

3.5 Energy Resources

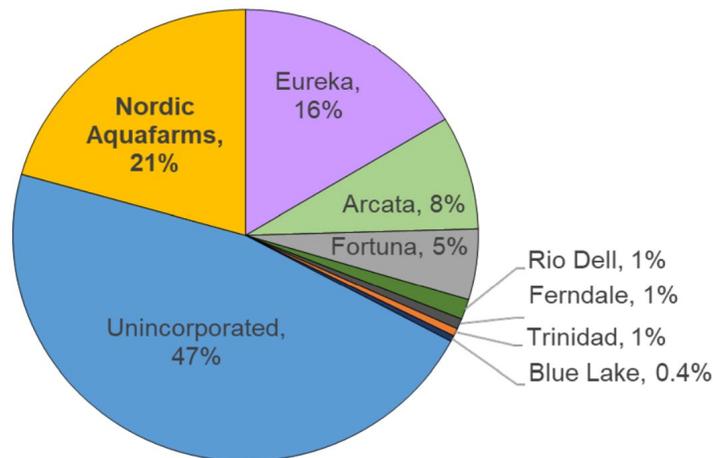
This Section evaluates the potential impacts to energy resources resulting from construction and operation of the Project against significance thresholds derived from applicable local, state or federal policies, or from Appendix G of the CEQA Guidelines. CEQA Guidelines Appendix F, Energy Conservation, predates the inclusion of Energy Resources as an impact category and section within EIRs. The information and analysis recommended by CEQA Guidelines Appendix F, Energy Conservation, is addressed throughout this EIR including (but not exclusive to): this Section; Section 2.0, Project Description; Section 3.7, Greenhouse Gas Emissions; and, Section 3.12, Transportation.

3.5.1 Study Area

For the purpose of this Section, the Study Area includes the Project Site and the area which encompasses the Humboldt County Reliability Area, as that is the area analyzed for potential energy resource impacts related to construction and operation of the project and is consistent with the Redwood Coast Energy Authority's (RCEA) *RePower Humboldt: Comprehensive Action Plan for Energy* (RCEA 2019).

3.5.2 Setting

Energy resources in Humboldt County consist primarily of fossil fuels such as natural gas deposits, and local biomass resources sourced from lumber mill wood residue. Most of the primary energy used in Humboldt County is imported, with the exception of biomass energy. Although natural gas deposits exist in Humboldt County, the County imports approximately 90 percent of its natural gas. There is one natural gas pipeline connecting the county to the larger natural gas grid. Active gas wells in Humboldt County are concentrated in the Tompkins Hill Gas Field in the Eel River basin in Humboldt County. There is no record of geothermal production in Humboldt County. Most petroleum-based transportation fuels are imported to the county by barge. There are two major connections to the larger electric grid. Electric transmission capacity of approximately 70 MW, connects Humboldt County to the regional grid. This represents less than half of the County's 170 MW peak electrical demand. Humboldt County generates much of its own electricity, primarily using natural gas and biomass fuels. According to the Humboldt County General Plan 2025 Energy Element Background Technical Report (SERC 2005), the residential, commercial, industrial and agricultural sectors in Humboldt County consumed a total of 940 Gigawatt-hours (GWh) in 2003, and the total peak electrical demand was 158 Megawatts (MW). In 2019, the total electricity usage data for Humboldt County from the California Energy Commission's Energy Reports was 791 GWh, which is a reduction of approximately 149 GWh from the 2003 electrical usage. For natural gas, the total amount consumed for Humboldt County was estimated to be 31.8 million therms (CEC 2019).



Source: RCEA 2021

Image 3.5-1: Annual electric use at full build out circa 2030 as a fraction of current total County load.

The Project's annual electricity use based on the anticipated average demand is estimated to be 195 GWh per year at full build out. As noted below in Image 3.5-3, the earliest the project would reach full production levels and energy use would be 2030.

Full production use and no additional large users are reflected in RCEA Image 3.5-1 above. It is important to note that the addition of the Project's full load energy use in the county will still be substantially lower than in previous decades. Image 3.5-2 below, the California Energy Commission depicts non-residential energy use in Humboldt county over the last 30 years. Current use is approximately half compared to the late 1990's. Nonresidential energy and additional energy use of the Project will still equate to less energy use than levels typical of the 2000's.

