



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

**FINAL STAFF REPORT
APPENDIX B**

Socioeconomic Impacts Analysis

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bae urban economics

Socioeconomic Impact Analysis of Proposed Amendments to Rule 8-8:
Wastewater Collection and Separation Systems

Submitted to: Bay Area Air Quality Management District
October 16, 2023

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INTRODUCTION

The Bay Area Air Quality Management District (“Air District” or “BAAQMD”) is proposing to amend Regulation 8: Organic Compounds, Rule 8: Wastewater Collection and Separation Systems (Rule 8-8) to further address emissions from wastewater collection and separation systems at refining facilities in the Bay Area region.

Refining facilities convert feedstocks such as crude oil or other unfinished petroleum derivatives into a wide variety of finished products, including gasoline, aviation fuel, diesel and other fuel oils, lubricating oils, and other feedstocks for petrochemical and chemical industries. Each of the five refineries in the Bay Area is uniquely configured to process specific raw materials into a desired slate of finished products and each has a unique system to collect and treat wastewater from refining processes and operations. These wastewater collection, separation and treatment processes result in emissions of methane and volatile organic compounds, which may include toxic air contaminants. The Air District estimates that approximately 109 tons per year of volatile organic compounds are emitted from refinery wastewater treatment systems in the Bay Area.

Proposed Rule Amendments

The proposed amendments to Rule 8-8 are intended to further limit emissions of volatile organic compounds and methane from refinery wastewater collection and separation systems. As provided in the Staff Report describing the proposed amendments to Rule 8-8¹, the major provisions of the proposed amendments to Rule 8-8 include:

- Limiting emissions of total organic compounds (including methane) from the wastewater collection and separation systems. The current rule addresses only volatile organic compound emissions (excluding methane).
- Amending leak and vapor-tight standards to cover total organic compounds (including methane). The existing rule only limits volatile organic compounds, and the proposed amendments of Rule 8-8 would include methane and result in more stringent standards.
- Adding standards at refineries for wastewater collection and separation system components with a clear single vapor tight emissions standard (500 ppmv) for all applicable wastewater collection and separation system components.
 - The proposed new standards require wastewater collection and separation system components at refineries to comply by being vapor tight or by operating a vapor tight collection system routed to a vapor recovery or abatement system which has a minimum combined collection and destruction efficiency of 95

¹ BAAQMD, October 2023. Staff Report: Proposed Amendments to Regulation 8: Organic Compounds, Rule 8: Wastewater Collection and Separation Systems.

percent, by weight, for abating emissions of total organic compounds (including methane) from the component. The collection system may also show compliance through achieving an outlet concentration of 500 ppmv total organic compounds [expressed as methane] above background levels.

- Prohibiting the discharge of non-aqueous phase hydrocarbon streams into collection and separation systems and prohibiting discharge of free phase organic liquid streams into refinery secondary treatment process components.
- Strengthening leak detection and repair protocols.
- Monitoring of organic concentrations and the presence of oil and grease in wastewater to increase understanding of the potential for emissions to the air from secondary treatment.

Socioeconomic Impact Analysis Methodology

This report was prepared to meet the provisions of Section 40728.5 of the California Health and Safety Code, which requires an assessment of the socioeconomic impacts of proposed air quality rules. The analysis begins with an overview of demographic and economic conditions in the Air District region to provide context for the socioeconomic impact analysis that follows. Following that overview, the analysis turns to the specific industry and business establishments potentially affected by the rule revisions, including data on the number of employees, production capacities, and the reported net income as a percent of revenues. The analysis relies on data from a number of sources, including corporate reports, the 2017 Economic Census, the Internal Revenue Service, the State of California's Employment Development Department (EDD) Labor Market Information Division and Department of Finance, the California Energy Commission, the U.S. Energy Information Administration, and the Air District. Using this information, BAE estimated the annual revenues and net profits for each potentially affected facility. These figures were then compared to the compliance costs associated with the proposed amended Rule to determine whether the compliance costs represent a significant portion of estimated profits (using a 10 percent impact threshold). Finally, the potential for impacts on small businesses was assessed.

