



Community Presentation

Valero Benicia Refinery

Agenda

- 1 Valero Energy Corporation
- 2 Basics of Refining
- 3 Benicia Refinery
- 4 Being a Good Neighbor

Valero Energy Corporation



WORLD'S LARGEST INDEPENDENT REFINER

WORLD'S LARGEST PRODUCER OF LOW-CARBON TRANSPORTATION FUELS

RENEWABLE DIESEL
WORLD'S 2ND LARGEST RENEWABLE DIESEL PRODUCER

ETHANOL
WORLD'S 2ND LARGEST CORN ETHANOL PRODUCER

[Click here to watch the Valero Energy Corporation video](#)

GROWTH PROJECTS FOCUSED ON COST CONTROL, OPTIMIZATION AND MARGIN EXPANSION



15 lowest cost refineries producer | **3.2** million barrels per day of high-complexity throughput capacity | advantaged refining and logistics assets well positioned for feedstock and product optimization | reliable wholesale supply of 1.2 million barrels per day or over 50% of our light products



EXECUTING A VIABLE PATH TO REDUCE AND DISPLACE GREENHOUSE GAS (GHG) EMISSIONS

HIGH RETURN PROJECTS WITH PRODUCTS PLACED INTO HIGH GROWTH, LOW-CARBON MARKETS



DIAMOND GREEN DIESEL (DGD)

1.2 billion gallons per year of renewable diesel | **50** million gallons per year of renewable naphtha | low-carbon intensity renewable products produced from recycled animal fats, used cooking oil and inedible corn oil

up to **80%** reduction in GHG emissions



SUSTAINABLE AVIATION FUEL (SAF) PRODUCTION TO BEGIN IN 2025

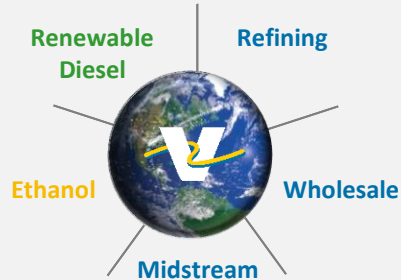
DEVELOPING ECONOMIC PROJECTS TO FURTHER REDUCE CARBON INTENSITY



12 ethanol plants | **1.6** billion gallons per year production capacity | high-octane renewable fuel with lower CO₂ emissions | **at least 30%** reduction in GHG emissions | existing logistics assets well positioned to support export growth



REDUCING CARBON INTENSITY THROUGH ANNOUNCED CARBON SEQUESTRATION PROJECT



Best-in-class producer of fuels and products that are essential to modern life

Our Refining Capacity and Nelson Complexity

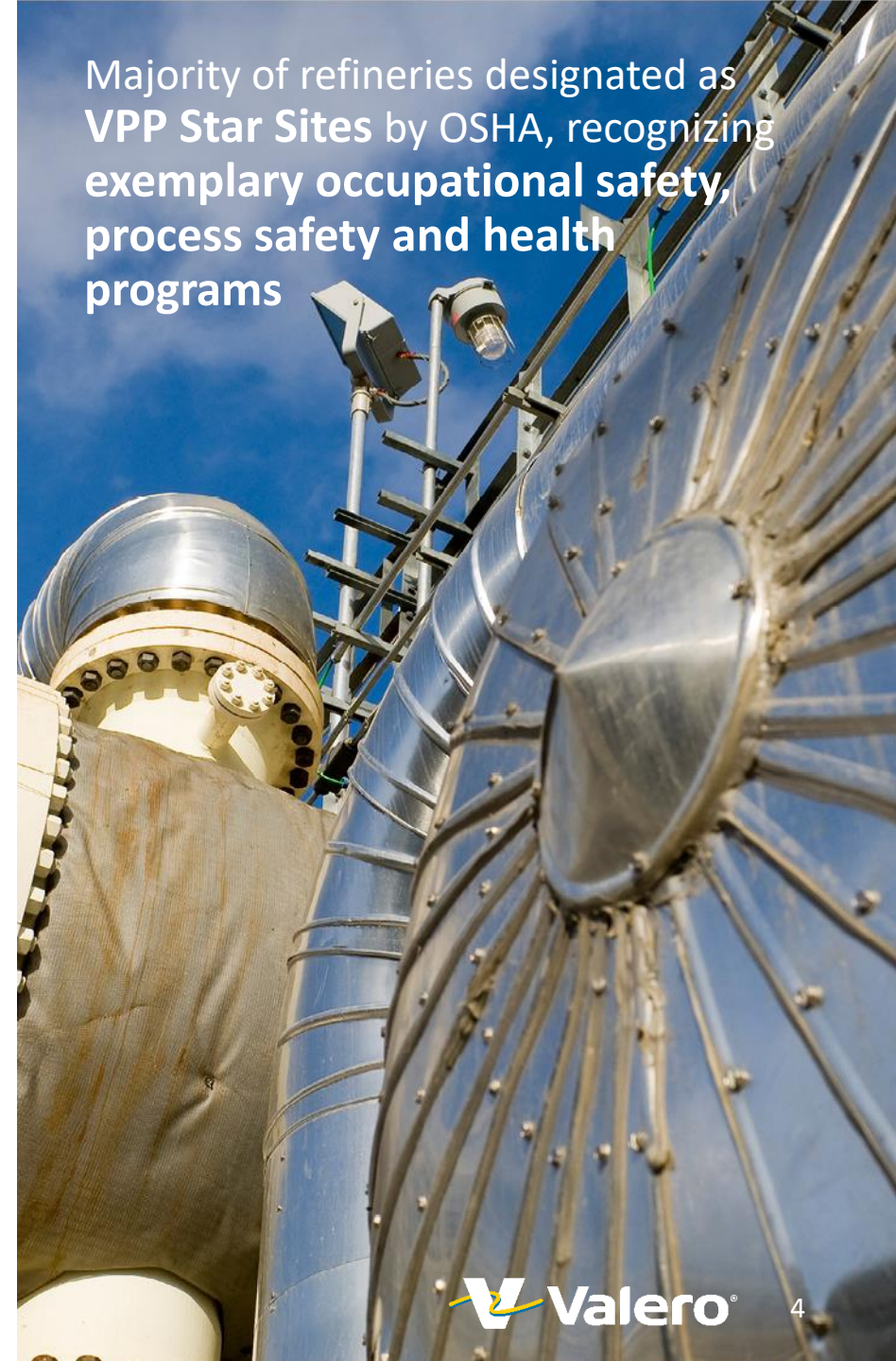
Refinery	Capacities (mbpd) ⁽¹⁾		Nelson Complexity Index ⁽¹⁾
	Throughput	Crude	
Corpus Christi ⁽²⁾	370	290	14.4
Houston	255	205	8.0
Meraux	135	125	9.7
Port Arthur	435	385	13.7
St. Charles	340	215	17.4
Texas City	260	225	11.1
Three Rivers	100	89	13.2
U.S. Gulf Coast	1,895	1,534	12.9⁽³⁾
Ardmore	90	86	12.1
McKee	200	195	8.3
Memphis	195	180	7.9
U.S. Mid-Continent	485	461	8.9⁽³⁾
Pembroke	270	210	10.1
Quebec City	235	230	7.7
North Atlantic	505	440	8.8⁽³⁾
Benicia	170	145	16.1
Wilmington	135	85	15.8
U.S. West Coast	305	230	16.0⁽³⁾
Total	3,190	2,665	11.8⁽³⁾

⁽¹⁾ Capacities and Nelson complexity indices as of April 2023.

⁽²⁾ Represents the combined capacities of two refineries—Corpus Christi East and Corpus Christi West.

⁽³⁾ Weighted average.

Majority of refineries designated as VPP Star Sites by OSHA, recognizing exemplary occupational safety, process safety and health programs

