of fuel by vehicles anticipated to travel to and from the Project. As a renewable solar resource, the Project would result in a net reduction of energy produced by more traditional fossil fuel energy sources.

SECTION 2: CALEEMOD EMISSION ESTIMATES – CRITERIA POLLUTANTS

The Project is located within the North Coast Air Basin (NCAB) and is subject to the rules and regulations of the NCUAQMD. This section quantifies the Project construction and operational criteria pollutant emissions¹ for the Project design and compares the emissions to the significance thresholds recommended by the NCUAQMD.

2.1 - Significance Thresholds-Criteria Pollutants

In developing thresholds of significance for air pollutants, Appendix G of the State CEQA Guidelines requires that agencies consider the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Conversely, a project that does not exceed the relevant significance thresholds would not be considered cumulatively considerable, resulting in a less than significant adverse air quality impact to the region's existing air quality conditions.

The NCUAQMD has not established significance criteria applicable to Projects such as the North Coast Highway Solar Project. Instead, the NCUAQMD uses the Best Available Control Technology (BACT) emission rates for stationary sources as defined in NCUAQMD Rule 110 and listed in Table 1 as significance thresholds. The thresholds were assumed to apply for both construction and operations. Note that only a subset of pollutants shown in Table 1 is relevant to the Project. The Project is not expected to generate any significant amounts of fluorides, hydrogen sulfide, lead, reduced sulfur compounds, sulfur oxides, sulfuric mist, and total reduced sulfur compounds.

Table 1: NCUAQMD Air Quality CEQA Significance Thresholds

| Air Pollutant | Daily Emissions (pounds/day) | Maximum Annual Emissions (tons/year) |
|---------------------------------------|---------------------------------|--|
| Oxides of Nitrogen (NO _x) | 50 | 40 |
| PM ₁₀ | 80 | 15 |
| PM _{2.5} | 50 | 10 |
| Reactive Organic Gases (ROG) | 50 | 40 |
| Carbon Monoxide (CO) | 500 | 100 |
| Hydrogen Sulfide (H ₂ S) | 50 | 10 |
| Lead | 3.2 | 0.6 |
| Reduced Sulfur Compounds | 50 | 10 |
| Sulfur Oxides | 80 | 40 |
| Sulfuric Acid Mist | 35 | 7 |

¹Criteria pollutants are the only air pollutants with national air quality standards that define allowable concentrations of these substances in the ambient air. Criteria pollutants include carbon monoxide (CO), oxides of nitrogen (NO_x), sulfur dioxide (SO₂), and particulate matter (PM₁₀ and PM_{2.5}). Note that ozone is another criteria pollutant; however, in terms of defining significance thresholds, ozone is represented by its precursor components, oxides of nitrogen (NO_x) and reactive organic gases.

| Air Pollutant | Daily Emissions (pounds/day) | Maximum Annual Emissions (tons/year) |
|---------------------------------------|---------------------------------|--|
| Total reduced Sulfur Compounds | 50 | 10 |
| Fluorides | 15 | 2 |
| Source: NCUAQMD Rule 110 ² | | |

2.2 Project Criteria Pollutant Emissions

Project Construction Emissions

Construction-generated emissions are short-term and of temporary duration, lasting only as long as construction activities occur. However, such emissions can potentially represent a significant short-term air quality impact. Construction emissions can vary substantially from day to day, depending on the activity level, the specific type of operation, and prevailing weather conditions. The majority of construction emissions would be generated onsite by heavy-duty off-road equipment (such as backhoes, bulldozers, graders, front loaders, water trucks, and forklifts) used for site preparation, construction of access roads, installation of the solar array, construction of the inverter sites, substations, and generation tie lines. Exhaust emissions would also be generated by construction worker daily commutes and by heavy-duty diesel vendor and haul truck trips that transport materials to the Project site.

Heavy construction equipment would be moved onsite at the beginning of construction and would remain onsite as needed. Daily vehicle traffic is anticipated to be made up of worker passenger cars/light-duty trucks and heavy-duty flatbed delivery trucks, dump trucks, concrete delivery trucks, water trucks, and porta let trucks. The highest number of trips would likely be from construction workers traveling to and from the site each day. The number of workers required during each phase has been estimated based on the number of workers and construction equipment required to construct similar solar projects³.

The Project site is located in a rural area, relatively distant from large population centers. As a result, the default vehicle trip distances used by the CalEEMod model for worker vehicles, vendor vehicles, and delivery haul trucks were modified to reflect longer trip travel distances involved in the Project construction. The emission analysis assumed a 50-mile round-trip travel distance for vendor and worker vehicles, a distance that includes the cities of Fortuna, Eureka, and Arcata as potential locations for workers and supplies. The flatbed haul trucks transporting the solar panels and other major equipment during the Panel Installation and Connection construction phase were assumed to travel to and from the San Francisco Bay Area at a round-trip distance of 400 miles.

Fugitive dust emissions during Project construction would result from site grading, installation of the solar panel system foundation and related equipment, installation of inverters, transformers, and substation electrical collector system, and vehicle travel on unpaved and paved roads. Mitigating onsite fugitive dust would be accomplished by applying mitigation measures covered under NCUAQMD Rule 104, Section D: Fugitive Dust Emissions.

² NCUAQMD Rule 110, 2015. New Source Review (NSR) and Prevention of Significant Deterioration (PSD). Website: <http://www.ncuaqmd.org/files/rules/reg%201/Rule%20110.pdf>

³ Urban Crossroads 2018. Anderson Gates Project (1MWSolar Project). Anderson Gates Focused Air Quality and Greenhouse Gas Memorandum. Submitted to EPD Solutions.

Assumptions

- Construction Schedule: Construction is anticipated to commence in April 2024 and last for approximately four months.
- Project construction would consist of three major phases:
 - Phase 1 – Mobilization (erosion control, if necessary, stabilized construction entrances and exits, fencing and gates, transport of off-road construction equipment, and communication/security systems)
 - Phase 2 – Site improvements and grading (surface smoothing and grading preparation of solar foundations and internal access roads)
 - Phase 3 – Panel Installation and connection (placement of underground electrical and communication lines, transformers, substation systems, concrete for foundations and equipment pads, support structures (posts), cross-members and other hardware, electrical connections and equipment, photovoltaic modules, and final inspections and testing and startup)
- The Project site is currently vacant.
- Onsite grading is expected to be balanced, with no soil import or export required.
- Fugitive dust mitigation applied as per NCUAQMD Rule 104(D) – Fugitive Dust: (Application of watering exposed area 2 times per day)
- Construction equipment inventory was derived from similar solar development projects
- Exhaust from on-road construction vehicles, including worker vehicles, cement trucks, dump trucks, porta latrine trucks, and flatbed heavy-duty delivery trucks to deliver major equipment items such as solar panels, support members, inverters, wiring, and other construction materials

The Project's conceptual construction schedule and equipment inventory are provided in Table 2 and Table 3, respectively, based on the applicant construction schedule and equipment inventory provided by the applicant and used in similar projects. Table 4 presents the Project's construction vehicle trips based on the trip estimates in the Project trip generation memorandum⁴.

Table 2: Construction Schedule

| Phase | Start Date | End Date | Total Construction Days |
|-----------------------------------|------------|------------|-------------------------|
| Mobilization | 04/01/2024 | 04/02/2024 | 15 |
| Site Improvements and Grading | 04/21/2024 | 05/10/2024 | 15 |
| Panel Installation and Connection | 05/11/2024 | 07/05/2024 | 40 |
| Source: see Data Attachment | | | |

⁴Trip Generation Analysis for North Coast Highway Solar Project, EPDS 3/1/2023

Table 3: Construction Equipment Inventory

| Phase | Equipment | Project Number | Project Hours per day | Default Horse-power | Default Load Factor |
|-----------------------------------|------------------------|----------------|-----------------------|---------------------|---------------------|
| Mobilization | Grader | 1 | 8 | 148 | 0.41 |
| | Off-highway Truck | 1 | 4 | 376 | 0.38 |
| | Rubber Tired Loader | 1 | 8 | 150 | 0.36 |
| | Rough Terrain Forklift | 1 | 8 | 96 | 0.40 |
| Site Improvement | Excavator | 2 | 8 | 36 | 0.38 |
| | Rubber Tired Dozer | 2 | 8 | 367 | 0.40 |
| | Off-Highway Truck | 1 | 6 | 376 | 0.38 |
| | Grader | 1 | 8 | 148 | 0.41 |
| | Scraper | 1 | 8 | 423 | 0.48 |
| | Roller | 1 | 8 | 36 | 0.38 |
| | Paver | 1 | 8 | 81 | 0.42 |
| Panel Installation and Connection | Bore/Drill Rig | 2 | 8 | 46 | 0.45 |
| | Rough Terrain Forklift | 1 | 8 | 96 | 0.40 |
| | Welder | 1 | 4 | 46 | 0.45 |
| | Tractor/Loader/Backhoe | 2 | 8 | 84 | 0.37 |
| | Generator Set | 1 | 8 | 14 | 0.74 |
| | Air Compressor | 1 | 8 | 37 | 0.48 |
| Source: see Data Attachment | | | | | |

Table 4: Construction Vehicle Trips

| Phase | Construction One Way Trips per Day | | |
|--|------------------------------------|--------|---------------------|
| | Worker | Vendor | Haul ^(*) |
| Mobilization | 30 | 2 | 6 |
| Site Improvement | 70 | 2 | 6 |
| Panel Installation and Connection | 120 | 2 | 8 |
| Note: One additional HHDT (water truck) was added to the trip generation summary from EPDS for each construction phase Source: Trip Generation Analysis for North Coast Highway Solar Project, EPDS 3/1/2023 | | | |

Table 5 presents the Project's estimated maximum daily construction emissions. As noted in Table 5, the Project construction would not exceed the NCUAQMD's daily emission significance thresholds. Table 6 presents the results of the Project's annual construction emissions. Table 6 shows that the Project construction would not exceed the NCUAQMD's annual construction emission significance thresholds and would, therefore, not result in a significant impact during construction

