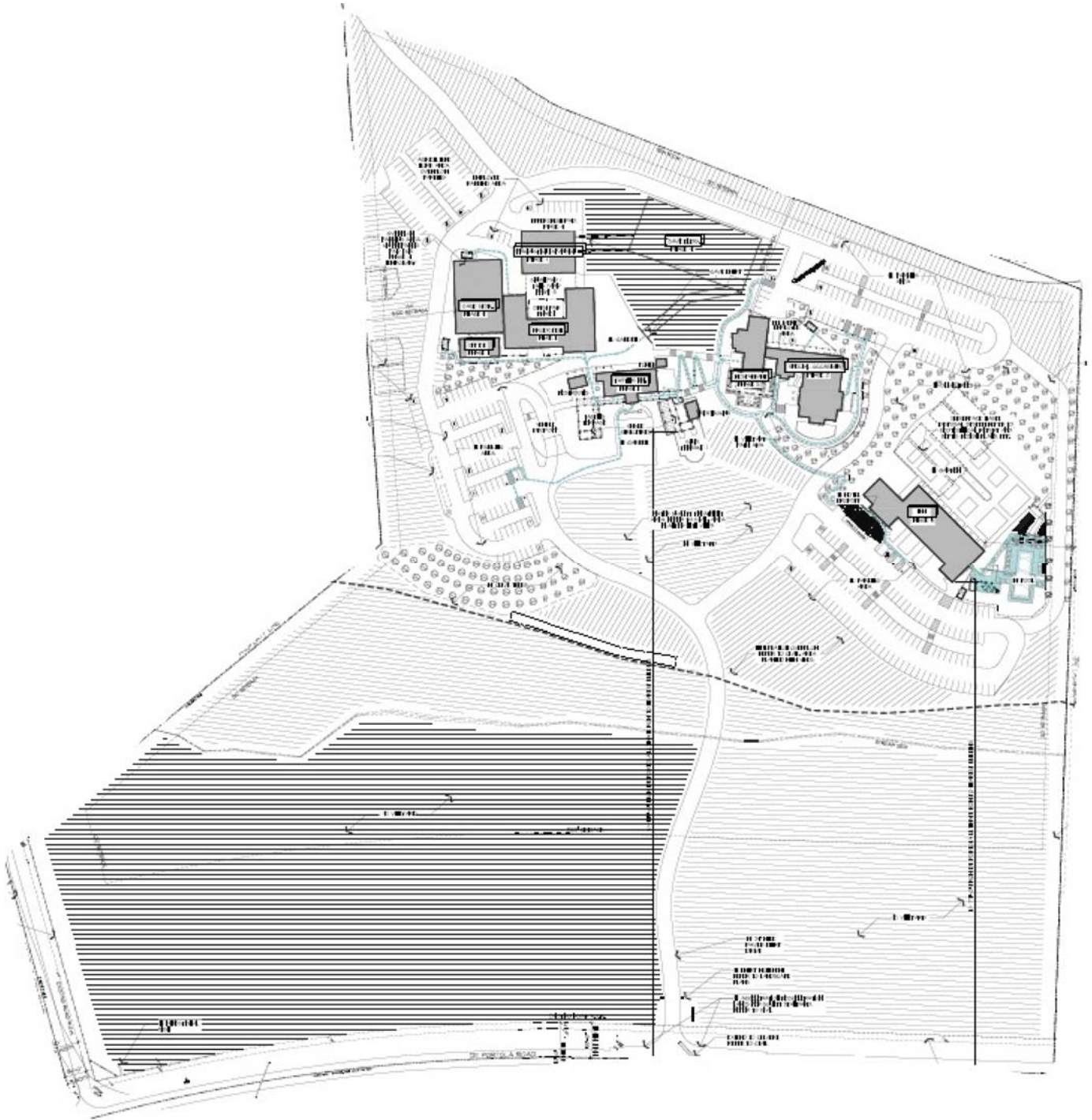


MONARCH WINERY ENERGY CONSERVATION ANALYSIS COUNTY OF RIVERSIDE



**MONARCH WINERY
ENERGY CONSERVATION ANALYSIS
County of Riverside, California**

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Table of Contents

Section	Page
1.0 Introduction	1-1
1.1 Purpose of Report and Study Objectives	1-1
1.2 Site Location	1-1
1.3 Project Description	1-2
1.4 Utility Providers	1-3
1.5 Summary of CEQA Impacts	1-3
1.6 Recommended Mitigation Measures	1-4
1.7 Recommended Project Design Features	1-4
2.0 Energy Setting	2-1
2.1 Background Information	2-1
2.2 U.S Energy Statistics	2-2
2.3 California Energy Statistics	2-3
2.4 Southern California Edison	2-5
2.5 Propane	2-6
3.0 Regulatory Setting	3-1
3.1 Federal Regulations	3-1
3.2 State of California Regulations	3-3
4.0 Project Energy Consumption	4-1
4.1 Energy Consumption Methodology	4-1
4.2 Electricity Consumption	4-1
4.3 Propane Consumption	4-2
4.4 Petroleum Consumption	4-3
4.4.1 Construction	4-3
4.4.2 Operation	4-6
4.5 Total Project Energy Consumption	4-7
5.0 Energy Impacts	5-1
5.1 Energy Impact Criteria	5-1
5.2 Energy Impact – 1	5-1
5.3 Energy Impact – 2	5-2
6.0 References	6-1

List of Attachments

Tables

Land Use Summary	1
Utility Providers.....	2
CEQA Energy Impact Criteria.....	3
Btu Conversion Factors	4
U.S. Primary Energy Consumption (Year 2017)	5
U.S. Electricity Generation, by Source (Year 2017)	6
California Energy Consumption by Source (Year 2016)	7
California Electric Generation in Gigawatt Hours (Year 2017).....	8
Southern California Edison Electricity Generation (Year 2017).....	9
U.S. Net Propane Production (Year 2018)	10
U.S. Energy Policy Legislative Acts	11
California Energy Policy Legislative Acts and Regulations.....	12
Project Electricity Consumption	13
Project Propane Consumption.....	14
Construction Off-Road Equipment Energy Consumption.....	15
Construction On-Road Trips Energy Consumption	16
Operational Trips Energy Consumption – Annual.....	17
Total Project Energy Consumption – Annual.....	18

Exhibits

Location Map	A
Site Plan	B

Appendices

CalEEMod Annual Emissions Report	A
EMFAC2014 Vehicle Consumption Data.....	B

1.0 Introduction

1.1 Purpose of Report and Study Objectives

The purpose of this energy conservation analysis is to review the energy usage and implications of the proposed Monarch Winery (project) and provide recommendations to reduce wasteful, inefficient and unnecessary consumption of energy during construction and operation. This analysis has been prepared within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.).

CEQA Guidelines, Appendix F, Energy Conservation, describes the framework within which energy conservation should be analyzed. The goal of conserving energy implies the wise and efficient use of energy through decreasing overall per capita energy consumption, decreasing reliance on fossil fuels (such as coal, natural gas and oil), and increasing reliance on renewable energy sources. This analysis considers energy impacts to include:

1. The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction and operation.
2. The effects of the project on local and regional energy supplies and on requirements for additional capacity.
3. The effects of the project on peak and base period demands for electricity and other forms of energy.
4. The degree to which the project complies with existing energy standards.
5. The effects of the project on energy resources.

1.2 Site Location

The proposed project is located at the north corner of De Portola Road and Monte De Oro Road, in unincorporated Riverside County. The project site is bounded by agricultural land to the north, De Portola Road to the south, Monte De Oro Road to the southwest, a winery to the east and residential uses to the west.

The project location map is provided in Exhibit A.

1.3 Project Description

The project would consist of constructing and operating a new winery with production buildings, case storage, tasting room, restaurant, vineyard and a 10-room inn (hotel) on a 44.6 acres. Approximately 33 acres of the site will be used for agricultural production (vineyards and olive trees). The site plan used for this analysis, provided by WALTER R. ALLEN, AIA, is illustrated in Exhibit B.

The project is proposed to be built-out over several phases, however, for purposes of this analysis the entire project development has been analyzed in one complete phase. Construction of the project is estimated to begin in the year 2020 and expected to last approximately 44 months. Construction activities are expected to consist of site preparation, grading, building construction, paving, and architectural coating. The project is expected to be fully operational by the year 2023.

The proposed project land uses are shown in Table 1.

**Table 1
Land Use Summary**

Phase	Land Use	Quantity	Metric ¹
Phase 1	Tasting Room	4.934	TSF
	Production Building	9.554	TSF
	Office/Storage	1.805	TSF
Phase 2	Special Occasions Facility	8.390	TSF
Phase 3	Restaurant	4.746	TSF
Phase 4	Cave Building	17.400	TSF
	Production Building	6.000	TSF
	Case Storage	8.750	TSF
Phase 5	Hotel	10	Room
Vineyard		1,444.032	TSF
Parking Lot		374	Spaces

¹TSF = Thousand Square Feet

1.4 Utility Providers

The project will be served by the following utility providers, as shown in Table 2.

**Table 2
Utility Providers**

Utility	Provider
Electricity	Southern California Edison
Gas	Propane
Water	Rancho California Water District
Sewer	Septic
Telephone	Verizon - Business
Trash	Waste Management of Inland Valley

1.5 Summary of CEQA Impacts

Table 3 provides a summary of the project's impact to Energy resources, per the impact criteria described in CEQA Guidelines, Appendix G.

**Table 3
CEQA Energy Impact Criteria**

Energy Impact Criteria	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			X	

1.6 Recommended Mitigation Measures

The project is expected to result in less than significant energy impacts; no mitigation is required.

1.7 Recommended Project Design Features

The following recommended project design features include standard rules and requirements, best practices and recognized design features for reducing energy demand. Design features are assumed to be part of the conditions of approval for the project.

Construction Design Features:

- DF-1.** All construction equipment shall be maintained in proper tune.
- DF-2.** All construction vehicles shall be prohibited from excessive idling. Excessive idling is defined as five (5) minutes or longer.
- DF-3.** Establish an electricity supply to the construction site and use electric powered equipment instead of diesel-powered equipment or generators, where feasible.

Operational Design Features:

- DF-4.** Comply with the mandatory requirements of California's Building Energy Efficiency Standards and Green Building (CALGreen) Standards.
- DF-5.** Implement water conservation strategies, including low flow fixtures and toilets, water efficient irrigation systems, drought tolerant/native landscaping, and reduce the amount of turf.
- DF-6.** Use electric landscaping equipment, such as lawn mowers and leaf blowers.
- DF-7.** Install electric vehicle service equipment (EVSE) per CALGreen requirements.
- DF-8.** Install solar panels on commercial/industrial building roofs.
- DF-9.** Participate in Southern California Edison's Green Rate program and commit to purchasing 100% of electricity from renewable sources, as available through the utility provider.

