

3.7 Greenhouse Gas Emissions

This Section evaluates potential impacts related to greenhouse gas emissions resulting from construction and operation of the Project against significance thresholds derived from applicable local, state, or federal policies, or from Appendix G of the CEQA Guidelines.

3.7.1 Study Area

The CEQA Guidelines generally address greenhouse gas emissions as a cumulative impact due to the global nature of climate change (Pub. Resources Code, § 21083(b)(2)). As the California Supreme Court explained, “because of the global scale of climate change, any one project’s contribution is unlikely to be significant by itself” (Cleveland National Forest Foundation v. San Diego Assn. of Governments (2017) 3 Cal.5th 497, 512). Despite the global nature of GHG, due to the state-wide application of CEQA, the study area for GHG is the State of California.

3.7.2 Setting

Climate and Meteorology

The proposed Project is located in the western portion of Humboldt County, California, which is in the jurisdiction of the North Coast Air Basin. The coastal zone of Humboldt County experiences wet, cool winters, and dry, mild foggy summers. Coastal summer highs range from the mid-60s to 70s, with lows from the upper 40s to mid-50s. In the winter, highs range from the low 40s to high 50s, with lows in the 30s and 40s. The coastal zone experiences a number of frosty nights in winter and early spring, though snowfall and hard freezes are rare.

Project Area

The Project site is located within a rural industrial area generally comprised of open space, industrial sources, and few single-family residences. The majority of GHGs emitted from the Project region are from transportation and use of electricity at residences. Vehicle trips throughout the County are associated with traveling between Arcata and Eureka, and for residents traveling to their respective homes within the Project area. A wood biomass electrical generation facility (biomass facility), most recently operated by DG Fairhaven Power Company (Fairhaven Power), is located approximately 0.21 miles southwest of the Project Site and when operational is a source of greenhouse gas emissions. No other major sources of GHG emissions exist in the Project region.

Global Climate Change – Greenhouse Gases

Gases that trap heat in the atmosphere are referred to as GHGs because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse. The accumulation of GHGs has been implicated as the driving force for global climate change. The primary GHGs are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), ozone (O₃), and water vapor (H₂O).

While GHGs in the atmosphere are naturally occurring, the emission rate of CO₂, CH₄ and N₂O has been accelerated by human activities. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas CH₄ results from off-gassing associated with such activities as agricultural practices and landfills. Other GHGs include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, which are generated during certain industrial processes. GHGs are typically reported in “carbon-dioxide-equivalent” measures (CO₂e).

There is international scientific consensus that human-caused increases in GHGs have contributed, and will continue to contribute, to climate change. Potential climate change impacts in California may include, but are not limited to, a decrease in snowpack, sea level rise, and a greater number of extreme heat days per year, high ozone days, large forest fires, and drought years. Secondary effects are likely to include impacts on agriculture, changes in disease vectors, and changes in habitat and biodiversity.

The U.S. Environmental Protection Agency (EPA) reports U.S. GHG emissions for 2019 as 6,558 million metric tons (MMT) of CO₂e. The transportation sector accounts for 29 percent, followed by the electricity sector at 25 percent and the industrial sector at 23 percent. Commercial and residential fuel use and the agricultural sector accounted for the remaining 23 percent (EPA 2021).

The California Air Resources Board (CARB) estimated that in 2019 California produced about 418.2 MMT of CO₂. The transportation sector was the highest source at 40 percent of the State's total GHGs, followed by the industrial sector at 21 percent, and electricity generation (both in-state and out-of-state) at 14 percent. Commercial and residential fuel use, recycling and waste, high global warming potential, and agricultural sectors accounted for the remaining 25 percent of the State's total GHG emissions (CARB 2018). CARB uses the Intergovernmental Panel on Climate Change (IPCC) 2007 Fourth Assessment Report (AR4) global warming potentials for the state's 2000-2019 emissions inventory.

GHGs normally associated with the proposed Project include the following listed below. Global Warming Potential (GWP) is a measurement of the heat absorbed by any GHG in the atmosphere, as a multiple of the heat that would be absorbed by the same mass of CO₂. All GWP are given as 100-year GWP. Unless otherwise noted, all GWPs and information presented below were obtained from the IPCC 2007 AR4 (IPCC 2007):

Water Vapor (H₂O). Although water vapor has not received the scrutiny of other GHGs, it is the primary contributor to the greenhouse effect. Natural processes, such as evaporation from oceans and rivers, and transpiration from plants, contribute 90 percent and 10 percent of the water vapor in our atmosphere, respectively. The primary human-related source of water vapor comes from fuel combustion in motor vehicles; however, it does not contribute a significant amount (less than one percent) to atmospheric concentrations of water vapor. The Intergovernmental Panel on Climate Change (IPCC) has not determined a Global Warming Potential for water vapor.

Carbon Dioxide (CO₂). Carbon dioxide is primarily generated by fossil fuel combustion in stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources in the past 250 years, CO₂ emissions from fossil fuel combustion increased by a total of 5.6 percent between 1990 and 2015 (EPA 2017). Carbon dioxide is the most widely emitted GHG and is the reference gas (GWP of 1) for determining GWP for other GHGs (IPCC 2007).

Methane (CH₄). Methane is emitted from biogenic sources, incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. The United States' top three methane sources are landfills, natural gas systems, and enteric fermentation (flatulence produced by livestock digestion). Methane is the primary component of natural gas, used for space and water heating, steam production, and power generation. The GWP of methane is 25 (IPCC 2007).

Nitrous Oxide (N₂O). Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. The GWP of nitrous oxide is 298 (IPCC 2007).

Hydrofluorocarbons (HFCs). HFCs are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is increasing, as the continued phase-out of Chlorofluorocarbons (CFCs) and HFCs gains momentum. The GWP of HFCs range from 124 for HFC-152 to 14,800 for HFC-23 (EPA 2017, IPCC 2007).

Perfluorocarbons (PFCs). PFCs are compounds consisting of carbon and fluorine and are primarily created as a byproduct of aluminum production and semiconductor manufacturing. Perfluorocarbons are potent GHGs with a GWP several thousand times that of carbon dioxide, depending on the specific PFC. Another area of concern regarding PFCs is their long atmospheric lifetime (up to 50,000 years) (EPA 2018). The GWP of PFCs range from 7,390 to 12,200 (EPA 2018).

Sulfur hexafluoride (SF₆). SF₆ is a colorless, odorless, nontoxic, nonflammable gas. Sulfur hexafluoride is the most potent GHG that has been evaluated by the IPCC with a GWP of 22,800 (EPA 2018, IPCC 2007). However, its global warming contribution is not as high as the GWP would indicate due to its low mixing ratio compared to carbon dioxide (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm], respectively) (EPA 2018).

In addition to the six major GHGs discussed above (excluding water vapor), many other compounds have the potential to contribute to the greenhouse effect. Some of these substances were previously identified as stratospheric ozone (O₃) depleters; therefore, their gradual phase-out is currently in effect. The following is a listing of these compounds:

Hydrochlorofluorocarbons (HCFCs). HCFCs are solvents, similar in use and chemical composition to chlorofluorocarbons (CFCs). The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, all developed countries that adhere to the Montreal Protocol are subject to a consumption cap and gradual phase out of HCFCs. The United States is scheduled to achieve a 100-percent reduction to the cap by 2030. The GWP of HCFCs range from 90 for HCFC-123 to 1,800 for HCFC-142b (IPCC 2007).