Table 5: Maximum Daily Construction Emissions

| Phase | Maximum Daily Construction Emissions ⁽¹⁾ (pounds/day) | | | | | |
|--|---|-----------------|-------------|-----------------|------------------|-------------------|
| | ROG | NO _x | CO | SO _x | PM ₁₀ | PM _{2.5} |
| 2024 | | | | | | |
| Mobilization | 1.2 | 9.3 | 14.0 | 0.0 | 1.3 | 0.5 |
| Site Improvement | 4.7 | 40.7 | 42.1 | 1.7 | 8.9 | 4.6 |
| Panel Installation and Connection | 2.1 | 17.9 | 26.4 | 0.1 | 4.1 | 1.3 |
| Maximum Daily Emissions – 2024 | 4.7 | 40.7 | 42.1 | 1.7 | 8.9 | 4.6 |
| | | | | | | |
| NCUAQMD Significance Thresholds | 50 | 50 | 500 | 80 | 80 | 50 |
| Emissions Exceed Thresholds? | No | No | No | No | No | No |
| Notes: ROG = reactive organic gases NO _x = oxides of nitrogen PM ₁₀ = particulate matter 10 microns or less in diameter PM _{2.5} = particulate matter 2.5 microns or less in diameter CO = carbon monoxide SO _x = sulfur oxides PM emissions reflect NCUAQMD Rule 104(D) reductions for fugitive dust. Source: see Data Attachment | | | | | | |

Table 6: Annual Construction Emissions

| Phase | Annual Construction Emissions ⁽¹⁾ (tons/year) | | | | | |
|--|---|-----------------|------------|-----------------|------------------|-------------------|
| | ROG | NO _x | CO | SO _x | PM ₁₀ | PM _{2.5} |
| 2024 | | | | | | |
| Mobilization | <0.1 | 0.1 | 0.1 | <0.1 | <0.1 | <0.1 |
| Site Improvement and Grading | <0.1 | 0.3 | 0.3 | <0.1 | 0.1 | <0.1 |
| Panel Installation and Connection | <0.1 | 0.4 | 0.5 | <0.1 | 0.1 | <0.1 |
| Annual Emissions - 2024 | 0.1 | 0.8 | 1.0 | <0.1 | 0.2 | 0.1 |
| | | | | | | |
| NCUAQMD Significance Thresholds | 40 | 40 | 100 | 40 | 15 | 10 |
| Emissions Exceed Thresholds? | No | No | No | No | No | No |
| Notes: ROG = reactive organic gases NO _x = oxides of nitrogen PM ₁₀ = particulate matter 10 microns or less in diameter PM _{2.5} = particulate matter 2.5 microns or less in diameter CO = carbon monoxide SO _x = sulfur oxides PM emissions reflect NCUAQMD Rule 104(D) reductions for fugitive dust. Source: see Data Attachment | | | | | | |

Project Operational Emissions

After construction, emissions would be generated from the long-term operation and maintenance of the Project involving onsite equipment and onsite and offsite vehicle use. Operation and maintenance activities would include solar panel washing, vegetation, weed and pest management, and security. Maintenance activities would also include panel repairs, maintenance of transformers, inverters, and other electrical equipment as needed, and road and fence repairs.

Project operation would require significantly fewer vehicle trips than generated during the construction phase. The Project would not be permanently staffed during operation. Production and system health data and onsite weather data would be monitored and gathered electronically remotely. Washing of the solar panels, which would be necessary to maintain efficiency, is anticipated to occur approximately twice yearly. Such maintenance would require temporary staffing onsite and the use of a water truck.

Additionally, maintenance staff would visit the site as needed when dispatched by the offsite operations center, which would continuously monitor the system. No heavy equipment would be required during the maintenance activities. The maintenance vehicle travel was assumed to be by light-heavy-duty diesel trucks with a round-trip travel distance of 50 miles.

Table 7 summarizes the Project's daily operational emissions along with a comparison to the NCUAQMD's significance thresholds. The Project's operational emissions include exhaust and fugitive dust emissions from onsite and offsite vehicle usage. As noted in Table 7, the Project's daily operational emissions are less than the respective significance thresholds. Table 8 provides the results of the annual operational emissions along with a comparison to the NCUAQMD annual significance thresholds. Table 8 shows the Project's annual operational emissions as substantially less than the NCUAQMD annual significance thresholds.

Table 7: Maximum Daily Operational Emissions

| Operational Activity | Maximum Daily Operational Emissions (pounds/day) | | | | |
|--|---|-----------------|-----|------------------|-------------------|
| | ROG | NO _x | CO | PM ₁₀ | PM _{2.5} |
| Total Project Operational Emissions | 0.3 | 3.1 | 0.8 | 1.4 | 0.2 |
| NCUAQMD Significance Threshold | 50 | 50 | 500 | 80 | 80 |
| Exceed Threshold? | No | No | No | No | No |
| <p>Notes: NO_x = oxides of nitrogen PM₁₀ = particulate matter 10 microns or less in diameter ROG = reactive organic gases PM_{2.5} = particulate matter 2.5 microns or less in diameter CO = carbon monoxide Source: see Data Attachment</p> | | | | | |

Table 8: Annual Operational Emissions

| Operational Activity | Annual Operational Emissions (tons/year) | | | | |
|---|---|-----------------|-----------|------------------|-------------------|
| | ROG | NO _x | CO | PM ₁₀ | PM _{2.5} |
| Total Project Operational Emissions | 0.2 | <0.1 | <0.1 | <0.1 | <0.1 |
| NCUAQMD Significance Threshold | 40 | 40 | 100 | 15 | 10 |
| Exceed Threshold? | No | No | No | No | No |
| Notes: NO _x = oxides of nitrogen PM ₁₀ = particulate matter 10 microns or less in diameter PM _{2.5} = particulate matter 2.5 microns or less in diameter CO = carbon monoxide Source: see Data Attachment | | | | | |

Project Decommissioning

The Project's onsite solar operations would run for approximately 20 years, the Power Purchase Agreement (PPA) duration with PG&E. At such a time when the Project is decommissioned, equipment operation and site restoration activities would result in short-term impacts on air quality. Given the assumption that much of the construction equipment necessary to construct the Project would also be required to decommission the site, it is reasonable to assume that decommissioning activities would be similar to activities associated with the Project construction. Note that this does not consider any future improvement in technology or subsequent reductions in air emissions. Project decommissioning is projected to be shorter in duration than construction and take one month to complete instead of 4 months for construction. Therefore, decommissioning is assumed to be one-quarter of the estimated construction emissions. The estimated decommissioning emissions, therefore, would not exceed any NCUAQMD daily or annual operational emissions significance thresholds.

2.2.2 Cumulative Impacts

Construction

As shown in Table 5 and Table 6 above, the Project's maximum daily and annual construction emissions would not exceed NCUAQMD's significance thresholds. Therefore, the Project's construction emissions would not result in a cumulatively considerable incremental contribution to the existing air quality. Furthermore, all construction activities would comply with applicable NCUAQMD rules and regulations, including Rule 104(D) to minimize fugitive PM dust emissions. Therefore, the cumulative impact of the Project construction would be less than significant.

Operations

Table 7 and 8 above show that the Project's maximum daily operational and annual emissions would not exceed NCUAQMD's significance thresholds. Therefore, the Project's operational emissions would not result in a cumulatively considerable incremental contribution to the existing air quality. The cumulative impact from the long-term Project operation would be less than significant.

2.2 - Conclusion

The Project's construction and operational emissions would not exceed the NCUAQMD's established project level or cumulative pollutant significant thresholds during either construction or operation.

SECTION 3: CALEEMOD EMISSION ESTIMATES - GREENHOUSE GAS EMISSIONS

This section analyzes the potential impacts on climate change from the Project's emissions of various greenhouses (GHG). Solar projects, such as the proposed Project, produce electricity with no GHG emissions at the point of generation and very low amounts of GHG emissions across their entire lifecycle. The GHG emissions associated with the Project would be generated from short-term construction activities and long-term operational emissions from occasional maintenance activities.

Construction and operational activities associated with the Project would produce carbon dioxide (CO₂) emissions. It is general practice to divide the total construction greenhouse gas emissions by the project life (a 20-year project life for the subject Project) and then add that number to the annual operational phase GHG emissions to obtain the total amount of GHG emissions attributable to the Project. The Project's GHG emissions were estimated using the CalEEMod land use emission model, the California Air Resources Board (ARB) EMFAC2021 mobile source emission model, and the OFFROAD 2021 emission model..

3.1 - Significance Threshold

The NCUAQMD has not recommended GHG significance thresholds for evaluating development projects subject to CEQA review. However, on July 9, 2015, the NCUAQMD adopted Rule 111 to evaluate stationary sources subject to New Source Review and federal Title V permitting requirements. In accordance with this rule, stationary sources that emit less than 25,000 tons per year of CO₂e are exempt from determining compliance. This threshold is intended for determining compliance with federal Title V stationary source permitting requirements and is typically not recommended for evaluating GHG emissions for projects subject to CEQA review.

In the absence of quantitative significance thresholds in NCUAQMD, this analysis considers other thresholds adopted in nearby jurisdictions. For example, the ARB Mandatory Reporting⁵ program requirements are triggered for sources of GHG emissions exceeding 2,500 MTCO₂e per year. Other prominent air districts in northern California, such as the Sacramento Metropolitan Bay Area Air Quality Management District (SMAQMD)⁶ and the Mendocino County Air Quality Management District (MCAQMD)⁷ have established project-level thresholds of 1,100 MTCO₂e per year. This latter threshold was developed to ensure at least 90 percent of the new GHG emissions would be reviewed and assessed for mitigation, thereby contributing to the GHG emissions reduction goals for the California Air Resources Board AB32, SB32, the Scoping Plan, and Executive orders as related to GHG policies and regulations.

⁵California Air Resources Board. Mandatory Reporting of Greenhouse Gas Emissions 2018. Webpage: <https://ww2.arb.ca.gov/rulemaking/2018/mandatory-reporting-greenhouse-gas-emissions-2018>

⁶ Sacramento Metropolitan Air Quality Management District (SMAQMD) 2018. CEQA Guide:Chapter 6 – Greenhouse Gas Emissions

⁷ MCAQMD 2010. Adopted Air Quality CEQA thresholds of Significance – June 2, 2010. Webpage: http://www.co.mendocino.ca.us/aqmd/pdf_files/MCAQMDCEQARecomendations.pdf

Therefore, Project GHG emissions were compared to the SMAQMD's and MCAQMD's GHG threshold of 1,100 MTCO₂e per year for land use development projects to provide a context to determine the significance of the Project's GHG construction and operational emissions. Accordingly, a land use development project with operational emissions of less than 1,100 MTCO₂e per year will not result in a significant impact and will not require additional mitigation.

3.2.1 Construction

Table 9 summarizes the Project's construction GHG emissions. NCUAQMD does not provide specific guidance regarding construction emissions. Therefore, total construction-generated GHG emissions were conservatively amortized over the estimated development life and included with operational emissions for comparison to the significance threshold. A life of 20 years was assumed for the proposed Project based on the purchase power agreement with PG&E. As noted in Table 9, the annual amortized construction GHG emissions attributable to the Project is 14 MTCO₂e per year.