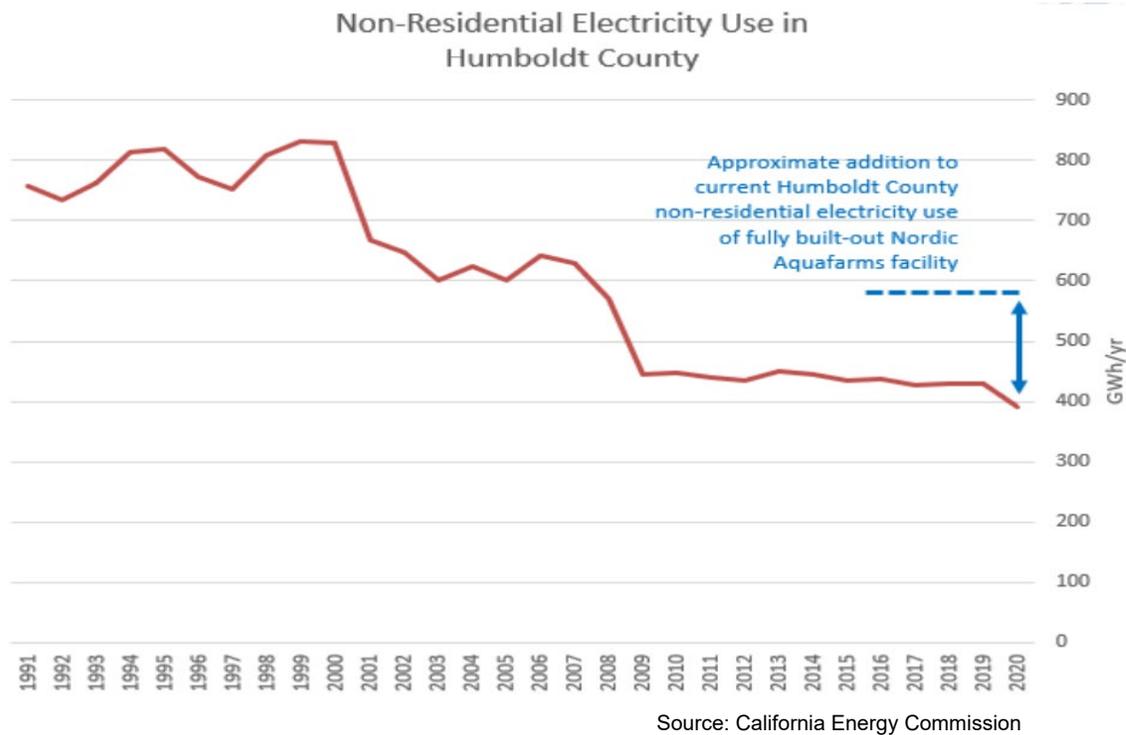


Image 3.5-2: Non-residential energy use over the last 30 years.

The Project Site is not located on or near any substantial known energy source and receives energy from the Pacific Gas & Electric Company (PG&E) electrical distribution grid and natural gas pipeline. The Project Site is also within the service territory of the RCEA Community Choice Energy (CCE) program and would be eligible to receive service through the program. Roughly half of the electricity serving Humboldt County is generated at the PG&E Humboldt Bay Generating Station, a natural gas-fired power plant (Humboldt County 2017). PG&E service is delivered to the Project Area via the existing energy infrastructure located on the Samoa Peninsula. The Project will be served by an existing 60-kilovolt (KV), 20 Megawatt (MW) electrical switchyard located on site. The switchyard is in a fenced area at the northwest corner of the former pulp mill site and connected to transmission lines that feed various structures within the Project Site, including the RMT II. Modernization and upgrade of the substation is planned to include NAFC taking over the existing meter and expanding the total capacity of the switchyard to 30-35 MW to be utilized by NAFC and HBHRCD RMT II operations. Additional onsite power will be generated by an approximate 4.8 MW rooftop solar installation and onsite dual fuel generators will provide power during power interruptions.

The Project facilities energy loads during normal operation will be entirely electric. High efficiency pumps make up most of the site loads and operate continuously, 24 hours per day, 365 days per year. For this reason, the total energy use of the Project facilities is very stable, with a nearly flat energy demand and use profile. The average annualized operational electricity demand of the Project facilities at full build out is anticipated to be approximately 22.3 MW. This represents the continuous electricity demand of the Project Site averaged over the year, including ocean discharge and water intake electrical loads. The annual electricity use based on the anticipated average demand is estimated to be 195 GWh per year at full build out.