REGIONAL TRENDS

This section provides an overview of recent demographic and economic trends in the nine-county San Francisco Bay Area region and the State to provide context for the socioeconomic impact analysis that follows.

Demographic Trends

Table 1 shows population and household trends for the Bay Area and California between 2010 and 2023. During this period, the population in the Bay Area increased by approximately 5.6 percent, compared to 4.5 percent in California statewide. Meanwhile, the number of households in the Bay Area grew by 9.2 percent, compared to a 9.3 percent increase in households statewide.

Table 1: Regional and Statewide Population and Household Trends, 2010-2023

Bay Area (a)	2010	2023	Change, 2010-2023	
			Number	Percent
Population	7,150,739	7,548,792	398,053	5.6%
Households	2,606,288	2,844,913	238,625	9.2%
Avg. Household Size	2.69	2.59		
California				
Population	37,253,956	38,940,231	1,686,275	4.5%
Households	12,568,167	13,739,470	1,171,303	9.3%
Avg. Household Size	2.90	2.77		

Note:

(a) Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties.

Sources: State of California Department of Finance; BAE, 2023.

Economic Trends

In the period between 2010 and 2022, the Bay Area's employment base grew by 28.4 percent, increasing from 3.2 million jobs to 4.0 million jobs (see Table 2). Statewide, the employment base grew at a slightly lower rate, increasing 23.5 percent from 14.7 million jobs in 2010 to 18.1 million jobs in 2022. All of the industry sectors in the state experienced job growth between 2010 and 2022. In the Bay Area, the Wholesale Trade and Retail Trade sectors contracted between 2010 and 2022, while all other non-governmental sectors grew by at least eight percent.

In terms of total number of jobs, the largest non-government industry sectors in the Bay Area include Professional & Business Services (819,500 jobs), Educational and Health Services (639,000 jobs), Leisure & Hospitality (386,000 jobs), and Manufacturing (379,700 jobs). These four industry sectors together account for approximately 55 percent of the Bay Area's total employment. Statewide, the four sectors account for 50 percent of total employment.

The Manufacturing sector, which includes the petroleum refineries that would be subject to the proposed amended Rule 8-8, grew by nearly 25 percent in the Bay Area between 2010 and 2022. As of 2022, the sector accounted for 9.4 percent of the region’s job base, compared to 7.4 percent of the job base statewide. Although the sector’s share of total employment fell slightly in the region in the period between 2010 and 2022, most of the statewide job growth in the Manufacturing sector over this period was driven by job gains in the Bay Area region. The Bay Area added a total of 75,500 manufacturing jobs in the period between 2010 and 2022, nearly matching the total number of manufacturing jobs that were gained statewide (87,600 jobs) during this period.

Table 2: Bay Area Employment by Sector, 2010-2022 (a)

Industry Sector	2010		2022		Change, 2010-2022	
	Number	% Total	Number	% Total	Number	Percent
San Francisco Bay Area						
Agriculture	19,200	0.6%	20,800	0.5%	1,600	8.3%
Mining, Logging, and Construction	131,500	4.2%	210,000	5.2%	78,500	59.7%
Manufacturing	304,200	9.6%	379,700	9.4%	75,500	24.8%
Wholesale Trade	112,200	3.6%	107,800	2.7%	-4,400	-3.9%
Retail Trade	308,200	9.8%	306,400	7.6%	-1,800	-0.6%
Transportation, Warehousing, and Utilities	88,300	2.8%	134,100	3.3%	45,800	51.9%
Information	113,900	3.6%	263,100	6.5%	149,200	131.0%
Financial Activities	168,000	5.3%	197,400	4.9%	29,400	17.5%
Professional & Business Services	545,800	17.3%	819,500	20.2%	273,700	50.1%
Educational & Health Services	474,200	15.0%	639,000	15.8%	164,800	34.8%
Leisure & Hospitality	324,800	10.3%	386,000	9.5%	61,200	18.8%
Other Services, except Public Admin.	108,100	3.4%	120,600	3.0%	12,500	11.6%
Government (b)	455,200	14.4%	463,600	11.5%	8,400	1.8%
Total, All Employment (c)	3,153,200	100.0%	4,047,700	100.0%	894,500	28.4%
California						
Agriculture	383,200	2.6%	422,900	2.3%	39,700	10.4%
Mining, Logging, and Construction	584,800	4.0%	933,200	5.2%	348,400	59.6%
Manufacturing	1,249,300	8.5%	1,336,900	7.4%	87,600	7.0%
Wholesale Trade	630,900	4.3%	668,400	3.7%	37,500	5.9%
Retail Trade	1,509,200	10.3%	1,614,600	8.9%	105,400	7.0%
Transportation, Warehousing, and Utilities	468,000	3.2%	850,000	4.7%	382,000	81.6%
Information	429,900	2.9%	608,200	3.4%	178,300	41.5%
Financial Activities	761,200	5.2%	844,700	4.7%	83,500	11.0%
Professional & Business Services	2,084,300	14.2%	2,872,700	15.9%	788,400	37.8%
Educational & Health Services	2,132,000	14.5%	2,936,300	16.2%	804,300	37.7%
Leisure & Hospitality	1,501,000	10.2%	1,931,600	10.7%	430,600	28.7%
Other Services, except Public Admin.	483,700	3.3%	563,300	3.1%	79,600	16.5%
Government (b)	2,448,400	16.7%	2,529,000	14.0%	80,600	3.3%
Total, All Employment (c)	14,666,200	100.0%	18,111,800	100.0%	3,445,600	23.5%