Table 9: Project Construction GHG Emissions

| Activity | Annual GHG Emissions (MTCO ₂ e) |
|---|--|
| 2024 | 270 |
| Total Emissions Amortized Over 20 years | 14 |
| Source: see DataAttachment | |

3.2.2 Operations

Table 10 summarizes the Project's operational GHG emissions, along with the construction GHG emissions and the total Project GHG emissions. The Project would result in GHG emissions of 16 MTCO₂e per year (including the amortized construction GHG emissions). This level of emissions does not exceed the 1,100 MTCO₂e per year significance threshold adopted for this Project. Therefore, the Project would have a less than significant individual and cumulative impacts on GHG emissions.

Table 10: Project Operational GHG Emissions

| Activity | Annual GHG Emissions (MTCO ₂ e) |
|--------------------------------------|--|
| Project Operational Emissions Mobile | 2 |
| Project Construction Emissions | 14 |
| Project Construction and Operation | 16 |
| Significance Threshold | 1,100 |
| Project Exceeds Threshold? | NO |
| Source: see CalEEMod output | |

3.2.3 Net-Zero Threshold

The Project would result in emissions of 16 MTCO₂e per year from construction and operation. On an annual basis, the Project would generate 2,906 megawatt-hours (MWh). PG&E operates two large combined-cycle generating stations that burn natural gas (Colusa Generating Station and Gateway Generating Station). In 2019, these fossil-fueled facilities' average GHG emission rate was 870 pounds of CO₂e/MWh⁸. Assuming the energy produced by the Project displaces the equivalent amount of energy generated by the natural gas generation stations, the Project would displace a net reduction in GHG emissions of 1,134 MTCO₂e per year. Over the 20-year Project lifetime, the net displacement of GHG emissions would potentially be 22,687 MTCO₂e. Table 11 summarizes this information.

Table 11: Net Displacement of GHG Emissions

| Activity | GHG Emissions (MTCO ₂ e) |
|--------------------------------|-------------------------------------|
| Project GHG Emissions | 16/year |
| Displaced Power from PG&E | 1,150 per year |
| Net GHG Emissions from Project | (1,134/year) |
| Net GHG Emissions from Project | (22,687/20-years) |
| Source: see Data Attachment | |

3.2 - Conclusion

The Project's construction and operational GHG emissions would have a less than significant individual and cumulative impact for GHG emissions. The operation of the Project would also result in a net reduction in GHG emissions in the region.

⁸ PG&E Climate Change, Chapter 11 Update; Webpage:
https://www.pgecorp.com/corp_responsibility/reports/2019/en02_climate_change.html

SECTION 4: PROJECT FUEL AND ENERGY CONSUMPTION

4.1 - Assumptions

- Construction equipment fuel consumption derived from ARB Offroad2021 emission model and the assumed construction equipment inventory
- Fuel Consumption from vehicle travel derived from ARB EMFAC2021 emission model
- Onsite Project operations are expected to require negligible energy requirements.

4.2 - Significance Thresholds

Neither Appendix F of the State CEQA Guidelines nor PRC Section 21100(b)(3)) provides a numerical threshold of significance that might be used to evaluate the potential significance of energy consumption of a proposed project. Instead, the emphasis is on reducing "the wasteful, inefficient, and unnecessary consumption of energy." Based on this focus of the guidelines, and for purposes of this report, the Project would have a significant impact related to energy consumption if it would:

- Involve the wasteful, inefficient, and unnecessary consumption of energy, especially fossil fuels such as coal, natural gas, and petroleum, associated with project design, project location, the use of electricity and natural gas, and the use of fuel by vehicles anticipated to travel to and from the Project.

4.3 - Construction

4.3.1 Electricity and Natural Gas Usage

PG&E would provide temporary electric power for as-necessary lighting and electronic equipment such as computers inside temporary construction trailers. The electricity used for such activities would be temporary and would have a negligible contribution to the Project's overall energy consumption.

Natural gas is not anticipated to be required during the Project construction or operation. Fuels used during the construction would primarily consist of diesel and gasoline, discussed below under Section 4.3.2 Petroleum Fuel Use below.

4.3.2 Petroleum Fuel Usage

Off-road heavy-duty construction equipment associated with construction activities would rely on diesel fuel as would vendor and haul trucks involved in delivering building materials. Construction workers would travel to and from the Project site throughout the duration of construction. It is assumed in this analysis that construction workers would travel to and from the site in gasoline-powered passenger vehicles. Table 12 presents the fuel usage for off-road construction equipment. These estimates are based on the total fuel consumption and horsepower-hour data contained within the ARB OFFROAD2021 emission model for specific types of diesel construction equipment to be employed in the Project construction. Note that the total fuel consumption during construction computed below likely substantially overstates the amount of fuel usage. Although construction equipment and their duration are listed under a particular construction

activity, there is a likelihood that all of the inventoried equipment would not operate over the entire duration of the construction activity.

Table 13 summarizes the Project's construction vehicle fuel usage. The fuel usage is based on the vehicle type (worker, vendor, and haul trucks), vehicle miles traveled, and fuel usage factors contained in the ARB EMFAC2021 mobile source emission model and the CalEEMod model. Table 14 summarizes the total fuel construction during construction.

4.4 - Operational Energy Requirements

Table 15 summarizes the Project's operational energy requirements. The energy and fuel usage would result from the maintenance vehicles that would periodically visit the site and the energy requirements to wash the panels twice per year.

4.5 - Conclusion

Project Construction would result in fuel consumption from using construction tools and equipment, vendor and haul truck trips, and vehicle trips generated by construction workers traveling to and from the site. Construction activities and corresponding fuel energy consumption would be temporary and localized, as diesel fuel and heavy-duty equipment would not be a typical operational condition of the Project. Also, there are no unusual Project characteristics that would cause the use of construction equipment that would be less energy efficient compared with other similar construction sites in other parts of the State. The rational goal of any construction job, whether for a household task or construction project such as the proposed Project, is to minimize construction costs while meeting all legal requirements. Therefore, the Project construction-related fuel consumption would not result in inefficient, wasteful, or unnecessary energy use compared with other regional construction sites.

The Project operation would involve the development of a 2.8 MWac renewable solar energy facility. According to CEQA Guidelines Appendix F, the goal of conserving energy implies the wise and efficient use of energy, including decreasing overall per capita energy consumption, reducing reliance on natural gas and oil, and increasing reliance on renewable energy sources. The Project would comply with all energy efficiency requirements under all applicable State, county, and local business and energy code ordinances. In addition, the renewable energy produced by the Project would displace high-polluting energy provided by fossil-fuel energy sources, thereby reducing reliance on natural gas and oil, and increasing reliance on renewable energy sources. Finally, the renewable energy provided by the Project would result in a net reduction of greenhouse gas emissions compared to an equal amount of energy generated by an equivalent-sized fossil-fueled (natural gas) generator. As a result, the Project operation would not result in inefficient, wasteful, or unnecessary energy use.

Table 12: Construction Equipment Fuel Usage

| Activity | Equipment | Project Number | Project Hours per day | Default Horse-power | Default Load Factor | Days of Construction | Total Horsepower-hours | Fuel Rate (gal/hp-hr) | Fuel Use (gallons) |
|---|---------------------------|----------------|-----------------------|---------------------|---------------------|----------------------|------------------------|-----------------------|--------------------|
| Mobilization | Off-Highway Trucks | 1 | 4 | 376 | 0.38 | 15 | 8,573 | 0.0198 | 170 |
| | Graders | 1 | 8 | 148 | 0.41 | 15 | 7,282 | 0.02115 | 154 |
| | Rubber Tired Loader | 1 | 8 | 150 | 0.36 | 15 | 6,480 | 0.018658 | 121 |
| | Rough Terrain Forklift | 1 | 8 | 96 | 0.4 | 15 | 4,608 | 0.020817 | 96 |
| Site Improvements | Excavator | 2 | 8 | 36 | 0.38 | 15 | 3,283 | 0.019664 | 65 |
| | Rubber Tired Dozer | 2 | 8 | 367 | 0.4 | 15 | 35,232 | 0.020440 | 720 |
| | Off-Highway Truck | 1 | 6 | 376 | 0.38 | 15 | 12,859 | 0.019800 | 255 |
| | Graders | 1 | 8 | 148 | 0.41 | 15 | 7,282 | 0.021152 | 154 |
| | Scraper | 1 | 8 | 423 | 0.48 | 15 | 24,365 | 0.024985 | 609 |
| | Paver | 1 | 8 | 81 | 0.42 | 15 | 4,082 | 0.020817 | 85 |
| | Rollers | 1 | 8 | 36 | 0.38 | 15 | 1,642 | 0.019412 | 32 |
| Panel Installation and Connection | Bore/Drill Rigs | 2 | 8 | 46 | 0.45 | 40 | 13,248 | 0.025673 | 340 |
| | Rough Terrain Forklift | 1 | 8 | 96 | 0.4 | 40 | 12,288 | 0.020817 | 256 |
| | Tractors/Loaders/Backhoes | 2 | 8 | 84 | 0.37 | 40 | 19,891 | 0.023965 | 477 |
| | Welders | 1 | 4 | 46 | 0.45 | 40 | 3,312 | 0.023965 | 79 |
| | Air Compressor | 1 | 8 | 37 | 0.48 | 40 | 5,683 | 0.023965 | 136 |
| | Generator Set | 1 | 8 | 14 | 0.74 | 40 | 3,315 | 0.023965 | 79 |
| OFFROAD 2021, California Statewide for 2024 | | | | | | | | Total | 3,503 |

Table 13: Estimated Project Construction Vehicle Fuel Usage

| Construction Source | Gallons of Diesel Fuel | Gallons of Gasoline Fuel |
|-----------------------------|------------------------|--------------------------|
| Haul Trucks | 11,592 | 0 |
| Vendor Trucks | 485 | 0 |
| Worker Vehicles | 0 | 6,009 |
| Construction Vehicles Total | 12,077 | 6,009 |
| Source: see DataAttachment | | |

Table 14: Total Construction Fuel Usage

| Construction Source | Gallons of Diesel Fuel | Gallons of Gasoline Fuel |
|---------------------------------|------------------------|--------------------------|
| Construction Vehicles | 12,077 | 0 |
| Off-road Construction Equipment | 3,503 | 0 |
| Construction Total | 15,580 | 6,009 |
| Source: see Data Attachment | | |

Table 15: Project Annual Operational Energy Requirements

| Operational Source (value per year) | | |
|--|------------|-----------------|
| | Annual VMT | Gallons of Fuel |
| Transportation – Project | 2,277 | 153 (DSL) |
| Source: see Data Attachment | | |