2.0 Energy Setting

2.1 Background Information

There are many different types and sources of energy produced and consumed in the United States. The U.S. Energy Information Administration (EIA) categorizes energy by primary and secondary sources, renewable and nonrenewable sources, and by the different types of fossil fuels.¹

Primary energy is captured directly from natural resources and includes fossil fuels, nuclear energy, and renewable sources of energy. Electricity is a secondary energy source that results from the transformation of primary energy sources.

A renewable energy source includes solar energy from the sun, geothermal energy from heat inside the earth, wind energy, biomass from plants, and hydropower from flowing water. Nonrenewable energy sources include petroleum products, hydrocarbon gas liquids, natural gas, coal, and nuclear energy.

Fossil fuels are non-renewable resources formed by organic matter over millions of years and include oil, coal and natural gas.

The U.S. EIA defines the five energy consuming sectors within the U.S. as follows:

- **Industrial Sector:** Includes facilities and equipment used for manufacturing, agriculture, mining, and construction.
- **Transportation Sector:** Includes vehicles that transport people or goods, such as cars, trucks, buses, motorcycles, trains, aircraft, boats, barges, and ships.
- **Residential Sector:** Includes homes and apartments.
- **Commercial Sector:** Includes offices, malls, stores, schools, hospitals, hotels, warehouses, restaurants, and places of worship and public assembly.
- **Electric Power Sector:** Consumes primary energy to generate most of the electricity the other four sectors consume.

Energy sources are measured in different physical units: liquid fuels are measured in barrels or gallons, natural gas in cubic feet, coal in short tons, and electricity in kilowatts and kilowatt-hours. In the United States, British thermal units (Btu), a measure of heat energy, is commonly used for comparing different types of energy to each other.

¹ U.S. Energy Information Administration (EIA). https://www.eia.gov/energyexplained/?page=us_energy_home#tab1

Table 4
Btu Conversion Factors¹

Energy source/fuel	Btu Conversion Factor²
Electricity	1 kilowatthour = 3,412 Btu
Natural gas	1 cubic foot = 1,037 Btu 1 therm = 100,000 Btu
Motor gasoline	1 gallon = 120,429 Btu ³
Diesel fuel	1 gallon = 137,381 Btu
Heating oil	1 gallon = 138,500 Btu
Propane	1 gallon = 91,333 Btu
Wood	1 cord = 20,000,000 Btu ⁴

¹ Source: https://www.eia.gov/energyexplained/index.php?page=about_btu.

² Weighted averages for energy sources/fuels by end-use sectors, 2015. Conversion are approximate.

³ Gasoline sold at retail in the United States, with about 10% ethanol content by volume.

⁴ A cord of wood is a volume unit and does not take wood density or moisture content into account. Wood heat content varies significantly with moisture content.

2.2 U.S. Energy Statistics

U.S. energy production and consumption data provide context for the project within the broader domestic energy setting. Calendar year 2017 is the most current data published by the U.S. EIA.

Table 5 shows the total U.S. primary energy consumption for Year 2017.

Table 5
U.S. Primary Energy Consumption (Year 2017)¹

Primary Energy Source	Energy Consumption	
	Btu (in Quadrillions)	Percentage
Total Fossil Fuel Consumption	78.04	79.9%
Petroleum (Excluding Biofuels)	36.17	37.0%
Natural Gas (Excluding Supplemental Gaseous Fuels)	28.03	28.7%
Coal	13.84	14.2%
Total Renewable Energy Consumption	11.17	11.4%
Biomass Energy	5.08	5.2%
Hydroelectric Power	2.77	2.8%
Wind Energy	2.34	2.4%
Solar Energy	0.77	0.8%
Geothermal Energy	0.21	0.2%
Nuclear Electric Power	8.42	8.6%
Total Primary Energy Consumption	97.63	100%

¹ U.S EIA website. https://www.eia.gov/totalenergy/data/browser/index.php?tbl=T01_03#/?f=A

Fossil fuels are the main source of energy produced and consumed in the U.S., and in year 2017, the U.S. produced almost 90 percent of the total energy it consumed domestically; with crude oil imports primarily making up the difference.² Also notable in year 2017, is that renewable energy production, mainly attributed to wind and solar, reached new record highs.²

Electricity is produced from many different energy sources and technologies. In 2017, the generation of electric power consumed approximately 38.1 percent of all energy domestically.³

Table 6 shows the amount of electricity generated by primary energy sources in the U.S. for year 2017.

Table 6
U.S. Electricity Generation, by Source (Year 2017)¹

Energy Source	Electricity Generation	
	Thousand Megawatt-hours	Percentage
Natural Gas	1,308,884	32.3%
Coal	1,205,835	29.7%
Petroleum	21,390	0.5%
Nuclear	804,950	19.8%
Hydroelectric (Conventional, less pumped storage)	293,838	7.2%
Solar (Utility-scale and small-scale generation)	77,276	1.9%
Renewable Sources (Excluding hydro and solar)	332,991	8.2%
Other	13,094	0.3%
Total Electricity Generation (2017)	4,058,258	100%

¹ U.S. EIA website. <https://www.eia.gov/totalenergy/data/browser/index.php?tbl=T07.02A#/?f=A>

2.3 California Energy Statistics

California produced about 2,431 trillion Btu of total energy in year 2016 and consumed over 7,830 trillion Btu, making it the second highest consumer of energy in the country, behind only Texas. However, due in part to its mild climate and energy efficiency programs, California ranks 48th in per capita energy consumption.⁴ Overall, California is a net importer of energy, and consumes more energy than it produces. Energy is imported into California in various forms including natural gas, crude oil and electricity.

² U.S. Energy Information Administration (EIA). https://www.eia.gov/energyexplained/index.php?page=us_energy_home

³ U.S. Energy Information Administration (EIA). https://www.eia.gov/energyexplained/?page=us_energy_home#tab1

⁴ U.S. Energy Information Administration (EIA). <https://www.eia.gov/state/?sid=CA#tabs-1>

Natural Gas is primarily imported via pipelines from Canada, the Rocky Mountains, New Mexico and Texas. Natural gas is the primary source of electricity generated in California.⁵

Crude oil is primarily imported from Alaska, Mexico, Canada, South America and the Middle East. Crude oil is refined at one of the seventeen (17) in-state oil refineries that meet California’s strict clean fuel regulations. Refined petroleum products, including gasoline, are also imported from numerous other domestic and foreign sources that are equipped to meet California’s fuel standards.⁵

Electricity is imported via transmission lines from the Northwest (Alberta, British Columbia, Idaho, Montana, Oregon, South Dakota, Washington, and Wyoming) and Southwest (Arizona, Baja California, Colorado, Mexico, Nevada, New Mexico, Texas, and Utah) regions of the U.S.⁵

Table 7 shows the State of California’s energy consumption estimates for year 2016.

**Table 7
California Energy Consumption by Source (Year 2016)¹**

Primary Energy Source	Energy Consumption	
	Btu (in Trillions)	Percentage
Total Fossil Fuel Consumption	5,756.7	73.5%
Coal	32.1	0.4%
Natural Gas	2,248.4	28.7%
Motor Gasoline excl. Ethanol	1,714.4	21.9%
Distillate Fuel Oil	560.4	7.2%
Jet Fuel	672.6	8.6%
Hydrocarbon Gas Liquids (HGL)	57.7	0.7%
Residual Fuel	145.8	1.9%
Other Petroleum	325.3	4.2%
Total Renewable Energy Consumption	1,046.7	13.4%
Hydroelectric Power	267.2	3.4%
Biomass	279.8	3.6%
Solar	267.1	3.4%
Wind	124.7	1.6%
Geothermal	107.9	1.4%
Nuclear Electric Power	197.8	2.5%
Net Electricity Imports and Interstate Flow	829.0	10.6%
Total	7,830.2	100.0%

¹ U.S CIA website. https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_sum/html/sum_btu_totcb.html&sid=CA

⁵ California Energy Commission. <https://www.energy.ca.gov/almanac/>

Table 8 shows the sources and fuel types for California’s system-wide generation of electricity for year 2017.

**Table 8
California Electric Generation in Gigawatt Hours (Year 2017)¹**

Fuel Type	California In-State Generation (GWh) ²	Percent of California In-State Generation	Northwest Imports (GWh)	Southwest Imports (GWh)	California Energy Mix (GWh)	California Power Mix
Coal	302	0.15%	409	11,364	12,075	4.13%
Large Hydro	36,920	17.89%	4,531	1,536	42,987	14.72%
Natural Gas	89,564	43.40%	46	8,705	98,315	33.67%
Nuclear	17,925	8.69%	0	8,594	26,519	9.08%
Oil	33	0.02%	0	0	33	0.01%
Other (Petroleum Coke/Waste Heat)	409	0.20%	0	0	409	0.14%
Renewables	61,183	29.65%	12,502	10,999	84,684	29.00%
Biomass	5,827	2.82%	1,015	32	6,874	2.35%
Geothermal	11,745	5.69%	23	937	12,705	4.35%
Small Hydro	6,413	3.11%	1,449	5	7,867	2.70%
Solar	24,331	11.79%	0	5,465	29,796	10.20%
Wind	12,867	6.24%	10,015	4,560	27,442	9.40%
Unspecified Sources of Power	N/A	N/A	22,385	4,632	27,017	9.25%
Total	206,336	100.00%	39,873	45,830	292,039	100.00%

¹ California Energy Commission. CEC-1304 Power Plant Owners Reporting Form and SB 1305 Reporting Regulations. https://www.energy.ca.gov/almanac/electricity_data/total_system_power.html

² In-state generation is reported generation from units one megawatt and larger.

2.4 Southern California Edison

Southern California Edison (SCE) provides electricity service to approximately 180 cities in 15 counties in central, coastal and Southern California; including the project site.⁶ According to the California Energy Commission (CEC), SCE consumed approximately 84,291.608168 GWh of electricity in 2017; which is approximately 28.8% of the State’s total electricity usage.⁷

Table 9 shows SCE’s electricity generation by energy source for year 2017.

⁶ Southern California Edison. <https://www.sce.com/about-us>

⁷ California Energy Commission. <http://www.ecdms.energy.ca.gov/elecbyutil.aspx>

Table 9
Southern California Edison Electricity Generation (Year 2017)¹

Energy Resource	SCE Electricity Generation	
	GWh ²	Power Mix
Eligible Renewable	26,973.31	32%
Biomass & Biowaste	-	0%
Geothermal	6,743.33	8%
Eligible Hydroelectric	8.43	0%
Solar	10,957.91	13%
Wind	8,429.16	10%
Coal	-	0%
Large Hydroelectric	6,743.33	8%
Natural Gas	16,858.32	20%
Nuclear	5,057.50	6%
Other	-	0%
Unspecified Sources of Power ³	28,659.15	34%
Total	84,291.61	100%

¹ Source: California Energy Commission 2017 SCE Power Content Label.

https://www.energy.ca.gov/pcl/labels/2017_labels/SCE_2017_PCL.pdf

California Energy Commission Electricity Consumption by Entity, SCE, Year 2017, All Sectors

<http://www.ecdms.energy.ca.gov/elecbyutil.aspx>

² GWh generated by energy resources estimated based on total energy consumption and power mix.