1,1,1 trichloroethane. 1,1,1 trichloroethane or methyl chloroform is a solvent and degreasing agent commonly used by manufacturers. The GWP of methyl chloroform is 146 times that of carbon dioxide (IPCC 2007).

Chlorofluorocarbons (CFCs). CFCs are used as refrigerants, cleaning solvents, and aerosols spray propellants. CFCs were also part of the EPA's Final Rule (57 Federal Register [FR] 3374) for the phase-out of O₃ depleting substances. Currently, CFCs have been replaced by HFCs in cooling systems and a variety of alternatives for cleaning solvents. Nevertheless, CFCs remain suspended in the atmosphere contributing to the greenhouse effect. CFCs are potent GHGs with 100-year GWP ranging from 3,800 for CFC 11 to 14,400 for CFC 13 (IPCC 2007).

3.7.3 Regulatory Framework

Federal

On February 18, 2010, the Council on Environmental Quality (CEQ) provided a draft guidance memorandum for public consideration and comment on the ways in which federal agencies can improve their consideration of the effects of greenhouse gas emissions and climate change in evaluations of proposals for federal actions under the NEPA (CEQ 2010). The CEQ updated that draft in 2014 and provided a final guidance on August 2, 2016 (CEQ 2016).

The CEQ's 2010 draft guidance proposed to advise federal agencies to consider, in scoping their NEPA analyses, whether analysis of the direct and indirect greenhouse gas emissions from their proposed actions may provide meaningful information to decision makers and the public. Specifically, if a proposed action would be reasonably anticipated to cause direct emissions of 25,000 metric tons or more of carbon dioxide equivalent (MTCO_{2e}) emissions on an annual basis, agencies should consider this an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public. For long-term actions that have annual direct emissions of less than 25,000 MTCO_{2e}, CEQ encouraged federal agencies to consider whether the action's long-term emissions should receive similar analysis. CEQ did not propose this as an indicator of a threshold of significant effects, but rather as an indicator of a minimum level of greenhouse gas emissions that may warrant some description in the appropriate NEPA analysis for agency actions involving direct emissions of greenhouse gases. The CEQ removed the direct emissions

criteria from the 2016 final guidance, which contains no numeric recommendations. However, the CEQ replaced the 2016 final guidance with the 2019 Draft GHG Guidance. The CEQ then rescinded the 2019 Draft GHG Guidance and committed to review, revise, and update its 2016 GHG Guidance in accordance with Executive Order 13990. This does not automatically restore the 2016 Final GHG Guidance, and CEQ's announcement of the rescission encouraged agencies to consider "all available tools and resources" when analyzing GHG emissions and climate change in their NEPA reviews, including the 2016 Guidance "as appropriate and relevant." For comparison, the EPA's Greenhouse Gas Reporting Program requires mandatory reporting for 'large' industrial sources of GHG to report GHG data and defines large industrial sources as those that emit more than 25,000 MTCO_{2e} per year.

State

Executive Order S-3-05

In 2005, the Governor of California signed Executive Order S-3-05, which established greenhouse gas emission reduction targets to reduce emissions as follows:

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

The Secretary of the California Environmental Protection Agency (Secretary) was designated to coordinate oversight of the multi-agency efforts made to meet the targets.

The Cal/EPA Secretary must also submit biannual reports to the governor and California Legislature describing the progress made toward the emissions targets, the impacts of global climate change on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the Secretary of Cal/EPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first CAT Report in March 2006, with its most recent S-3-05-mandated CAT Report released in 2010. The report proposes to achieve the targets by building on the voluntary actions of California businesses, local governments, and communities and through state incentive and regulatory programs.

Assembly Bill 32, California Global Warming Solutions Act of 2006

In 2006, the Governor of California signed the Global Warming Solutions Act of 2006 (Assembly Bill 32), committing the State of California to reducing GHG emissions to 1990 levels by 2020. The statute requires the CARB to track emissions through mandatory reporting, determine the 1990 emission levels, set annual emissions limits that would result in meeting the 2020 target, and design and implement regulations and other feasible and cost-effective measures to ensure that statewide GHG emissions would be reduced to 1990 levels by 2020. As shown below, the 2020 emissions goal was 431 MMT CO_{2e}; the State achieved this emission reduction goal in 2016 with a calculated GHG inventory of 429.0 MMT CO_{2e}.

Climate Change Scoping Plan

In December 2008, pursuant to AB 32, the CARB adopted the Climate Change Scoping Plan (Scoping Plan), which outlined measures to attain the 2020 GHG emissions limit. The Scoping Plan estimated that implementation of identified measures would result in a reduction of 105.3 MMT CO_{2e} from various sectors including transportation, energy, forestry, and high global warming potential gas sectors (originally reported as 174 MMT CO_{2e} but updated to 105.3 MMT CO_{2e} in the Status of Scoping Plan Recommended Measures [found at the CARB website]). This is 24 percent more than is needed to meet the 2020 mandate. AB 32 requires CARB to update the Scoping Plan at least every five years.

CARB approved the First Update to the Climate Change Scoping Plan (Updated Scoping Plan) in May 2014. The Updated Scoping Plan describes the progress made to meet the near-term (2020) objectives of AB 32 and defines California's climate change priorities and activities for the next several years. The Updated Scoping Plan also updated the 2020 emissions limit and business-as-usual emissions for 2020. The 2020 limit is now 431 MMT CO_{2e} and the

business-as-usual forecast is 509 MMT CO₂e. Finally, the Updated Scoping Plan provides recommendations for establishing a mid-term emissions limit that aligns with the long-term (2050) goals of Executive Order S-3-05. The recommendations cover the energy, transportation, agriculture, water, waste management, natural and working lands, short-lived climate pollutants, green building, and cap-and-trade sectors.

The second update to the Scoping Plan, the 2017 Climate Change Scoping Plan (2017 Scoping Plan), was released in November 2017 and approved in December 2018. The 2017 Scoping Plan provides California's climate policy portfolio and recommended strategies to put the state on a path to achieve the 2030 target set by EO B-30-15 and SB 32, discussed below. The scenario includes ongoing and statutorily required programs, continuing the Cap-and-Trade Program, and high-level objectives and goals to reduce GHGs across multiple economic sectors. Existing programs, also known as "known commitments", identified by the 2017 Scoping Plan include: SB 350, the Low Carbon Fuel Standard Program, CARB's Mobile Source Strategy, Senate Bill 1383 for short-lived climate pollutants, California's Sustainable Freight Action Plan. The high-level objective and goals recommendations cover the energy, transportation, industry, water, waste management, agriculture, and natural and working lands, and are to be implemented by a variety of state agencies.

The recommendations are broad policy and regulatory initiatives that will be implemented at the state level and do not relate to the construction and operation of individual projects such as the Project. Although project construction and operation may benefit from some of the state-level regulations and policies that will be implemented, such as SB 100's requirement that 100 percent of retail sales of electricity be renewable by 2045, the Project would not impede the state developing or implementing the greenhouse gas reduction measures identified in the Updated Scoping Plan. The Project facilities will comply with applicable state requirements, such as Title 24 energy efficiency standards and the California Green Building Standards mandatory measures, unless exemptions apply. The Project will not conflict with this statewide policy document.

The CARB's Cap-and-Trade Program relies on data collected through the Mandatory Reporting of Greenhouse Gas Emissions Regulation (MRR) to identify major sources of greenhouse gas emissions in California. The MRR was originally adopted in 2007 and was updated in 2011. Industries that emit 10,000 or MT CO₂e are required to report their GHGs to CARB; a subset of industrial facilities with annual emissions equal to or greater than 25,000 metric tons of CO₂e are required to comply with the Cap-and-Trade Program.