CalEEMod Model Spreadsheet Output

| | |
|--|-------------|
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1. Basic Project Information

1.1. Basic Project Information

| Data Field | Value |
|-----------------------------|-------------------------------------|
| Project Name | North Coast Highway Solar Project |
| Lead Agency | Humboldt |
| Land Use Scale | Project/site |
| Analysis Level for Defaults | County |
| Windspeed (m/s) | 2.90 |
| Precipitation (days) | 56.8 |
| Location | 40.54509156431706, -124.11815102069 |
| County | Humboldt |
| City | Unincorporated |
| Air District | North Coast Unified APCD |
| Air Basin | North Coast |
| TAZ | 115 |
| EDFZ | 2 |
| Electric Utility | Pacific Gas & Electric Company |
| Gas Utility | Pacific Gas & Electric |

1.2. Land Use Types

| Land Use Subtype | Size | Unit | Lot Acreage | Building Area (sq ft) | Landscape Area (sq ft) | Special Land Area (sq ft) |
|-------------------------|------|-------------------|-------------|-----------------------|------------------------|---------------------------|
| User Defined Industrial | 12.0 | User Defined Unit | 12.0 | 0.00 | 0.00 | — |

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Un/Mit. | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 |
|-------------------------|------|------|------|------|---------|-------|-------|-------|--------|--------|--------|------|-------|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 5.57 | 4.69 | 40.7 | 42.0 | 0.09 | 1.72 | 7.15 | 8.86 | 1.58 | 3.03 | 4.61 | — | 9,885 |
| Average Daily (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 0.56 | 0.47 | 4.03 | 5.25 | 0.01 | 0.13 | 0.71 | 0.84 | 0.12 | 0.23 | 0.35 | — | 1,590 |
| Annual (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 0.10 | 0.08 | 0.74 | 0.96 | < 0.005 | 0.02 | 0.13 | 0.15 | 0.02 | 0.04 | 0.06 | — | 263 |
| Exceeds (Daily Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Threshold | — | 50.0 | 50.0 | 500 | 80.0 | — | — | 80.0 | — | — | 50.0 | — | — |
| Unmit. | — | No | No | No | No | — | — | No | — | — | No | — | — |
| Exceeds (Average Daily) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Threshold | — | 50.0 | 50.0 | 500 | 80.0 | — | — | 80.0 | — | — | 50.0 | — | — |
| Unmit. | — | No | No | No | No | — | — | No | — | — | No | — | — |

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|------------------|---|------|------|-----|------|---|---|------|---|---|------|---|---|
| Exceeds (Annual) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Threshold | — | 40.0 | 40.0 | 100 | 40.0 | — | — | 15.0 | — | — | 10.0 | — | — |
| Unmit. | — | No | No | No | No | — | — | No | — | — | No | — | — |

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Year | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 |
|----------------------|------|------|------|------|---------|-------|-------|-------|--------|--------|--------|------|-------|
| Daily - Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 5.57 | 4.69 | 40.7 | 42.0 | 0.09 | 1.72 | 7.15 | 8.86 | 1.58 | 3.03 | 4.61 | — | 9,885 |
| Daily - Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 0.56 | 0.47 | 4.03 | 5.25 | 0.01 | 0.13 | 0.71 | 0.84 | 0.12 | 0.23 | 0.35 | — | 1,590 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 0.10 | 0.08 | 0.74 | 0.96 | < 0.005 | 0.02 | 0.13 | 0.15 | 0.02 | 0.04 | 0.06 | — | 263 |

3. Construction Emissions Details

3.1. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Location | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 |
|----------|-----|-----|-----|----|-----|-------|-------|-------|--------|--------|--------|------|-------|
| Onsite | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | |
|-----------------------------|------|------|------|------|---------|---------|---------|---------|---------|---------|---------|---|-------|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.12 | 0.94 | 7.98 | 10.5 | 0.02 | 0.37 | — | 0.37 | 0.34 | — | 0.34 | — | 2,092 |
| Dust From Material Movement | — | — | — | — | — | — | 0.21 | 0.21 | — | 0.02 | 0.02 | — | — |
| Onsite truck | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.05 | 0.04 | 0.33 | 0.43 | < 0.005 | 0.02 | — | 0.02 | 0.01 | — | 0.01 | — | 86.0 |
| Dust From Material Movement | — | — | — | — | — | — | 0.01 | 0.01 | — | < 0.005 | < 0.005 | — | — |
| Onsite truck | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.01 | 0.01 | 0.06 | 0.08 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 14.2 |
| Dust From Material Movement | — | — | — | — | — | — | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | — |
| Onsite truck | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | |
|---------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---|------|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.26 | 0.22 | 0.35 | 3.38 | 0.00 | 0.00 | 0.53 | 0.53 | 0.00 | 0.12 | 0.12 | — | 554 |
| Vendor | 0.01 | 0.01 | 0.21 | 0.05 | < 0.005 | < 0.005 | 0.04 | 0.04 | < 0.005 | 0.01 | 0.01 | — | 161 |
| Hauling | 0.02 | 0.01 | 0.75 | 0.11 | 0.01 | 0.01 | 0.14 | 0.15 | 0.01 | 0.04 | 0.05 | — | 549 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.01 | 0.01 | 0.02 | 0.14 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | < 0.005 | < 0.005 | — | 22.8 |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 6.60 |
| Hauling | < 0.005 | < 0.005 | 0.03 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 22.6 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 3.77 |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 1.09 |
| Hauling | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 3.74 |

3.3. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Location | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 |
|---------------------|------|------|------|------|------|-------|-------|-------|--------|--------|--------|------|-------|
| Onsite | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 4.96 | 4.17 | 38.9 | 34.0 | 0.06 | 1.70 | — | 1.70 | 1.57 | — | 1.57 | — | 6,956 |

| | | | | | | | | | | | | | |
|-----------------------------|------|------|------|------|---------|---------|------|------|---------|------|------|---|-------|
| Dust From Material Movement | — | — | — | — | — | — | 5.73 | 5.73 | — | 2.69 | 2.69 | — | — |
| Onsite truck | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.20 | 0.17 | 1.60 | 1.40 | < 0.005 | 0.07 | — | 0.07 | 0.06 | — | 0.06 | — | 286 |
| Dust From Material Movement | — | — | — | — | — | — | 0.24 | 0.24 | — | 0.11 | 0.11 | — | — |
| Onsite truck | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.04 | 0.03 | 0.29 | 0.25 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 47.3 |
| Dust From Material Movement | — | — | — | — | — | — | 0.04 | 0.04 | — | 0.02 | 0.02 | — | — |
| Onsite truck | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.60 | 0.51 | 0.81 | 7.90 | 0.00 | 0.00 | 1.24 | 1.24 | 0.00 | 0.29 | 0.29 | — | 1,292 |
| Vendor | 0.01 | 0.01 | 0.21 | 0.05 | < 0.005 | < 0.005 | 0.04 | 0.04 | < 0.005 | 0.01 | 0.01 | — | 161 |
| Hauling | 0.02 | 0.01 | 0.79 | 0.11 | 0.01 | 0.01 | 0.14 | 0.15 | 0.01 | 0.04 | 0.05 | — | 549 |

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|---------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---|------|
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.02 | 0.02 | 0.04 | 0.33 | 0.00 | 0.00 | 0.05 | 0.05 | 0.00 | 0.01 | 0.01 | — | 53.1 |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 6.60 |
| Hauling | < 0.005 | < 0.005 | 0.03 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 22.6 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | 0.01 | 0.06 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 8.80 |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 1.09 |
| Hauling | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 3.74 |

3.5. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Location | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 |
|---------------------|------|------|------|------|---------|-------|-------|-------|--------|--------|--------|------|-------|
| Onsite | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.31 | 1.09 | 9.08 | 12.2 | 0.02 | 0.33 | — | 0.33 | 0.30 | — | 0.30 | — | 1,739 |
| Onsite truck | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.14 | 0.12 | 1.00 | 1.34 | < 0.005 | 0.04 | — | 0.04 | 0.03 | — | 0.03 | — | 191 |

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|---------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---|-------|
| Onsite truck | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.03 | 0.02 | 0.18 | 0.24 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 31.6 |
| Onsite truck | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 1.02 | 0.87 | 1.39 | 13.5 | 0.00 | 0.00 | 2.12 | 2.12 | 0.00 | 0.50 | 0.50 | — | 2,215 |
| Vendor | 0.01 | 0.01 | 0.21 | 0.05 | < 0.005 | < 0.005 | 0.04 | 0.04 | < 0.005 | 0.01 | 0.01 | — | 161 |
| Hauling | 0.11 | 0.08 | 7.18 | 0.60 | 0.07 | 0.11 | 1.45 | 1.55 | 0.11 | 0.41 | 0.51 | — | 5,770 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.11 | 0.10 | 0.16 | 1.52 | 0.00 | 0.00 | 0.22 | 0.22 | 0.00 | 0.05 | 0.05 | — | 243 |
| Vendor | < 0.005 | < 0.005 | 0.02 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 17.6 |
| Hauling | 0.01 | 0.01 | 0.79 | 0.07 | 0.01 | 0.01 | 0.15 | 0.17 | 0.01 | 0.04 | 0.05 | — | 632 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.02 | 0.02 | 0.03 | 0.28 | 0.00 | 0.00 | 0.04 | 0.04 | 0.00 | 0.01 | 0.01 | — | 40.2 |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 2.92 |
| Hauling | < 0.005 | < 0.005 | 0.14 | 0.01 | < 0.005 | < 0.005 | 0.03 | 0.03 | < 0.005 | 0.01 | 0.01 | — | 105 |

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

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4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Vegetation | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 |
|---------------------|-----|-----|-----|----|-----|-------|-------|-------|--------|--------|--------|------|-------|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — |

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Land Use | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 |
|---------------------|-----|-----|-----|----|-----|-------|-------|-------|--------|--------|--------|------|-------|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — |

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Species | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 |
|---------------------|-----|-----|-----|----|-----|-------|-------|-------|--------|--------|--------|------|-------|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Avoided | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Sequestered | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Removed | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Avoided | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Sequestered | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Removed | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Avoided | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — |

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| | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sequest | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Remove d | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — | — | — | — | — | — |

5. Activity Data

5.1. Construction Schedule

| Phase Name | Phase Type | Start Date | End Date | Days Per Week | Wo |
|--------------------|-----------------------|------------|-----------|---------------|-----|
| Mobilization | Site Preparation | 4/1/2024 | 4/20/2024 | 5.00 | 15. |
| Site Improvements | Grading | 4/21/2024 | 5/10/2024 | 5.00 | 15. |
| Panel Installation | Building Construction | 5/11/2024 | 7/5/2024 | 5.00 | 40. |