Notes:

(a) Includes all wage and salary employment.

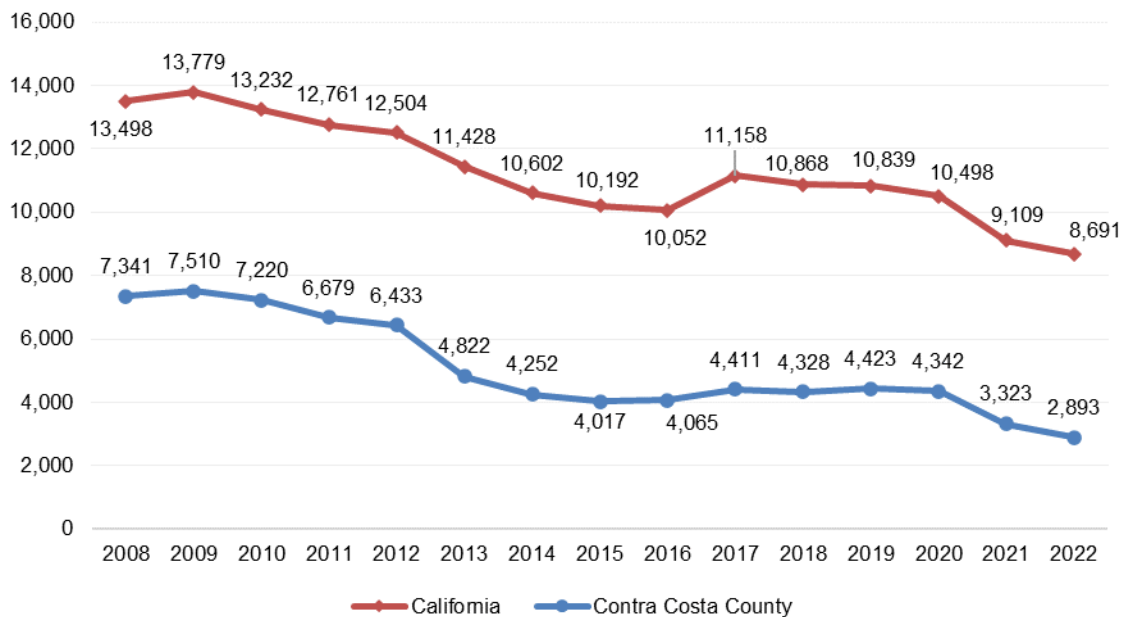
(b) Government employment includes workers in all local, state and Federal workers, not just those in public administration. For example, all public school staff are in the Government category.

(c) Totals may not sum due to independent rounding.

Sources: California Employment Development Department; BAE, 2023.