Executive Order B-30-15

On April 29, 2015, California Governor Jerry Brown signed E.O. B-30-15, which contains the target of reducing GHG emissions to 40 percent below 1990 levels by 2030. The emission reduction is an interim-year goal to provide substantial progress toward the ultimate goal of reducing emissions by 80 percent below 1990 levels by 2050.

Senate Bill 32 and Assembly Bill 197

Senate Bill (SB) 32, passed in 2016, extended the goals of AB 32 and codifies the GHG reduction target of 40 percent below 1990 levels by year 2030, consistent with EO B-30-15. The companion bill to SB 32, AB 197 provides additional direction to CARB in developing each update to the Scoping Plan.

Renewables Portfolio Standard

California's Renewables Portfolio Standard (RPS) requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020. The 33 percent standard is consistent with the RPS goal established in the Scoping Plan. The passage of Senate Bill 350 in 2015 updates the RPS to require the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources to increase to 50 percent by December 31, 2030. The bill would make other revisions to the RPS program and to certain other requirements on public utilities and publicly owned electric utilities.

RPS was further strengthened in 2018 by the passage of Senate Bill 100, which increases the RPS requirement to 60 percent by 2030, and requires renewable energy and zero-carbon resources supply 100 percent of electric retail sales to end-use customers by 2045.

Refrigerants

As part of the California Global Warming Solutions Act of 2006 (AB 32) the CARB adopted a regulation in 2009 creating the Refrigerant Management Program (RMP) to reduce greenhouse gas (GHG) emissions from stationary sources through refrigerant leak detection and monitoring, leak repair, system retirement and retrofitting, reporting and recordkeeping, and proper refrigerant cylinder use, sale, and disposal.

Starting in 2022, the Refrigerant Management Program (RMP) requires facilities with refrigeration systems containing more than 50 pounds of high-GWP refrigerant to conduct and report periodic leak inspections, promptly repair leaks; and keep service records on site.

Additionally, newly adopted regulations by CARB requires new stationary refrigeration installations to use refrigerants with a global warming potential of 150 or less. According to the CARB, the 150-GWP cap is expected to cut emissions reduction per facility by more than 90 percent.

Local

North Coast Unified Air Quality Management District

In 2011, the North Coast Unified Air Quality Management District (NCUAQMD) adopted Rule 111 (Federal Permitting Requirements for Sources of Greenhouse Gases) to establish a threshold above which New Source Review (NSR) and federal Title V permitting applies, and to establish federally enforceable limits on potential to emit GHGs for stationary sources. This Project would include two 12.9-megawatt dual fuel generators which require permits from the NCUAQMD; therefore, Rule 111 applies.

The NCUAQMD has not adopted regulations regarding the evaluation of GHG emissions in a CEQA document. The NCUAQMD has not established CEQA significance criteria to determine the significance of impacts with regard to GHGs that would result from projects such as the proposed Project.

For construction emissions, the NCUAQMD has indicated that emissions are not considered significant for projects whose construction will be of relatively short in duration, lasting less than one year, and of average construction intensity. For project construction lasting more than one year or that involves above average construction intensity in volume of equipment or area disturbed, construction emissions may need to be discussed with NCUAQMD staff to determine a project specific approach. The Proposed Project would include construction activities over multiple years; therefore, emissions were quantified and assessed as detailed in Section 3.7.4, Methodology.

Humboldt Bay Area Plan – Local Coastal Program

There are no applicable policies in the Humboldt Bay Area Plan related to greenhouse gas emissions.

Redwood Coast Energy Authority

Redwood Coast Energy Authority's (RCEA) 2019 Update to the Comprehensive Action Plan for Energy (also called "RePower Humboldt") is an action plan to develop and implement sustainable energy initiatives in the county. RCEA will address Humboldt County's supply-side energy needs through its existing Community Choice Energy (CCE) program and development of new programs and initiatives. RePower Humboldt includes the following goals (RCEA 2019):

By 2025 100% of RCEA's power mix will be from a combination of state-designated renewable energy sources—solar, wind, biomass, small hydroelectric, and geothermal—and state-designated net-zero-carbon-emission existing large hydroelectric facilities.

By 2030 Humboldt County will be a net exporter of renewable electricity and RCEA's power mix will consist of 100% net-zero-carbon-emission renewable sources.

Nordic Aquafarms California LLC is committed to tie its goals and timeline of non-carbon and renewable use of energy to the goals of RCEA. However, the Proposed Project could receive energy from PG&E or RCEA and, therefore, the County has applied conservative carbon intensity factors for energy consumption, as detailed in Section 3.7.4, Methodology.

3.7.4 Evaluation Criteria and Thresholds of Significance

| Evaluation Criteria | Significance Thresholds | Sources |
|---|---|--|
| Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | Annual operational generation of 25,000 MT CO ₂ e <i>And</i> Annual operational generation of 10,000 MT CO ₂ e <i>And</i> Consistency with a Proxy County-level Climate Action Plan (Yolo County) | CEQA Guidelines Appendix G, Checklist Item VIII (a) CA Air Resources Board Cap and Trade, CEQ Interim Guidance (CEQ 2010) Stationary Source thresholds of significance (SCAQMD, BAAQMD) Consistency with Proxy Plan Yolo County Climate Action Plan (Yolo County 2011.) Consistency with Humboldt County General Plan policies for greenhouse gases (Humboldt County 2017) |
| Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | Conflict with the State's adopted Scoping Plan | CEQA Guidelines Appendix G, Checklist Item VIII (b) |

3.7.5 Methodology

GHG emissions, by their nature, represent a cumulative impact. No single project could generate enough greenhouse gas emissions to noticeably change the global average temperature. Instead, GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change. Therefore, the Project analysis is discussed in the context of the cumulative impact.

Thresholds of Significance

There is currently no applicable federal, State, or local significance threshold pertaining to construction activities. Additionally, there is currently no applicable federal, State, or local adopted significance thresholds for operational activities. CEQA Guidelines Section 15064.4, subdivision (c), gives the lead agency "discretion to select the model or methodology it considers most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change." Furthermore, CEQA Guidelines Section 15064.7, subdivision (c), provides:

When adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence.

Therefore, construction and operation related GHG emissions were analyzed using the following thresholds and approaches.

Construction

- Qualitative approach in accordance with Section 15064.4(a)(2) of the CEQA Guidelines, and
- Annualized over the life of the project and incorporated into operational emissions for comparison against quantitative operational thresholds, detailed below.

Operation

- CEQ’s draft guidance “major source” of greenhouse gases threshold of 25,000 metric tons CO₂e per year (CEQ 2010)
- Bay Area Air Quality Management District (BAAQMD) and South Coast Air Quality Management District (SCAQMD)-adopted industrial source threshold of 10,000 metric tons CO₂e per year (BAAQMD 2017, SCAQMD 2008)
- Consistency with a proxy Climate Action Plan, adopted for the purposes of reducing GHG emissions consistent with State-wide goals (Yolo County-adopted Climate Action Plan).
- Consistency with the Humboldt County General Plan for the Areas Outside the Coastal Zone

The rational and substantial evidence in support of each operational threshold of significance evaluated is provided as follows.