5.2. Off-Road Equipment

5.2.1. Unmitigated

| Phase Name | Equipment Type | Fuel Type | Engine Tier | Number per Day | Hours Per Day |
|--------------------|-------------------------|-----------|-------------|----------------|---------------|
| Site Improvements | Excavators | Diesel | Average | 2.00 | 8.00 |
| Site Improvements | Rubber Tired Dozers | Diesel | Average | 2.00 | 8.00 |
| Panel Installation | Bore/Drill Rigs | Diesel | Average | 2.00 | 8.00 |
| Site Improvements | Off-Highway Trucks | Diesel | Average | 1.00 | 6.00 |
| Panel Installation | Rough Terrain Forklifts | Diesel | Average | 1.00 | 8.00 |
| Site Improvements | Graders | Diesel | Average | 1.00 | 8.00 |
| Panel Installation | Welders | Diesel | Average | 1.00 | 4.00 |

| | | | | | |
|--------------------|---------------------------|--------|---------|------|------|
| Panel Installation | Tractors/Loaders/Backhoes | Diesel | Average | 2.00 | 8.00 |
| Site Improvements | Scrapers | Diesel | Average | 1.00 | 8.00 |
| Site Improvements | Rollers | Diesel | Average | 1.00 | 8.00 |
| Mobilization | Graders | Diesel | Average | 1.00 | 8.00 |
| Mobilization | Off-Highway Trucks | Diesel | Average | 1.00 | 4.00 |
| Mobilization | Rubber Tired Loaders | Diesel | Average | 1.00 | 8.00 |
| Panel Installation | Generator Sets | Diesel | Average | 1.00 | 8.00 |
| Panel Installation | Air Compressors | Diesel | Average | 1.00 | 8.00 |
| Mobilization | Rough Terrain Forklifts | Diesel | Average | 1.00 | 8.00 |
| Site Improvements | Pavers | Diesel | Average | 1.00 | 8.00 |

5.3. Construction Vehicles

5.3.1. Unmitigated

| Phase Name | Trip Type | One-Way Trips per Day | Miles per Trip |
|--------------------|--------------|-----------------------|----------------|
| Mobilization | — | — | — |
| Mobilization | Worker | 30.0 | 25.0 |
| Mobilization | Vendor | 2.00 | 25.0 |
| Mobilization | Hauling | 6.00 | 25.0 |
| Mobilization | Onsite truck | 0.00 | — |
| Site Improvements | — | — | — |
| Site Improvements | Worker | 70.0 | 25.0 |
| Site Improvements | Vendor | 2.00 | 25.0 |
| Site Improvements | Hauling | 6.00 | 25.0 |
| Site Improvements | Onsite truck | — | — |
| Panel Installation | — | — | — |
| Panel Installation | Worker | 120 | 25.0 |

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| | | | |
|--------------------|--------------|------|------|
| Panel Installation | Vendor | 2.00 | 25.0 |
| Panel Installation | Hauling | 8.00 | 200 |
| Panel Installation | Onsite truck | — | — |

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

| Phase Name | Residential Interior Area Coated (sq ft) | Residential Exterior Area Coated (sq ft) | Non-Residential Interior Area Coated (sq ft) | Non-Residential Exterior Area Coated (sq ft) |
|------------|--|--|--|--|
|------------|--|--|--|--|

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

| Phase Name | Material Imported (cy) | Material Exported (cy) | Acres Graded (acres) | Material Demanded (cy) |
|-------------------|------------------------|------------------------|----------------------|------------------------|
| Mobilization | — | — | 7.50 | 0.00 |
| Site Improvements | — | — | 37.5 | 0.00 |

5.6.2. Construction Earthmoving Control Strategies

| Control Strategies Applied | Frequency (per day) | PM10 Reduction |
|----------------------------|---------------------|----------------|
| Water Exposed Area | 2 | 61% |

5.7. Construction Paving

| Land Use | Area Paved (acres) | % Asphalt |
|-------------------------|--------------------|-----------|
| User Defined Industrial | 0.00 | 0% |

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5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

| Year | kWh per Year | CO2 | CH4 |
|------|--------------|-----|------|
| 2024 | 0.00 | 204 | 0.03 |

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

| Vegetation Land Use Type | Vegetation Soil Type | Initial Acres |
|--------------------------|----------------------|---------------|
|--------------------------|----------------------|---------------|

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

| Biomass Cover Type | Initial Acres | Final Acres |
|--------------------|---------------|-------------|
|--------------------|---------------|-------------|

5.18.2. Sequestration

5.18.2.1. Unmitigated

| Tree Type | Number | Electricity Saved (kWh/year) |
|-----------|--------|------------------------------|
|-----------|--------|------------------------------|

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Co emissions will continue to rise strongly through 2050 and then plateau around 2100.

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| Climate Hazard | Result for Project Location | Unit |
|------------------------------|-----------------------------|-------------------------|
| Temperature and Extreme Heat | 14.9 | annual days of exposure |
| Extreme Precipitation | 18.8 | annual days of exposure |
| Sea Level Rise | 0.00 | meters of inundation |
| Wildfire | 21.8 | annual hectares burned |

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum temperature from 1981–2010 historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi. Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which is considered a day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5). The projections show increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation of coastal areas under different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), and other possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5). The projections show vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probability under different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), and other possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

| Climate Hazard | Exposure Score | Sensitivity Score | Adaptive Capacity Score |
|------------------------------|----------------|-------------------|-------------------------|
| Temperature and Extreme Heat | N/A | N/A | N/A |
| Extreme Precipitation | 0 | 0 | 0 |
| Sea Level Rise | N/A | N/A | N/A |
| Wildfire | 0 | 0 | 0 |
| Flooding | 0 | 0 | 0 |
| Drought | N/A | N/A | N/A |
| Snowpack Reduction | N/A | N/A | N/A |
| Air Quality Degradation | N/A | N/A | N/A |

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 0 to 20 based on the extent of exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 0 to 20 based on the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include

6.3. Adjusted Climate Risk Scores

| Climate Hazard | Exposure Score | Sensitivity Score | Adaptive Capacity Score |
|------------------------------|----------------|-------------------|-------------------------|
| Temperature and Extreme Heat | N/A | N/A | N/A |
| Extreme Precipitation | 1 | 1 | 1 |
| Sea Level Rise | N/A | N/A | N/A |
| Wildfire | 1 | 1 | 1 |
| Flooding | 1 | 1 | 1 |
| Drought | N/A | N/A | N/A |
| Snowpack Reduction | N/A | N/A | N/A |
| Air Quality Degradation | N/A | N/A | N/A |

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include imple

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in th

| Indicator | Result for Project Census Tract |
|---------------------|---------------------------------|
| Exposure Indicators | — |
| AQ-Ozone | 3.91 |
| AQ-PM | 1.00 |
| AQ-DPM | 1.16 |
| Drinking Water | 32.1 |

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| | |
|---------------------------------|------|
| Lead Risk Housing | 39.0 |
| Pesticides | 19.3 |
| Toxic Releases | 7.95 |
| Traffic | 0.61 |
| Effect Indicators | — |
| CleanUp Sites | 0.00 |
| Groundwater | 67.2 |
| Haz Waste Facilities/Generators | 43.3 |
| Impaired Water Bodies | 43.8 |
| Solid Waste | 94.7 |
| Sensitive Population | — |
| Asthma | 47.5 |
| Cardio-vascular | 73.5 |
| Low Birth Weights | 51.3 |
| Socioeconomic Factor Indicators | — |
| Education | 29.3 |
| Housing | 9.19 |
| Linguistic | 0.00 |
| Poverty | 59.2 |
| Unemployment | 74.7 |

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts.

| Indicator | Result for Project Census Tract |
|---------------|---------------------------------|
| Economic | — |
| Above Poverty | 43.2567689 |
| Employed | 32.144232 |

| | |
|--|-------------|
| Median HI | 31.00218144 |
| Education | — |
| Bachelor's or higher | 46.42627999 |
| High school enrollment | 100 |
| Preschool enrollment | 31.61811882 |
| Transportation | — |
| Auto Access | 68.11240857 |
| Active commuting | 7.031951752 |
| Social | — |
| 2-parent households | 80.16168356 |
| Voting | 64.78891313 |
| Neighborhood | — |
| Alcohol availability | 88.86179905 |
| Park access | 8.481971 |
| Retail density | 0.397792891 |
| Supermarket access | 14.76966508 |
| Tree canopy | 98.15218786 |
| Housing | — |
| Homeownership | 71.48723213 |
| Housing habitability | 81.86834339 |
| Low-inc homeowner severe housing cost burden | 63.91633517 |
| Low-inc renter severe housing cost burden | 76.76119595 |
| Uncrowded housing | 68.66418581 |
| Health Outcomes | — |
| Insured adults | 61.8760426 |
| Arthritis | 0.0 |
| Asthma ER Admissions | 21.4 |

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| | |
|---------------------------------------|------|
| High Blood Pressure | 0.0 |
| Cancer (excluding skin) | 0.0 |
| Asthma | 0.0 |
| Coronary Heart Disease | 0.0 |
| Chronic Obstructive Pulmonary Disease | 0.0 |
| Diagnosed Diabetes | 0.0 |
| Life Expectancy at Birth | 10.7 |
| Cognitively Disabled | 6.7 |
| Physically Disabled | 19.5 |
| Heart Attack ER Admissions | 43.0 |
| Mental Health Not Good | 0.0 |
| Chronic Kidney Disease | 0.0 |
| Obesity | 0.0 |
| Pedestrian Injuries | 19.6 |
| Physical Health Not Good | 0.0 |
| Stroke | 0.0 |
| Health Risk Behaviors | — |
| Binge Drinking | 0.0 |
| Current Smoker | 0.0 |
| No Leisure Time for Physical Activity | 0.0 |
| Climate Change Exposures | — |
| Wildfire Risk | 11.5 |
| SLR Inundation Area | 0.0 |
| Children | 50.1 |
| Elderly | 16.0 |
| English Speaking | 98.1 |
| Foreign-born | 0.5 |

| | |
|----------------------------------|------|
| Outdoor Workers | 12.7 |
| Climate Change Adaptive Capacity | — |
| Impervious Surface Cover | 97.2 |
| Traffic Density | 5.5 |
| Traffic Access | 0.0 |
| Other Indices | — |
| Hardship | 36.4 |
| Other Decision Support | — |
| 2016 Voting | 57.1 |