³ "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources.

2.5 Propane

The project will use propane gas to supply energy for cooking, heating and other operational applications associated with the winery production. Propane, also known as liquefied petroleum gas (LPG), is an odorless hydrocarbon (C₃H₈) gas at normal pressures and temperatures. When pressurized in a tank to 150 pounds per square inch, it becomes a liquid with an energy density 270 times greater than that of its gaseous form.

Propane is a fossil fuel and a by-product of natural gas processing and crude oil refining. As of 2014, more than 99% of the U.S. propane supply was produced in North America.

Propane is shipped from its point of production to bulk distribution terminals via pipeline, railroad, barge, truck, or tanker. Propane marketers then purchase propane at terminals and distribute the fuel to customers, including retail or private fueling stations.⁸

Table 10 shows net production of propane in the U.S. for year 2018.

Table 10
U.S. Net Propane Production (Year 2018)¹

Month	U.S. Propane Production	
	(Thousands of Barrels) ²	(Trillions of Btu) ²
January	50,064	192.044803
February	52,472	201.281857
March	65,219	250.179171
April	51,366	197.039257
May	53,522	205.309643
June	67,585	259.255114
July	54,355	208.505019
August	68,586	263.094936
September	56,084	215.137439
October	56,441	216.506886
November	69,447	266.397720
December	57,610	220.991153
Total Production	702,751	2,695.742997

¹ Source: U.S. EIA. <https://www.eia.gov/petroleum/weekly/propane.php>

² 1 gallon of propane = 91,333 Btu; 1 barrel = 42 gallons

⁸ U.S. Department of Energy. https://afdc.energy.gov/files/u/publication/propane_basics.pdf

3.0 Regulatory Setting

Energy is controlled through various federal and state laws and regulations. This section provides a brief overview of key energy legislation and policies at the federal and state levels over the past 50 years.

3.1 Federal Regulations

Table 11
U.S. Energy Policy Legislative Acts

Date	Legislative Act and Description
1975	<p>Energy Policy and Conservation Act</p> <p>Established the Strategic Petroleum Reserve and mandated vehicle fuel economy standards</p>
1978	<p>National Energy Act</p> <p>Established tax incentives and disincentives, alternative fuel programs, energy efficiency initiatives, and other regulatory and market-based initiatives in response to the oil crisis earlier in the decade. Comprised of 5 statutes:</p> <p>Energy Tax Act</p> <p style="padding-left: 20px;">Created the Gas Guzzler tax for vehicles with mileage below specified levels and offered income tax credit for citizens using solar, wind, or geothermal energy sources at home</p> <p>Natural Gas Policy Act</p> <p style="padding-left: 20px;">Set up wellhead pricing maximums, rules for allocating costs of high-cost gas to industrial consumers, and provided authority to high priority users in times of supply emergency; gave FERC jurisdiction over almost all natural gas production</p> <p>National Energy Conservation Policy Act</p> <p style="padding-left: 20px;">Replaced Minimum Energy Performance Standards (MEPS) set forth in the EPCA of 1975, changed energy standards from voluntary to mandatory, Required federal agencies to do energy audits of their operations, Provided loans for families to purchase solar heating or cooling systems, and Established grants for schools, hospitals, local governments, and public housing authorities willing to use energy conservation measures</p> <p>Power Plant and Industrial Fuel Use Act</p> <p style="padding-left: 20px;">Restricted construction of power plants fueled primarily by oil or natural gas and instead encouraged power plants fueled by coal, nuclear, and alternative fuels and restricted use of oil and natural gas in industrial boilers. Repealed in 1987 with the Natural Gas Utilization Act</p> <p>Public Utility Regulatory Policies Act</p> <p style="padding-left: 20px;">Promoted use of renewable energy, encouraged cogeneration plants.</p>
1980	<p>Energy Security Act</p> <p>Title I: US Synthetic Fuels Corporation Act</p> <p style="padding-left: 20px;">Established the Synthetic Fuels Corporation (which only existed until 1985) for the purpose of partnering with industry for the creation of a market for domestically-produced synthetic liquid fuels; moved research and development for synthetic fuels away from the Department of Energy and into this public-private partnership with the hopes of speeding up results.</p> <p>Title II: Biomass Energy and Alcohol Fuels Act</p> <p style="padding-left: 20px;">Provided loan guarantees for small-scale biomass energy projects; established the Office of Alcohol Fuels, the Office of Energy from Municipal Waste.</p>

Table 11
U.S. Energy Policy Legislative Acts

Date	Legislative Act and Description
	<p>Title III: Energy Targets Required the submission of energy targets for net imports.</p> <p>Title IV: Renewable Initiatives Established incentives for the use of renewable energy resources</p> <p>Title V: Solar Energy and Energy Conservation Encouraged energy conservation and the use of solar energy, reducing dependence on foreign energy supplies.</p> <p>Title VI: Geothermal Energy Act Authorized loans from the Geothermal Resources Development Fund for exploration and determination of economic viability of a geothermal reservoir, cancels loan if reservoir is deemed unacceptable for development.</p> <p>Title VII: Acid Precipitation Program Established a task force to study the causes and risks of acid precipitation</p> <p>Title VIII: Strategic Petroleum Reserve Established that 500,000,000 barrels of crude oil must be in storage before any can be sold and calls for the reserve to increase its supply 100,000 barrels per day until the storage capacity is reached</p>
1992	<p>Energy Policy Act Amended the National Energy Conservation Policy Act of 1978. Created framework for wholesale electricity generation. Provided financial incentives to users/developers of clean-fuel vehicles; repealed alternative minimum tax for some producers. Intended to expand the use of natural gas.</p>
2002	<p>Farm Security and Rural Investment Act (Farm Bill) Included \$405 million in mandatory funding over the following 5 years for the procurement of bio-based products, grants and loans for renewable energy and energy efficiency projects, research and development and the bioenergy program. Included, for reasons of national energy and security, rural economic development, and environmental sustainability in light of climate change impacts.</p>
2005	<p>Energy Policy Act Offers tax benefits to individuals who increase energy efficiency in existing homes, buy or lease hybrid/alternative vehicles, required all public utilities to offer net metering on request, increased required amounts of renewable fuel in gasoline sold in the US, and encourages more domestic energy production</p>
2007	<p>Energy Independence and Security Act Increased CAFE standards to 35 mpg (fleet-wide for passenger autos and light trucks) by 2020; instituted new conservation measures for federal fleet vehicles; authorized increased taxpayer-funded biofuel production (36 billion gallons by 2022 - 21 billion of which must be derived from non-cornstarch products). Revised standards for appliances and lighting; all federal buildings must use Energy Star lighting products; training for green jobs; loans for small business energy efficiency improvements.</p>
2008	<p>Food, Conservation, and Energy Act (Farm Bill) Includes provisions for loan guarantees for bio-refineries, payments to support expansion of advanced biofuels, expands the existing Rural Energy for America Program, provides grant monies for biofuel and bio-based product research and development</p>
2009	<p>The American Recovery and Reinvestment Act of 2009</p>

Table 11
U.S. Energy Policy Legislative Acts

Date	Legislative Act and Description
	\$800 billion economic stimulus package aimed at job creation and the promotion of investment and consumer spending; included \$4.3 billion in tax credits to homeowners for energy efficiency improvements in 2009-2010, \$300 million for reducing diesel engine emissions, \$21.5 billion for energy infrastructure, \$27.2 billion for energy efficiency and renewable energy research and investment, \$2 billion in research for DOE, \$600 million in research for NOAA
2015	The Clean Power Plan The first comprehensive plan to reduce carbon emissions from power plants by 32% in 2030, compared to 2005 levels. Currently in the process of being repealed by the Trump administration.

¹ Source: Robinson, Brandi. Penn State University. <https://www.e-education.psu.edu/geog432/node/116>

3.2 State of California Regulations

California has a long standing history of support for energy conservation and renewable energy.

Table 12 provides a summary of some of the key legislative acts, policies and regulations in the State of California for encouraging energy conservation and renewable energy.

Table 12
California Energy Policy Legislative Acts and Regulations

Date	Legislative Act and Description
1974	Warren-Alquist Act Established the California Energy Commission (CEC) as the state's primary energy policy and planning agency. Responsible for preparing State Energy Plan. CEC's goals are to reduce energy costs and environmental impacts of energy use, while ensuring a safe, resilient, and reliable supply of energy.
1978	Title 24 of the California Code of Regulations Establishes the Renewable Portfolio Standard (RPS) program, requiring 20% of retail sales from renewable energy by 2017.
2002	Senate Bill 1078 Required 20% of retail sales from renewable energy by 2017.
2003	Energy Action Plan I Accelerated the 20% renewable deadline to 2010.
2005	Energy Action Plan II Recommended further goal of 33% renewable by 2020.
2006	Senate Bill 107 Codified the accelerated 20% renewable by 2010 deadline into law.
2008	Executive Order S-14-08 Signed by Gov. Schwarzenegger, requires 33% renewables by 2020.

Table 12
California Energy Policy Legislative Acts and Regulations

Date	Legislative Act and Description
2009	Executive Order S-21-09 Directs the California Air Resources Board, under its AB 32 authority, to adopt regulations by July 31, 2010, consistent with the 33% renewable energy target established in Executive Order S-14-08.
2011	Senate Bill X1-2 Signed by Gov. Edmund G. Brown, Jr., codifies 33% renewable by 2020 RPS
2015	Senate Bill 350 – Clean Energy and Pollution Reduction Act of 2015 Signed by Gov. Edmund G. Brown, Jr. codifies 50% by 2030 RPS
2018	Senate Bill 100 Signed by Gov. Edmund G. Brown, Jr. codifies 60% by 2030 & 100% by 2045 RPS
2020	2019 California Building Standards Code Provides updated and more stringent requirements building energy efficiency standards.

¹ Source: California Energy Commission. <https://www.energy.ca.gov/renewables/index.html>

4.0 Project Energy Consumption

4.1 Energy Consumption Methodology

The three (3) main types of energy expected to be consumed by the project include electricity, propane gas and petroleum products in the form of gasoline and diesel fuel. Energy usage for the proposed project is calculated based on the *Monarch Winery Air Quality and Greenhouse Gas Impact Study*, prepared by RK, April 2019.

The California Emissions Estimator Model Version 2016.3.2 (CalEEMod) is used to calculate energy usage from project construction and operational activities.