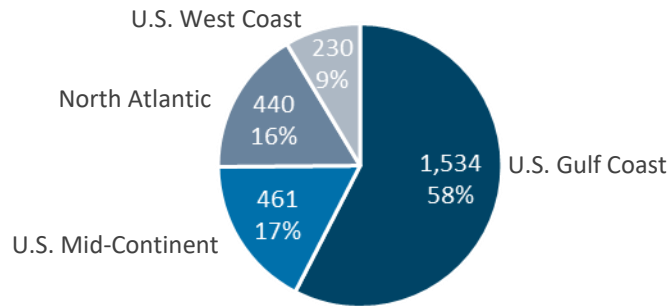


Map of Operations

Strong Presence in Advantaged U.S. Gulf Coast and Mid-Continent

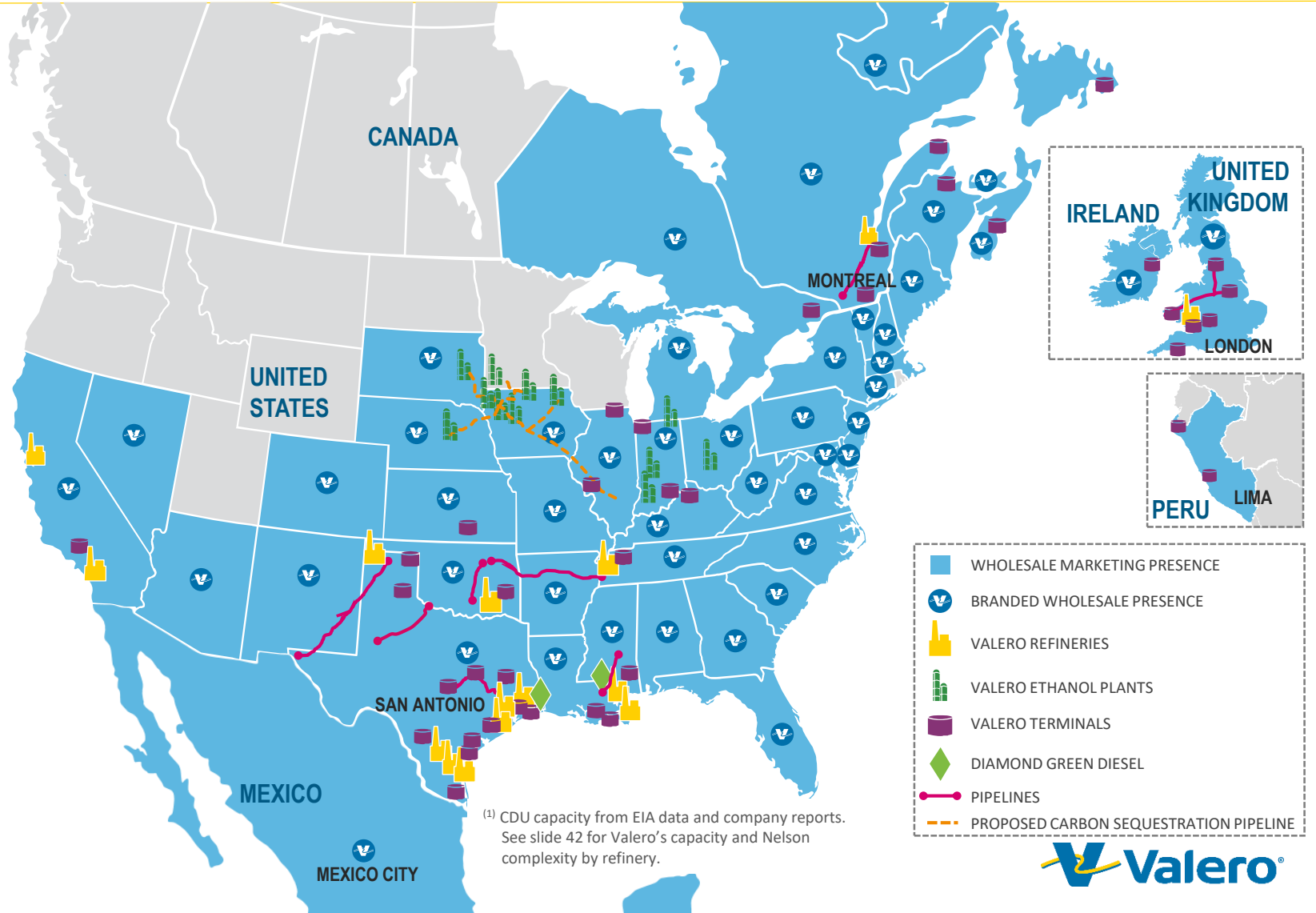
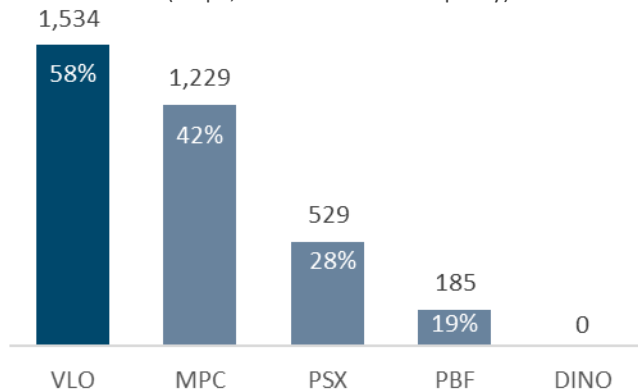
2.7 mmbpd Refining Capacity

(mmbpd, % of overall crude capacity)



Gulf Coast Refining Capacity⁽¹⁾

(mmbpd, % of overall crude capacity)



⁽¹⁾ CDU capacity from EIA data and company reports. See slide 42 for Valero's capacity and Nelson complexity by refinery.

Renewables

Ethanol

- Ethanol is an environmentally friendly, high-octane renewable fuel produced by fermenting converted corn starch with yeast.
- It is used as a blending agent with gasoline & the entire kernel of corn is converted to ethanol or distillers grains.
- Ethanol lowers life cycle greenhouse gas emissions up to 30% compared to non-blended gasoline.

[Click here to learn more about the Basics of Ethanol!](#) & [Click here to watch a video about ethanol!](#)



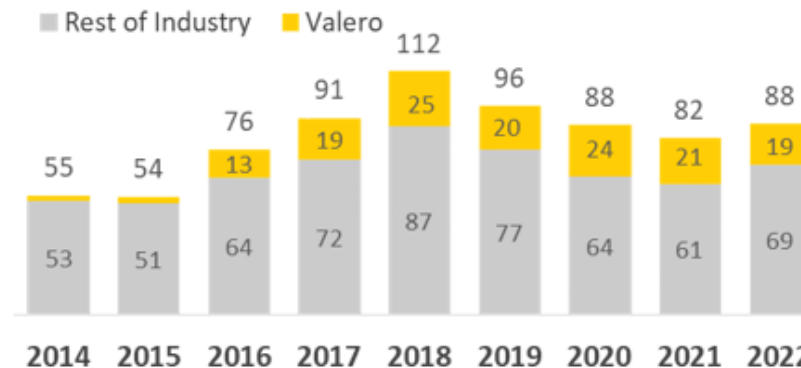
- 12 plants with **1.6 billion gallons** annual production capacity
 - Dry mill production process, where corn is ground into flour and mixed with water before fermentation
 - **Efficient plants with scale**, located in the corn belt
 - Operational best practices transferred from refining
 - Increasing production of lower carbon intensity **fiber cellulosic ethanol**
- **Cost advantaged** versus the industry



- Ethanol will remain a significant part of the **domestic fuel mix**
- Global renewable fuel mandates should drive **export growth**, such as Canada's new CFR regulation
- Executing **carbon sequestration projects**
 - **45Q Tax Credit** provides economic incentive
 - **LCFS** provides higher value for the **lower carbon intensity ethanol**
- Evaluating **Ethanol-to-Jet** project after startup of carbon sequestration project

Ethanol

U.S. Fuel Ethanol Exports
(mbpd)



Totals may not crossfoot due to rounding.

Source: U.S. Energy Information Agency (EIA) through November 2022, U.S. Census Bureau for December 2022.

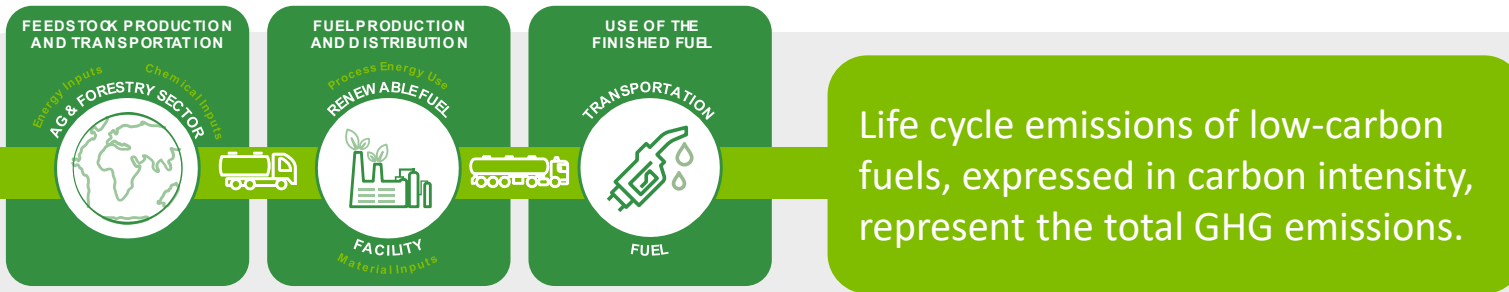
Renewables

Renewable Diesel

- Renewable diesel (RD) is a low-carbon liquid transportation fuel that is interchangeable with petroleum-based diesel and is produced predominantly made from waste feedstocks such as rendered and recycled materials that includes animal fats, used cooking oils, and other vegetable oils which have low carbon intensity (CI) scores.
- Diamond Green Diesel (DGD) is a joint venture with Darling Ingredients Inc. that began operations in 2013 and Valero operates two DGD plants located at the St. Charles (Louisiana) and Port Arthur (Texas) refineries.

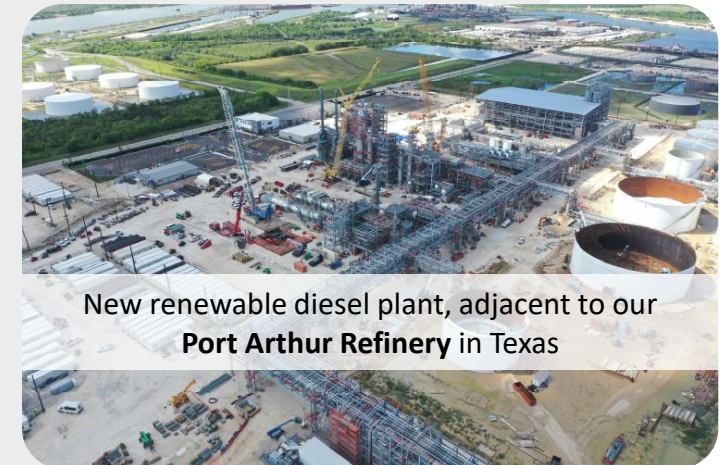
[Click here to learn more about the Basics of Renewable Diesel](#)

Renewable Diesel Offers Up to 80% Lower Life Cycle GHG Emissions Versus Diesel



Valero is the World's 2nd Largest Renewable Diesel Producer:

- Current annual production capacity of **700 million gallons** of renewable diesel and **30 million gallons of renewable naphtha**.
- New plant expected to startup in Q4 2022 adjacent to our refinery in Port Arthur, Texas, will **increase capacity to 1.2 billion gallons** of renewable diesel and **50 million gallons** of renewable naphtha annually.
- Uses **animal fats, used cooking oil** and **inedible corn oil** as feedstocks to produce renewable diesel sold in the U.S., Canada, and Europe.
- Renewable diesel is **100% compatible** with **existing infrastructure** and **engines**.
- Capability to process **100% waste feedstocks provides margin advantage** over peers.



Vision and Guiding Principles

Valero's Vision

The world requires reliable, affordable and sustainable energy, and we see this as an opportunity.

We are committed to advancing the future of energy through innovation, ingenuity and unmatched execution.



Safety

Safety is our foundation for success.



Environment

We are committed stewards of the environment.



Community

We will be a good neighbor by sharing our success with the communities where we live and work through volunteerism, charitable giving and the economic support of being a good employer.