7.3. Overall Health & Equity Scores

| Metric | Result for Project Census Tract |
|---|---------------------------------|
| CalEnviroScreen 4.0 Score for Project Location (a) | 25.0 |
| Healthy Places Index Score for Project Location (b) | 53.0 |
| Project Located in a Designated Disadvantaged Community (Senate Bill 535) | No |
| Project Located in a Low-Income Community (Assembly Bill 1550) | Yes |
| Project Located in a Community Air Protection Program Community (Assembly Bill 617) | No |

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

| Screen | Justification |
|-----------------------------------|--|
| Land Use | Project size is 12 acres |
| Construction: Construction Phases | Construction phases, dates, and duration as per |
| Construction: Off-Road Equipment | Construction equipment based on communication Soil import/export would be balanced onsite |
| Construction: Trips and VMT | Panel installation haul trucks assume a round-trip Bay area ports) All other construction phases and vehicle trip distances (miles each way) to reach Arcata and Eureka are |

CalEEMod Daily Construction Emission Summary

| 2024 | Maximum Daily Emissions (pounds/day) | | | | | | | | | |
|---------------------------------------|--------------------------------------|-----------|------------|-----------|---------|---------|-----------|----------|-----------|------------|
| | ROG | NOx | CO | SOx | PM10Exh | PM10Fug | PM10Total | PM2.5Exh | PM2.5 Fug | PM2.5Total |
| Mobilization | | | | | | | | | | |
| Onsite | 0.9 | 8.0 | 10.5 | 0.0 | 0.4 | 0.2 | 0.6 | 0.3 | 0.0 | 0.4 |
| Offsite | 0.2 | 1.3 | 3.5 | 0.0 | 0.0 | 0.7 | 0.7 | 0.0 | 0.2 | 0.2 |
| Total | 1.2 | 9.3 | 14.0 | 0.0 | 0.4 | 0.9 | 1.3 | 0.4 | 0.2 | 0.5 |
| Site Improvement and Grading | | | | | | | | | | |
| Onsite | 4.2 | 38.9 | 34.0 | 0.1 | 1.7 | 5.7 | 7.4 | 1.6 | 2.7 | 4.3 |
| Offsite | 0.5 | 1.8 | 8.1 | 0.0 | 0.0 | 1.4 | 1.4 | 0.4 | 0.0 | 0.4 |
| Total | 4.7 | 40.7 | 42.1 | 0.1 | 1.7 | 7.2 | 8.9 | 1.9 | 2.7 | 4.6 |
| Panel Installation | | | | | | | | | | |
| Onsite | 1.1 | 9.1 | 12.2 | 0.0 | 0.3 | 0.0 | 0.3 | 0.3 | 0.0 | 0.3 |
| Offsite | 1.0 | 8.8 | 14.2 | 0.1 | 0.1 | 3.6 | 3.7 | 0.1 | 0.9 | 1.0 |
| Total | 2.1 | 17.9 | 26.4 | 0.1 | 0.4 | 3.6 | 4.1 | 0.4 | 0.9 | 1.3 |
| Maximum Total Emissions - 2024 | 4.7 | 40.7 | 42.1 | 0.1 | 1.7 | 7.2 | 8.9 | 1.9 | 2.7 | 4.6 |
| NCUAQMD Threshold | 50 | 50 | 500 | 80 | | | 80 | | | 50 |
| Exceeds Threshold | NO | NO | NO | NO | | | NO | | | NO |

Fugitive dust emissions reflects compliance with NCUAQMD Rule 104(D) - Fugitive Dust (2x watering per day)

Emission Summary

| 2024 | ROG | NOx | CO | SOx | PM10 | PM2.5 |
|-----------------------------------|------------|-------------|-------------|------------|------------|------------|
| Mobilization | 1.2 | 9.3 | 14.0 | 0.0 | 1.3 | 0.5 |
| Site Improvement and Grading | 4.7 | 40.7 | 42.1 | 1.7 | 8.9 | 4.6 |
| Panel Installation | 2.1 | 17.9 | 26.4 | 0.1 | 4.1 | 1.3 |
| Max Daily Emissions - 2024 | 4.7 | 40.7 | 42.1 | 1.7 | 8.9 | 4.6 |

CalEEMod Annual Construction Emission Summary - Unmitigated

| 2024 | Annual Daily Emissions (tons/year) | | | | | | | | | |
|---------------------------------------|------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | ROG | NOx | CO | SOx | PM10Exh | PM10FUG | PM10Total | PM2.5Exh | PM2.5 FUG | PM2.5Total |
| Mobilization | | | | | | | | | | |
| Onsite | 0.01 | 0.06 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Offsite | 0.00 | 0.01 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 0.01 | 0.07 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Site Improvement and Grading | | | | | | | | | | |
| Onsite | 0.03 | 0.29 | 0.25 | 0.00 | 0.01 | 0.04 | 0.05 | 0.01 | 0.02 | 0.03 |
| Offsite | 0.00 | 0.02 | 0.06 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| Total | 0.03 | 0.31 | 0.31 | 0.00 | 0.01 | 0.05 | 0.06 | 0.01 | 0.02 | 0.03 |
| Panel Installation | | | | | | | | | | |
| Onsite | 0.02 | 0.18 | 0.24 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 |
| Offsite | 0.02 | 0.17 | 0.29 | 0.00 | 0.00 | 0.07 | 0.07 | 0.00 | 0.02 | 0.02 |
| Total | 0.04 | 0.35 | 0.53 | 0.00 | 0.01 | 0.07 | 0.08 | 0.01 | 0.02 | 0.03 |
| Maximum Total Emissions - 2024 | 0.08 | 0.73 | 0.95 | 0.00 | 0.02 | 0.12 | 0.14 | 0.02 | 0.04 | 0.06 |

| | | | | | | | | | | |
|-------------------|----|----|-----|----|--|--|----|--|--|----|
| NCUAQMD Threshold | 40 | 40 | 100 | | | | 15 | | | 10 |
| Exceeds Threshold | NO | NO | NO | NO | | | NO | | | NO |

Fugitive dust emissions reflects compliance with NCUAQMD Rule 104(D) - Fugitive Dust (2x watering per day)

Emission Summary

| 2024 | ROG | NOx | CO | SOx | PM10 | PM2.5 |
|-----------------------------------|------------|------------|------------|------------|------------|------------|
| Mobilization | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| Site Improvement and Grading | 0.0 | 0.3 | 0.3 | 0.0 | 0.1 | 0.0 |
| Panel Installation | 0.0 | 0.4 | 0.5 | 0.0 | 0.1 | 0.0 |
| Max Daily Emissions - 2024 | 0.1 | 0.7 | 1.0 | 0.0 | 0.1 | 0.1 |

North Coast Highway Solar Project

Construction Equipment Fuel Usage

| Activity | Equipment | Project Number | Project Hours per day | Default Horse-power | Default Load Factor | Days of Construction | Total Horsepower hours |
|-----------------------------------|---------------------------|----------------|-----------------------|---------------------|---------------------|----------------------|------------------------|
| Mobilization | Off-Highway Trucks | 1 | 4 | 376 | 0.38 | 15 | 8,5 |
| | Graders | 1 | 8 | 148 | 0.41 | 15 | 7,2 |
| | Rubber Tired Loader | 1 | 8 | 150 | 0.36 | 15 | 6,4 |
| | Rough Terrain Forklift | 1 | 8 | 96 | 0.4 | 15 | 4,6 |
| Site Improvements | Excavator | 2 | 8 | 36 | 0.38 | 15 | 3,2 |
| | Rubber Tired Dozer | 2 | 8 | 367 | 0.4 | 15 | 35,2 |
| | Off-Highway Truck | 1 | 6 | 376 | 0.38 | 15 | 12,8 |
| | Graders | 1 | 8 | 148 | 0.41 | 15 | 7,2 |
| | Scraper | 1 | 8 | 423 | 0.48 | 15 | 24,3 |
| | Paver | 1 | 8 | 81 | 0.42 | 15 | 4,6 |
| | Rollers | 1 | 8 | 36 | 0.38 | 15 | 1,1 |
| Panel Installation and Connection | Bore/Drill Rigs | 2 | 8 | 46 | 0.45 | 40 | 13,2 |
| | Rough Terrain Forklift | 1 | 8 | 96 | 0.4 | 40 | 12,8 |
| | Tractors/Loaders/Backhoes | 2 | 8 | 84 | 0.37 | 40 | 19,8 |
| | Welders | 1 | 4 | 46 | 0.45 | 40 | 3,3 |
| | Air Compressor | 1 | 8 | 37 | 0.48 | 40 | 5,6 |
| | Generator Set | 1 | 8 | 14 | 0.74 | 40 | 3,3 |

OFFROAD 2021, California Statewide for 2024

North Coast Highway Solar Project

Fuel Consumption from Construction Vehicles (Derived from the ARB EMFAC2021 Mobile Source Emission Model)

Emission Factors

| Region (Air Basin) | Calendar Year | Vehicle Category | Model Year | Speed | Fuel | VMT (miles/day) | Fuel Consumption (1000 gallons/day) | Fuel Rate (miles/gallon) | |
|--------------------|---------------|------------------|------------|------------|------|--------------------|--|-----------------------------|----------------|
| North Coast | 2024 | HHDT-T7 | Aggregated | Aggregated | DSL | 555467 | 94.0 | 5.9 | Haul Trucks |
| North Coast | 2024 | MHDT-T5 | Aggregated | Aggregated | DSL | 122698 | 14.4 | 8.5 | |
| | | | | | | | | 7.2 | Vendor Trucks |
| North Coast | 2024 | LHDT1 | Aggregated | Aggregated | DSL | 448343 | 28 | 16.0 | |
| North Coast | 2024 | LDA | Aggregated | Aggregated | GAS | 5373868 | 185 | 29.0 | |
| North Coast | 2024 | LDT1 | Aggregated | Aggregated | GAS | 754714 | 32 | 23.6 | |
| North Coast | 2024 | LDT2 | Aggregated | Aggregated | GAS | 3151149 | 136 | 23.2 | |
| | | | | | | | | 26.2 | Passenger Cars |

Vehicle Assumptions (CalEEMod)

Haul trucks represented by HHDT-T7 (heavy -heavy duty haul truck)

Vendor trucks represented by 50% HHDT-T7 and 50% MHDT

Worker vehicles represente by 50% LDA, 25% LDT1 and 25% LDT2

Construction Vehicle Use (Derived from the CalEEMod model output)