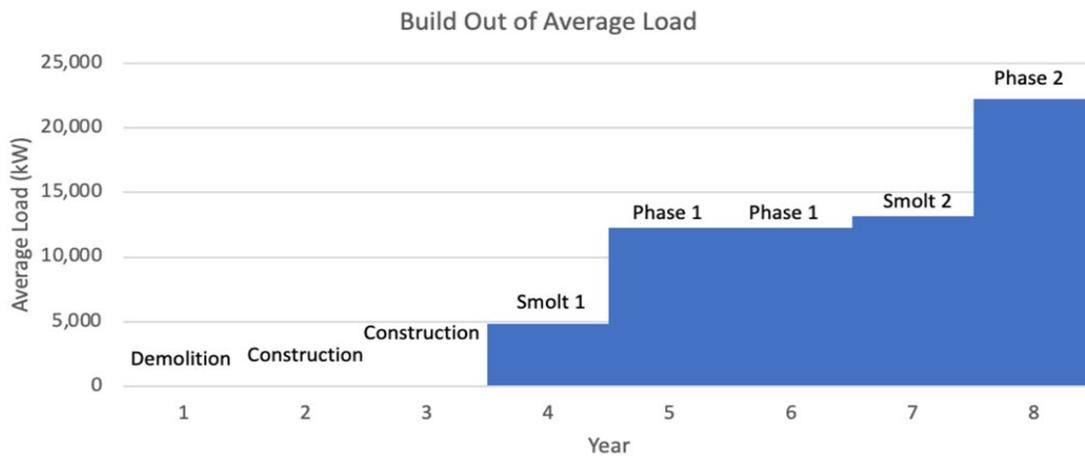


Image 3.5-3: Expected timeline for the Project to come online.

The Project's average energy use will take approximately eight years to reach full production levels once demolition has begun. With permitting continuing into 2022, the 22.3 MW load would likely be reached no earlier than 2030. This timeline coincides with the SB 100 law requiring 60 percent of the power purchased by California utilities to come from renewable sources by 2030, and RCEA's goal of their power mix consisting of 100% net-zero-carbon-emission renewable sources by 2030.

GHD developed a *Conceptual Solar PV Array Layout Technical Memorandum* (Appendix O, GHD 2021) to support further Project planning efforts. GHD used the National Renewable Energy Laboratory's PVWatts Calculator to estimate the energy production of the Conceptual Solar Layout. Based on the conceptual system sizing and site-specific insolation data established in the tech memo, the total potential solar PV system size for a roof mounted system at the Project Site on Buildings 1, 2, and 3 is 4.845 MW, with an estimated annual production of 5,553 MWh. This represents approximately 3% of the Projects total annual energy use.

The facility will utilize onsite dual-fuel emergency backup generators to power all critical functions of the facility in the event of grid power disruption. The emergency backup generators would have a combined capacity of approximately 20 MW capable of utilizing two fuel types; natural gas and diesel. Natural gas is supplied to the site via an existing 4" line. The project will utilize two 25,000-gallon underground storage tanks for diesel fuel to power the emergency backup generators. Diesel is a secondary fuel source for the dual fuel generators, the primary source will be natural gas supplied via an existing 4" natural gas line. Should there be a drop in natural gas pressure due to a break in the line and an interruption of grid power service, the facility would still be able to operate all critical functions by utilizing diesel fuel to operate the emergency back-up generators. Regular load testing and maintenance of the emergency generators will be conducted to ensure they are always fully operational. When these load tests are conducted each fuel supply line will be run to clear standing fuel. When maintained using the National Fire Protection Association 110 guidelines, diesel can be stored for 1.5 to 2 years. However, it is best practice to only store diesel fuel between 6 and 12 months. If storing fuel longer than 6 to 12 months is necessary, sampling and analysis is used to confirm the fuel still meets specifications. It is standard practice to remove fuel and have it sent for re-blending should testing indicate that it no longer meets specifications. Defueling involves the same processes as fueling. The primary difference being the direction of flow through the pump. Pumping fuel from one fuel container to another: underground tank to tanker trailer vs tanker trailer to underground tank presents no additional or unique risks versus standard transportation and fueling operations.

Critical functions to be powered by the backup generators include all systems required for fish welfare as well as environmentally protective systems such as the facilities wastewater treatment plant. The local Humboldt Bay Generating Station is now able to power the surrounding area to include the Samoa peninsula as a microgrid in the event of a wildfire requiring the de-energizing of the incoming transmission lines. The ability to operate the local distribution lines in a microgrid may eliminate the loss of power during future planned safety power shutdowns and drastically reduce the number of hours the onsite emergency generators would be required from hundreds of hours per year to tens of hours per year.