Employees

We consider our employees a competitive advantage and our greatest asset. We foster a culture that supports diversity and inclusion, and we provide a safe, healthy and rewarding work environment with opportunities for growth.



Stakeholders

We view our stakeholders as partners to whom we seek to deliver operational excellence, disciplined management of capital and long-term value on a foundation of strong governance and ethical standards.

Environmental, Social, Governance (ESG)

About ESG

At Valero, we are committed to consistent and proactive dialogue with our stockholders, employees, neighboring communities, business partners, governments and other stakeholders.



Environment:

- Low-carbon fuels
- GHG emissions disclosures and targets
- Environmental management systems
- Energy efficiency
- Biodiversity efforts
- Water management
- Recycling processes
- Emergency preparedness

Social:

- Health and safety
- Working conditions
- Employee benefits
- Diversity and inclusion
- Human rights
- Impact on local communities
- Local economic development

Governance:

- Ethical standards
- Board governance
- Corporate governance and policies
- Stakeholder engagement
- Shareholder rights
- Pay for performance
- Political engagement

Updated ESG reports and disclosures are available on our website at www.valero.com > Investors > ESG

A Commitment to Environmental Stewardship, Beyond Regulations

E

ENVIRONMENTAL

Reducing, Reusing, Recycling, and Repurposing

Flare-gas recovery systems result in more than **96% flaring-free** operations



Recycled more than **17 times the amount of fresh water** consumed in refining operations in 2021



Real-time air quality screenings are conducted at **refineries and fence-line communities**



Cogeneration units and expanders can **offset enough electricity** to power a city the size of **San Francisco**



Carbon Capture

Our Port Arthur refinery became **the first industrial site** in the U.S. to **host a large scale carbon capture project**, with **more than 1 million metric tons captured each year**



Developing a large-scale **carbon capture project** connecting to eight of our **ethanol plants**, providing **an economic path to reduce carbon intensity** of our ethanol **by more than 40%**

Refining

Low-carbon Fuels

Renewable diesel **reduces life cycle GHG emissions up to 80%**⁽¹⁾⁽²⁾



A drop-in fuel, renewable diesel is primarily produced from **used cooking oil, animal fats and inedible corn oil**

High-octane low-carbon fuel, ethanol reduces **life cycle GHG emissions by at least 30%**⁽²⁾



Cellulosic ethanol: Using **enzymes to convert fiber** into fuel further reduces carbon intensity to **high 20s**

ESG Disclosures

- **Annual ESG Report**, including **SASB** report, **EEO-1**, **GHG emissions Scope 1 and 2** and **Net Scope 3 Intensity** and **independent verification**
- **2022 TCFD Report**, including **independent assessment** of Valero's **resiliency** under IEA's Net Zero by 2050 Scenario and value chain analysis of Scope 3 emissions
- **Climate-Lobbying Alignment analysis**
- **Environmental Justice Audit and Racial Equity reports**

See details at [Valero.com](https://www.valero.com) > Investors > ESG

See slides 25-26 for notes regarding this slide.

⁽¹⁾ 100% used cooking oil feedstock results in a carbon intensity score of 20 under California's LCFS program.

⁽²⁾ Versus the comparable petroleum based fuel.

Sharing Our Success with the Communities where we Operate with Strong Governance and Ethical Standards

S

SOCIAL

Diversity, Equity and Inclusion (DEI) and Employee Retention

37% minorities in the U.S.

30% professional **women**

EEO-1 Report disclosed

DEI team focused on recruitment, training and development, compensation, benefits, and retention, **with reporting responsibilities to the Board**

\$209,277 total median employee pay

\$1.3 billion global direct compensation in 2022



Community Investments

\$68 million generated in 2022 for economically disadvantaged communities to support access to:



Education
35%



Health Care
29%



Basic Needs
29%



Civic
7%

G

GOVERNANCE

Board of Directors

7 of 11 directors represent diversity of race or gender

4 of 11 are women



10 members are independent

4 fully independent committees, including a **Sustainability and Public Policy Committee**

Board and Committee oversight of risks and compliance, including climate change risks

ESG-Related Risk

Our **Board of Directors** provides responsible **oversight** of risks related to

- Climate
- Health and safety
- Sustainability
- Social, community and public policy initiatives
- Political activities
- Compliance
- Cybersecurity

Executive Compensation Alignment with ESG

All-Employee Bonus



Performance Shares

In addition to TSR, an **Energy Transition performance measure** modifies performance shares, incorporating:

- Annual progress versus the 2035 GHG emissions reduction target
- Percentage of growth capital deployed for low-carbon projects

See slides 25-26 for notes regarding this slide.

A wide-angle photograph of an industrial refinery or chemical plant. The scene is filled with numerous tall, green cylindrical distillation columns and complex piping systems. In the background, there are rolling hills under a clear blue sky. The overall lighting is bright, suggesting a sunny day.

Key Issues - Local

Climate Policy

Many localities are promoting the adoption of climate policies. These policies are promoted as aspirational roadmaps that outline specific activities designed to reach the same goals of the Paris Agreement and address the climate challenge. There are challenges which are often not addressed by local climate policies, but all stakeholders should consider.

Goal: Valero advocates for a full understanding of the risks and complexities of local climate policies. We educate policy makers on cost effectiveness and feasibility of policies to reduced carbon emissions, including promoting the use of low carbon liquid fuels such as renewable diesel, which has a smaller carbon footprint. Valero will continue to pursue our goal to be the best operator in the business while addressing global climate change risks and protecting our employees and the communities where we work and live.

- Where appropriate, Valero has proposed existing low-carbon alternatives, such as renewable fuels produced at our facilities in the U.S., that may not have been previously considered. Any mandate or restriction should ensure the cost of doing business stays reasonable and competitive to support continued economic development in our communities.



Low-Carbon Fuels and Projects

Innovations in Low-Carbon Fuels Under Development or Evaluation

Liquid fuels are the affordable solution to reduce transportation GHG emissions in a reliable manner.



SUSTAINABLE AVIATION FUEL



RENEWABLE PROPANE



RENEWABLE DIESEL



CARBON CAPTURE AND STORAGE



LOW-CARBON HYDROGEN



RENEWABLE NAPHTHA



FIBER CELLULOSIC ETHANOL



TAILPIPE CO₂ ON BOARD CAPTURE



Sustainable Aviation Fuel (SAF)

Evaluating the capability to add SAF production to the renewable diesel facility in Port Arthur.

Alcohol-to-jet (ATJ) is another process to produce SAF using ethanol as feedstock.



Low-carbon Hydrogen

When used in the production of transportation fuels, low-carbon hydrogen results in low-carbon fuels valued at a premium in international markets.



Renewable Naphtha

Produced at our renewable diesel plants, renewable naphtha is either a gasoline blendstock or a feedstock for plastic production. It can also be used in the production of low-carbon hydrogen.



Tailpipe CO₂ Onboard Capture System

Supporting Southwest Research Institute (SwRI) in the development of a solid filtration membrane to remove CO₂ from the tailpipe of internal combustion engine vehicles.

Preliminary testing of this system passively removes more than 90% of the expected vehicle CO₂ emissions.

Expanding Our Competitive Advantage with Sustainable Aviation Fuel (SAF)

DGD Port Arthur SAF Project

- **Large-scale SAF project** at the recently constructed DGD Port Arthur plant is expected to be completed in 2025
 - The plant will have the capability to upgrade up to 50% of its current renewable diesel production capacity to SAF, or **~235 million gallons per year**
 - The project's **estimated cost is \$315 million**, with half of that attributable to Valero
 - Project scope includes a heater, a fractionation unit to separate the SAF and renewable diesel product streams and additional product tankage
- Project is expected to **exceed our minimum return threshold** of an after-tax IRR of 25%
 - Under the Inflation Reduction Act (IRA), SAF gets a higher Clean Fuel Production Credit value than renewable diesel, resulting in **higher margin for SAF** production
- Valero is independently evaluating an **Ethanol-to-Jet** process that would convert ethanol from our ethanol plants that have carbon sequestration capability to sustainable aviation fuel



Basics of Refining

Energy Matters: Refining 101 Series



[Basics of Refining and Optimization](#)

Click on the green hyperlinks to learn more about each subject

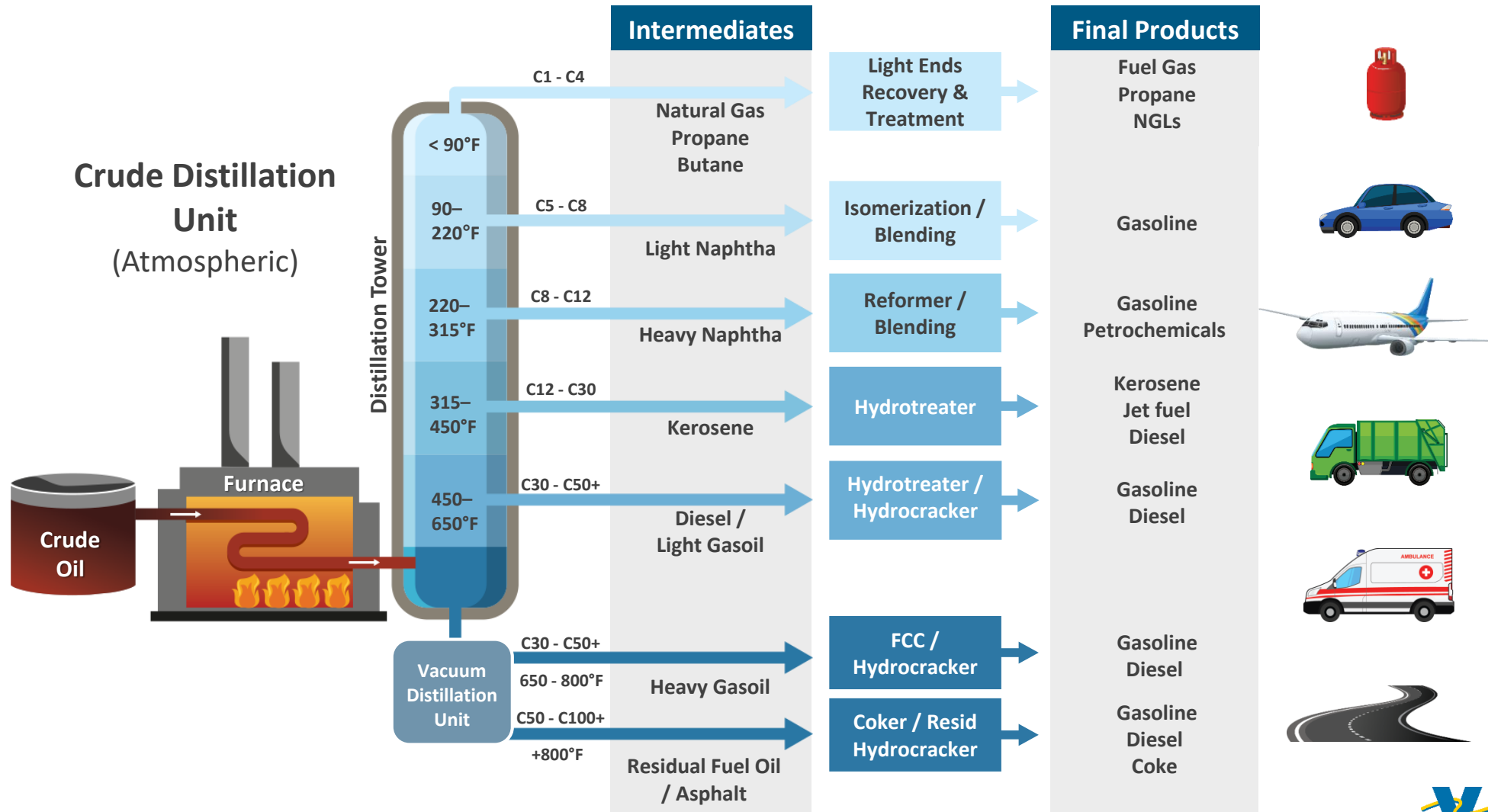
[Crude Basics](#)