Although employment data by individual refinery are not publicly available due to confidentiality restrictions, data published for Contra Costa County and California show that employment at petroleum refineries (NAICS 324110) has been declining almost continuously since 2009. Between 2009 and 2022, the number of employees in the industry fell by 37 percent in California and 61 percent in Contra Costa County. Overall, the petroleum refineries in Contra Costa County lost a total of 4,617 jobs between 2009 and 2022, nearly matching the total number of petroleum refinery jobs that were lost statewide during the same period (-5,088 jobs).

Figure 1: Annual Petroleum Refineries (NAICS 324110) Employment, California and Contra Costa County, 2008-2022



Note: Employment counts are based on establishment-level data from the Quarterly Census of Earnings and Wages (QCEW). The QCEW provides detailed employment and wage information for workers covered by unemployment insurance programs.

Sources: California Employment Development Department; BAE, 2023.

Affected Industries

The proposed amendments to Rule 8-8 would affect five petroleum refineries (NAICS 324110). Table 3 below summarizes each refinery’s throughput capacity as of July 2023 based on information provided by the California Energy Commission. As of July 2023, there were four refineries operating in the region with a combined throughput capacity of approximately 666,900 barrels per day. Although the Marathon Martinez refinery is not currently in operation, the facility currently employs approximately 50 workers and will be converted to

process alternative, non-petroleum feedstocks by late 2023. Once it resumes operations, the converted Marathon Martinez facility will have a throughput capacity of 47,600 barrels per day. There are an estimated 2,730 workers directly employed at the five refineries.

Phillips 66 has announced that the company plans to wind down its petroleum refining operations at the Rodeo refinery as the facility transitions to processing alternative, non-petroleum feedstocks in the near future. Current plans indicate that the Rodeo facility would have a throughput capacity of 52,200 barrels per day once fully converted. Combined, the five affected refineries would have an estimated combined throughput capacity of approximately 646,500 barrels per day once the Marathon Martinez and Phillips 66 Rodeo refineries are both converted to produce renewable fuels.

Table 3: Bay Area Refineries

Facility	Current Crude Oil Capacity	% of CA Statewide	Est. Current Employees (b)	Estimated Future Production Capacity
	(Barrels/Day) (a)	Total		(Barrels/Day) (e)
Chevron U.S.A. Inc., Richmond Refinery	245,271	14.1%	1,200	245,271
PBF Energy, Martinez Refinery	156,400	9.0%	560	156,400
Valero Energy, Benicia Refinery	145,000	8.3%	440	145,000
Phillips 66, Rodeo San Francisco Refinery (c)	120,200	6.9%	480	52,200
Marathon Martinez, Golden Eagle Refinery	(d)	0.0%	50	47,600
Total, Bay Area Refineries	666,871	38.3%	2,730	646,471
Total California Crude Oil Capacity	1,740,371	100.0%		

Notes:

(a) California Energy Commission data current as of July 2023.

(b) Employment figures represent direct refinery employment; on-site leased employees and independent contractors are not included in direct employment figures.

(c) Although Phillips 66 has announced plans to stop refining petroleum at its Rodeo refinery as it transitions to refining biofuel in the near future, the company had not fully terminated petroleum refining operations as of July 2023. The facility would be reconfigured to produce 800 million gallons per year (approximately 52,200 barrels per day) of renewable diesel, renewable gasoline, and sustainable jet fuel in early 2024.

(d) The Marathon Martinez facility is currently idle and will be converted to produce renewable diesel fuel with capacity of 730 million gallons per year (approximately 47,600 barrels per day) by late 2023.

(e) Includes the future planned production capacities of the Phillips 66 and Marathon Martinez refineries.

Sources: California Energy Commission; BAE, 2023.

Refinery profit margins are extremely volatile and are driven by a number of different factors, including market conditions, refinery throughput, feedstock costs, product yields, maintenance turnarounds, and other operating costs. The IRS provides data on total sales receipts and net income for active petroleum refineries in the United States. Table 4 shows the annual profit to sales ratios for petroleum refineries in years 2011 through 2020. The average net income as a percent of sales averaged 4.2 percent over the 10-year period, ranging from a high of 6.4 percent in 2012 to a low of just 0.7 percent in 2020.