Fuel Consumption for Haul Trucks

| Construction Activity | No Haul Truck Trips/day | Duration (days) | Total Number of Trips | Trip Length (miles) | VMT (miles) | DSL Fuel (gallons) |
|-----------------------------------|----------------------------|--------------------|--------------------------|---------------------------|----------------|-----------------------|
| Mobilization | 6 | 15 | 90 | 25 | 2250 | 381 |
| Site Improvement | 6 | 15 | 90 | 25 | 2250 | 381 |
| Panel Installation and Connection | 8 | 40 | 320 | 200 | 64000 | 10831 |
| Total | 20 | | | | 68500 | 11592 |

| Construction Activity | No Vendor Truck Trips/day | Duration (days) | Trip Length (miles) | VMT (miles) | Fuel | Fuel Rate (miles/gallon) | DSL Fuel (gallons) |
|-----------------------------------|------------------------------|--------------------|------------------------|----------------|------|-----------------------------|-----------------------|
| Mobilization | 2 | 15 | 25 | 750 | DSL | 7.2 | 104 |
| Site Improvement | 2 | 15 | 25 | 750 | DSL | 7.2 | 104 |
| Panel Installation and Connection | 2 | 40 | 25 | 2000 | DSL | 7.2 | 277 |
| | | | | | | Total | 485 |

| Activity | No Worker Vehicles Trips/day | Duration (days) | Trip Length (miles) | VMT (miles) | Fuel | Fuel Rate (miles/gallon) | GAS Fuel (gallons) |
|-----------------------------------|---------------------------------|--------------------|------------------------|----------------|------|-----------------------------|-----------------------|
| Mobilization | 30 | 15 | 25 | 11250 | GAS | 26 | 429 |
| Site Improvement | 70 | 15 | 25 | 26250 | GAS | 26 | 1001 |
| Panel Installation and Connection | 120 | 40 | 25 | 120000 | GAS | 26 | 4578 |

| Summary | Gallons | |
|--------------|---------|--|
| Total -DSL | 12077 | |
| Total - GAS | 6009 | |
| Total - Fuel | 18086 | |

North Coast Highway Solar Project

Total Daily Onsite and Offsite Operational Emissions

| | | Daily Emissions (pounds/day) | | | | | | |
|---------------------|--|------------------------------------|-------|-------|-------|-------|-------|---------|
| Onsite Emissions | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| Exhaust | | 0.008 | 0.067 | 0.025 | 0.000 | 0.003 | 0.002 | 17.551 |
| Road Dust - Unpaved | | 0.000 | 0.000 | 0.000 | 0.000 | 1.171 | 0.117 | 0.000 |
| Road Dust - Paved | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Total | | 0.008 | 0.067 | 0.025 | 0.000 | 1.174 | 0.119 | 17.551 |
| | | Daily Emissions (pounds/day) | | | | | | |
| Offsite Emissions | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| Exhaust | | 0.247 | 3.071 | 0.767 | 0.007 | 0.151 | 0.087 | 733.589 |
| Road Dust - Paved | | 0.000 | 0.000 | 0.000 | 0.000 | 0.035 | 0.009 | 0.000 |
| Total | | 0.247 | 3.071 | 0.767 | 0.007 | 0.186 | 0.096 | 733.589 |
| | | Total Daily Emissions (pounds/day) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| Onsite | | 0.008 | 0.067 | 0.025 | 0.000 | 1.174 | 0.119 | 17.551 |
| Offsite | | 0.247 | 3.071 | 0.767 | 0.007 | 0.186 | 0.096 | 733.589 |
| Total | | 0.255 | 3.138 | 0.792 | 0.007 | 1.360 | 0.215 | 751.140 |

North Coast Highway Solar Project

Total Annual Onsite and Offsite Operational Emissions

| | | Annual Emissions (tons/year) | | | | | | | |
|-------------------|---------------------|------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Onsite Emissions | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 | CO2e |
| | Exhaust | 7.937E-03 | 6.656E-02 | 2.515E-02 | 1.705E-04 | 2.851E-03 | 2.093E-03 | 1.755E+01 | 1.597E+01 |
| | Road Dust - Unpaved | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 1.405E-02 | 1.405E-03 | 0.000E+00 | 0.000E+00 |
| | Road Dust - Paved | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 3.164E-06 | 7.767E-07 | 0.000E+00 | 0.000E+00 |
| | Total | 7.937E-03 | 6.656E-02 | 2.515E-02 | 1.705E-04 | 1.690E-02 | 3.499E-03 | 1.755E+01 | 1.615E+01 |
| | | Annual Emissions (tons/year) | | | | | | | |
| Offsite Emissions | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 | CO2e |
| | Exhaust | 2.467E-01 | 7.891E-03 | 2.047E-03 | 1.585E-05 | 3.793E-04 | 2.228E-04 | 1.672E+00 | 1.522E+00 |
| | Road Dust - Paved | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 2.637E-04 | 6.472E-05 | 0.000E+00 | 0.000E+00 |
| | Total | 2.467E-01 | 7.891E-03 | 2.047E-03 | 1.585E-05 | 6.429E-04 | 2.875E-04 | 1.672E+00 | 1.539E+00 |
| | | Total Annual Emissions (tons/year) | | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 | CO2e |
| | Onsite | 7.937E-03 | 6.656E-02 | 2.515E-02 | 1.705E-04 | 1.690E-02 | 3.499E-03 | 1.755E+01 | 1.597E+01 |
| | Offsite | 2.467E-01 | 7.891E-03 | 2.047E-03 | 1.585E-05 | 6.429E-04 | 2.875E-04 | 1.672E+00 | 1.539E+00 |
| | Total | 2.546E-01 | 7.445E-02 | 2.720E-02 | 1.863E-04 | 1.755E-02 | 3.786E-03 | 1.922E+01 | 1.769E+01 |

North Coast Highway Solar Project

Operational Offsite Mobile Source VMT and Exhaust Emissions

Operational Activity Routine Maintenance

| | | | | |
|---------------|----------|----------------|---|---|
| Frequency: | Annually | | | |
| Times/year | | 1 | | |
| Trips/day | | 6 (Assumes | 3 | worker vehicles - LDHT1 DSL Service Vehicle per site visit) |
| Distance/Trip | | 25 miles | | |
| VMT | | 150 miles/day | | |
| | | 150 miles/year | | |

Reactive Maintenance

| | | | | |
|---------------|---------|-----------------|---|---|
| Frequency: | Monthly | | | |
| Times/year | | 12 | | |
| Trips/year | | 72 (assumes | 3 | worker vehicles - LDHT1 DSL Service Vehicle per site visit) |
| Trips/day | | 6 | | |
| Distance/Trip | | 25 miles | | |
| VMT | | 150 miles/day | | |
| VMT | | 1800 miles/year | | |

Washing of Solar Panels

| | | | | |
|--------------------|-------------|----------------|---|---|
| Frequency: | Semi-Annual | | | |
| Times/year | | 2 | | |
| Trips/year - LHDT1 | | 8 (Assumes | 2 | worker vehicles - LDHT1 DSL Service Vehicle per site visit) |
| Trips/year - HHDT | | 4 (Assumes | 1 | water truck - HHDT DSL per site visit) |
| Trips/day - LHDT1 | | 4 (Assumes | 2 | worker vehicles - LDHT1 DSL Service Vehicle per site visit) |
| Trips/day - HHDT | | 2 (Assumes | 1 | water truck - HHDT DSL per site visit) |
| Distance/trip-LDT1 | | 25 miles | | |
| Distance/Trip-HHDT | | 25 miles | | |
| VMT - LHDT1 | | 100 miles/day | | |
| | | 200 miles/year | | |
| VMT - HHDT | | 50 miles/day | | |
| | | 100 miles/year | | |

Total VMT

| | | |
|-----------------------|-------|--------|
| | Daily | Annual |
| Routine | 150 | 150 |
| Reactive | 150 | 1800 |
| Panel Washing - LHDT1 | 100 | 200 |
| Panel Washing - HHDT | 50 | 100 |
| Total | 450 | 2250 |

EMFAC2021 Mobile Source Emissions

North Coast Air Basin - 2024

| EMFAC2021 Emission Factors - grams/mile Aggregated for All Speeds | | | | | | | |
|---|-------|-------|-------|-------|--------|---------|----------|
| LHDT1 | ROG | NOx | CO | SOx | PM10 * | PM2.5 * | CO2 |
| Aggregate-DSL | 0.278 | 3.242 | 0.860 | 0.006 | 0.154 | 0.091 | 631.4106 |
| EMFAC2021 Emission Factors - grams/mile Aggregated for All Speeds | | | | | | | |
| HHDT | ROG | NOx | CO | SOx | PM10 * | PM2.5 * | CO2 |
| Aggregate-DSL | 0.019 | 1.952 | 0.084 | 0.015 | 0.142 | 0.064 | 1609.706 |

Operational Offsite Emissions

| Routine Maintenance | Daily | Criteria Emissions (pounds/day) | | | | | | |
|-------------------------|----------------|---------------------------------|-----------|-----------|------------|-----------|-----------|-----------|
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 0.092 | 1.071 | 0.284 | 0.002 | 0.051 | 0.030 | 208.616 |
| Annual | Annual | Criteria Emissions (tons/year) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 4.587E-05 | 5.355E-04 | 1.421E-04 | 9.884E-07 | 2.537E-05 | 1.505E-05 | 1.043E-01 |
| Reactive Maintenance | Daily | Criteria Emissions (pounds/day) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 0.0917 | 1.0710 | 0.2843 | 0.0020 | 0.0507 | 0.0301 | 208.6158 |
| Annual | Annual | Criteria Emissions (tons/year) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 5.504E-04 | 6.426E-03 | 1.706E-03 | 1.186E-05 | 3.045E-04 | 1.807E-04 | 1.252E+00 |
| Panel Washing | Daily - LHDT1 | Criteria Emissions (pounds/day) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 0.0611578 | 0.7140055 | 0.1895134 | 0.00131783 | 0.033828 | 0.020072 | 139.07723 |
| Annual - LHDT1 | Annual - LHDT1 | Criteria Emissions (tons/year) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 6.116E-05 | 7.140E-04 | 1.895E-04 | 1.318E-06 | 3.383E-05 | 2.007E-05 | 1.391E-01 |
| Daily - HHDT | Daily - HHDT | Criteria Emissions (pounds/day) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 0.0020551 | 0.2149685 | 0.0092789 | 0.00167874 | 0.015602 | 0.007038 | 177.2804 |
| Annual - HHDT | Annual - HHDT | Criteria Emissions (tons/year) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 2.055E-06 | 0.000215 | 9.279E-06 | 1.6787E-06 | 1.56E-05 | 7.04E-06 | 0.1772804 |
| Total Offsite Emissions | Daily ** | Criteria Emissions (pounds/day) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 0.2467 | 3.0710 | 0.7673 | 0.0070 | 0.1509 | 0.0873 | 733.5893 |
| Annual | Annual | Criteria Emissions (tons/year) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 0.0006595 | 0.0078905 | 0.0020465 | 1.5845E-05 | 0.000379 | 0.000223 | 1.6723606 |