It is possible that the emergency backup generator system may operate for up to 500 hours per year during Planned Safety Power Shutdowns (PSPS), planned maintenance, load testing, and other temporary failure events related to the utility electricity provider. The 500 hours is an annual maximum and would represent an unusually prolonged outage of the power grid. 500 hours is the annual maximum allowable generator use as identified in section 2 on form 1301, North Coast Unified Air Quality Management District Permit Application Package Nordic Aquafarms California, Samoa Peninsula Land-based Aquaculture Project Samoa, Humboldt County, California. March 31, 2021; therefore, generator use exceeding 500 hours annually not be authorized. Normal operations of approximately 10 run hours per year would be typical usage to confirm functionality and maintain lubrication and conduct load testing. Load testing would entail switching the facility from grid power to onsite generated power to ensure those systems transition properly. NAFC will attempt to perform these periodic load tests during peak grid demand to reduce demand on the local power grid. This will have the effect of peak shaving by simply timing regular maintenance and system preparedness checks with peak grid demand times. The backup generators will not be run for the express purpose of peak shaving outside of the best management practices of conducting regular load testing of the emergency power systems. The emergency backup generator system would be anticipated to require either 14,120 lbm per hour natural gas, or 36,800 lbm per hour diesel at full load (per manufacturer).

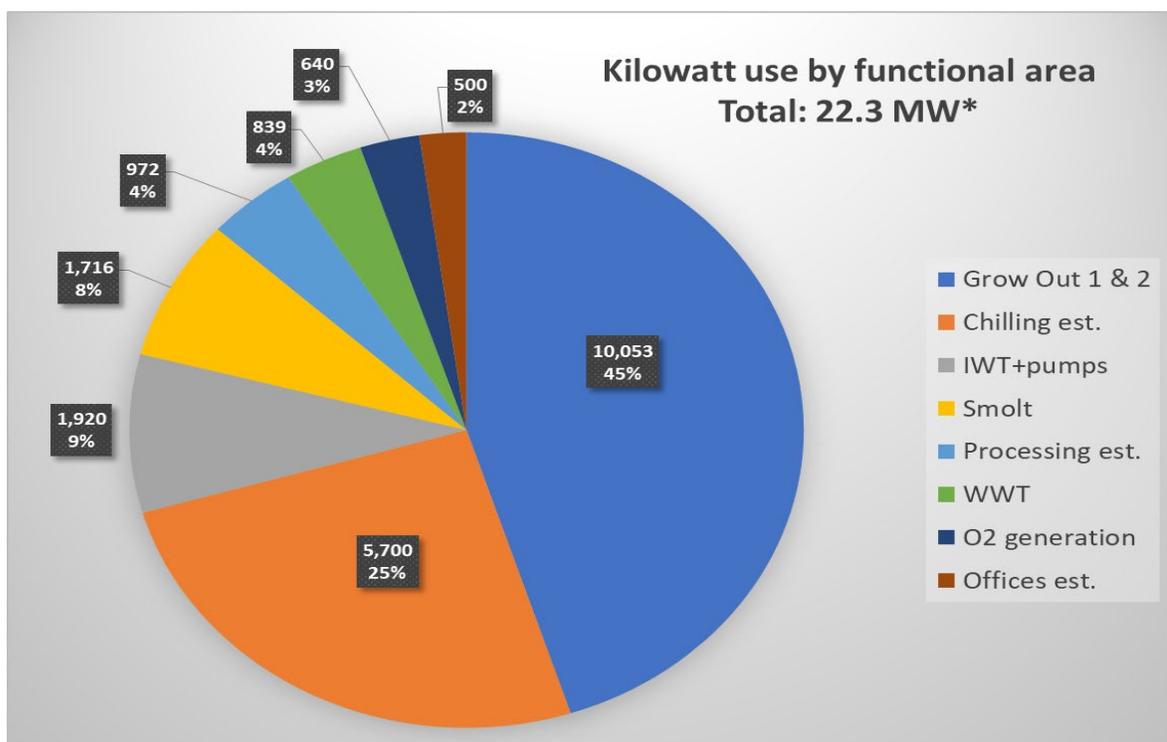


Image 3.5-4: Kilowatt use by functional area for the Project

Notes:

- * Amounts represent fully built out facility at full operating capacity with maximum water usage and treatment rates.
- * Liquid oxygen does not require energy for use or storage.
- * Numbers only reflect energy use by area and are not reduced to reflect any of the onsite power generation from the 4.85 MW solar array
- Smolt refers to all operations in building 3
- Grow out refers to all operations within building 1 and 2 to include denitrification and treatment of RAS water.
- Processing numbers are estimated from 30% schematic design work for processing equipment selection.
- IWT + pumps refers to Intake Water treatment, freshwater and saltwater, and operation of pumps and self-cleaning for both sea chests.
- WWT refers to all operations in building 5 for treating effluent.
- Office energy use has been estimated.
- Chilling use has been conservatively estimated using in-house generated models against previous eight years of temperature data for Samoa Ca.
- O2 generation refers to operation of two onsite oxygen generators and present a conservative number vs average operating use of 600 kW.