CEQ Major Source

The County of Humboldt, as Lead Agency for the Project, has elected to apply the CARB’s industrial Cap-and-Trade threshold of 25,000 MT CO₂e per year to determine the Project’s impact for generation of GHGs. On February 18, 2010, the Council on Environmental Quality (CEQ) provided a draft guidance memorandum for public consideration and comment on the ways in which federal agencies can improve their consideration of the effects of greenhouse gas emissions and climate change in evaluations of proposals for federal actions under the National Environmental Policy Act (NEPA) (CEQ 2010). The CEQ’s 2010 draft guidance proposed to advise federal agencies to consider, in scoping their NEPA analyses, whether analysis of the direct and indirect greenhouse gas emissions from their proposed actions may provide meaningful information to decision makers and the public. Specifically, if a proposed action would be reasonably anticipated to cause direct emissions of 25,000 MT CO₂e emissions on an annual basis, agencies should consider this an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public. The CEQ updated that draft in 2014 and provided a final guidance on August 2, 2016 (CEQ 2016).

BAAQMD and SCAQMD Industrial Source Threshold

In an abundance of caution, this EIR also evaluates Project emissions against a second, alternative quantitative GHG threshold of 10,000 MTCO₂e per year. As discussed above, BAAQMD and SCAQMD have deemed this threshold appropriate for industrial stationary source projects, like the Project.

Per the BAAQMD, the stationary source threshold is applied to land uses that would accommodate processes and equipment that emit GHG emissions and would require an Air District permit to operate. SCAQMD applies the industrial source threshold to projects where they are the lead agency under CEQA. Although the BAAQMD recommends a qualitative approach for assessing the impact of construction generated GHGs, the SCAQMD recommends that construction emissions be amortized over the life of the project, defined as 30 years, and added to the operational emissions for comparison against the threshold of significance.

The SCAQMD formed the GHG CEQA Significance Threshold Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. The Minutes for Working Group Meeting #8, dated January 28, 2009, state:

Although the GHG significance threshold for industrial sources is based only on operation natural gas usage at facilities evaluated, the GHG threshold adopted by the Governing Board applies to both emission from construction and operational phases plus indirect emissions (electricity, water use, etc.). (SCAQMD 2009)

Furthermore, the Minutes state that staff recommend using land use definitions that are generally aligned with the URBEMIS model land use definitions, and provide the following recommended definition of industrial land uses (SCAQMD 2009):

Industrial

- *Characterized by production, manufacturing, or fabrication activities (e.g., manufacturing, light and heavy industry, etc.), or;*
- *Storage and distribution (e.g., warehouse, transfer facility, etc.).*

The California Emissions Estimator Model (CalEEMod) replaced URBEMIS as the recommended model for estimating emissions from proposed land uses for CEQA purposes. Both CalEEMod and URBEMIS identify General Light Industry, General Heavy Industry, and Manufacturing as industrial land uses. The Proposed Project is an industrial land used characterized by the production of finfish, with an annual production capacity of approximately 25,000-27,000 metric tons of head on gutted fish (HOG) once complete. The Proposed Project requires a NCUAQMD permit for onsite stationary generators and will not be able to proceed without permitted stationary equipment. Unlike typical residential or commercial projects, on-road mobile sources are estimated to account for only 63 percent of the Proposed Project's GHG inventory at first year of operation, would decline to an estimated 58 percent at full buildout, and would continue to decline into future years. In contrast, energy consumption, off-road equipment, and stationary source emissions are estimated to be 13 percent of the Proposed Project's GHG inventory at first year of operation, would increase to approximately 18 percent by full buildout, and would continue at a steady rate (mass emissions) into future years. Similarly, area, waste, and water would contribute approximately 13 percent of the GHG inventory at first year of operation and at full buildout. The Proposed Project is an industrial project dependent on acquiring a stationary source permit from NCUAQMD, and a substantial and increasing percent of the Project's GHG inventory would be from non-mobile sources.

In contrast, the GHG inventory of a typical retail/commercial project in year 2025 would consist of approximately 96 percent mobile sources, and only 2 percent from energy (zero percent from off-road and stationary equipment), and 2 percent from waste.

Proxy Climate Action Plan

The Project is also evaluated for consistency with an adopted Climate Action Plan (CAP) for a rural northern California County with a large agricultural sector, similar to Humboldt County, which contains emission reduction goals for years 2030, 2040, and 2050 to achieve the thresholds set by the Governor's Executive Order S-3-05. The Yolo County CAP demonstrates an ability to achieve a 27 percent reduction below 1990 emissions levels by 2030. The Yolo County CAP has not been adopted by Humboldt County and therefore is not technically applicable to this Project. However, Humboldt County does not have a CAP or other similar adopted plan to achieve state GHG reduction benchmarks. Humboldt and Yolo Counties are similar with regard to population density, land uses, and projected development. Accordingly, evaluating consistency with the Yolo County CAP is an appropriate metric for determining whether the Project is consistent with the 2030 goals set forth in SB 32.

Humboldt County General Plan

Additionally, the Project is evaluated for consistency with the 2017 Humboldt County General Plan. The 2017 Humboldt County General Plan, while non-binding in a regulatory sense, are used to inform the analysis in this section. The General Plan Certified EIR, Section 3.13.4, which evaluates the greenhouse gas impact of the General Plan, states:

Under the thresholds of significance set forth above, evaluation of whether or not GHG emissions generated as a result of implementation of the General Plan Update would have a significant impact on the environment, or would conflict with applicable plans, policies or regulations adopted for the

purpose of reducing emissions of GHG, cannot be definitively determined until the inventory of GHG emissions for 1990 has been updated in accordance with currently accepted protocols.

The General Plan Certified EIR provides the following conclusion that the Humboldt County General Plan would have a significant and unavoidable greenhouse gas impact:

... because specific information about construction projects and yet-to-be developed CAP measures to reduce construction emissions are unknown at this time, it is uncertain what the future intensity the proposed General Plan update would exceed an adopted GHG significance threshold. Consequently, this impact is conservatively determined to be significant. Ensuring that emissions will fall below an adopted GHG emissions threshold is not feasible at this time. Therefore, this impact is considered significant and unavoidable.

Therefore, consistency with the Humboldt County General Plan is provided for informational purposes.

CalEEMod version 2020.4.0 was used to estimate greenhouse gas emissions from project construction operation (see Appendix B). Construction emissions were estimated using the detailed construction phasing, duration, and equipment use parameters provided by Nordic, and also include demolition activities. Operations of the facility would ramp-up from an anticipated first year of operation in 2025 to full operations by 2029. Therefore, emissions were estimated for year 2025 and 2029. Operational emissions were estimated using the land use types and amounts identified in Chapter 2, Project Description, and the solids hauling trip generation rate and trip distance, and energy consumption estimates.

Emissions modeling includes the proposed testing and use of the project's two emergency backup generators. It is assumed that each generator would be tested on an alternating basis each week. Typical run time for testing would be approximately 10 hours per year and would be no more than 50 hours per year. However, the backup power generation system can run as long as necessary in the event of a prolonged power outage, but would be permitted to be used a maximum 500 hours in a given year. The emissions estimates submitted for the stationary source permits with the NCUAQMD were used in this analysis, and reflect a maximum 500 annual hours of use; therefore, the emissions analysis is overly conservative.

For determining a conflict with an applicable plan, the Project is evaluated for its compliance with the State's 2017 Climate Change Scoping Plan (the implementing tool of AB 32) as a plan adopted for the purpose of reducing GHG emissions. There are no county-level plans that have been adopted for the purpose of reducing GHG emissions.