[Distillation Basics](#)

[Refinery Configurations](#)

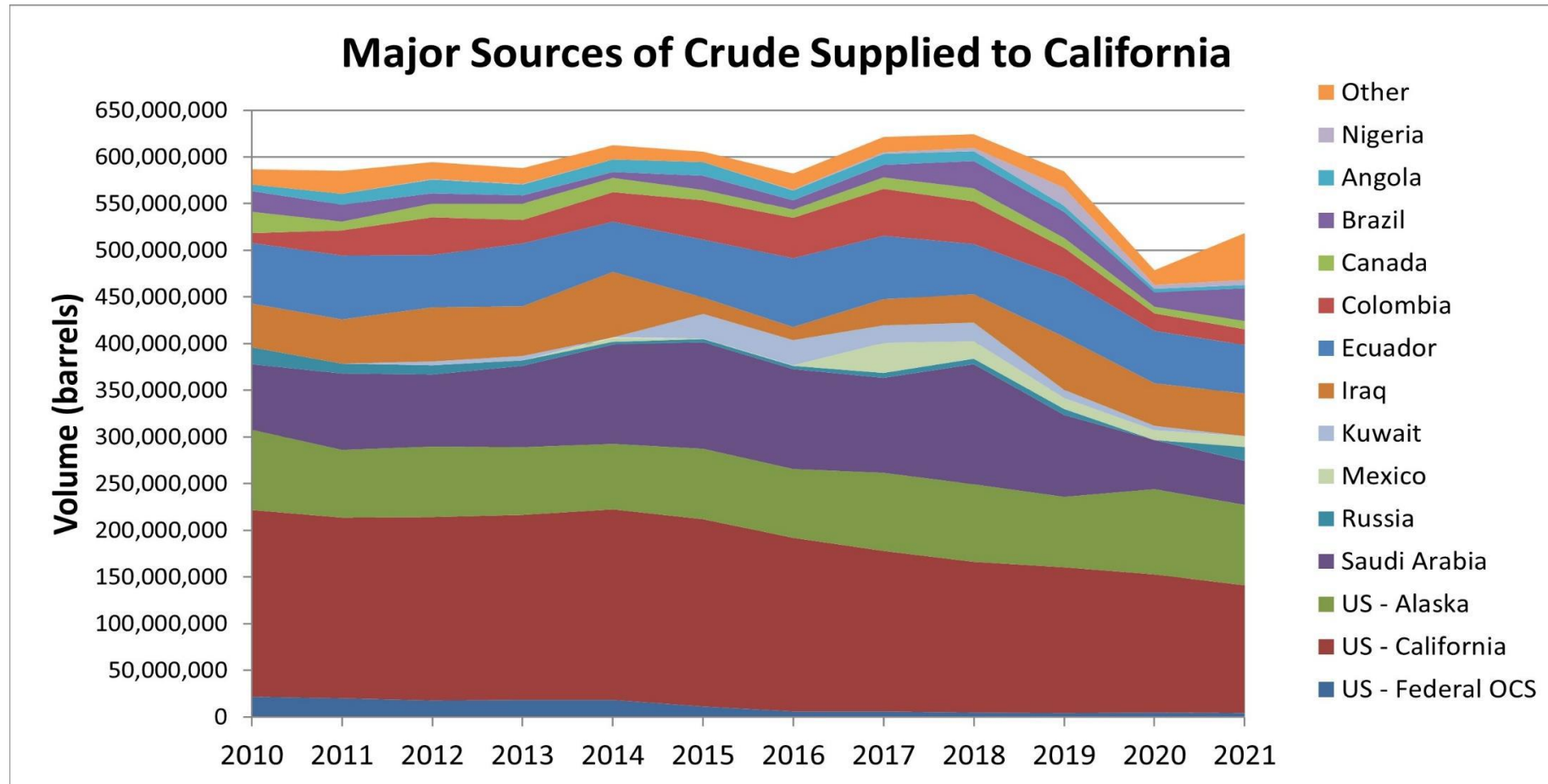
Basics of Refining

Refining Concepts



Refining in California

California Crude Oil Supply

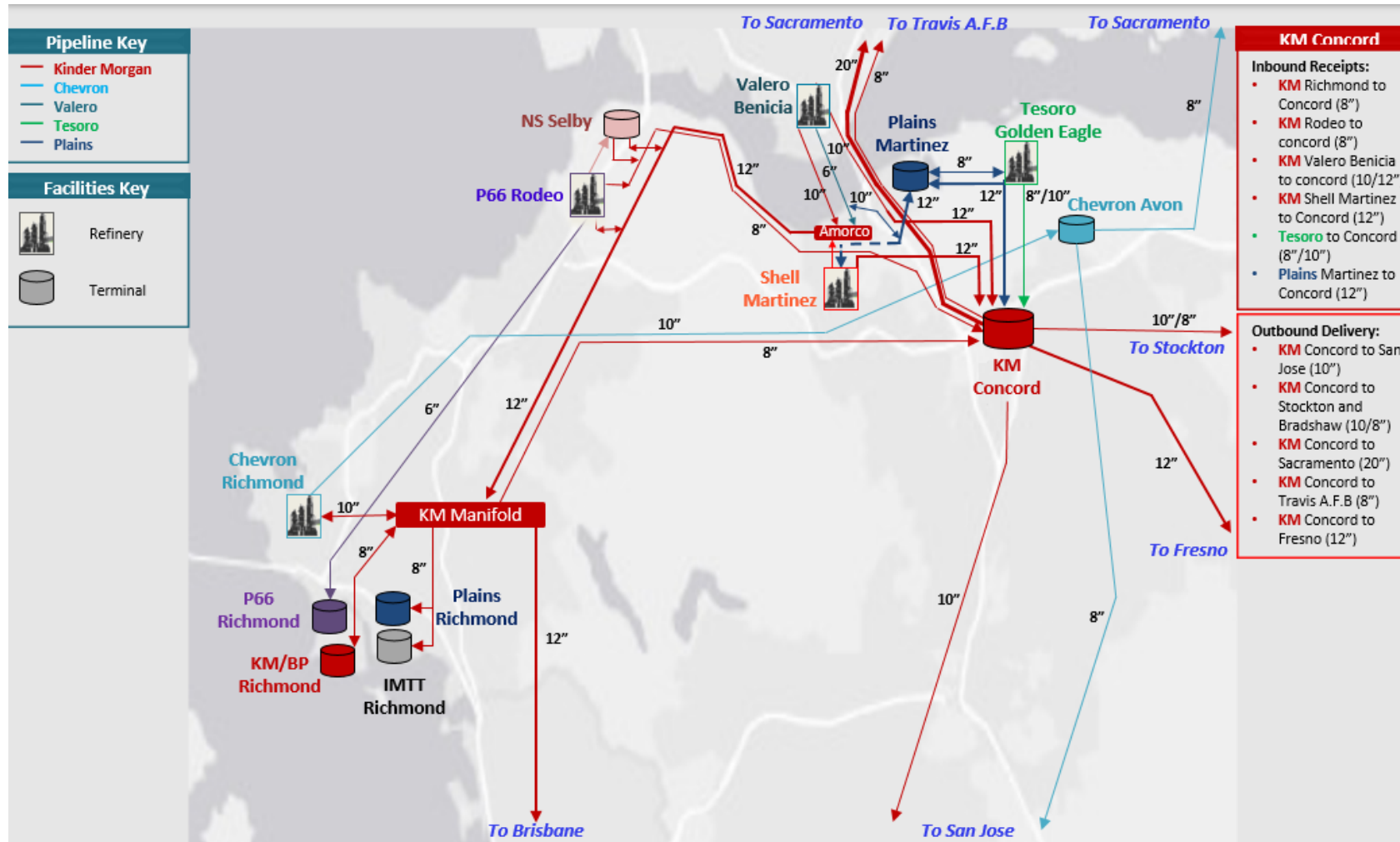


In 2020, only 31% of the 478 million barrels of crude supplied to CA was produced in State.