The CalEEMod Annual Reports for the project are provided in Appendix A.

4.2 Electricity Consumption

The project will use electricity for many different operational activities including, but not limited to, building heating and cooling, lighting, appliances, electronics, mechanical equipment, electric vehicle charging, and parking lot lighting. Indirect electricity usage is also required to supply, distribute, and treat water and wastewater for the project. Electricity will be provided through Southern California Edison.

Temporary electricity usage for construction activities may include lighting, electric equipment and mobile office uses. CalEEMod does not calculate electricity usage during construction as electricity consumption during construction is short-term and relatively minor compared to the operational demand. Therefore, electricity usage during construction is not counted in this analysis.

Table 13 shows the project's estimated operational electricity consumption in kilowatt-hours per year (kWh/year) and millions of Btu per year.

**Table 13
Project Electricity Consumption**

Land Use/Activity	Electricity Consumption ¹	
	(kWhr/yr) ²	(MBtu/yr) ²
General Light Industry	157,833	538.526
General Office Building	17,184	58.630
Hotel	146,444	499.667
Parking Lot	97,734	333.467
Quality Restaurant	1,684,116	5,746.217
Refrigerated Warehouse-No Rail	349,563	1,192.709
Other Non-Asphalt Surfaces (Vineyard)	--	--
Water Supply and Treatment	206,978	706.209
Electric Vehicle Service Equipment (EVSE) ³	203,004	692.650
Total	2,862,855	9,768.062

¹ Source: Monarch Winery Air Quality and GHG Impact Study, prepared by RK, April 2019.

² kWhr/yr = Kilowatt Hours per Year
MBtu/yr = Million British Thermal Units per Year

³ Water supply and treatment includes indirect electricity for supply, treatment and distribution of water and wastewater

⁴ EVSE electricity estimates based on U.S. Department of Energy Costs Associated with Non-Residential Electric Vehicle Supply Equipment, November 2015, Appendix C, Electricity Consumption Examples.

https://afdc.energy.gov/files/u/publication/evse_cost_report_2015.pdf

⁵ Assumes 18 charging spaces per CALGreen requirements, Section 5.106.5.3.3.

4.3 Propane Consumption

The project is expected to use propane for building heating and cooling, cooking and kitchen appliances, water heating and industrial applications associated with wine production. The project is not anticipated to have natural gas supplied to the site. All propane used by the project is expected to be imported and stored on-site via on-site storage tanks. Propane is not expected to be used during construction in any significant quantities and is not included in the overall calculation of the project's propane consumption. It should be noted thatp, the CalEEMod do not provide propane consumption. Therefore, for the purpose of this analysis, it is assumed that the project uses same amount BTUs for propane consumption as is reported for natural gas in CalEEMod.

Table 14 shows the project’s estimated operational propane consumption in millions of Btu per year.

**Table 14
Project Propane Consumption**

Land Use/Activity	Propane Consumption ¹ (MBtu/yr) ²
General Light Industry	505,219
General Office Building	6,263.35
Hotel	484,461
Quality Restaurant	9,698,920
Refrigerated Warehouse-No Rail	452,900
Total	11,147.763

¹ Source: Monarch Winery Air Quality and GHG Impact Study, prepared by RK, April 2020.

² MBtu/yr = Millions of British Thermal Units per Year

4.4 Petroleum Consumption

The project’s energy consumption from petroleum products is primarily associated with transportation related activities. This includes gasoline and diesel fuel used for auto and truck trips and off-road equipment during construction and operation.

4.4.1 Construction

Construction activities will consume energy in the form of motor vehicle fuel (gasoline and diesel) for off-road construction equipment and on-road vehicle trips. Off-road equipment includes such things as tractors, scrapers, excavators and other machinery that would be trailered to the site and used off-road. Vehicle trips include workers and vendors traveling to and from the job-site.

Table 15 shows the project’s energy consumption for all off-road equipment during construction. For purposes of this analysis, all off-road equipment is assumed to run on diesel fuel. Table 16 shows the project’s energy consumption from on-road vehicle trips during construction.

**TABLE 15
Construction Off-Road Equipment Energy Consumption**

Phase ¹	Phase Duration (Days) ¹	Equipment ¹	Amount ¹	Hours/Day ¹	Horsepower (HP) ¹	Load Factor ¹	HP-hrs ²	Fuel Consumption Rate ³ (hp-hr/gal)	Diesel Fuel Consumption (gal.)	Diesel Fuel Consumption by Phase (gal.)	MBtu ⁴
Site Preparation	30	Rubber Tired Dozers	3	8	247	0.40	71,136.0	18.5	3,845.2	5,707.6	784.114
		Tractors/Loaders/Backhoes	4	8	97	0.37	34,454.4		1,862.4		
Grading	75	Excavators	2	8	158	0.38	72,048.0		3,894.5	23,340.0	3,206.473
		Graders	1	8	187	0.41	46,002.0		2,486.6		
		Rubber Tired Dozers	1	8	247	0.40	59,280.0		3,204.3		
		Scraper	2	8	367	0.48	211,392.0		11,426.6		
		Tractors/Loaders/Backhoes	2	8	97	0.37	43,068.0		2,328.0		
Building Construction	740	Cranes	1	7	231	0.29	347,008.2		18,757.2	92,508.0	12,708.842
		Forklifts	3	8	89	0.20	316,128.0		17,088.0		
		Generator Sets	1	8	84	0.74	367,987.2		19,891.2		
		Tractors/Loaders/Backhoes	3	7	97	0.37	557,730.6		30,147.6		
		Welders	1	8	46	0.45	122,544.0		6,624.0		
Paving	55	Pavers	2	8	130	0.42	48,048.0	2,597.2	6,303.7	866.002	
		Paving Equipment	2	8	132	0.36	41,817.6	2,260.4			
		Rollers	2	8	80	0.38	26,752.0	1,446.1			
Architectural Coating	55	Air Compressors	1	6	78	0.48	12,355.2	667.8	667.8	91.750	
Total Energy Requirements									128,527.1	17,657.180	

¹ Source: Monarch Winery Air Quality and GHG Impact Study, prepared by RK, April, 2020. (CalEEMod v.2016.3.2)

² HP-hrs = Horsepower Hours.

³ Source: Carl Moyer Program Guidelines. 2017 Revisions. Table D-21. <https://www.arb.ca.gov/msprog/moyer/guidelines/current.htm>

⁴ Mbtu = Millions of Btu; assuming 1 gallon of diesel fuel = 137,381 Btu.

**Table 16
Construction On-Road Trips Energy Consumption**

Construction Phase ¹	Phase Duration (Days) ¹	Trips/Day ¹	Trip Length ¹	Phase VMT	Vehicle Class ¹	Vehicle Mix ¹	Average Fuel Economy (MPG) ²	Gasoline		Diesel		Total MBtu ³		
								Fuel Split ²	Fuel Consumption by Veh. Class (gal.)	Fuel Consumption by Phase (gal.)	Fuel Split ²		Fuel Consumption by Veh. Class (gal.)	Fuel Consumption by Phase
Worker Trips														
Site Preparation	30	18	14.7	7,938	LDA	0.50	28.57	0.9926	137.89		0.0074	1.03	38.55	
					LDT1	0.25	23.26	0.9991	85.24	318.73	0.0009	0.08		1.24
					LDT2	0.25	20.73	0.9986	95.60		0.0014	0.13		
Grading	75	20	14.7	22,050	LDA	0.50	28.57	0.9926	383.04		0.0074	2.86	107.10	
					LDT1	0.25	23.26	0.9991	236.78	885.37	0.0009	0.21		3.44
					LDT2	0.25	20.73	0.9986	265.55		0.0014	0.37		
Building Construction	740	753	14.7	8,191,134	LDA	0.50	28.57	0.9926	142,291.21		0.0074	1,060.80	39,784.25	
					LDT1	0.25	23.26	0.9991	87,959.61	328,896.09	0.0009	79.23		1,278.34
					LDT2	0.25	20.73	0.9986	98,645.28		0.0014	138.30		
Paving	55	15	14.7	12,128	LDA	0.50	28.57	0.9926	210.67		0.0074	1.57	58.90	
					LDT1	0.25	23.26	0.9991	130.23	486.95	0.0009	0.12		1.89
					LDT2	0.25	20.73	0.9986	146.05		0.0014	0.20		
Architectural Coating	55	15	14.7	12,128	LDA	0.50	28.57	0.9926	210.67		0.0074	1.57	58.90	
					LDT1	0.25	23.26	0.9991	130.23	486.95	0.0009	0.12		1.89
					LDT2	0.25	20.73	0.9986	146.05		0.0014	0.20		
Sub-Total Worker Trips Energy Consumption								Gasoline (gal.)		Diesel (gal.)		1,286.80	40,047.70	
Vendor Trips														
Building Construction	740	294	6.9	1,501,164	MHDT	0.50	8.50	0.1403	12,389.02		0.8597	75,914.75	29,526.76	
					HHDT	0.50	5.85	0.0097	1,244.55	13,633.57	0.9903	127,060.06		202,974.81
Hauling Trips														
Grading	75	0.00	20.0	0	HHDT	1.00	5.85	0.0097	0.00	0.00	0.9903	0.00	0.00	0.00
Total On-Road Construction Trips Energy Usage								Gasoline (gal.)		Diesel (gal.)		204,261.61	69,574.46	

¹ Source: Monarch Winery Air Quality and GHG Impact Study, prepared by RK, April, 2020. (CalEEMod v.2016.3.2)

² Source: EMFAC2014 Web Database. <https://www.arb.ca.gov/emfac/2014/>. (See Appendix B for more details.)

³ Mbtu = Millions of Btu; assuming 1 gallon of gasoline fuel = 120,429 Btu and 1 gallon of diesel fuel = 137,381 Btu

4.4.2 Operation

The project is expected to consume energy from the generation of operational auto and truck trips based on the land use mix described in the Traffic Study for Portola Winery at the Corner of De Portola Road and Monte Oro Road and the Monarch Winery Air Quality and Greenhouse Gas Analysis. Vehicle trips are associated with workers, customers and vendors/non-workers (i.e. delivery, service and maintenance vehicles, etc.) traveling to and from the site.

Table 17 shows the project’s energy consumption for all operational trips generated by the project on an annual basis.