(*) Includes running exhaust emissions, tirewear, and brakewear emissions

(**) Assumes as a daily worst case that the reactive maintenance occurs on the same day as the panel watering

North Coast Highway Solar Project

Operational Onsite Mobile Source VMT and Exhaust Emissions

Operational Activity Routine Maintenance

| | | | | |
|---------------|----------|----------------|---|--|
| Frequency: | Annually | | | |
| Times/year | | 1 | | |
| Trips/day | | 6 (Assumes | 3 | worker vehiles - LDHT1 DSL Service Vehicle per site visit) |
| Distance/Trip | | 0.3 miles | | |
| VMT | | 1.8 miles/day | | |
| | | 1.8 miles/year | | |

Reactive Maintenance

| | | | | |
|---------------|---------|-----------------|---|---|
| Frequency | Monthly | | | |
| Times/year | | 12 | | |
| Trips/year | | 72 (assumes | 3 | worker vehicles - LDHT1 DSL Service Vehicle per site visit) |
| Trips/day | | 6 | | |
| Distance/Trip | | 0.3 miles | | |
| VMT | | 1.8 miles/day | | |
| VMT | | 21.6 miles/year | | |

Washing of Solar Panels

| | | | | |
|--------------------|-------------|----------------|---|---|
| Frequency: | Semi-Annual | | | |
| Times/year | | 2 | | |
| Trips/year - LHDT1 | | 8 (Assumes | 2 | worker vehicles - LDHT1 DSL Service Vehicle per site visit) |
| Trips/year - HHDT | | 4 (Assumes | 1 | water truck - HHDT DSL per site visit) |
| Trips/day - LHDT1 | | 4 (Assumes | 2 | worker vehicles - LDHT1 DSL Service Vehicle per site visit) |
| Trips/day - HHDT | | 2 (Assumes | 1 | water truck - HHDT DSL per site visit) |
| Distance/trip-LDT1 | | 0.3 miles | | |
| Distance/Trip-HHDT | | 0.3 miles | | |
| VMT - LHDT1 | | 1.2 miles/day | | |
| | | 2.4 miles/year | | |
| VMT - HHDT | | 0.6 miles/day | | |
| | | 1.2 miles/year | | |

Total VMT

| | | |
|-----------------------|------------|-----------|
| | Daily | Annual |
| Routine | 1.8 | 1.8 |
| Reactive | 1.8 | 21.6 |
| Panel Washing - LHDT1 | 1.2 | 2.4 |
| Panel Washing - HHDT | 0.6 | 1.2 |
| Total | 5.4 | 27 |

EMFAC2021 Mobile Source Emissions

North Coast Air Basin - 2024

| EMFAC2021 Emission Factors - grams/mile @ 5mph | | | | | | | |
|---|-------|--------|-------|-------|--------|---------|------|
| LHDT1 | ROG | NOx | CO | SOx | PM10 * | PM2.5 * | CO2 |
| DSL | 0.669 | 3.688 | 2.199 | 0.012 | 0.231 | 0.173 | 1223 |
| EMFAC2021 Emission Factors - grams/mile @ 5 mph | | | | | | | |
| HHDT | ROG | NOx | CO | SOx | PM10 * | PM2.5 * | CO2 |
| DSL | 0.654 | 20.860 | 1.437 | 0.033 | 0.309 | 0.200 | 3496 |

Operational Offsite Emissions

| Routine Maintenance | Daily | Criteria Emissions (pounds/day) | | | | | | |
|-------------------------|---------------|---------------------------------|-----------|-----------|------------|-----------|-----------|-----------|
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 0.003 | 0.015 | 0.009 | 0.000 | 0.001 | 0.001 | 4.849 |
| Annual | | Criteria Emissions (tons/year) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 1.326E-06 | 7.311E-06 | 4.359E-06 | 2.379E-08 | 4.579E-07 | 3.430E-07 | 2.424E-03 |
| Reactive Maintenance | Daily | Criteria Emissions (pounds/day) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 0.0027 | 0.0146 | 0.0087 | 0.0000 | 0.0009 | 0.0007 | 4.8489 |
| Annual | | Criteria Emissions (tons/year) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 1.591E-05 | 8.773E-05 | 5.231E-05 | 2.855E-07 | 5.495E-06 | 4.115E-06 | 2.909E-02 |
| Panel Washing | Daily - LHDT1 | Criteria Emissions (pounds/day) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 0.001768282 | 0.0097477 | 0.0058123 | 3.1718E-05 | 0.000611 | 0.000457 | 3.2325991 |
| Annual - LHDT1 | | Criteria Emissions (tons/year) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 1.768E-06 | 9.748E-06 | 5.812E-06 | 3.172E-08 | 6.106E-07 | 4.573E-07 | 3.233E-03 |
| Daily - HHDT | | Criteria Emissions (pounds/day) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 0.000864317 | 0.0275683 | 0.0018991 | 4.3612E-05 | 0.000408 | 0.000264 | 4.6202643 |
| Annual - HHDT | | Criteria Emissions (tons/year) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 8.64317E-07 | 2.757E-05 | 1.899E-06 | 4.3612E-08 | 4.08E-07 | 2.64E-07 | 0.0046203 |
| Total Offsite Emissions | Daily ** | Criteria Emissions (pounds/day) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 0.00794 | 0.06656 | 0.02515 | 0.00017 | 0.00285 | 0.00209 | 17.55066 |
| Annual | | Criteria Emissions (tons/year) | | | | | | |
| | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2 |
| | | 1.987E-05 | 1.324E-04 | 6.438E-05 | 3.846E-07 | 6.972E-06 | 5.180E-06 | 3.937E-02 |

(*) Includes running exhaust emissions, tirewear, and brakewear emissions

(**) Assumes as a daily worst case that the reactive maintenance occurs on the same day as the panel watering

North Coast Highway Solar Project

Operational Paved Road Dust (AP-42, Chapter 13.2.1.3)

Offsite Paved Road Dust

$$E = k \times (sL)^{.91} \times (W)^{1.02}$$

E = emissio factor (lbs/VMT)

k = particle size multiplier (PM10: 0.0022 lb/VMT ; PM2.5: 0.00054 lb/VMT)

sL = road surface silt loading (0.032 g/m2): ARB Miscellaneous Process Methodoloy Paved Road Dust_

W = average weight of vehicles traveling on the road (2.4 tons)

Maximum Daily Offsite Travel: 150 miles/day

PM10 Paved Road Dust Emisison Factor (lbs/VMT) = 0.000234382

PM2.5 Paved Road Dust Emission Factor (lb/VMT) = 5.75302E-05

Maximum Daily PM10 Road Dust: 0.035157 lbs/day

Maximum Daily PM2.5 Road Dust: 0.00863 lbs/day

Annual Offsite Offsite Travel: 2250 miles/year

Annual PM10 Road Dust: 0.52736 lbs/year or 0.00026368 tons/year

Annual PM2.5 Road Dust: 0.129443 lbs/year or 6.47214E-05 tons/year

Onsite Paved Road Dust

$$E = k \times (sL)^{.91} \times (W)^{1.02}$$

E = emissio factor (lbs/VMT)

k = particle size multiplier (PM10: 0.0022 lb/VMT ; PM2.5: 0.00054 lb/VMT)

sL = road surface silt loading (0.032 g/m2): ARB Miscellaneous Process Methodoloy Paved Road Dust_

W = average weight of vehicles traveling on the road (2.4 tons)

Maximum Daily Onsite Travel: 1.8 miles/day

PM10 Paved Road Dust Emisison Factor (lbs/VMT) = 0.000234382

PM2.5 Paved Road Dust Emission Factor (lb/VMT) = 5.75302E-05

Maximum Daily PM10 Road Dust: 0.000422 lbs/day

Maximum Daily PM2.5 Road Dust: 0.000104 lbs/day

Annual Offsite Onsite Travel: 27 miles/year

Annual PM10 Road Dust: 0.006328 lbs/year or 3.16416E-06 tons/year

Annual PM2.5 Road Dust: 0.001553 lbs/year or 7.76657E-07 tons/year

North Coast Highway Solar Project

Operational Onsite Unpaved Road Dust (CalEEMod2022.1)

$$EF = (k * s / 12 * (S/30)^{.5}) / (M/.5)^{.2}$$

E = emission factor (lbs/VMT)

k = particle size multiplier (PM10: 1.8 lb/VMT ; PM2.5: 0.18 lb/VMT)

s = road surface silt content in % (8.5)

S = mean vehicle speed (20 mph)

M = surface material moisture content (0.5%)

Maximum Daily Onsite Travel: 1.8 miles/day

PM10 Unpaved Road Dust Emission Factor (lbs/VMT) = 1.041033141

PM2.5 Unpaved Road Dust Emission Factor (lb/VMT) = 0.104103314

Maximum Daily PM10 Road Dust: 1.87386 lbs/day

Maximum Daily PM2.5 Road Dust: 0.187386 lbs/day

Annual Onsite Onsite Travel: 27 miles/year

Annual PM10 Road Dust: 28.10789 lbs/year or 0.014053947 tons/year

Annual PM2.5 Road Dust: 2.810789 lbs/year or 0.001405395 tons/year

North Coast Highway Solar Project

Estimation of Operational Vehicle Fuel Use

| Vehicle Class | Annual VMT | EMFAC2021 | Fuel Consumption DSL-(gal/year) |
|---------------|--------------|--------------------------------|------------------------------------|
| | | Fuel Rate -DSL (mi/gallons) | |
| LHDT1 - DSL | 2,176 | 16.0 | 136 |
| HHDT - DSL | 101 | 5.9 | 17 |
| Total | 2,277 | | 153 |

Solar Emission Offsets from Natural Gas Consumption Energy Production

| | | |
|---|--|--------|
| Total Annual Generation | 2906 MWh/year | Note 1 |
| PG&E CO2 Emission Factor for Fossil Fuels Displacement | 870 lbs/MWh | Note 2 |
| Total CO2 from Fossil Fuels Generation Replacement | 2528220 lbs/year 1264.11 tons/year 1150.34 MTCO2e/year | |
| Total CO2 from Construction and Operation | 16 MTCO2e/year | |
| Net CO2 from the Project | -1134.34 MTCO2e/year | |
| Net CO2e Replacement over 20-year Project Life | -22686.8 MTCO2e | |

Notes

- 1) Provided by the Project Applicant
- 2) PG&E Average of GHG emission factors for the Gateway Generating Station and Colusa Generating Station in 2020 on Natural Gas