<https://ww2.arb.ca.gov/resources/documents/lcfs-crude-oil-life-cycle-assessment>

Refining in California

Northern California Products Pipeline



Benicia Refinery

Facts

Refinery Overview

- Valero acquired the Benicia Refinery in 2000
- Today it is one of the most high conversion & highly complex refineries in the United States
- Currently, the refinery processes medium-sour crude slates from the San Joaquin Valley in California and the Alaska North Slope, along with foreign sour crudes.
- 165,000 BPD capacity
- ~430 employees
- Green/gold paint scheme intended for refinery to “blend-in” with local landscape
- Youngest refinery in California

City of Benicia

- Population 28,000; former state capital in 1853
- Valero is a major landowner with nearly 900 acres and 400+ acres of buffer
- Refinery and associated BIPA facilities fees and taxes produce millions of dollars towards the City’s General Fund

Industry Overview

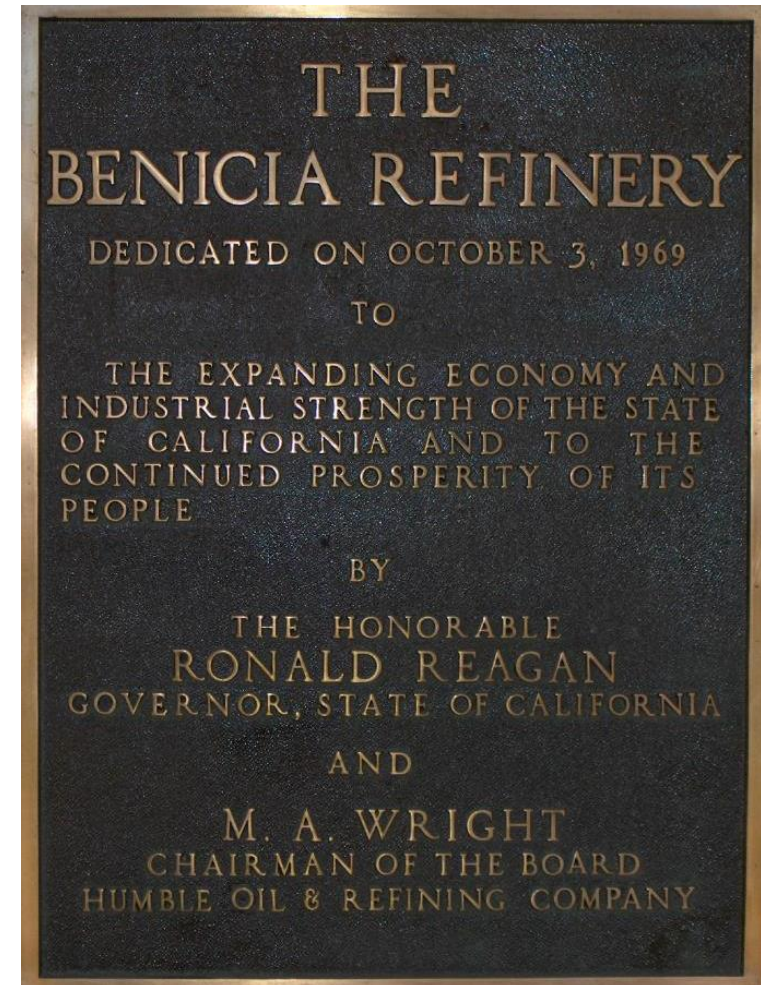
- [Western States Petroleum Association Regional Economic Impact Factsheet](#)



Benicia Refinery

Timeline

- 1966-8** - Refinery built on lands occupied by former U.S. Army Arsenal dating back to 1860's. Specifically designed and constructed to process Alaskan North Slope (ANS) crude for a rapidly growing California economy with heavy gasoline demand
- 1969** - First ANS to crude unit; crude unit at 63 MBPD
- 1996** - Installed facilities to produce reformulated gasoline
- 2000** - Valero acquires the refinery and California retail marketing assets from Exxon
- 2001** - Valero acquires adjacent asphalt plant from Huntway
- 2002** - COGEN unit commissioned
- 2006** - Earned VPP STAR Site status
- 2007** - Begin production of Ultra Low Sulfur Diesel (ULSD)
- 2011** - Flue Gas Scrubber begins operation lowering SO₂ emissions by ~5,000 tons/yr and NO_x by ~1,000 tons/yr



Benicia Refinery

Benicia Asphalt Plant (BAP)

Benicia Asphalt Plant (BAP)

- Asphalt covers about 93% of all roadways and parking lots in CA
- BAP provides about ~50% asphalt on northern California streets, roads & highways
- “Sustainable asphalt” video developed by the Asphalt Pavement Alliance



Benicia Refinery

Career Paths: Operations



Benicia Refinery

Career Paths: Technical



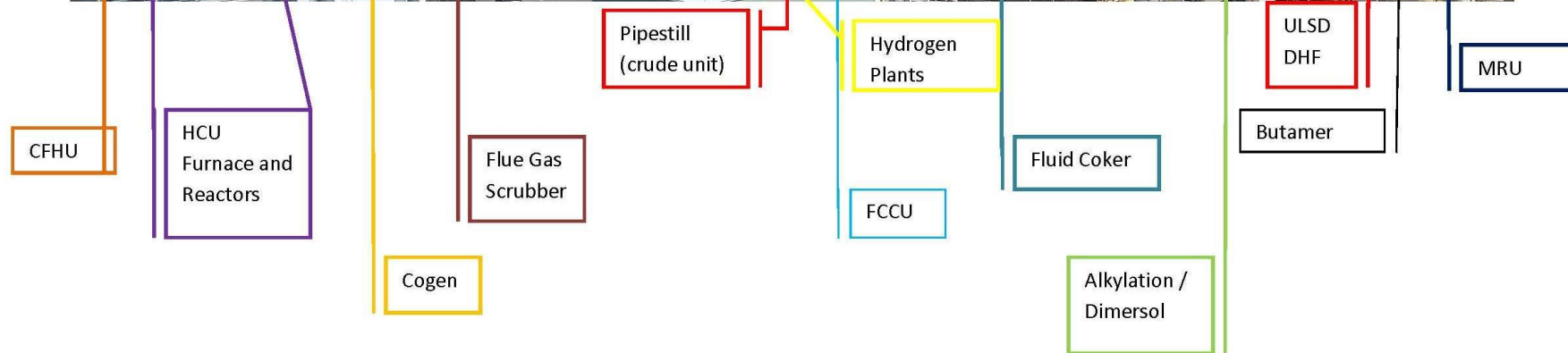
Benicia Refinery

Career Paths: Maintenance



Benicia Refinery

Processing Units



Benicia Refinery

Wet/Flue Gas Scrubber

Flue Gas Scrubber

The Flue Gas Scrubber (FGS) unit was designed, reviewed, and permitted as part of the larger project known as the Valero Improvement Project (VIP).

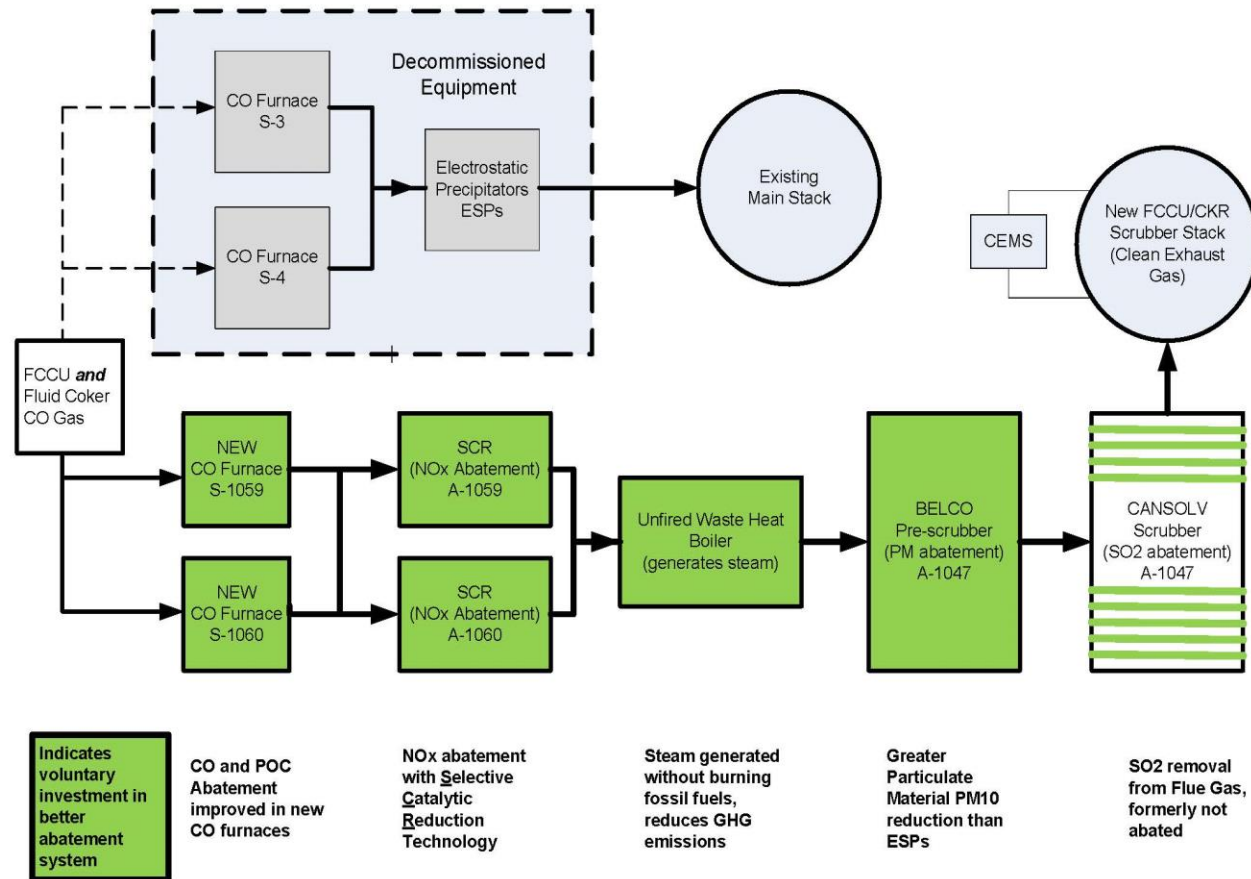
At a cost of over \$700 million, the FGS unit is in place solely for environmental controls. The FGS was designed to reduce emissions of sulfur dioxide (SO₂). Not only has it reduced emissions of SO₂ from the refinery's main stack by 95%, it also reduced nitrogen oxide emissions



by 55%. In addition the project allowed the refinery to retire existing furnaces in favor of new energy-efficient furnaces with a smaller greenhouse gas footprint.