**Table 17
Operational Trips Energy Consumption**

Vehicle Class ¹	Vehicle Mix ¹	Average Fuel Economy (MPG) ²	Annual VMT ¹	Gasoline		Diesel		MBtu/yr ³
				Fuel Split ²	Fuel Consumption (gal./yr)	Fuel Split ²	Fuel Consumption (gal./yr)	
LDA	54.86%	28.57	3,330,404	0.9926	89,154.48	0.0074	664.66	10,828.10
LDT1	3.63%	23.26		0.9991	7,293.39	0.0009	6.57	879.24
LDT2	18.69%	20.73		0.9986	42,113.85	0.0014	59.04	5,079.84
MDV	11.25%	15.42		0.9875	33,699.90	0.0125	426.58	4,117.05
LHD1	1.43%	14.08		0.6650	3,159.21	0.3350	1,591.48	599.10
LHD2	0.48%	14.35		0.5100	797.96	0.4900	766.67	201.42
MHD	1.76%	8.50		0.1403	1,358.86	0.8597	8,326.53	1,307.55
HHD	7.01%	5.85		0.0097	543.70	0.9903	55,507.58	7,691.16
OBUS	0.14%	7.25		0.4732	427.42	0.5268	475.84	116.85
UBUS	0.12%	4.86		0.3269	377.56	0.6731	777.41	152.27
MCY	0.45%	35.36		1.0000	595.28	0.0000	0.00	71.69
SBUS	0.09%	8.10		0.2133	110.86	0.7867	408.87	69.52
MH	0.09%	7.88		0.8345	445.83	0.1655	88.42	65.84
Total Operational Energy Usage From Transportation				Gasoline (gal.)	180,078.30	Diesel (gal.)	69,099.65	31,179.63

¹ Source: Monarch Winery Air Quality and GHG Impact Study, prepared by RK, April 2019. (CalEEMod v.2016.3.2)

² Source: EMFAC2014 Web Database. <https://www.arb.ca.gov/emfac/2014/>. (See Appendix B for more details.)

³ MBtu/yr = Millions of Btu per year; assuming 1 gallon of gasoline fuel = 120,429 Btu and 1 gallon of diesel fuel = 137,381 Btu

4.5 Total Project Energy Consumption

The project's total energy consumption is calculated in MBtu and shown in Table 18. Total project energy consumption includes electricity, natural gas and petroleum usage during construction and operation.

Table 18
Total Project Energy Consumption¹

Activity	Total Energy Consumption (MBtu) ²	Average Energy Consumption Per Year (MBtu/yr) ³
Construction⁴	87,231.64	33,339.85
Off-Road Equipment	17,657.18	6,748.56
On-Road Vehicle Trips	69,574.46	26,591.29
Operational	--	52,095.47
Electricity	--	9,768.08
Propane	--	11,147.76
Petroleum	--	31,179.63

¹ See Tables 13-17 for more details.

² MBtu = Millions of Btu

³ MBtu/yr = Millions of Btu per year

⁴ Construction duration is estimated to be 955 days.

5.0 Energy Impacts

5.1 Energy Impact Criteria

This analysis has been prepared within the context of the CEQA Guidelines, Appendix F, Energy Conservation, and Appendix G, Environmental Checklist Form. According to CEQA, the goal of conserving energy implies the wise and efficient use of energy through decreasing overall per capita energy consumption, decreasing reliance on fossil fuels (such as coal, natural gas and oil), and increasing reliance on renewable energy sources.

A significant environmental impact would result if the project would;

- a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation, or;
- b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

5.2 Energy Impact – 1

Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

The project's impact is considered less than significant as the project will be required to comply with the mandatory requirements of California's Building Energy Efficiency Standards (Title 24, Part 6) and Green Building Standards (CALGreen, Title 24, Part 11). California's building energy efficiency standards are some of the strictest in the nation and the project's compliance with California's building code will ensure that wasteful, inefficient or unnecessary consumption of energy is minimized. The building standards code is designed to reduce the amount of energy needed to heat or cool a building, reduce energy usage for lighting and appliances and promote usage of energy from renewable sources.

The following recommended project design features are provided to help ensure that wasteful, inefficient or unnecessary consumption of energy is minimized.

Construction Design Features:

- DF-1.** All construction equipment shall be maintained in proper tune.
- DF-2.** All construction vehicles shall be prohibited from excessive idling. Excessive idling is defined as five (5) minutes or longer.
- DF-3.** Establish an electricity supply to the construction site and use electric powered equipment instead of diesel-powered equipment or generators, where feasible.

Operational Design Features:

- DF-4.** Comply with the mandatory requirements of California's Building Energy Efficiency Standards and Green Building (CALGreen) Standards.
- DF-5.** Implement water conservation strategies, including low flow fixtures and toilets, water efficient irrigation systems, drought tolerant/native landscaping, and reduce the amount of turf.
- DF-6.** Use electric landscaping equipment, such as lawn mowers and leaf blowers.
- DF-7.** Install electric vehicle service equipment (EVSE) per CALGreen requirements.

5.3 Energy Impact – 2

Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The project's impact is considered less than significant as the project will purchase electricity through Southern California Edison which is subject to the requirements of California Senate Bill 100 (SB 100). SB 100 is the most stringent and current energy legislation in California; requiring that renewable energy resources and zero-carbon resources supply 100% of retail sales of electricity to California end-use customers and 100% of electricity procured to serve all state agencies by December 31, 2045.⁹

⁹ SB-100 California Renewables Portfolio Standard Program.
http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB100

The project will further comply with the mandatory requirements of California's Green Building and Building Energy Efficiency standards that promote renewable energy and energy efficiency.

In order to help further promote the use of renewable energy and energy efficiency, the following project design features are recommended.

- DF-8.** Install solar panels on commercial building roofs.

- DF-9.** Participate in Southern California Edison's Green Rate program and commit to purchasing 100% of electricity from renewable sources, as available through the utility provider.

6.0 References

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Exhibits





Appendices

Appendix A

CalEEMod Annual Emissions Output

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

Monarch Winery Air Quality and GHG Analysis
Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.81	1000sqft	0.68	1,805.00	0
General Light Industry	15.55	1000sqft	0.21	15,550.00	0
Refrigerated Warehouse-No Rail	8.75	1000sqft	0.11	8,750.00	0
Other Non-Asphalt Surfaces	34.27	Acre	34.27	1,444,032.60	0
Parking Lot	374.00	Space	6.41	279,239.00	0
Hotel	10.00	Room	0.11	8,073.00	0
Quality Restaurant	35.47	1000sqft	0.48	35,470.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

Project Characteristics -

Land Use - Based on the site plan dated 01/16/18. Tasting Room, Special Occasion Facility, Cave Building and Restaurant are calculated under Quality Restaurant.

Construction Phase -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Two tractors has been added to account for vineyard

Off-road Equipment -

Vehicle Trips - Trip rates are based on the ITE Trip Generation Manual, 10th Edition, except for Saturday rates which are based on the Portola Winery Traffic Impact Study.

Water And Wastewater - Vineyard water usage is estimated based on the data obtained from evineyardapp.com

Construction Off-road Equipment Mitigation - Project will be required to comply with SCAQMD Rule 403 regarding fugitive dust control.

Operational Off-Road Equipment - For Vineyard use only.

Stationary Sources - Process Boilers - Boiler Specs obtained from Rheem Standard Recovery Commercial Gas Water Heater: 119 gal Tank Capacity.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblLandUse	LandUseSquareFeet	1,810.00	1,805.00
tblLandUse	LandUseSquareFeet	1,492,801.20	1,444,032.60
tblLandUse	LandUseSquareFeet	149,600.00	279,239.00
tblLandUse	LandUseSquareFeet	14,520.00	8,073.00
tblLandUse	LotAcreage	0.04	0.68
tblLandUse	LotAcreage	0.36	0.21
tblLandUse	LotAcreage	0.20	0.11
tblLandUse	LotAcreage	3.37	6.41
tblLandUse	LotAcreage	0.33	0.11
tblLandUse	LotAcreage	0.81	0.48

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	2.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	ST_TR	2.46	0.00
tblVehicleTrips	ST_TR	8.19	5.88
tblVehicleTrips	ST_TR	94.36	48.07
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	0.68	5.00
tblVehicleTrips	SU_TR	1.05	0.70
tblVehicleTrips	SU_TR	72.16	71.97
tblVehicleTrips	SU_TR	1.68	0.06
tblVehicleTrips	WD_TR	6.97	4.96
tblVehicleTrips	WD_TR	11.03	9.74
tblVehicleTrips	WD_TR	8.17	8.36
tblVehicleTrips	WD_TR	89.95	90.04
tblVehicleTrips	WD_TR	1.68	1.74
tblWater	OutdoorWaterUseRate	0.00	9,191,762.32

2.0 Emissions Summary

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.7364	6.6189	5.3810	0.0171	1.4029	0.2198	1.6227	0.5014	0.2045	0.7059	0.0000	1,556.7156	1,556.7156	0.1859	0.0000	1,561.3622
2021	0.7609	6.1362	5.9448	0.0230	1.3224	0.1384	1.4608	0.3567	0.1301	0.4868	0.0000	2,111.7768	2,111.7768	0.1647	0.0000	2,115.8938
2022	0.7001	5.6419	5.6047	0.0224	1.3173	0.1172	1.4345	0.3553	0.1102	0.4656	0.0000	2,064.0282	2,064.0282	0.1578	0.0000	2,067.9726
2023	0.7741	1.4262	1.8331	6.3300e-003	0.3643	0.0400	0.4043	0.0981	0.0375	0.1355	0.0000	578.5274	578.5274	0.0523	0.0000	579.8347
Maximum	0.7741	6.6189	5.9448	0.0230	1.4029	0.2198	1.6227	0.5014	0.2045	0.7059	0.0000	2,111.7768	2,111.7768	0.1859	0.0000	2,115.8938

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.7364	6.6189	5.3810	0.0171	1.0347	0.2198	1.2546	0.3261	0.2045	0.5306	0.0000	1,556.7151	1,556.7151	0.1859	0.0000	1,561.3617
2021	0.7609	6.1362	5.9448	0.0230	1.3224	0.1384	1.4608	0.3567	0.1301	0.4868	0.0000	2,111.7765	2,111.7765	0.1647	0.0000	2,115.8935
2022	0.7001	5.6419	5.6047	0.0224	1.3173	0.1172	1.4345	0.3553	0.1102	0.4656	0.0000	2,064.0279	2,064.0279	0.1578	0.0000	2,067.9723
2023	0.7741	1.4262	1.8331	6.3300e-003	0.3643	0.0400	0.4043	0.0981	0.0375	0.1355	0.0000	578.5273	578.5273	0.0523	0.0000	579.8346
Maximum	0.7741	6.6189	5.9448	0.0230	1.3224	0.2198	1.4608	0.3567	0.2045	0.5306	0.0000	2,111.7765	2,111.7765	0.1859	0.0000	2,115.8935

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	8.35	0.00	7.48	13.36	0.00	9.77	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2020	3-31-2020	1.6588	1.6588
2	4-1-2020	6-30-2020	1.8271	1.8271
3	7-1-2020	9-30-2020	1.9213	1.9213
4	10-1-2020	12-31-2020	1.9175	1.9175
5	1-1-2021	3-31-2021	1.6920	1.6920
6	4-1-2021	6-30-2021	1.7170	1.7170
7	7-1-2021	9-30-2021	1.7358	1.7358
8	10-1-2021	12-31-2021	1.7296	1.7296