3.7.6 Impacts and Mitigation Measures

This Section evaluates potential impacts related to greenhouse gas (GHG) emissions resulting from construction and operation of the Project against significance thresholds derived from applicable local, state, or federal policies, or from Appendix G of the CEQA Guidelines.

Impact GHG-a: Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? (Less than Significant)

Terrestrial Development

NCUAQMD has not adopted regulations regarding the evaluation of GHG emissions in a CEQA document and has not established CEQA significance criteria to determine the significance of impacts with regard to GHGs (J. Davis. pers. comm. 2019). The NCUAQMD recommends considering the GHG emission CEQA standards from the BAAQMD (J. Davis pers. comm. 2019). BAAQMD's threshold for project operations is provided under Quantitative Method 2, below. For project construction, BAAQMD does not have quantitative GHG emission thresholds (BAAQMD 2017).

Therefore, due to a lack of local thresholds, the County of Humboldt, as Lead Agency for the Project, has elected to apply the following methods for assessing the Project's potential GHG emissions impact:

1. Compare the Project's GHG emissions against bright-line numeric thresholds; and
2. Rely on a qualitative analysis of the Project's consistency with a proxy county-level plan adopted for reduction of GHG emissions.

Accordingly, and as described in 3.7.5, Methodology, the methods elected by the County of Humboldt, and associated threshold of significance, are:

Quantitative Method 1: 25,000 MT CO_{2e} per year.

The CARB's industrial Cap-and-Trade entry threshold of 25,000 MT CO_{2e} per year is used to determine the Project's impact for generation of GHGs. This threshold is also consistent with the CEQ's 2010 draft guidance and EPA's Greenhouse Gas Reporting Program reporting threshold for 'large' industrial sources. The Cap-and-Trade Program is a key element of California's strategy to reduce GHG emissions, by requiring large industrial sources (emissions greater than 25,000 MT CO_{2e} per year) to reduce GHG emissions with the allowable emissions declining over time. The Program applies to emissions that cover approximately 80 percent of the State's GHG emissions. In order to assess the potential impact of construction-generated emissions, the construction GHG emissions are annualized over an assumed 30-year project lifespan and added to operational emissions.

Quantitative Method 2: 10,000 MT CO_{2e} per year.

Air districts within California have adopted or recommended a 10,000 MT CO_{2e} per year threshold of significance to apply to industrial sources. The BAAQMD adopted the stationary source greenhouse gas threshold of 10,000 MT CO_{2e}, and recommends use of that threshold of significance in their CEQA Guidelines. Additionally, the SCAQMD adopted the 10,000 MT CO_{2e} per year threshold for industrial sources for CEQA purposes where they are the Lead Agency. In order to assess the potential impact of construction-generated emissions, the construction GHG emissions are annualized over an assumed 30-year project lifespan and added to operational emissions.

Qualitative Method 1: Consistency with a proxy county-level Climate Action Plan that supports state-wide GHG emission reduction goals.

Humboldt County is working on preparing a multi-jurisdictional Climate Action Plan with all jurisdictions within the County; however, the County does not have an adopted Climate Action Plan. The Humboldt County General Plan, adopted in 2017, contains an Air Quality Element with several policies that reduce GHG emissions in the County, including requirements for the County to prepare the Climate Action Plan. However, a qualified Climate Action Plan with reduction targets for years 2030 and beyond was selected to assess the Project's plan consistency. As identified in Section 3.7.4, Methodology, Humboldt, and Yolo Counties are similar with regard to population density, land uses, and projected development. For year 2020, Yolo County was estimated to have a population of 221,718, while Humboldt County was estimated as 132,706 (DOF 2021). Yolo County's population is concentrated in a few urbanized areas, with the remainder of the land in agricultural or other rural land uses. Similarly, Humboldt County's population is concentrated in a few urbanized areas, with the remainder of the land as forests and other rural land uses. Both Yolo County and Humboldt County have ports. By 2030, Yolo County's population is anticipated to grow to 248,815 (a 12 percent increase above 2020 levels), whereas Humboldt County is anticipated to grow to 133,738 (less than 1 percent increase above 2020 levels).

GHG emissions are inherently global. The environmental effect of such emissions—climate change—is a global impact and is not limited to the region where those emissions occur. Therefore, where there is no qualified Climate Action Plan in the immediate jurisdiction where a Project is being constructed, it is appropriate to utilize a Climate Action Plan from another jurisdiction because the measures required to achieve statewide GHG reductions will be the same across jurisdictions, and the impacts of those reductions are global. Additionally, because Yolo County is anticipated to increase in population at a greater rate than Humboldt County, application of the Yolo County CAP as a proxy CAP provides an overly conservative analysis.

Qualitative Method 2: Consistency with Humboldt County General Plan policies that support state-wide GHG emission reduction goals.

As stated in Section 3.7.3, Regulatory Framework, and Section 3.7.4, Methodology, the applicable planning document (Humboldt Bay Area Plan) does not contain policies related to greenhouse gas emissions. The 2017 Humboldt County General Plan, while non-binding in a regulatory sense because it has yet to be certified in the coastal zone, are used to inform the analysis in this section. The General Plan Certified EIR found that the County's General Plan would result in a significant and unavoidable greenhouse gas impact. Therefore, consistency with the Humboldt County General Plan is provided for informational purposes.

For both the quantitative and qualitative assessment, a large driver of the Project's emissions and consistency analysis is related to energy efficiency. The Project would be operational at a partial capacity in year 2025, and fully operational by year 2029. A large portion of the energy consumption by the Terrestrial Development would be for providing environmentally protect measures through robust application of best available water treatment technology. The Terrestrial Development includes 4.8 MW of onsite solar facilities. The project would include a network of heat exchangers and heat pumps to capture fish-generated waste heat to supplement its energy supply and to reduce energy needs. Energy consumption will be significantly reduced through maximization of highly efficient water to water cooling. As detailed in Section 4.6, Energy, project operations will not result in inefficient, wasteful, or unnecessary consumption of fuels or other energy resources.

Quantitative Analysis

In order to assess the potential impact of construction-generated emissions, the construction GHG emissions were annualized over an assumed 30-year project lifespan and added to operational emissions. Based on CalEEMod modeling (attached as Appendix B), Project construction activities would result in a temporary increase in GHG emissions, including exhaust emissions from on-road trucks, worker commute vehicles, and off-road heavy-duty equipment. Construction would require clearing, earthmoving, and delivery equipment, as used for similar projects, and which have been accounted for in the State's emission inventory and reduction strategy for both on- and off-road vehicles. Construction emissions were estimated using CalEEMod version 2020.4.0 and were estimated to be approximately 13,760.1 MT CO₂e from all construction activities. Construction emissions were estimated for each separate Project component and summed together. Project demolition and construction emissions would be comprised of 13,601.6 MT CO₂e from Terrestrial Development, 97.99 MT CO₂e from Humboldt Bay Water Intakes, and 51.57 MT CO₂e from Compensatory Off-Site Restoration, respectively. The Project's construction emissions equal 13,706.1 MT CO₂e total, or 458.67 MT CO₂e per year when annualized over the assumed 30-year lifespan of the Project. Annualized construction emissions are added to the Project's operational emissions to assess the Project's significance, as detailed in Section 3.7.4, Methodology.