Investments in this project, along with other VIP projects such as the Butamer unit, two new crude tanks, and the Ultra Low Sulfur Diesel (ULSD) unit, will continue to bring tax benefits to the City of Benicia for years to come.

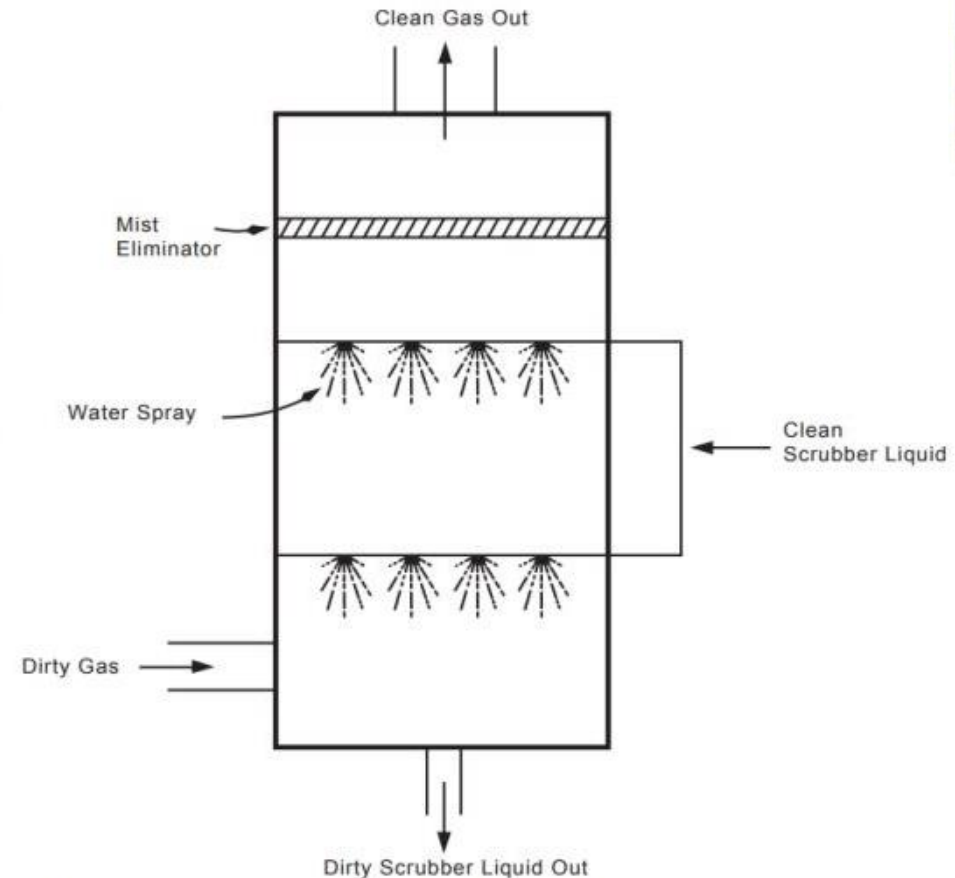
VIP PROJECT FCCU/COKER FLUE GAS SCRUBBER
RETIRED SOURCES, NEW SOURCES AND NEW ABATEMENT SYSTEMS



Benicia Refinery

Wet/Flue Gas Scrubber

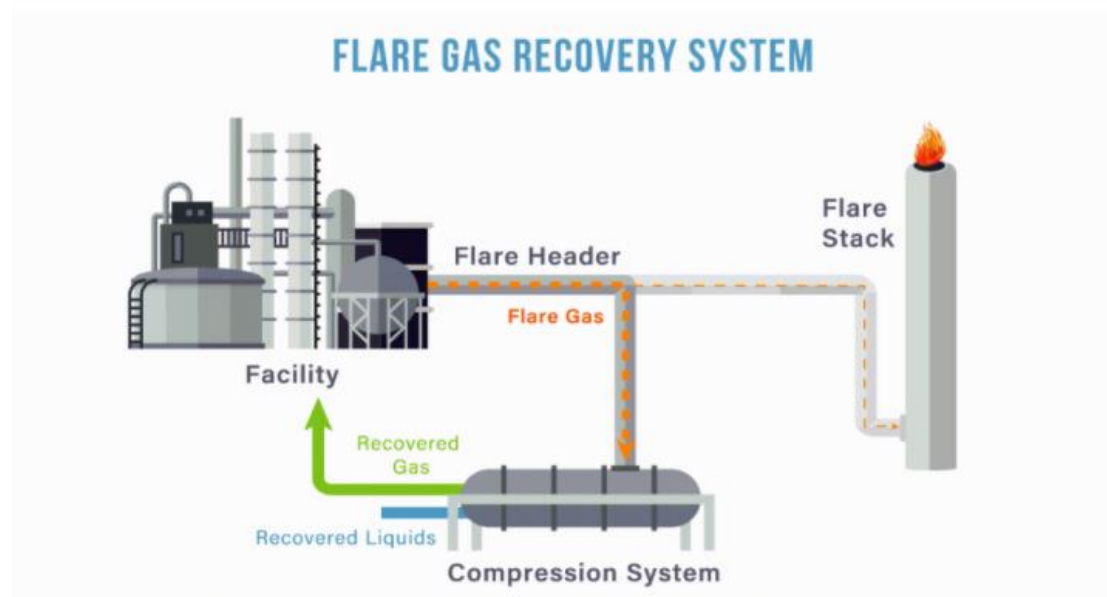
- Scrubbing liquid is sprayed into the spray tower
- Flue gas flows upwards through the liquid
- Particles are collected as they impact the liquid droplets
- Liquid containing pollutants is collected by mist eliminators or separators for treatment and discharge
- Various types of scrubbers exist with different features (tower design, spray operations, energy usage level, liquid collection, regeneration systems)



U.S. EPA, 2002. Air Pollution Control Cost Manual, Section 6, Chapter 2 - Wet Scrubbers. July.

Benicia Refinery

New Flare Gas Recovery Compressor

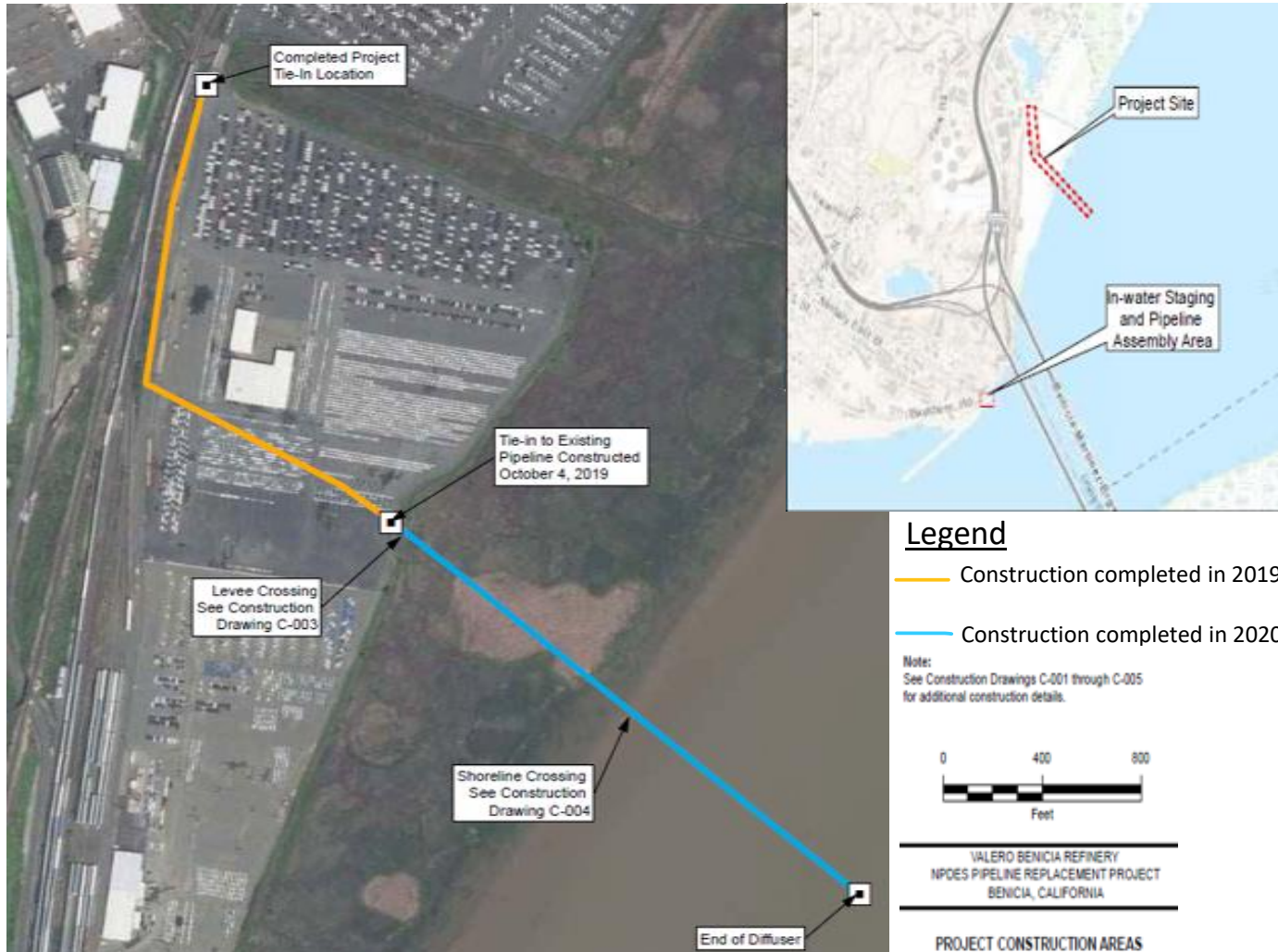


A flare gas recovery system is essentially a way to capture and reuse the relief or excess gas in a refinery. Flare gas leaves the refinery during routine operations and also during shutdowns and start ups and travels via the flare header to the flare, where the gas is burned. When refineries have flare gas recovery systems, the gas mixture that would normally be routed to the flare is captured and put through a compressor system. Depending upon the pressure and temperature after compression, the flare gases can either be recovered as gas or liquid product. Gas collected is used as fuel for the refinery, reducing the need for natural gas. Recovered liquid product will be recycled and re-refined.