Based on the above, the annual average operational energy use of the facility at full build out is approximately 195 GWh (189.5 GWh of grid electricity, 5.5 GWh of onsite solar electricity). It is important to note that several of the largest areas of use are those of water treatment as denoted by four different functional areas in Image 3.5-4 which all center around water treatment (Smolt, Grow out, IWT, WWT). The production areas are not only the core business for NAFC, but they utilize recirculating aquaculture systems that are unique high functioning wastewater treatment systems. The water treatment performed by these RAS systems provides a very high level of water treatment upstream of the facilities wastewater treatment system. Overall power used by the Nordic water treatment systems and production processes would contribute to 94% of total energy use consumed by the facility, with the remaining 6% comprising offices and processing, as indicated in Image 3.5-4. Wastewater treatment is integral to operations not only for functionality and best practice for aquaculture activities, but environmental protection since effluent is treated prior to discharge into the Pacific Ocean. This use is considered essential and results in a less than significant impact.

PG&E provides PSPS to the region and Project area in an effort to reduce wildfires during severe weather. After weather has improved, PG&E inspects electric lines and restores power to PSPS-affected communities. However, the Eureka/Arcata area, including the Project location, are located within a designated PSPS 'island' that may use local energy generation to replace normal energy transmission during a PSPS event. The Humboldt Bay Generating Station provides energy to the Project area during PSPS events to minimize energy disruption and avoid power shutoffs. Therefore, operation of the Project would likely not require the full 500 hours per year of emergency generator use during PSPS events, and would only require emergency generator use during extraordinary power disruption events.

3.5.3 Regulatory Framework

Federal

There are no federal regulations that apply to the Project related to energy resources in Humboldt County.

State

Senate Bill 350

The passage of Senate Bill 350 in 2015 updated the Renewables Portfolio Standard (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 made 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.

State of California Energy Action Plan

In 2003, the three key energy agencies in California—the California Energy Commission (CEC), the California Power Authority (“CPA”), and the California Public Utilities Commission (CPUC)—jointly adopted an Energy Action Plan (“EAP”) that listed goals for California’s energy future and set forth a commitment to achieve these goals through specific actions. In 2005, the CPUC and the CEC jointly prepared the EAP II to identify the further actions necessary to meet California’s future energy needs. To the extent that efficiency, demand response, renewable resources, and distributed generation are unable to satisfy increasing energy and capacity needs, the EAP II supports the use of clean and efficient fossil-fired generation. The plan recognizes that concurrent improvements are required to the bulk electricity transmission grid and distribution facility infrastructure to support growing demand centers and the interconnection of new generation, both on the utility and customer side of the meter.

Senate Bill 1389

Senate Bill (SB) 1389, the California Integrated Energy Policy, was adopted in August 2002 and requires the CEC to prepare an Integrated Energy Policy Report (IEPR) for electricity, natural gas, and transportation fuels. The IEPR contains an analysis of the policies and actions that are necessary to ensure that the state has adequate energy

resources—including a range of alternative energy resources—to meet its needs. The IEPR also includes recommendations to reduce energy demand and to improve the state’s energy infrastructure. The State IEPR is updated annually, with the applicable version reflecting the year 2020.

Senate Bill 100

SB 100, California’s Commitment to 100 Percent Clean Energy, was signed by Governor Brown on September 10, 2018. It commits California to operating with 100 percent clean energy by 2045, speeding up the state’s timeline for moving to carbon-free power sources. Under the law 60 percent of the power purchased by California utilities must come from renewable sources by 2030. The additional 40 percent of the power California utilities will deliver to residents, businesses and government agencies must come from ‘zero-carbon’ sources. This is a term still waiting to be defined by California’s policy makers.