Project operational emissions were also estimated using CalEEMod version 2020.4.0. The project will result in an increase in operational trips (employee, hauling trips). Project-specific energy consumption, on-site energy production, water treatment, and trip parameters were utilized in the Project analysis. Table 3.7-1 summarizes Project construction and operational-related GHG emissions model results for both year 2025 and 2029.

As shown in Table 3.7-1, the Project's operational emissions will not exceed the identified emission thresholds in the first year of operations or at full buildout. As such, the Project will not result in substantial long-term operational emissions of GHGs. Therefore, the Project will generate a less than significant impact.

Table 3.7-1 Operational Greenhouse Gas Pollutant Emissions

| Parameter | Emissions (metric tons per year) | |
|---|-------------------------------------|---------------|
| | Year 2025 | Year 2029 |
| Area | 0.01 | 0.01 |
| Energy | 161.20 | 340.48 |
| Off Road | 35.20 | 35.20 |
| Emergency Generators | 344.60 | 344.60 |
| Waste | 361.69 | 361.69 |
| Water | 186.76 | 186.76 |
| Mobile – Worker | 165.67 | 152.72 |
| Mobile – Hauling (NCUAQMD Area) | 993.39 | 892.15 |
| Mobile – Hauling (Remaining California) | 1,478.33 | 1,325.95 |
| Annualized Construction ² | 458.67 | 458.67 |
| Total Operation | 4,185.51 | 4,098.23 |
| <i>Threshold of Significance (Method 1)</i> | <i>25,000</i> | <i>25,000</i> |
| <i>Threshold of Significance (Method 2)</i> | <i>10,000</i> | <i>10,000</i> |
| <i>Significant Impact?</i> | <i>No</i> | <i>No</i> |

Notes:

¹ Annualized Construction includes construction emissions from Terrestrial Development, Humboldt Bay Water Intakes, and Compensatory Off-Site Mitigation.

As shown in the table, energy consumption, off-road equipment, and stationary source emissions are estimated to be 13 percent of the Proposed Project's GHG inventory at first year of operation, would increase to approximately 18 percent by full buildout, and would continue at a steady rate (mass emissions) into future years. Similarly, area, waste, and water would contribute approximately 13 percent of the GHG inventory at first year of operation and at full buildout. On-road mobile sources are estimated to account for only 63 percent of the Proposed Project's GHG inventory at first year of operation, would decline to an estimated 58 percent at full buildout, and would continue to decline into future years.

The analysis assumed full mobile activity at first year of operation and at full buildout. Because existing regulations result in cleaner mobile fleets over time (lower emission factors), the estimated mobile emissions are reduced at year 2029 as compared to 2025, even with identical activity assumptions. Similarly, full buildout activity assumptions were applied in the first year of operation and at buildout for area sources, off-road equipment, waste generation, and water consumption. However, emission factors for those sources remain static in that timeframe and, therefore, emissions estimates remain the same for both years. Energy consumption estimates were tailored to the Proposed Project and are estimated to increase between 2025 and 2029 as the facility ramps up production. As previously stated, year 2019 PG&E carbon intensity data was applied, and the emissions estimate is overly conservative.

As stated previously, the project design requires energy consumption to treat, recondition, and recirculate water many times before discharging through the wastewater treatment system. The Project's energy demand is directly related to environmental measures to clean water, and further evaluated in Section 3.5 - Energy. The Project is designed to use energy efficiently, including a 4.8MW onsite solar facilities. Capture and reuse fish-generated heat to reduce energy needs. Water to water cooling to provide significant energy efficiency over air to water cooling methods. Grid energy would come from either PG&E or RCEA, both of which have met and exceeded the State's Renewable Portfolio Goal of providing 33% of energy from specified eligible-renewable resources and are both required to achieve a 60% renewables goal by 2030 and be 100% carbon-free by 2045. The RCEA has further committed to achieving a 100% renewable and net-zero carbon emissions sources by 2030. As a condition of the Coastal Development Permit, NAFC will be required to meet RCEA and the State of California's goals of utilizing non-carbon-based energy sources by

2030. The emissions analysis used the existing verified 2019 carbon intensity factors for PG&E and, therefore, is overly conservative.

The proposed Project will deliver product to local (west coast) markets, thereby lessening the need for these markets to import seafood from long-distances. Farmed Atlantic Salmon is imported to the west coast and United States from Europe and South America a local source will reduce GHG emissions from air freight and other transportation traffic. Greenhouse gases have a global cumulative effect regardless of where they emanate from. Production of the same product in the two most dominant Atlantic Salmon farming areas, Chile, and Norway, would require the same resources and greenhouse gas as farming the same product locally, however the shipping of the fresh product by airplane 7,000 and 5,000 miles from these countries to the west coast market effectively doubles the CO₂ footprint versus a domestic production operation that can distribute to customers in the immediate region by truck. This replacement of existing, higher-emitting sources of importing farmed salmon is not incorporated into the Proposed Project's quantitative analysis; therefore, the emissions analysis is overly conservative.

Qualitative Analysis

The Project is evaluated for consistency with an adopted Climate Action Plan (CAP) for a rural northern California County with a large agricultural sector, similar to Humboldt County, and contains emission reduction goals for years 2030, 2040, and 2050 to achieve the thresholds set by the Governor's Executive Order S-3-05. The Yolo County CAP demonstrates an ability to achieve a 27 percent reduction below 1990 emissions levels by 2030. Additionally, the Project is evaluated for consistency with the Humboldt County General Plan measures that reduce GHGs within the County.

The Project's consistency with the Yolo County CAP's measures is assessed in Table 3.7-2, and consistency with the Humboldt County General Plan measures is assessed in Table 3.7-3. The project would be consistent with the proxy adopted qualified Climate Action Plan and with the Humboldt County General Plan measures, as shown in the tables below, and a less than significant impact would occur.

Table 3.7-2 Consistency Analysis Between Project and Proxy Qualified Climate Action Plan

| Proxy Qualified Climate Action Plan Measures ¹ | Consistency/Applicability Determination |
|--|--|
| <p>Energy Measure E-1: Pursue a community choice aggregation program</p> <ul style="list-style-type: none"> – The CAP assumes that the County will set the following 2020 targets for the CCA: – 25% of consumers use PG&E's portfolio (0% by 2030) – 50% of consumers purchase a "light green" portfolio comprised of 50% renewable sources (75% by 2030) – 25% of consumers purchase a "deep green" portfolio comprised of 100% renewable sources (assumed to include a 10% cost premium) (25% by 2030) | <p>Consistent. The Proposed Project could receive energy from PG&E or RCEA. PG&E has met and exceeded the State's Renewable Portfolio Goal of providing 33% of energy from specified eligible-renewable resources and is required to achieve a 60% renewables goal by 2030 and be 100% carbon-free by 2045. Similarly, RCEA has met and exceeded the State's Renewable Portfolio Goal, and has committed to achieving a 100% state-designated renewable and state-designated net-zero-carbon emissions sources by year 2025. Regardless if PG&E or RCEA provide energy to the Project, as conditioned, the Project would achieve the clean energy mix goals of the proxy CAP.</p> |

¹ The Yolo County CAP Agricultural Measures (Measures A-1 through A-6) are not applicable to the Project, as the project would not be agricultural and would not include the activities or emission sources targeted by the Agricultural Measures. CAP Transportation Measure T-1 does not apply to the Project, because the project is an individual industrial project and not located within any of the specific land use development areas identified by the measure. CAP Energy Measures E-2, E-3, E-5 applies to the County, not individual projects. CAP Energy Measure E-6 applies to existing facilities, the project would be a new facility. CAP Solid Waste and Wastewater Measure WR-1 does not apply to the project, as the project would not generate methane.