Table 4: IRS Financial Data for U.S. Refineries, 2011-2020

Tax Year	Number of Tax Returns		Total Receipts	Net Income	Net Income as %
	Total	w/ Net Income	for All Returns (\$000s)	((\$000s))	of Total Receipts (All Returns)
2011	202	162	\$2,405,497,424	\$128,065,951	5.3%
2012	217	159	\$2,396,760,591	\$152,741,615	6.4%
2013	207	67	\$2,202,152,058	\$123,956,446	5.6%
2014	203	161	\$2,085,986,718	\$103,077,549	4.9%
2015	143	116	\$1,329,920,999	\$67,026,843	5.0%
2016	127	98	(a)	\$29,811,715	(a)
2017	146	110	\$1,339,564,751	\$25,884,463	1.9%
2018	128	105	\$1,440,401,953	\$63,299,885	4.4%
2019	117	84	\$1,363,164,599	\$43,772,501	3.2%
2020	120	79	\$904,566,037	\$6,288,942	0.7%
10-Year Average	161	114			4.2%

Note:

(a) IRS data suppressed to avoid disclosure of information for specific corporations.

Sources: International Revenue Service, Statistics of Income--Corporation Income Tax Returns, 2011-2020; BAE, 2023.

In 2020, the COVID-19 pandemic dramatically affected demand and prices for refined petroleum products, putting significant downward pressure on refinery production levels and profit margins. The rapid drop in demand forced many refineries to limit or suspend operations, which led to substantial and widespread financial losses in the sector. Table 5 illustrates how the onset of the COVID-19 pandemic affected the quarterly revenues, expenses, and profits reported by U.S. corporations in the petroleum and coal products manufacturing industry subsector (NAICS 324), which includes petroleum refineries. As shown, quarterly operating revenues fell drastically beginning in early 2020 resulting in significant operating losses throughout 2020. Aggregate quarterly net losses (after income taxes) in the fourth quarter of 2020 totaled \$22 billion, equating to roughly thirteen percent of aggregate sales during the quarter.

Table 5: Quarterly Financial Report Aggregate Statistics for U.S. Petroleum and Coal Products Corporations, 2019 Q1-2020 Q4 (a)

Petroleum and Coal Products Manufacturing Subsector (NAICS 324)	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4
Statements of Income								
	(\$ Millions)							
Net sales, receipts, and operating revenues	\$225,181	\$261,771	\$245,505	\$244,913	\$208,206	\$119,047	\$163,113	\$168,639
Depreciation, depletion, & amortization of property, plant, and equipment	\$9,118	\$8,961	\$9,331	\$9,742	\$10,292	\$9,795	\$9,494	\$9,779
All other operating costs and expenses	\$213,360	\$245,412	\$229,809	\$229,564	\$198,063	\$113,294	\$157,136	\$166,250
Income (loss) from operations	\$2,702	\$7,399	\$6,366	\$5,607	(\$148)	(\$4,042)	(\$3,517)	(\$7,390)
Interest expense	\$2,619	\$2,608	\$2,605	\$2,666	\$2,282	\$2,492	\$2,247	\$2,181
All other nonoperating income (expense)	\$9,164	\$9,204	\$2,803	(\$2,286)	(\$14,798)	(\$8,740)	\$554	(\$21,288)
Income (loss) before income taxes ..	\$9,247	\$13,995	\$6,563	\$655	(\$17,228)	(\$15,275)	(\$5,211)	(\$30,858)
Provision for current & deferred income taxes ..	\$972	\$1,961	\$626	(\$2,256)	(\$3,331)	(\$2,517)	(\$1,744)	(\$8,858)
Income (loss) after income taxes	\$8,275	\$12,034	\$5,937	\$2,911	(\$13,897)	(\$12,758)	(\$3,467)	(\$22,001)
Operating Ratios								
	(% of Net Sales)							
Net sales, receipts, and operating revenues	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Depreciation, depletion, & amortization of property, plant, and equipment	4.05%	3.42%	3.80%	3.98%	4.94%	8.23%	5.82%	5.80%
All other operating costs and expenses	94.75%	93.75%	93.61%	93.73%	95.13%	95.17%	96.34%	98.58%
Income (loss) from operations	1.20%	2.83%	2.59%	2.29%	-0.07%	-3.40%	-2.16%	-4.38%
Interest expense	1.16%	1.00%	1.06%	1.09%	1.10%	2.09%	1.38%	1.29%
All other nonoperating income (expense)	4.07%	3.52%	1.14%	-0.93%	-7.11%	-7.34%	0.34%	-12.62%
Income (loss) before income taxes ..	4.11%	5.35%	2.67%	0.27%	-8.27%	-12.83%	-3.19%	-18.30%
Provision for current & deferred income taxes ..	0.43%	0.75%	0.25%	-0.92%	-1.60%	-2.11%	-1.07%	-5.25%
Income (loss) after income taxes	3.67%	4.60%	2.42%	1.19%	-6.67%	-10.72%	-2.13%	-13.05%