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

9	1-1-2022	3-31-2022	1.5619	1.5619
10	4-1-2022	6-30-2022	1.5860	1.5860
11	7-1-2022	9-30-2022	1.6034	1.6034
12	10-1-2022	12-31-2022	1.5966	1.5966
13	1-1-2023	3-31-2023	1.2651	1.2651
14	4-1-2023	6-30-2023	0.4463	0.4463
15	7-1-2023	9-30-2023	0.4908	0.4908
		Highest	1.9213	1.9213

2.2 Overall Operational
Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.4199	6.0000e-005	6.1200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0127
Energy	0.0601	0.5465	0.4590	3.2800e-003		0.0415	0.0415		0.0415	0.0415	0.0000	1,376.4245	1,376.4245	0.0437	0.0176	1,382.7556
Mobile	0.6372	4.5847	5.6958	0.0254	1.7857	0.0143	1.8000	0.4784	0.0133	0.4917	0.0000	2,361.4892	2,361.4892	0.1382	0.0000	2,364.9448
Offroad	0.0394	0.3993	0.5801	8.1000e-004		0.0197	0.0197		0.0181	0.0181	0.0000	71.1323	71.1323	0.0230	0.0000	71.7074
Stationary	1.3000e-004	6.0000e-004	2.4000e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	2.6682	2.6682	5.0000e-005	0.0000	2.6695
Waste						0.0000	0.0000		0.0000	0.0000	13.6045	0.0000	13.6045	0.8040	0.0000	33.7045
Water						0.0000	0.0000		0.0000	0.0000	5.3810	106.1358	111.5168	0.5571	0.0140	129.6023
Total	1.1567	5.5311	6.7435	0.0295	1.7857	0.0758	1.8615	0.4784	0.0732	0.5516	18.9854	3,917.8619	3,936.8473	1.5660	0.0315	3,985.3967

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.4199	6.0000e-005	6.1200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0127
Energy	0.0601	0.5465	0.4590	3.2800e-003		0.0415	0.0415		0.0415	0.0415	0.0000	1,376.4245	1,376.4245	0.0437	0.0176	1,382.7556
Mobile	0.6372	4.5847	5.6958	0.0254	1.7857	0.0143	1.8000	0.4784	0.0133	0.4917	0.0000	2,361.4892	2,361.4892	0.1382	0.0000	2,364.9448
Offroad	0.0394	0.3993	0.5801	8.1000e-004		0.0197	0.0197		0.0181	0.0181	0.0000	71.1323	71.1323	0.0230	0.0000	71.7074
Stationary	1.3000e-004	6.0000e-004	2.4000e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	2.6682	2.6682	5.0000e-005	0.0000	2.6695
Waste						0.0000	0.0000		0.0000	0.0000	13.6045	0.0000	13.6045	0.8040	0.0000	33.7045
Water						0.0000	0.0000		0.0000	0.0000	5.3810	106.1358	111.5168	0.5571	0.0140	129.6023
Total	1.1567	5.5311	6.7435	0.0295	1.7857	0.0758	1.8615	0.4784	0.0732	0.5516	18.9854	3,917.8619	3,936.8473	1.5660	0.0315	3,985.3967

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2020	2/11/2020	5	30	
2	Grading	Grading	2/12/2020	5/26/2020	5	75	
3	Building Construction	Building Construction	5/27/2020	3/28/2023	5	740	
4	Paving	Paving	3/29/2023	6/13/2023	5	55	
5	Architectural Coating	Architectural Coating	6/14/2023	8/29/2023	5	55	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 187.5

Acres of Paving: 40.68

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 104,472; Non-Residential Outdoor: 34,824; Striped Parking Area: 103,396 (Architectural Coating – sqft)

OffRoad Equipment

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	753.00	294.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	151.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

3.1 Mitigation Measures Construction

- Use Soil Stabilizer
- Replace Ground Cover
- Water Exposed Area
- Water Unpaved Roads
- Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0612	0.6363	0.3227	5.7000e-004		0.0330	0.0330		0.0303	0.0303	0.0000	50.1460	50.1460	0.0162	0.0000	50.5515
Total	0.0612	0.6363	0.3227	5.7000e-004	0.2710	0.0330	0.3040	0.1490	0.0303	0.1793	0.0000	50.1460	50.1460	0.0162	0.0000	50.5515

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

3.2 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2400e-003	8.7000e-004	9.2800e-003	3.0000e-005	2.9700e-003	2.0000e-005	2.9900e-003	7.9000e-004	2.0000e-005	8.0000e-004	0.0000	2.4829	2.4829	6.0000e-005	0.0000	2.4845
Total	1.2400e-003	8.7000e-004	9.2800e-003	3.0000e-005	2.9700e-003	2.0000e-005	2.9900e-003	7.9000e-004	2.0000e-005	8.0000e-004	0.0000	2.4829	2.4829	6.0000e-005	0.0000	2.4845

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1037	0.0000	0.1037	0.0570	0.0000	0.0570	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0612	0.6363	0.3227	5.7000e-004		0.0330	0.0330		0.0303	0.0303	0.0000	50.1460	50.1460	0.0162	0.0000	50.5514
Total	0.0612	0.6363	0.3227	5.7000e-004	0.1037	0.0330	0.1366	0.0570	0.0303	0.0873	0.0000	50.1460	50.1460	0.0162	0.0000	50.5514

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

3.2 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2400e-003	8.7000e-004	9.2800e-003	3.0000e-005	2.9700e-003	2.0000e-005	2.9900e-003	7.9000e-004	2.0000e-005	8.0000e-004	0.0000	2.4829	2.4829	6.0000e-005	0.0000	2.4845
Total	1.2400e-003	8.7000e-004	9.2800e-003	3.0000e-005	2.9700e-003	2.0000e-005	2.9900e-003	7.9000e-004	2.0000e-005	8.0000e-004	0.0000	2.4829	2.4829	6.0000e-005	0.0000	2.4845

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3253	0.0000	0.3253	0.1349	0.0000	0.1349	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1669	1.8824	1.1984	2.3300e-003		0.0815	0.0815		0.0750	0.0750	0.0000	204.3161	204.3161	0.0661	0.0000	205.9681
Total	0.1669	1.8824	1.1984	2.3300e-003	0.3253	0.0815	0.4068	0.1349	0.0750	0.2099	0.0000	204.3161	204.3161	0.0661	0.0000	205.9681

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4500e-003	2.4200e-003	0.0258	8.0000e-005	8.2400e-003	5.0000e-005	8.2900e-003	2.1900e-003	5.0000e-005	2.2400e-003	0.0000	6.8969	6.8969	1.7000e-004	0.0000	6.9013
Total	3.4500e-003	2.4200e-003	0.0258	8.0000e-005	8.2400e-003	5.0000e-005	8.2900e-003	2.1900e-003	5.0000e-005	2.2400e-003	0.0000	6.8969	6.8969	1.7000e-004	0.0000	6.9013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1244	0.0000	0.1244	0.0516	0.0000	0.0516	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1669	1.8824	1.1984	2.3300e-003		0.0815	0.0815		0.0750	0.0750	0.0000	204.3159	204.3159	0.0661	0.0000	205.9679
Total	0.1669	1.8824	1.1984	2.3300e-003	0.1244	0.0815	0.2059	0.0516	0.0750	0.1266	0.0000	204.3159	204.3159	0.0661	0.0000	205.9679

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4500e-003	2.4200e-003	0.0258	8.0000e-005	8.2400e-003	5.0000e-005	8.2900e-003	2.1900e-003	5.0000e-005	2.2400e-003	0.0000	6.8969	6.8969	1.7000e-004	0.0000	6.9013
Total	3.4500e-003	2.4200e-003	0.0258	8.0000e-005	8.2400e-003	5.0000e-005	8.2900e-003	2.1900e-003	5.0000e-005	2.2400e-003	0.0000	6.8969	6.8969	1.7000e-004	0.0000	6.9013

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1664	1.5061	1.3226	2.1100e-003		0.0877	0.0877		0.0825	0.0825	0.0000	181.8138	181.8138	0.0444	0.0000	182.9227
Total	0.1664	1.5061	1.3226	2.1100e-003		0.0877	0.0877		0.0825	0.0825	0.0000	181.8138	181.8138	0.0444	0.0000	182.9227

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0656	2.4005	0.4696	5.9300e-003	0.1458	0.0136	0.1593	0.0421	0.0130	0.0550	0.0000	567.4842	567.4842	0.0454	0.0000	568.6182
Worker	0.2717	0.1904	2.0325	6.0100e-003	0.6497	4.0000e-003	0.6537	0.1725	3.6800e-003	0.1762	0.0000	543.5757	543.5757	0.0136	0.0000	543.9160
Total	0.3372	2.5908	2.5021	0.0119	0.7955	0.0176	0.8130	0.2146	0.0167	0.2313	0.0000	1,111.0598	1,111.0598	0.0590	0.0000	1,112.5342

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1664	1.5061	1.3226	2.1100e-003		0.0877	0.0877		0.0825	0.0825	0.0000	181.8136	181.8136	0.0444	0.0000	182.9225
Total	0.1664	1.5061	1.3226	2.1100e-003		0.0877	0.0877		0.0825	0.0825	0.0000	181.8136	181.8136	0.0444	0.0000	182.9225

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0656	2.4005	0.4696	5.9300e-003	0.1458	0.0136	0.1593	0.0421	0.0130	0.0550	0.0000	567.4842	567.4842	0.0454	0.0000	568.6182
Worker	0.2717	0.1904	2.0325	6.0100e-003	0.6497	4.0000e-003	0.6537	0.1725	3.6800e-003	0.1762	0.0000	543.5757	543.5757	0.0136	0.0000	543.9160
Total	0.3372	2.5908	2.5021	0.0119	0.7955	0.0176	0.8130	0.2146	0.0167	0.2313	0.0000	1,111.0598	1,111.0598	0.0590	0.0000	1,112.5342

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2481	2.2749	2.1631	3.5100e-003		0.1251	0.1251		0.1176	0.1176	0.0000	302.2867	302.2867	0.0729	0.0000	304.1099
Total	0.2481	2.2749	2.1631	3.5100e-003		0.1251	0.1251		0.1176	0.1176	0.0000	302.2867	302.2867	0.0729	0.0000	304.1099