| Proxy Qualified Climate Action Plan Measures ¹ | Consistency/Applicability Determination |
|---|---|
| <p>Energy Measure E-4: Increase on-site renewable energy generation to reduce demand for grid energy</p> <p>On-site renewable energy generation is an effective way to reduce demand for grid energy. Other technologies should also be pursued and encouraged, including but not limited to heat capture, methane capture, and anaerobic waste digesters. Facilities and operations that can demonstrate equivalent reductions to solar systems using alternative on-site renewable energy generation technologies are in compliance with this measure.</p> | <p>Consistent. The Project is designed to use energy efficiently as feasible, includes onsite solar facilities, and would capture and reuse fish-generated heat to reduce its energy needs.</p> |
| <p>Energy Measure E-7: Promote weather-based irrigation systems and water efficient turf management</p> <p>Designing landscapes to favor low-water demand plants adapted to the local climate is one of the most cost-effective ways to reduce potable water use. To complement plant selection, installing weather-based irrigation controllers that adjust irrigation in response to weather and soil moisture conditions and employing more water-efficient turf management practices can further reduce water use.</p> | <p>Consistent. The Project includes native landscaping, as detailed in Section 2.7, Landscaping Design. Extant dune mat and coastal brambles on-site will be enhanced through removal of invasive species and augmented with additional plantings to fill those void spaces and will be part of agency-required dune mat/Gilia on-site mitigation. Stormwater management basins will include plantings that mimic seasonal wetlands and plant communities also found in dune environments. Do to the mild coastal climate, any landscape irrigation would be primarily limited to establishing plants.</p> |

Source of Yolo County CAP Measures: Yolo County, 2011

Table 3.7-3 Consistency Analysis Between Project and Humboldt County General Plan

| Humboldt County General Plan Measures ² | Consistency/Applicability Determination |
|--|--|
| <p>AQ P11: Review of Projects for Greenhouse Gas Emission Reductions</p> <p>The County shall evaluate the GHG emissions of new large scale residential, commercial, and industrial projects for compliance with state regulations and require feasible mitigation measures to minimize GHG emissions.</p> | <p>Consistent. PG&E has met and exceeded the State's Renewable Portfolio Goal of providing 33% of energy from specified eligible sources.</p> |
| <p>AQ-P14: Solar Electric System Capacity</p> <p>Encourage and provide incentives to increase solar-electric capacity in residential, commercial, and industrial sectors.</p> | <p>Consistent. The Project includes a 4.8 MW of onsite solar facilities to reduce its energy needs.</p> |

Mitigation Measures: No mitigation is necessary

Level of Significance: Less than Significant

² The Yolo County CAP Agricultural Measures (Measures A-1 through A-6) are not applicable to the Project, as the project would not be agricultural and would not include the activities or emission sources targeted by the Agricultural Measures. CAP Transportation Measure T-1 does not apply to the Project, because the project is an individual industrial project and not located within any of the specific land use development areas identified by the measure. CAP Energy Measures E-2, E-3, E-5 applies to the County, not individual projects. CAP Energy Measure E-6 applies to existing facilities, the project would be a new facility. CAP Solid Waste and Wastewater Measure WR-1 does not apply to the project, as the project would not generate methane.

Ocean Discharge

Ocean discharge would have no impact. The Project would merely utilize the existing Ocean Discharge outfall infrastructure currently existing. No construction or operational emissions of greenhouse gases would result. No impact would occur.

Mitigation Measures: No mitigation is necessary

Level of Significance: No Impact

Humboldt Bay Water Intakes

As with the Terrestrial Development, the Humboldt Bay Water Intakes construction activity would emit greenhouse gases. The construction and operational activity emissions estimates are included in the analysis prepared for the Terrestrial Development above using CalEEMod version 2020.4.0. Operation of the Humboldt Bay Water Intakes would require energy consumption, as the pumps are electric, and are estimated to require approximately 4,380 MWh per year to operate. The electricity consumption of the pumps as a result of the project is included in the energy demand of the Terrestrial Development, analyzed above.

As shown in the analysis above, the Terrestrial Development would not generate a significant greenhouse gas impact. Therefore, Humboldt Bay Water Intakes construction and operation emissions would result in a less than significant impact.

Mitigation Measures: No mitigation is necessary

Level of Significance: Less than Significant

Compensatory Off-Site Restoration

The Compensatory Off-Site Restoration operations would not include on-road vehicle use, stationary equipment, off-road equipment, or other source of greenhouse gas emission. Therefore, operation of the Compensatory Off-Site Restoration would not contribute greenhouse gas emissions and would result in no impact.

As with the Terrestrial Development, the Compensatory Off-Site Restoration construction activity would emit greenhouse gases. The construction activity emissions estimates are also included in the analysis prepared for the Terrestrial Development above. As shown in the analysis above, the Terrestrial Development would not generate a significant greenhouse gas impact. Therefore, Compensatory Off-Site Restoration construction would result in a less than significant impact.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than Significant

Impact GHG-b: **Would the Project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases? (Less than Significant)**

Terrestrial Development

In addition to the analysis above, the Project is evaluated for consistency with the CARB 2017 Climate Change Scoping Plan. The 2017 Scoping Plan provides California's climate policy portfolio and recommended strategies to put the state on a path to achieve the 2030 target. The scenario includes ongoing and statutorily required programs, continuing the Cap-and-Trade Program, and high-level objectives and goals to reduce GHGs across multiple economic sectors. Existing programs, also known as "known commitments," identified by the 2017 Scoping Plan include: SB 350, the Low Carbon Fuel Standard (LCFS), CARB's Mobile Source Strategy, Senate Bill 1383 for short-lived climate pollutants, and California's Sustainable Freight Action Plan. The high-level objective and goal recommendations cover the energy, transportation, industry, water, waste management, agriculture, and natural and working lands, and are to be implemented by a variety of state agencies.

Project construction would cause a temporary increase in GHGs; however, as discussed above, Project emissions will not exceed the identified emission thresholds. Project construction is analyzed for consistency with the 2017 Climate Change Scoping Plan in Table 3.7.4.