Notes:

(a) The Quarterly Financial Report survey program collects and publishes quarterly aggregate statistics on the financial results of U.S. corporations in the manufacturing, mining, wholesale trade, and selected service industries. The financial data in the QFR are based on the accounting conventions adopted for financial reporting purposes, which may differ from those used for reporting income to the Internal Revenue Service (IRS).

Sources: U.S. Census Bureau, Quarterly Financial Report, 2019-2022; BAE, 2023.

In 2021 and 2022, demand and prices for refined petroleum products rose dramatically, leading to significantly improved market conditions for petroleum refineries. BAE reviewed the 2022 annual reports for the five companies that own refineries in the region to assess the recent financial performance of the facilities potentially affected by the proposed Rule. Table 6 shows the net income as a percent of total revenues reported by each of the five petroleum companies based on information obtained from annual reports. As shown, reported profit margins ranged from 6.5 percent to 14.5 percent of total sales for all business segments at these companies in 2022.

Table 6: Reported Net Income as a Percent of Total Sales, 2022

All Business Segments (a)	Chevron	PBF Energy	Valero	Phillips 66	Marathon
Total Reported Net Income (\$ Millions)	\$35,608	\$3,709	\$11,879	\$11,391	\$16,050
Total Revenues and Other Income (\$ Millions)	\$246,252	\$46,781	\$176,383	\$175,702	\$179,952
Net Profit Margin (%)	14.5%	7.9%	6.7%	6.5%	8.9%

Note:

(a) Table shows reported net income and total revenues for all operating segments at each company. Most companies only report net income for all segments combined and use other financial measures to evaluate the financial performance of their downstream refinery operations. These reported non-GAAP financial measures are defined differently across companies and are not directly comparable to the net income measure that is presented in accordance with GAAP.

Sources: Annual Corporate Reports, 2022; BAE, 2023.

SOCIOECONOMIC IMPACTS

This section summarizes the annualized compliance costs associated with the proposed Rule 8-8 amendments and assesses whether the annualized compliance costs would significantly burden the affected facilities based on a 10 percent of profits threshold. The analysis is based on publicly available information from a variety of sources, including corporate annual reports, the U.S. Energy Information Administration, the Internal Revenue Service, and the Air District.

Compliance Costs

Air District staff has estimated the annualized costs for each of the five facilities, as shown below in Table 7. As shown, affected facilities would incur costs from identification and tagging, annual inspections, and annual sampling. Total estimated annual compliance costs range from approximately \$84,000 to \$153,000 depending on the facility.

Table 7: Annualized Compliance Costs for Facilities Affected by Proposed Rule 8-8 Amendments

	<u>Chevron</u>	<u>PBF Energy</u>	<u>Valero</u>	<u>Phillips 66</u>	<u>Marathon</u>
Identification & Tagging (Annualized)	\$3,740	\$2,385	\$1,859	\$1,833	\$2,618
Annual Inspection Costs	\$131,711	\$83,987	\$65,469	\$64,548	\$92,217
Annual Sampling Costs	\$18,000	\$18,000	\$18,000	\$18,000	\$18,000
Total Annual Costs (a)	\$153,450	\$104,372	\$85,328	\$84,380	\$112,836

Note:

(a) Totals may not sum due to rounding.