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0915	3.5774	0.6883	9.7800e-003	0.2423	6.8400e-003	0.2492	0.0699	6.5400e-003	0.0765	0.0000	936.0520	936.0520	0.0714	0.0000	937.8371
Worker	0.4213	0.2839	3.0935	9.6600e-003	1.0801	6.4700e-003	1.0866	0.2868	5.9600e-003	0.2928	0.0000	873.4382	873.4382	0.0204	0.0000	873.9469
Total	0.5129	3.8613	3.7818	0.0194	1.3224	0.0133	1.3357	0.3567	0.0125	0.3692	0.0000	1,809.4902	1,809.4902	0.0918	0.0000	1,811.7840

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2481	2.2749	2.1631	3.5100e-003		0.1251	0.1251		0.1176	0.1176	0.0000	302.2863	302.2863	0.0729	0.0000	304.1095
Total	0.2481	2.2749	2.1631	3.5100e-003		0.1251	0.1251		0.1176	0.1176	0.0000	302.2863	302.2863	0.0729	0.0000	304.1095

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0915	3.5774	0.6883	9.7800e-003	0.2423	6.8400e-003	0.2492	0.0699	6.5400e-003	0.0765	0.0000	936.0520	936.0520	0.0714	0.0000	937.8371
Worker	0.4213	0.2839	3.0935	9.6600e-003	1.0801	6.4700e-003	1.0866	0.2868	5.9600e-003	0.2928	0.0000	873.4382	873.4382	0.0204	0.0000	873.9469
Total	0.5129	3.8613	3.7818	0.0194	1.3224	0.0133	1.3357	0.3567	0.0125	0.3692	0.0000	1,809.4902	1,809.4902	0.0918	0.0000	1,811.7840

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0851	3.3574	0.6386	9.6600e-003	0.2414	5.7300e-003	0.2471	0.0696	5.4800e-003	0.0751	0.0000	924.4446	924.4446	0.0674	0.0000	926.1293
Worker	0.3932	0.2545	2.8388	9.2700e-003	1.0759	6.2800e-003	1.0822	0.2857	5.7800e-003	0.2915	0.0000	838.3408	838.3408	0.0182	0.0000	838.7963
Total	0.4783	3.6119	3.4774	0.0189	1.3173	0.0120	1.3293	0.3553	0.0113	0.3666	0.0000	1,762.7854	1,762.7854	0.0856	0.0000	1,764.9256

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0851	3.3574	0.6386	9.6600e-003	0.2414	5.7300e-003	0.2471	0.0696	5.4800e-003	0.0751	0.0000	924.4446	924.4446	0.0674	0.0000	926.1293
Worker	0.3932	0.2545	2.8388	9.2700e-003	1.0759	6.2800e-003	1.0822	0.2857	5.7800e-003	0.2915	0.0000	838.3408	838.3408	0.0182	0.0000	838.7963
Total	0.4783	3.6119	3.4774	0.0189	1.3173	0.0120	1.3293	0.3553	0.0113	0.3666	0.0000	1,762.7854	1,762.7854	0.0856	0.0000	1,764.9256

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0488	0.4459	0.5036	8.4000e-004		0.0217	0.0217		0.0204	0.0204	0.0000	71.8595	71.8595	0.0171	0.0000	72.2868
Total	0.0488	0.4459	0.5036	8.4000e-004		0.0217	0.0217		0.0204	0.0204	0.0000	71.8595	71.8595	0.0171	0.0000	72.2868

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0155	0.5987	0.1326	2.2400e-003	0.0576	6.1000e-004	0.0582	0.0166	5.8000e-004	0.0172	0.0000	214.6365	214.6365	0.0123	0.0000	214.9440
Worker	0.0881	0.0547	0.6240	2.1300e-003	0.2566	1.4600e-003	0.2580	0.0681	1.3500e-003	0.0695	0.0000	192.3247	192.3247	3.9000e-003	0.0000	192.4223
Total	0.1036	0.6534	0.7566	4.3700e-003	0.3141	2.0700e-003	0.3162	0.0847	1.9300e-003	0.0867	0.0000	406.9612	406.9612	0.0162	0.0000	407.3663

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0488	0.4459	0.5036	8.4000e-004		0.0217	0.0217		0.0204	0.0204	0.0000	71.8594	71.8594	0.0171	0.0000	72.2867
Total	0.0488	0.4459	0.5036	8.4000e-004		0.0217	0.0217		0.0204	0.0204	0.0000	71.8594	71.8594	0.0171	0.0000	72.2867

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0155	0.5987	0.1326	2.2400e-003	0.0576	6.1000e-004	0.0582	0.0166	5.8000e-004	0.0172	0.0000	214.6365	214.6365	0.0123	0.0000	214.9440
Worker	0.0881	0.0547	0.6240	2.1300e-003	0.2566	1.4600e-003	0.2580	0.0681	1.3500e-003	0.0695	0.0000	192.3247	192.3247	3.9000e-003	0.0000	192.4223
Total	0.1036	0.6534	0.7566	4.3700e-003	0.3141	2.0700e-003	0.3162	0.0847	1.9300e-003	0.0867	0.0000	406.9612	406.9612	0.0162	0.0000	407.3663

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0284	0.2803	0.4011	6.3000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	55.0739	55.0739	0.0178	0.0000	55.5192
Paving	8.4000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0368	0.2803	0.4011	6.3000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	55.0739	55.0739	0.0178	0.0000	55.5192

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5600e-003	9.7000e-004	0.0110	4.0000e-005	4.5300e-003	3.0000e-005	4.5600e-003	1.2000e-003	2.0000e-005	1.2300e-003	0.0000	3.3986	3.3986	7.0000e-005	0.0000	3.4003
Total	1.5600e-003	9.7000e-004	0.0110	4.0000e-005	4.5300e-003	3.0000e-005	4.5600e-003	1.2000e-003	2.0000e-005	1.2300e-003	0.0000	3.3986	3.3986	7.0000e-005	0.0000	3.4003

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0284	0.2803	0.4011	6.3000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	55.0738	55.0738	0.0178	0.0000	55.5191
Paving	8.4000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0368	0.2803	0.4011	6.3000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	55.0738	55.0738	0.0178	0.0000	55.5191

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5600e-003	9.7000e-004	0.0110	4.0000e-005	4.5300e-003	3.0000e-005	4.5600e-003	1.2000e-003	2.0000e-005	1.2300e-003	0.0000	3.3986	3.3986	7.0000e-005	0.0000	3.4003
Total	1.5600e-003	9.7000e-004	0.0110	4.0000e-005	4.5300e-003	3.0000e-005	4.5600e-003	1.2000e-003	2.0000e-005	1.2300e-003	0.0000	3.3986	3.3986	7.0000e-005	0.0000	3.4003

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5624					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.2700e-003	0.0358	0.0498	8.0000e-005		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	7.0215	7.0215	4.2000e-004	0.0000	7.0320
Total	0.5677	0.0358	0.0498	8.0000e-005		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	7.0215	7.0215	4.2000e-004	0.0000	7.0320

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0157	9.7300e-003	0.1110	3.8000e-004	0.0456	2.6000e-004	0.0459	0.0121	2.4000e-004	0.0124	0.0000	34.2128	34.2128	6.9000e-004	0.0000	34.2301
Total	0.0157	9.7300e-003	0.1110	3.8000e-004	0.0456	2.6000e-004	0.0459	0.0121	2.4000e-004	0.0124	0.0000	34.2128	34.2128	6.9000e-004	0.0000	34.2301

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5624					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.2700e-003	0.0358	0.0498	8.0000e-005		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	7.0214	7.0214	4.2000e-004	0.0000	7.0319
Total	0.5677	0.0358	0.0498	8.0000e-005		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	7.0214	7.0214	4.2000e-004	0.0000	7.0319

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0157	9.7300e-003	0.1110	3.8000e-004	0.0456	2.6000e-004	0.0459	0.0121	2.4000e-004	0.0124	0.0000	34.2128	34.2128	6.9000e-004	0.0000	34.2301
Total	0.0157	9.7300e-003	0.1110	3.8000e-004	0.0456	2.6000e-004	0.0459	0.0121	2.4000e-004	0.0124	0.0000	34.2128	34.2128	6.9000e-004	0.0000	34.2301

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6372	4.5847	5.6958	0.0254	1.7857	0.0143	1.8000	0.4784	0.0133	0.4917	0.0000	2,361.489 2	2,361.489 2	0.1382	0.0000	2,364.944 8
Unmitigated	0.6372	4.5847	5.6958	0.0254	1.7857	0.0143	1.8000	0.4784	0.0133	0.4917	0.0000	2,361.489 2	2,361.489 2	0.1382	0.0000	2,364.944 8

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	77.13	0.00	77.75	293,146	293,146
General Office Building	17.63	0.00	1.27	41,149	41,149
Hotel	83.60	58.80	59.50	182,815	182,815
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Quality Restaurant	3,193.72	1,705.04	2552.78	4,113,565	4,113,565
Refrigerated Warehouse-No Rail	15.23	0.00	0.53	46,929	46,929
Total	3,387.30	1,763.84	2,691.82	4,677,603	4,677,603

4.3 Trip Type Information

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Refrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
General Office Building	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Hotel	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Other Non-Asphalt Surfaces	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Parking Lot	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Quality Restaurant	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Refrigerated Warehouse-No Rail	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated							0.0000	0.0000		0.0000	0.0000	781.5376	781.5376	0.0323	6.6800e-003	784.3336
Electricity Unmitigated							0.0000	0.0000		0.0000	0.0000	781.5376	781.5376	0.0323	6.6800e-003	784.3336
NaturalGas Mitigated	0.0601	0.5465	0.4590	3.2800e-003			0.0415	0.0415		0.0415	0.0415	594.8870	594.8870	0.0114	0.0109	598.4221
NaturalGas Unmitigated	0.0601	0.5465	0.4590	3.2800e-003			0.0415	0.0415		0.0415	0.0415	594.8870	594.8870	0.0114	0.0109	598.4221

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	505219	2.7200e-003	0.0248	0.0208	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9604	26.9604	5.2000e-004	4.9000e-004	27.1207
General Office Building	6263.35	3.0000e-005	3.1000e-004	2.6000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3342	0.3342	1.0000e-005	1.0000e-005	0.3362
Hotel	484461	2.6100e-003	0.0238	0.0200	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003	0.0000	25.8527	25.8527	5.0000e-004	4.7000e-004	26.0063
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	9.69892e+006	0.0523	0.4754	0.3994	2.8500e-003		0.0361	0.0361		0.0361	0.0361	0.0000	517.5711	517.5711	9.9200e-003	9.4900e-003	520.6468
Refrigerated Warehouse-No Rail	452900	2.4400e-003	0.0222	0.0187	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003	0.0000	24.1685	24.1685	4.6000e-004	4.4000e-004	24.3121
Total		0.0601	0.5465	0.4590	3.2700e-003		0.0415	0.0415		0.0415	0.0415	0.0000	594.8870	594.8870	0.0114	0.0109	598.4221