Table 3.7-4 Consistency Analysis Between Project and Climate Change Scoping Plan

| Scoping Plan Reduction Measures | Consistency/Applicability Determination |
|--|--|
| <p>California Cap-and-Trade Program Linked to Western Climate Initiative Implement a broad-based California Cap-and-Trade program to provide a firm limit on emissions. Link the California cap-and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California. Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms.</p> | <p>Consistent. This is a statewide measure that cannot be implemented by the Project or lead agency. PG&E obtains 39 percent of its power supply from renewable sources such as solar, wind, and geothermal, in conformance with various regulations (PG&E 2020). The State's Renewable Portfolio goals require energy producers to achieve a 60% renewables goal by 2030, and 100% carbon-free by 2045.</p> |
| <p>California Light-Duty Vehicle Greenhouse Gas Standards Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel, and vehicle technology programs with long-term climate change goals.</p> | <p>Consistent. This is a statewide measure that cannot be implemented by the Project or lead agency. However, the standards would be applicable to the light-duty vehicles that will access the Project Site.</p> |
| <p>Energy Efficiency Maximize energy efficiency building and appliance standards; pursue additional efficiency including new technologies, policy, and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California.</p> | <p>Consistent. This is a measure for the state to increase its energy efficiency standards in new buildings. The Project would be required to build to the latest standards in energy efficiency.</p> |
| <p>Renewable Portfolio Standard Achieve 50 percent renewable energy mix statewide by 2030. Renewable energy sources include (but are not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas</p> | <p>Consistent. This is a statewide measure that cannot be implemented by the Project or lead agency. The Proposed Project could receive energy from PG&E or RCEA, both of which have met and exceeded the State's Renewable Portfolio Goal of providing 33% of energy from specified eligible-renewable resources and are both required to achieve a 60% renewables goal by 2030 and be 100% carbon-free by 2045. The Project will include on-site solar power generation that will provide additional buffering in meeting these goals.</p> |
| <p>Low Carbon Fuel Standard Develop and adopt the Low Carbon Fuel Standard.</p> | <p>Consistent. This is a statewide measure that cannot be implemented by the Project or lead agency. The standard would be applicable to the fuel used by vehicles that will access the Project Site.</p> |
| <p>Regional Transportation-Related Greenhouse Gas Targets Develop regional greenhouse gas emissions reduction targets for passenger vehicles. This measure refers to SB 375.</p> | <p>Not Applicable. This is a statewide measure calling for the development of GHG emission reduction targets.</p> |
| <p>Vehicle Efficiency Measures Implement light-duty vehicle efficiency measures.</p> | <p>Not Applicable. This is a statewide measure that cannot be implemented by the Project or lead agency.</p> |
| <p>Goods Movement Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.</p> | <p>Not Applicable. The Project does not propose any changes to modes of transportation of goods.</p> |
| <p>Million Solar Roofs Program Install 3,000 MW of solar-electric capacity under California's existing solar programs.</p> | <p>Consistent. This measure is intended to increase solar power throughout California, which is being done by various utility companies and solar programs. The Project includes 4.8 MW of on-site solar power generation or 0.16% of this State-wide goal in one project.</p> |

| Scoping Plan Reduction Measures | Consistency/Applicability Determination |
|--|--|
| <p>Medium/Heavy-Duty Vehicles Adopt medium and heavy-duty vehicle efficiency measures.</p> | <p>Consistent. This is a statewide measure that cannot be implemented by the Project or lead agency. However, the standards would be applicable to the medium and heavy-duty vehicles that would access the Project Site.</p> |
| <p>Industrial Emissions Require assessment of large industrial sources to determine whether individual sources within a facility can cost- effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.</p> | <p>Not Applicable. This measure will apply to the direct GHG emissions at major industrial facilities. The Project size and estimated generation of greenhouse gases are less than the threshold for large or ‘major’ industrial sources.</p> |
| <p>High Speed Rail Support implementation of a high-speed rail system.</p> | <p>Not Applicable. This is a statewide measure that cannot be implemented by the Project or lead agency. High speed rail systems are not part of this Project.</p> |
| <p>Green Building Strategy Expand the use of green building practices to reduce the carbon footprint of California’s new and existing inventory of buildings.</p> | <p>Consistent. The Project would comply with the California Energy Code and thus include the required energy efficiency features.</p> |
| <p>High Global Warming Potential Gases Adopt measures to reduce high global warming potential gases.</p> | <p>Consistent. This measure is applicable to the high global warming potential gases such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF6) found in air conditioning and commercial refrigerators. The Project’s cooling system would utilize equipment that complies with this measure. Consistent with new State law, the project would be required to use refrigerants with a Global Warming Potential of 150 or less, and to comply with the Refrigerant Management Program that will be in place prior to Project operations. Additionally, the Project will evaluate the feasibility of using recycled refrigerants.</p> |
| <p>Recycling and Waste Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste.</p> | <p>Consistent. The Project does not include a landfill. The project would reduce waste with implementation of state mandated recycling and reuse mandates.</p> |
| <p>Sustainable Forests Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation.</p> | <p>Not Applicable. The Project would not include tree removal or areas for reforestation.</p> |
| <p>Water Continue efficiency programs and use cleaner energy sources to move and treat water.</p> | <p>Consistent. This is a measure for State and local agencies. However, the Project would adhere to California Green Building Standards Code regulation and would retain the runoff sourced from the 95th percentile of rainfall which would replenish the groundwater aquifer.</p> |
| <p>Agriculture In the near-term, encourage investment in manure digesters and at the five- year Scoping Plan update determine if the program should be made mandatory by 2020.</p> | <p>Not Applicable. The Project does not include agricultural production.</p> |

Source of Scoping Plan Reduction Measures: CARB 2008, CARB 2017

As Project emissions will not exceed the identified emission thresholds and the Project would be consistent with the 2017 Climate Change Scoping Plan, as shown in the table above, a less than significant impact would occur.

Mitigation Measures: No mitigation is necessary

Level of Significance: Less than Significant

Ocean Discharge

Ocean discharge would have no impact. The Project would merely utilize the existing Ocean Discharge outfall infrastructure. No construction or operational emissions of greenhouse gases would result, and the Ocean Discharge would have no potential to conflict with an adopted greenhouse gas reduction plan. No impact would occur.

Mitigation Measures: No mitigation is necessary

Level of Significance: No Impact

Humboldt Bay Water Intakes

The Humboldt Bay Water Intakes construction and operation is proposed to support the Terrestrial Development. The Humboldt Bay Water Intakes consists of the rehabilitation and redevelopment of the existing water intake structures, and installation of the associated water delivery pipelines. The electricity consumption of the pumps as a result of the project is included in the energy demand of the Terrestrial Development analyzed above. As shown in the analysis above, the Terrestrial Development is consistent with the 2017 Climate Change Scoping Plan. The Humboldt Bay Water Intakes construction and operational emissions would result in a less than significant impact.

Mitigation Measures: No mitigation is necessary

Level of Significance: Less than Significant

Compensatory Off-Site Restoration

The Compensatory Off-Site Restoration is required to implement the Humboldt Bay Water Intakes component, which is proposed to support the Terrestrial Development. The Compensatory Off-Site Restoration consists of pile removal and Spartina removal. Compensatory off-site habitat restoration would be implemented in association with the phased withdrawal of water through the Humboldt Bay Water Intakes.

None of the Scoping Plan Reduction Measures identified in Table 3.7-4 apply to the Compensatory Off-Site Restoration activities or land use. The Compensatory Off-Site Restoration would not include operational activity. Therefore, the Compensatory Off-Site Mitigation would have no potential to conflict with an adopted greenhouse gas reduction plan. No impact would occur.

Mitigation Measures: No mitigation is necessary

Level of Significance: No Impact

3.7.7 Cumulative Impacts

Impact GHG-C-1: Would the Project contribute to a cumulatively significant impact to greenhouse gas emissions? (Less than Significant)

As discussed in this section, any increases in construction and operational Project-related greenhouse gas emissions will not exceed the EPA's Greenhouse Gas Reporting Program reporting threshold for 'large' industrial sources, or the BAAQMD and SCAQMD's threshold for industrial sources of 10,000 MT CO_{2e}/year. The Project would also be consistent with a proxy county-level CAP. Additionally, the Project would be consistent with the CARB's adopted Scoping Plan and would not impede the state in meeting Assembly Bill 32 (AB 32) greenhouse gas reduction goals. Therefore, the Project's contribution to cumulative greenhouse gas impacts will not be cumulatively considerable; therefore, will be less than significant.

Mitigation Measures: No mitigation is necessary

Level of Significance: Less than Significant

3.7.8 References

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