Assembly Bill 1007

Assembly Bill 1007, (Pavley, Chapter 371, Statutes of 2005) required the CEC to prepare a state plan to increase the use of alternative fuels in California (State Alternative Fuels Plan). The CEC prepared the State Alternative Fuels Plan in partnership with the California Air Resources Board and in consultation with other state, federal, and local agencies. The final State Alternative Fuels Plan, published in December 2007, would attempt to achieve an 80-percent reduction in greenhouse gas emissions associated with personal transportation, even as California’s population increases.

Executive Order N-79-20

This executive order from Governor Newsom, signed on September 23, 2020, requires sales of all new passenger vehicles to be zero-emission by 2035 and additional measures to eliminate harmful emissions from the transportation sector. The California Air Resources Board will develop regulations to mandate that 100 percent of in-state sales of new passenger cars and trucks are zero-emission by 2035 – a target which would achieve more than a 35 percent reduction in greenhouse gas emissions and an 80 percent improvement in oxides of nitrogen emissions from cars statewide. In addition, the Air Resources Board will develop regulations to mandate that all operations of medium- and heavy-duty vehicles shall be 100 percent zero emission by 2045 where feasible, with the mandate going into effect by 2035 for drayage trucks.

Building Energy Efficiency Standards – Title 24

California’s energy code is designed to reduce wasteful and unnecessary energy consumption in newly constructed and existing buildings. The California Energy Commission updates the Building Energy Efficiency Standards (Title 24, Parts 6 and 11) every three years by working with stakeholders in a public and transparent process.

Local

RePower Humboldt- The Redwood Coast Energy Authority’s Comprehensive Action Plan for Energy

In 2019, the Redwood Coast Energy Authority (RCEA) is a Joint Powers Authority and Community Choice Aggregator recognized by Humboldt County as the regional energy authority and tasked with countywide strategic energy planning implementation, and education.

RCEA’s 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 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.

Humboldt Bay Area Plan – Local Coastal Plan

There are no applicable policies in the Humboldt Bay Area Plan that address energy.

3.5.4 Evaluation Criteria and Thresholds of Significance

Evaluation Criteria	Significance Thresholds	Sources
Would the Project result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Result in environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources	CEQA Guidelines Appendix G, Checklist Item VI (a)
Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Conflict with SB 100	CEQA Guidelines Appendix G, Checklist Item VI (b) California SB 100

3.5.5 Methodology

Impacts to energy resources were evaluated as to whether or not the Project would result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of existing energy resources. The Project was evaluated for consistency or conflict with State energy efficiency goals.

3.5.6 Impacts and Mitigation Measures

Impact ENG-a: Would the Project result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation? (Less than Significant)

Terrestrial Development

Construction of the Project will involve a variety of earthwork and building practices, involving the use of heavy equipment as discussed in Chapter 2. Construction will require the use of fuels, primarily gas, diesel, and motor oil. Construction equipment will remain staged at the Project Site once mobilized. To the extent possible, excavated soil would be reused on-site which would reduce the need for off-hauling and consequent importation of new material. Soils that are contaminated and/or not structurally sound will be excavated and replaced with appropriate fill material. Excavated material will be either repurposed, reused on-site, or appropriately transported and disposed of at an off-site facility.

Inefficient construction-related operations will also be avoided due to implementation of California Air Resources Board’s (CARB) adopted Regulation for In-Use Off-Road Diesel-Fueled Fleets (Off-Road Rule), which applies to all self-propelled off-road diesel vehicles 25 horsepower or greater. The Off-Road Rule contains multiple requirements, including a 5-minute limit on idling. Because construction will not encourage activities that will result in the use of large amounts of fuel and energy in a wasteful manner, and with implementation of regulatory requirements which will reduce idling time, impacts related to the inefficient use of construction-related fuels will be less than significant. Additionally, Mitigation Measure AIR-1 (BMPs to Reduce Air Pollution) enhances enforcement of CARB’s Off-Road Rule, further reducing the Project’s potential to result in wasteful, inefficient, or unnecessary consumption of energy resources during construction.