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	505219	2.7200e-003	0.0248	0.0208	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9604	26.9604	5.2000e-004	4.9000e-004	27.1207
General Office Building	6263.35	3.0000e-005	3.1000e-004	2.6000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3342	0.3342	1.0000e-005	1.0000e-005	0.3362
Hotel	484461	2.6100e-003	0.0238	0.0200	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003	0.0000	25.8527	25.8527	5.0000e-004	4.7000e-004	26.0063
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	9.69892e+006	0.0523	0.4754	0.3994	2.8500e-003		0.0361	0.0361		0.0361	0.0361	0.0000	517.5711	517.5711	9.9200e-003	9.4900e-003	520.6468
Refrigerated Warehouse-No Rail	452900	2.4400e-003	0.0222	0.0187	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003	0.0000	24.1685	24.1685	4.6000e-004	4.4000e-004	24.3121
Total		0.0601	0.5465	0.4590	3.2700e-003		0.0415	0.0415		0.0415	0.0415	0.0000	594.8870	594.8870	0.0114	0.0109	598.4221

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	157833	50.2888	2.0800e-003	4.3000e-004	50.4687
General Office Building	17183.6	5.4751	2.3000e-004	5.0000e-005	5.4947
Hotel	146444	46.6603	1.9300e-003	4.0000e-004	46.8272
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	97733.6	31.1400	1.2900e-003	2.7000e-004	31.2514
Quality Restaurant	1.68412e+006	536.5953	0.0222	4.5800e-003	538.5150
Refrigerated Warehouse-No Rail	349563	111.3781	4.6000e-003	9.5000e-004	111.7766
Total		781.5376	0.0323	6.6800e-003	784.3336

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

5.3 Energy by Land Use - Electricity**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	157833	50.2888	2.0800e-003	4.3000e-004	50.4687
General Office Building	17183.6	5.4751	2.3000e-004	5.0000e-005	5.4947
Hotel	146444	46.6603	1.9300e-003	4.0000e-004	46.8272
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	97733.6	31.1400	1.2900e-003	2.7000e-004	31.2514
Quality Restaurant	1.68412e+006	536.5953	0.0222	4.5800e-003	538.5150
Refrigerated Warehouse-No Rail	349563	111.3781	4.6000e-003	9.5000e-004	111.7766
Total		781.5376	0.0323	6.6800e-003	784.3336

6.0 Area Detail**6.1 Mitigation Measures Area**

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4199	6.0000e-005	6.1200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0127
Unmitigated	0.4199	6.0000e-005	6.1200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0127

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0562					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3631					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.7000e-004	6.0000e-005	6.1200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0127
Total	0.4199	6.0000e-005	6.1200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0127

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0562					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3631					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.7000e-004	6.0000e-005	6.1200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0127
Total	0.4199	6.0000e-005	6.1200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0127

7.0 Water Detail

7.1 Mitigation Measures Water

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	111.5168	0.5571	0.0140	129.6023
Unmitigated	111.5168	0.5571	0.0140	129.6023

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	3.59594 / 0	16.0595	0.1178	2.8900e-003	19.8667
General Office Building	0.321698 / 0.19717	2.1347	0.0106	2.6000e-004	2.4778
Hotel	0.253668 / 0.0281853	1.2327	8.3100e-003	2.1000e-004	1.5016
Other Non-Asphalt Surfaces	0 / 9.19176	32.5378	1.3400e-003	2.8000e-004	32.6542
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	10.7663 / 0.687213	50.5154	0.3528	8.6900e-003	61.9230
Refrigerated Warehouse-No Rail	2.02344 / 0	9.0367	0.0663	1.6300e-003	11.1790
Total		111.5168	0.5571	0.0140	129.6023

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	3.59594 / 0	16.0595	0.1178	2.8900e-003	19.8667
General Office Building	0.321698 / 0.19717	2.1347	0.0106	2.6000e-004	2.4778
Hotel	0.253668 / 0.0281853	1.2327	8.3100e-003	2.1000e-004	1.5016
Other Non-Asphalt Surfaces	0 / 9.19176	32.5378	1.3400e-003	2.8000e-004	32.6542
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	10.7663 / 0.687213	50.5154	0.3528	8.6900e-003	61.9230
Refrigerated Warehouse-No Rail	2.02344 / 0	9.0367	0.0663	1.6300e-003	11.1790
Total		111.5168	0.5571	0.0140	129.6023

8.0 Waste Detail**8.1 Mitigation Measures Waste**

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	13.6045	0.8040	0.0000	33.7045
Unmitigated	13.6045	0.8040	0.0000	33.7045

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	19.28	3.9137	0.2313	0.0000	9.6959
General Office Building	1.68	0.3410	0.0202	0.0000	0.8449
Hotel	5.47	1.1104	0.0656	0.0000	2.7509
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	32.37	6.5708	0.3883	0.0000	16.2789
Refrigerated Warehouse-No Rail	8.22	1.6686	0.0986	0.0000	4.1339
Total		13.6045	0.8040	0.0000	33.7045

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	19.28	3.9137	0.2313	0.0000	9.6959
General Office Building	1.68	0.3410	0.0202	0.0000	0.8449
Hotel	5.47	1.1104	0.0656	0.0000	2.7509
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	32.37	6.5708	0.3883	0.0000	16.2789
Refrigerated Warehouse-No Rail	8.22	1.6686	0.0986	0.0000	4.1339
Total		13.6045	0.8040	0.0000	33.7045

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	2	8.00	260	97	0.37	Diesel

Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Tractors/Loaders/Backhoes	0.0394	0.3993	0.5801	8.1000e-004		0.0197	0.0197		0.0181	0.0181	0.0000	71.1323	71.1323	0.0230	0.0000	71.7074
Total	0.0394	0.3993	0.5801	8.1000e-004		0.0197	0.0197		0.0181	0.0181	0.0000	71.1323	71.1323	0.0230	0.0000	71.7074

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
Boiler	2	2	25	0.199	CNG

User Defined Equipment

Equipment Type	Number
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Monarch Winery Air Quality and GHG Analysis - Riverside-South Coast County, Annual

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Boiler - CNG (0 - 2 MMBTU)	1.3000e-004	6.0000e-004	2.4000e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	2.6682	2.6682	5.0000e-005	0.0000	2.6695
Total	1.3000e-004	6.0000e-004	2.4000e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	2.6682	2.6682	5.0000e-005	0.0000	2.6695

11.0 Vegetation

Appendix B

EMFAC2014 Vehicle Consumption Data

EMFAC2014 (v1.0.7) Emissions Inventory

Region Type: Air District

Region: South Coast AQMD

Calendar Year: 2020

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed	Fuel	Population	VMT	Fuel_Consumption	Fuel Split (Gas:Diesel)	MPG, by Fuel Type	MPG, Average
South Coast AQMD	2020	LDA	Aggregated	Aggregated	GAS	6241441.311	215630250.8	7791.379047	99.26%	27.68	28.57
South Coast AQMD	2020	LDA	Aggregated	Aggregated	DSL	58578.66528	2170199.073	58.44052993	0.74%	37.14	
South Coast AQMD	2020	LDA	Aggregated	Aggregated	ELEC	139480.2104	6499653.924	0			
South Coast AQMD	2020	LDT1	Aggregated	Aggregated	GAS	529468.9231	17839921.58	767.6565063	99.91%	23.24	23.26
South Coast AQMD	2020	LDT1	Aggregated	Aggregated	DSL	653.8523923	17424.66748	0.656771586	0.09%	26.53	
South Coast AQMD	2020	LDT1	Aggregated	Aggregated	ELEC	394.8926991	12300.5894	0			
South Coast AQMD	2020	LDT2	Aggregated	Aggregated	GAS	2196840.435	81691950.79	3942.87661	99.86%	20.72	20.73
South Coast AQMD	2020	LDT2	Aggregated	Aggregated	DSL	3707.582469	150823.0049	5.330165365	0.14%	28.30	
South Coast AQMD	2020	MDV	Aggregated	Aggregated	GAS	1480427.171	49182321.35	3206.973029	98.75%	15.34	15.42
South Coast AQMD	2020	MDV	Aggregated	Aggregated	DSL	22607.57726	887377.5364	40.62845112	1.25%	21.84	
South Coast AQMD	2020	LHDT1	Aggregated	Aggregated	GAS	122811.721	3538562.329	324.3272067	66.50%	10.91	14.08
South Coast AQMD	2020	LHDT1	Aggregated	Aggregated	DSL	93218.10849	3329186.678	163.383972	33.50%	20.38	
South Coast AQMD	2020	LHDT2	Aggregated	Aggregated	GAS	25139.08857	867472.8869	85.31303659	51.00%	10.17	14.35
South Coast AQMD	2020	LHDT2	Aggregated	Aggregated	DSL	39016.92297	1532624.982	81.98131358	49.00%	18.69	
South Coast AQMD	2020	MHDT	Aggregated	Aggregated	GAS	19760.80313	980184.6784	139.5109867	14.03%	7.03	8.50
South Coast AQMD	2020	MHDT	Aggregated	Aggregated	DSL	134726.0007	7469482.082	854.6440674	85.97%	8.74	
South Coast AQMD	2020	HHDT	Aggregated	Aggregated	GAS	802.1440496	104174.0551	22.12472978	0.97%	4.71	5.85
South Coast AQMD	2020	HHDT	Aggregated	Aggregated	DSL	94066.79161	13265170	2263.379935	99.03%	5.86	
South Coast AQMD	2020	OBUS	Aggregated	Aggregated	GAS	8436.227028	392438.6707	54.40171127	47.32%	7.21	7.25
South Coast AQMD	2020	OBUS	Aggregated	Aggregated	DSL	5358.43226	441411.1364	60.5737995	52.68%	7.29	
South Coast AQMD	2020	UBUS	Aggregated	Aggregated	GAS	2327.880438	267944.8976	53.57098395	32.69%	5.00	4.86
South Coast AQMD	2020	UBUS	Aggregated	Aggregated	DSL	4588.150023	527953.961	110.2967884	67.31%	4.79	
South Coast AQMD	2020	SBUS	Aggregated	Aggregated	GAS	2258.46776	86380.44602	7.601539992	21.33%	11.36	8.10
South Coast AQMD	2020	SBUS	Aggregated	Aggregated	DSL	5309.122191	202336.044	28.02826434	78.67%	7.22	
South Coast AQMD	2020	MCY	Aggregated	Aggregated	GAS	289961.5795	1955845.416	55.31831514	100.00%	35.36	35.36
South Coast AQMD	2020	MH	Aggregated	Aggregated	GAS	37922.10127	307217.3044	41.47456076	83.45%	7.41	7.88
South Coast AQMD	2020	MH	Aggregated	Aggregated	DSL	9968.340503	84286.45216	8.223037177	16.55%	10.25	