Sources: BAAQMD; BAE, 2023.

Impacts on Affected Industries

As summarized above, the five affected refineries are expected to have a future combined throughput capacity of 646,500 barrels per day once the Marathon Martinez and Phillips 66 Rodeo refineries are fully converted to produce renewable fuels. Based on average utilization rates and average processing gains for typical U.S. refineries, the five affected refineries are expected to produce an estimated 595,800 barrels of refined products per day. BAE used projected long-term wholesale prices for refined products provided by the U.S. Energy Information Administration to estimate the annual revenues from sales of refined products produced at each facility. For the purposes of estimating net income, the analysis uses the 10-year average profit margin for U.S. refineries based on the IRS corporation income tax data shown above in Table 4, or 4.2 percent. Table 8 shows the projected net income from sales of refined products and the annualized compliance costs as a percentage of profits for each affected facility based on these assumptions. As shown, annualized compliance costs are well below the 10 percent burden threshold for all affected establishments. As a share of annual profits, annualized compliance costs range from 0.04 percent to 0.14 percent for affected refineries.

Table 8: Compliance Cost Impacts on Refinery Net Income

	Chevron	PBF Energy	Valero	Phillips 66	Marathon
Assumed Operable Capacity (barrels/day) (a)	245,271	156,400	145,000	52,200	47,600
Est. Effective Throughput (barrels/day) (b)	212,650	135,599	125,715	45,257	41,269
Est. Refinery Output (barrels/day) (c)	226,047	144,142	133,635	48,109	43,869
Est. Refined Product Sales Revenues (d)	\$9,735,840,000	\$6,208,175,000	\$5,755,661,000	\$2,072,038,000	\$1,889,445,000
Estimated Net Income (e)	\$408,905,000	\$260,743,000	\$241,738,000	\$87,026,000	\$79,357,000
Total Annual Compliance Costs	\$153,450	\$104,372	\$85,328	\$84,380	\$112,836
Compliance Costs as % of Annual Profit	0.04%	0.04%	0.04%	0.10%	0.14%

Assumptions

Average Utilization Rate (b)	86.70%
Average Processing Gain (c)	6.30%
Avg. Refined Product Sale Price per Barrel (f)	\$118
10-year Average Profit Margin (e)	4.2%

Notes:

- (a) The assumed operable capacities for the Phillips 66 refinery and Marathon Martinez refinery are based on the planned future production capacities shown in Table 3.
- (b) Effective throughput estimate based on the average utilization rate for refineries in the West Coast (PADD 5) region in 2022, based on data provided by the U.S. Energy Information Administration.
- (c) Due to processing gain, the total volume of refinery output is typically greater than the volume of input. According to the U.S. Energy Information Administration, the average processing gain at U.S. refineries was approximately 6.3% in 2022.
- (d) Represents estimated revenues from sales of refined products based on an average refined product sale price of \$118/barrel. For the purposes of estimating sales, refined product sales volumes are assumed to equal annual refinery output. Refineries may generate revenues from other sources, such as through sales of raw materials or sales from inventory; these revenues generally make up a small share of total revenues and are not estimated in this table.
- (e) Net income estimates are based on the 10-year average profit margin reported for U.S. refineries in years 2011 through 2020 shown above in Table 4.
- (f) BAE estimate based on long-term wholesale petroleum price projections from the U.S. Energy Information Administration's Annual Energy Outlook 2023.

Sources: U.S. Energy Information Administration; California Energy Commission; IRS Corporation Income Tax Returns, 2011-2020; BAE, 2023.

Impacts on Small Businesses

According to California Government Code 14835, a small business is any business that meets the following criteria:

- Must be independently owned and operated;
- Cannot be dominant in its field of operation;
- Must have its principal office located in California;
- Must have its owners (or officers in the case of a corporation) domiciled in California; and
- Together with its affiliates, be either:
 - A business with 100 or fewer employees, and average annual gross receipts of \$15 million or less over the previous three tax years, or
 - A manufacturer with 100 or fewer employees

As none of the affected facilities are small businesses based on these criteria, small businesses are not disproportionately affected by the proposed amendments to Rule 8-8.