All power use anticipated for the Project at full buildout is considered essential to operational function as described above. Office spaces will have windows for natural lighting and will be using LEDs contributing to less use than standard incandescent/florescence, lasting longer on average. The estimated 500 Kw (2% of overall use) anticipated for office space and is not considered a potential impact. Operation of the Project will include periodic maintenance of facility buildings/site, the regular arrival and departure of employees and trucks, and the facility's operational energy consumption. Maintenance activities will be performed with hand, power tools, and/or heavy equipment depending on the maintenance activity. The movement of employees and incoming/outgoing trucks will occur consistent with normal functioning of a typical production facility. Stringent California-specific fuel efficiency standards will all apply to all trucks and light vehicles. Additional vehicle travel-related information can be found in Sections 3.2, 3.7, and 3.12. The estimated normal operation average electricity demand is 22.3 MW. The annual electricity use based on the anticipated demand is approximately 195 GWh per year at full build out, a portion of which may be offset by an approximate 4.8 MW rooftop solar installation which will cover approximately 657,000 square feet of facility rooftops. The annual electricity use estimates include energy for the Humboldt Bay Water Intake pumps. Normal operation of the facility will use exclusively electricity, though regular testing and maintenance of the backup energy system will make use of small amounts of natural gas and diesel fuel as described in Chapter 2. The use of water to water-heat exchangers and heat pumps in Buildings 1 and 2 will be maximized to reduce energy demands. The Project will maximize the use of water-to-water cooling to reduce energy consumption and will also seek to use waste heat for any heating needs around the facility. Heating needs will be kept to a minimum as the internal volume of most buildings will be full of large tanks of water. These large tanks of water act as mass heaters. The air temperature in the animal rearing areas will be kept 1 to 2 degrees above that of the water temperature of the water in the tanks to reduce evaporation and therefore humidity in the buildings. This temperature is generally quite close to typical air temperatures for the Samoa peninsula, 45-55 degrees F. This will reduce or in many instances eliminate the need for heating or cooling the air for most of the building volumes. The operation of the Project will not result in inefficient, wasteful, or unnecessary consumption of fuels or other energy resources. The impact will be less than significant.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than Significant

Ocean Discharge

Energy needs for the Ocean Discharge are included in the overall Project Site estimated energy demand/use as discussed above in the Terrestrial Development. The impact will be less than significant.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than Significant

Humboldt Bay Water Intakes

Similar to the Terrestrial Development component of the Project, construction of the Humboldt Bay Water Intakes will involve a variety of earthwork and building practices, involving the use of heavy equipment as discussed in Chapter 2. Construction will require the use of fuels, primarily gas, diesel, and motor oil. Inefficient construction-related operations will also be avoided due to implementation of CARB's Off-Road Rule, which applies to all self-propelled off-road diesel vehicles 25 horsepower or greater. The Off-Road Rule contains multiple requirements, including a 5-minute limit on idling. Because construction will not encourage activities that will result in the use of large amounts of fuel and energy in a wasteful manner, and with implementation of regulatory requirements which will reduce idling time, impacts related to the inefficient use of construction-related fuels will be less than significant. Additionally, Mitigation Measure AIR-1 (BMPs to Reduce Air Pollution) enhances enforcement of CARB's Off-Road Rule, further reducing the Project's potential to result in wasteful, inefficient, or unnecessary consumption of energy resources during construction.

Operational energy needs for the Water Intakes are included in the overall Project Site estimated energy demand/use as discussed above in the Terrestrial Development. The impact will be less than significant.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than Significant

Compensatory Off-Site Restoration

Energy needs for the Compensatory Off-site Restoration would consist of typical construction activity to remove the piles at Kramer Dock and remove invasive Spartina. As with Terrestrial Development and the Humboldt Bay Water Intakes, off-road equipment would be subject to CARB's Off-Road Rule, which limits idling to 5 minutes (among other measures). Because construction will not encourage activities that will result in the use of large amounts of fuel and energy in a wasteful manner, and with implementation of regulatory requirements which will reduce idling time, impacts related to the inefficient use of construction-related fuels will be less than significant. There would be no operational activity associated with the Compensatory Off-site Restoration; therefore, no operational impact would occur.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than Significant

Impact ER-b: Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency? (Less than Significant)