- Replacement of Flare Gas Recovery Compressor installed in 1980. Needed replacement due to reliability and obsolescence
- This unit helps recover and compress gases in the flare gas recovery unit to minimize flaring
- The 220,000 pound structure was installed by local union contractors. Over 60,000 man hours were spent safely working on the project with no injuries.
- Valero appreciates the city's assistance in issuing a building permit for this project

Benicia Refinery

New Waste Water Treatment Plant Effluent Line



- Project was driven by NPDES requirement after an in-line inspection of the pipe
- Project took years to develop with permitting required from 6 different agencies
- Various environmental work windows & tidal cycles constrained the project and added complexity - the project was split into two parts – an uplands portion & a wetlands portion
- **Project completed in October 2020** with no Health, Safety or Environmental incidents.

Benicia Refinery

Biodiversity & Habitat Conservation



134,000

CUBIC YARDS OF CLEAN
DREDGED MATERIAL

AN AMOUNT
ROUGHLY
EQUAL TO

6.4 million

50-POUND BAGS
OF SAND

The Benicia refinery captures clean sediment dredged from its dock area to raise the elevation of nearby subsided wetlands, which helps **protect and recover wildlife** and plant species. Over the past four years, Valero has contributed approximately **134,000 cubic yards of clean dredged material** - an amount roughly

equal to 6.4 million 50-pound bags of sand – for restoration at the Montezuma Wetlands Restoration Project. The effort not only **protects habitat** but also helps ensure **safe dock operations**, clearing sediment to allow ample underwater clearance for large ships.

Benicia Refinery

Biodiversity & Habitat Conservation

At our Benicia refinery near the San Francisco Bay, Valero placed straw "wattles," or interwoven natural material, over pipelines to allow small mammals, including the threatened **salt marsh harvest mouse**, passage over the pipes. The wattles serve as bridges and provide critical access for the mouse to the dense ground cover and adjoining grasslands it is dependent upon.



Benicia, California:

Valero has a long-standing partnership with the Benicia Tree Foundation to plant and prune trees annually throughout the area.





Benicia Refinery

Air Quality Monitoring Program for the Community

Refinery Monitors (Measures Refinery Operations)

- Routine operations monitored by analyzers
 - Continuous Emissions Monitors (CEMs) for Nitrogen Oxides (NO_x), Carbon Monoxide (CO), Sulfur Dioxide (SO₂), Hydrogen Sulfide (H₂S), Total Reduced Sulfur (TRS), etc.
 - Over 100 devices requiring daily calibration and data historization
 - Stack testing for non-CEMs constituents (eg: Particulate Matter (PM))
- Monthly flare information is available on BAAQMD's website: <http://www.baaqmd.gov/about-air-quality/research-and-data/flare-data>

Ground Level Monitors (Measures Ambient Air from all sources)

- Before Valero acquired the Benicia Refinery, three ground level monitors (GLMs) were installed and are currently in continuous operation in the community
- GLMs measure H₂S and SO₂ in the ambient air from all sources, including mobile sources (e.g. cars and trucks) and stationary sources (e.g. refinery, homes and other businesses)
- Data is available on the Valero Benicia Refinery Fenceline monitoring website: <http://www.beniciarefineryairmonitors.org/>

Fenceline Passive Monitors (Measures Ambient Air from all sources)

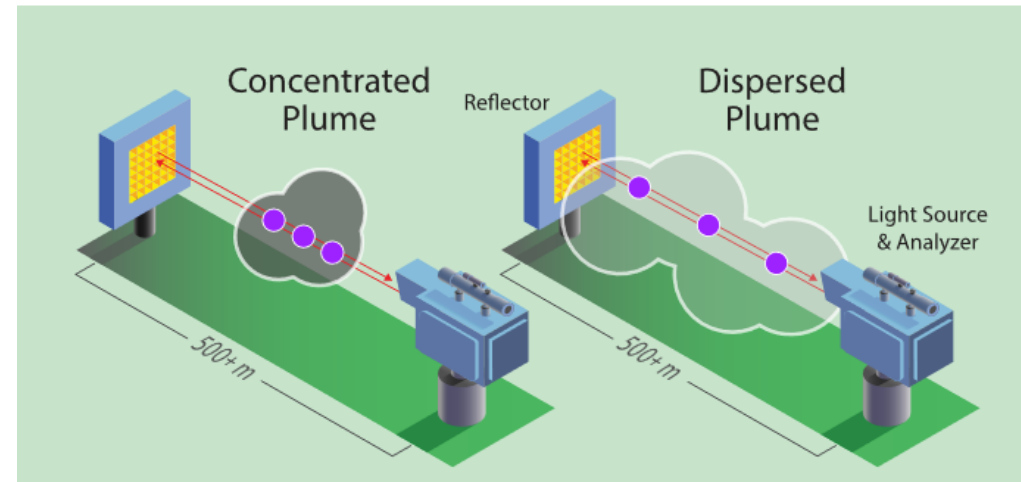
- Under EPA's Petroleum Refinery Sector Rule (RSR), refineries across the United States are required to monitor concentrations of benzene at their property boundary, or fenceline. Data was sent to EPA on a quarterly basis starting in 2018.

Fenceline Open Path Monitors (Measures Ambient Air from all sources)

- Fenceline monitors measure specific pollutants that cross the facility's fenceline in real time. This system has the ability to monitor, record and report air pollutant levels of multiple compounds

Benicia Refinery

Open-Path Fenceline Monitoring – Pathways 1, 2, & 3



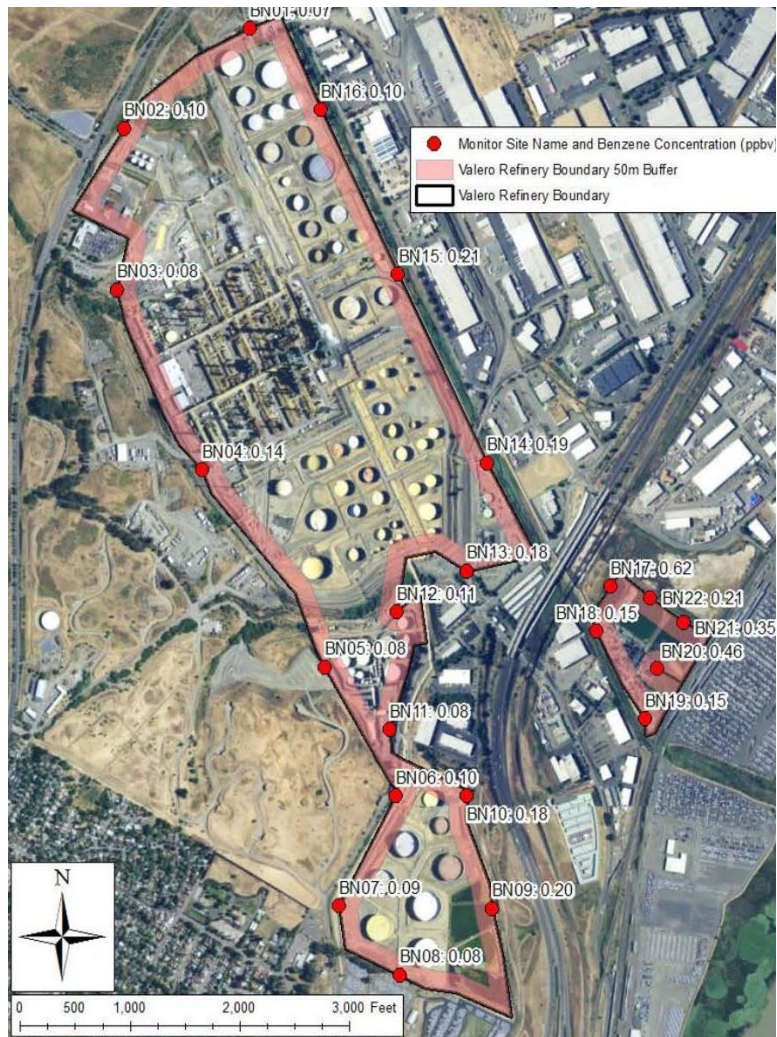
Benicia Refinery

Future Capital Improvements – Pathway 4



Emissions and Energy Use

Passive Fenceline Monitoring



US EPA Fenceline Monitoring Program for Benzene

- Under United States Environmental Protection Agency (EPA) Petroleum Refinery Sector Rule, refineries across the United States are required to monitor concentrations of benzene at their property boundary, or fenceline. The specific methods and equipment required to conduct monitoring are prescribed by USEPA.
- Sorbent tubes are placed at each of the prescribed locations. The tubes trap and retain benzene over a two week period. The tubes are then gathered and sent to an accredited lab for processing and analysis. Valero submits that data to EPA on a quarterly basis.
- The USEPA uploads lab results for refineries across the country to their website.
- Valero Benicia Refinery is below the EPA action levels.

Benicia Refinery

Maintenance Turnaround Facts

What is a Refinery "Turnaround"?

Turnarounds are periodic planned shutdowns of part or all of the refinery in order to conduct routine and preventative maintenance. The turnaround should only impact a few units, while the rest of the refinery will continue to operate. Given the complexity of refining units and the high priority Valero Benicia gives to safety, these turnarounds can last several weeks.

Why do we do it?

Maintenance and upkeep of our facility are crucial to ensure that the refinery continues to meet the highest, most up to date standards in safety and efficiency. During a maintenance turnaround, workers are able to access portions of the refinery that are not accessible during operation. This allows for maintenance, internal inspection and equipment updates that help the refinery run smoothly.