Terrestrial Development

The Project will not conflict with or inhibit the implementation of the State EAP, Senate Bill (SB) 1389, SB 100, AB 1007, or other state regulations that are applicable to the Project because the Project will not inefficiently utilize energy due to compliance with CARB's Off-Road Rule, which limits idling time and provides measures to protect air quality, and will use energy sourced from either PG&E or RCEA. The electricity provided by PG&E or RCEA is subject to California's Renewables Portfolio Standard, which mandates that a portion of the power comes from renewable sources. The California Renewables Portfolio Standard is a state mandate that all power providers are required to meet or exceed. The two primary electricity providers in the area are RCEA and PG&E and must meet the minimum requirements of the standard. Furthermore, the Project will utilize photovoltaic panels, highly efficient water to water cooling, and waste heat to supplement its energy supply and to reduce energy needs, respectively. The Project facilities will comply with applicable state requirements. This is further discussed in Section 3.7, Greenhouse Gas Emissions. The Project will temporarily require the use of construction equipment in order to construct the components of the Project, however these activities will be temporary and will not interfere with the broader energy goals of the state or region. The majority of the plans aren't directly applicable to the Project or its operations, but rather affect the Project through regulation of vehicle efficiency standards, renewable energy mix with energy providers, etc. For plan requirements that are directly applicable to the Project, the Project complies. Furthermore, the Project will directly support goals established in RCEA's *Repower Humboldt Action Plan for Energy* (RCEA 2019) by using efficient technologies, all electric equipment (except for emergency power associated with short-term power interruption), and installation of a utility scale onsite solar energy generation system. Nordic is committed to the same goals as RCEA and will follow their lead when it comes to use of non-carbon and renewable energy-based sources of electricity. The steady electrical base load of the facility may also benefit the advancement of ongoing renewable energy development objectives of the community by locally utilizing the renewable electricity produced within Humboldt County. The presence of a stable base load within the County that will be created by this Project may alleviate the need to upgrade transmission line and electrical infrastructure that will otherwise require significant upgrades to export power to energy consumers outside of the County. The Project will therefore not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. A less than significant impact will occur.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than Significant

Ocean Discharge

Energy needs for the Ocean Discharge are included in the overall Project Site estimated energy use as discussed above in the Terrestrial Development. The Project will therefore not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. A less than significant impact will occur.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than Significant

Humboldt Bay Water Intakes

Energy needs for the Water Intakes are included in the overall Project Site estimated energy use as discussed above in the Terrestrial Development. The Project will therefore not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. A less than significant impact will occur.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than Significant

Compensatory Off-Site Restoration

Compensatory Off-site Restoration consists solely of construction activity to improve habitat, and would not require operational or ongoing energy. Therefore, no impact would occur.

Mitigation Measures: No mitigation is necessary.

Level of Significance: No Impact

3.5.7 Cumulative Impacts

Impact ENG-C-1: Would the Project contribute to a cumulatively significant impact to energy resources? (Less than Significant)

As discussed in this Section, construction will not encourage activities that will result in the use of large amounts of fuel and energy in a wasteful manner. Operation of the Project will result in vehicle fuel use employees and truck trips, consistent with normal functioning of a typical production facility. The Project will utilize photovoltaic panels, highly efficient water to water cooling, and waste heat (energy generated by fish) to supplement its energy supply and to reduce energy needs, respectively. As discussed in Section 3.5.2, Setting, the Project Area is within an energy island, and would not experience energy disruption during PG&E PSPS events. The operation of the Project will not result in inefficient, wasteful, or unnecessary consumption of fuels or other energy resources. The Project will take approximately 8 years to reach full energy consumption. Assuming permits are received by 2022, full energy use would be reached no earlier than 2030. This coincides with major milestones for both SB 100, a California law mandating 60% of the power purchased by California utilities to come from renewable sources by 2030, and 100% by 2045, as well as RCEA's goal of their power mix consisting of 100% net-zero-carbon-emission renewable sources by 2030. The environmental impacts of producing the energy consumed by the facility will be drastically reduced through these measures. As a condition of the Coastal Development Permit, NAFC will be required to meet RCEA and the State of California's goals incorporating non-carbon-based energy by 2030.

Based on the data presented in Section 3.5 Energy Resources, 98% of the cumulative power use estimates annually will be contributed to the essential functions of Nordic's proposed aquaculture farming/processing facilities which include are not limited to buildout, water treatment/cooling, and farming/processing, deemed less than significant.

Therefore, the Project's contribution to cumulative energy impacts will not be cumulatively considerable, and therefore, will be less than significant.

Mitigation Measure: No mitigation is necessary.

Level of Significance: Less than Significant

3.5.8 References

Redwood Coast Energy Authority. 2019. RePower Humboldt: The Redwood Coast Energy Authority's Comprehensive Action Plan for Energy

Schatz Energy Research Center. 2005. Humboldt County General Plan 2025 Energy Element Background Technical Report

California Energy Commission. 2019. Energy Reports: Electricity Consumption by County

California Energy Commission. 2019. Energy Reports: Gas Consumption by County

Humboldt County General Plan. 2017. Chapter 12 Energy Element

GHD. 2021. Conceptual Solar PV Layout Technical Memorandum (Appendix O)

RCEA. 2021. Board of Directors Meeting Agenda. October.