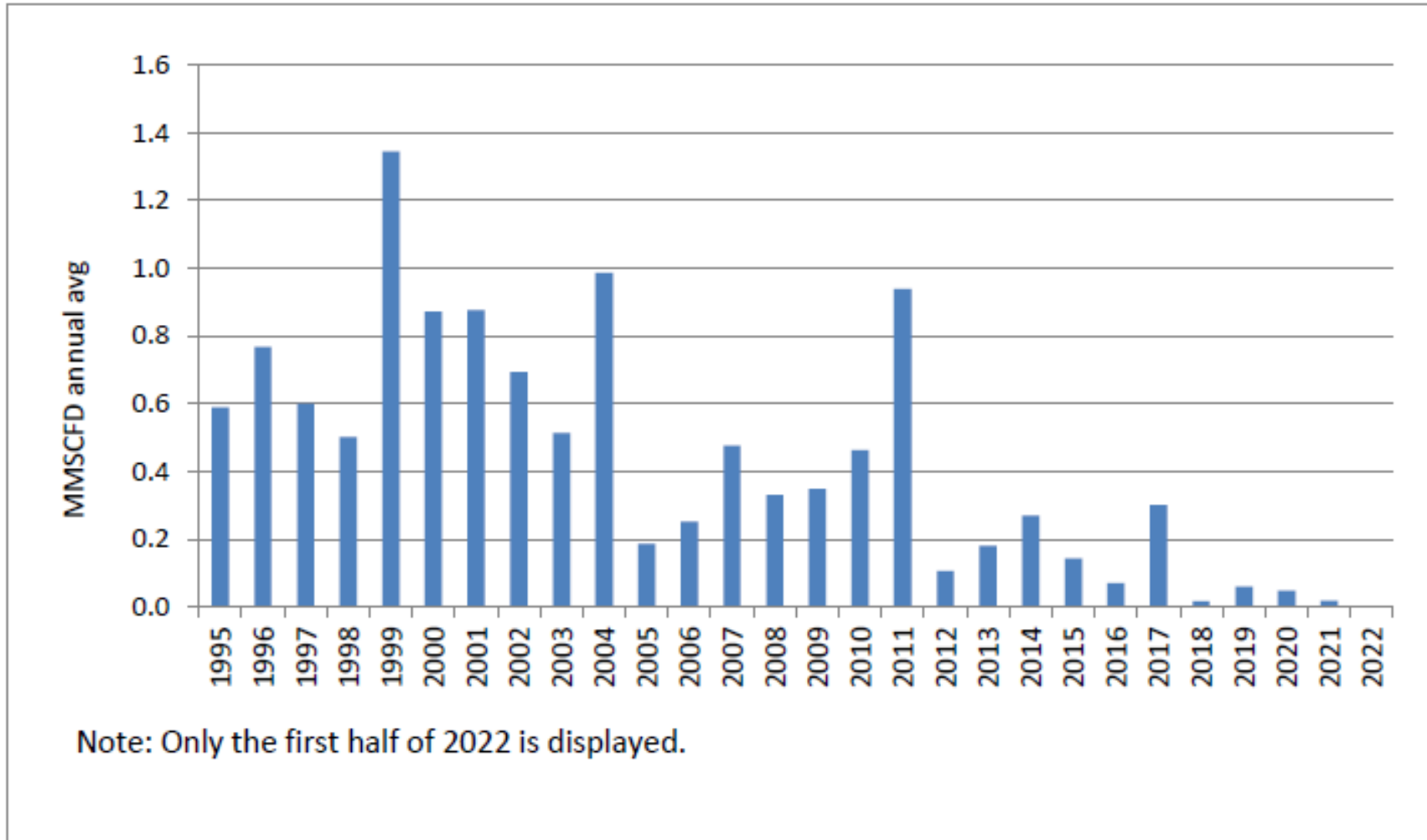
What do you need to know?

As the refinery process units start back up, there may be intermittent and visible flaring. Flaring is the safest and most environmentally sound manner for a refinery to dispose of unusable refinery gases as units are restarted. The planned flaring activities are managed in accordance with Valero's approved Flare Minimization Plan under BAAQMD Regulation 12, Rule 12. Valero, along with the City of Benicia and other regulatory agencies will continue to conduct air monitoring in the area to ensure the protection of the community.



Benicia Refinery



Flare Vent Gas Volume – Reducing Flaring



Being a Good Neighbor

City of Benicia – Noise Ordinance

- In June 2018, the Benicia city council updated the noise ordinance for the Industrial Park.
- The maximum permissible decibel levels are set at 75 dBA, during all time periods, throughout the day.
- Atmospheric conditions, such as wind direction, can increase or decrease sound decibel levels and Valero performs decimeter readings to make sure operational activities are below the industrial park's noise ordinance threshold.
- Noises associated with the flaring process and sounds such as the release and production of steam coming from our cooling towers, is monitored by refinery personnel & the Benicia Fire Department.

Source	Sound Level (dBA)	Distance (ft)	Exposure Duration
Empty / Quiet room	40	-	-
Normal conversation	60	3	-
Household shop vacuum	85	10	16 hours
OSHA Action Level	85	-	-
Lawn mower	90	-	-
Diesel compressor / Welder at load	90	10	8 hours
OSHA PEL	90	-	8 hours
Loud bar / Dance music	95	-	4 hours
Router / Radial arm saw / Chop saw	95	3	4 hours
 Monster truck rally / Loud headphones	100	-	2 hours
Chainsaw / Jackhammer	110	10	30 mins
Threshold of discomfort	120	-	-
 Loud rock concert	125	100	195 secs
Threshold of pain	130	-	-
Pile driving rig on impact	130	30	98 secs
Jet aircraft engine on takeoff	140	150	24 secs
Gunshot	140-170	-	-

Being a Good Neighbor

City of Benicia – Valero Cooperation Agreement

- **Public Information Bank**
 - Risk Management Plan
 - Process Safety Performance Indicators Report
 - Hazardous Materials Incident Notification Policy
 - Incident Investigation Reports
- **Emergency Operations Center (EOC) Coordination**
 - Refinery & City representation at each entities EOC
 - Joint Field Training at both the City of Benicia & Valero EOC
 - Activation of the EOC will occur when there is an imminent health risk to our employees, the community or the environment
- **Community Advisory Panel**
 - Public Liaison of Hazardous Materials position



Benicia Refinery CAP



Being a Good Neighbor

Environmental Justice Policy Statement

ENVIRONMENTAL JUSTICE

Valero was the first major energy company to adopt a formal environmental justice policy aimed at improving quality of life for nearby neighborhoods.



ENVIRONMENTAL JUSTICE POLICY

Valero strives to operate as a good neighbor and looks for opportunities to work with local officials and directly with fence-line neighbors to improve the quality of life for its neighbors and communities.

Valero aims to treat its fence-line neighbors fairly, regardless of race, color, national origin, culture or income. We work to ensure our neighbors have an opportunity to understand our proposed activities and to provide them with a meaningful opportunity to have their concerns heard, with the goal of providing them with greater comfort in our operations.

The State of California determines where 'overburdened communities' are located within our state by using publicly available data from Cal EPA's: [Cal EnviroScreen 4.0 Mapping Tool](#).

Being a Good Neighbor

Benicia Refinery Resource Tools

Resources for Benicia Residents

5 ways to stay informed about Valero Benicia Refinery

- 1 Valero's 24-Hour Community Relations Phone Number: **707-745-7534**
email: BeniciaCommunityRelations@valero.com
- 2 Sign up for Refinery Notifications at Valero Benicia Refinery Community Relations website: www.beniciarefinery.com
- 3 Sign up for Non-Emergency Notifications with your email or telephone number at the City of Benicia's Public Information Bank website:
www.ci.benicia.ca.us/publicinfobank
- 4 Valero Benicia Refinery Community Advisory Panel (CAP) website:
www.beniciacap.com
- 5 Benicia Refinery Air Monitoring Program website:
www.beniciarefineryairmonitors.org

Please call **707-745-7534** for additional questions.



Being a Good Neighbor

Community Contributions

- Sharing our success through volunteerism, charitable giving and being a good employer
 - Over \$18.0MM contributed to Northern California community stakeholders over the past 10 years
 - \$2.415MM invested in community investments during 2022
 - United Way – Employee contributions
 - Valero Texas Open Golf Tournament - Benefit for Children fundraiser
 - Valero Energy Foundation – Corporate contributions
 - Benicia Refinery – Local contributions & Trap Shoot fundraiser
 - ~4,500 volunteer hours were donated by employees, family members & friends to non-profit organizations
- Investments in pollution control
 - \$1.6 billion dollars spent in infrastructure upgrades to improve air quality and safety



- Flare reduction
- Air emissions reduction
- Wastewater discharge
- Lower energy consumption
- Air Quality Monitoring Projects



Reference Tools & Websites

- Valero Energy Corporation - ESG Reports & Investor Relations Presentations
<https://investorvalero.com/home/default.aspx>
- U.S. Energy Information Administration – Number & Capacity of Petroleum Refineries
https://www.eia.gov/dnav/pet/pet_pnp_cap1_dcu_nus_a.htm
- United States Department of Transportation – Motor Fuel Gasoline Consumption
https://www.fhwa.dot.gov/policyinformation/motorfuelhwy_trustfund.cfm
- California Energy Commission – California’s Petroleum Market
<https://www.energy.ca.gov/data-reports/energy-almanac/californias-petroleum-market/oil-supply-sources-california-refineries>
<https://efiling.energy.ca.gov/GetDocument.aspx?tn=247668&DocumentContentId=82002>
- Bay Area Air Quality Management District – Air Quality Research & Data
<https://www.baaqmd.gov/about-air-quality>
- American Fuel Petroleum Manufacturers – Price & Availability of Gas
<https://www.afpm.org/newsroom/blog/what-do-refineries-have-do-price-and-availability-gas>
<https://www.afpm.org/newsroom/blog/what-drives-prices-pump>
- Western States Petroleum Association – Estimated Impact of California Gasoline Taxes
https://www.wspa.org/wp-content/uploads/CA_Gas-Tax_March_2022-1.pdf
- California Office of Environmental Health & Hazard Assessment – Reference Exposure Levels
<https://oehha.ca.gov/air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure-level-rel-summary>

Questions and Answers

