2022 TCFD Report

September 2022

Valero®

www.valero.com

Cover: Valero is collaborating with BCarbon, a nonprofit, nature-based carbon dioxide capture and storage registry, to develop a **1,000-mile living shoreline project** in the Texas Gulf Coast, consisting of oyster reef breakwater systems.

Inside Cover: Valero volunteers from the Houston and Texas City refineries partnered with the Galveston Bay Foundation to restore a reef with oyster shells that were collected from local restaurants, bundled into sacks and placed along the Galveston Bay shoreline.

These natural bank barriers help to prevent storm surges, reduce erosion, improve water quality and enhance fish and wildlife habitat.

Valero is a Fortune 500 company based in San Antonio, Texas. Our corporate offices are located at One Valero Way, San Antonio, Texas, 78249. Please visit www.valero.com to learn more about our company. The terms "Valero," "we," "our" and "us," when used herein, may refer to Valero Energy Corporation (NYSE: VLO), to one or more of our consolidated subsidiaries, or to all of them taken as a whole. The term "DGD," when used in this report, may refer to Diamond Green Diesel Holdings LLC, its wholly owned consolidated subsidiary, or both of them taken as a whole.

Contents

ABOUT THIS DOCUMENT

Policies and Procedures

This document includes disclosures regarding various policies, values, standards, approaches, procedures, processes, systems, programs, initiatives, assessments, technologies, practices, metrics and measures related to our operations, ESG matters and compliance systems ("Policies and Procedures"). References to Policies and Procedures in this document do not represent guarantees or promises about their efficacy or continued implementation, or any assurance that such Policies and Procedures will apply in every case. The use and implementation of such Policies and Procedures are subject to risks, uncertainties and other factors, some of which are beyond the control of Valero and are difficult to predict, and there may be changes in circumstances, factors, or considerations that may cause us to use or implement other Policies and Procedures (or exceptions thereto), or to discontinue the use or implementation of certain Policies and Procedures. Please see Forward-Looking Statements below.

Forward-Looking Statements

This document contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, including, but not limited to, statements about our Policies and Procedures. You can identify forward-looking statements by words such as "should," "strive," "pursue," "intend," "anticipate," "forecast," "track," "would," "continue," "poised," "focused," "opportunity," "scheduled," "believe," "estimate," "expect," "seek," "could," "may," "will," "targeting," "goal," "plan," or other similar expressions that convey the uncertainty of future events or outcomes. Forward-looking statements in this document include those relating to our 2025 and 2035 GHG emissions reduction/displacement targets, expected timing of completion of projects, future market, industry and legislative conditions, future safety performance, future operating performance and management of future risks. These forward-looking statements are not guarantees of future performance or actions and are subject to risks, uncertainties and other factors, some of which are beyond the control of Valero and are difficult to predict including, but not limited to, the effect, impact, potential duration or other implications of the uncertainties that remain with respect to the Russia-Ukraine conflict, the impact of inflation on margins and costs, public health threats, legislative or political changes, market dynamics, cyberattacks, weather events and various events arising from the foregoing. These statements are often based upon various assumptions, many of which are based, in turn, upon further assumptions, including examination of historical operating trends and market conditions made by the management of Valero. Although Valero believes that the assumptions were reasonable when made, because assumptions are inherently subject to significant uncertainties and contingencies, which are difficult or impossible to predict and are beyond its control, Valero cannot give assurance that it will achieve or accomplish its expectations, beliefs or intentions, or that any forward-looking statements will ultimately prove to be accurate. When considering these forward-looking statements, you should keep in mind the risk factors and other cautionary statements contained in Valero's filings with the Securities and Exchange Commission, including Valero's annual report on Form 10-K, quarterly reports on Form 10-Q, and other reports available on Valero's website at www.valero.com. These risks could cause the actual results, actions and Policies and Procedures of Valero to differ materially from those contained in any forward-looking statement. We do not intend to update these statements unless we are required by the securities laws to do so. Results or metrics in this document as of any date, or for any period, ending on or prior to the date of this document are not necessarily indicative of the results that may be expected as of any date, or for any period, ending after the date of this document.

These reports and disclosures are not "soliciting material," are not deemed filed with the SEC, and are not to be incorporated by reference into any of Valero's filings under the Securities Act of 1933, as amended, or the Exchange Act, whether made before or after the date of this document and irrespective of any general incorporation language therein. Furthermore, references to our website URLs are intended to be inactive textual references only.

A Letter from Joe Gorder

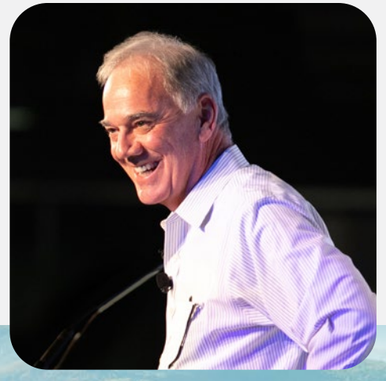
Consistent with our dialogue with stockholders and following the recommendations of the Task Force on Climate-related Financial Disclosures, this report provides an updated analysis of Valero's governance, strategy, risk management, and performance metrics and targets.

Valero is a best-in-class producer of transportation fuels, one of the most efficient refiners and a leader in the production of low-carbon fuels. For more than a decade, we have been leveraging our refining liquid-fuels platform and have invested more than $4.65 billion to date in economic low-carbon transportation fuels such as renewable diesel, renewable naphtha and ethanol. In addition, we are evaluating, developing, advancing or producing low-carbon projects, such as sustainable aviation fuel, low-carbon hydrogen, fiber ethanol, renewable propane, renewable diesel and carbon capture and storage. These projects move us even closer to achieving our greenhouse gas emissions targets for 2025 and 2035.

Our board of directors and senior management team recognize that there are certain opportunities that a low-carbon economy provides and have created the governance, strategy and risk management structures to successfully oversee climate-related risks and opportunities. Based on the efficiency of our assets and using a third-party industry expert, we have tested our strategy under the hypothetical assumptions of the International Energy Agency's Net Zero by 2050 Scenario, which shows that we are aligned with this particular pathway and, in turn, with the goals of the Paris Agreement.

We hope you find our disclosures helpful in your assessment of our resilience in lower-carbon economies. Thank you for your support and trust.

Joe Gorder
CHAIRMAN AND CHIEF EXECUTIVE OFFICER



Introduction

This report uses the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and provides updated disclosures on certain climate-related aspects of our governance, strategy, risk management, and performance metrics and targets.

We engaged HSB Solomon Associates LLC (Solomon), a leading refining benchmarking data provider and advisory firm, to conduct an independent scenario analysis based on the assumptions developed by the International Energy Agency (IEA) in the Net Zero by 2050 Scenario ("Net Zero" or "NZE").

This is our third TCFD report, showing our commitment to responding to the requests of certain stakeholders regarding our issuance of a report on the resilience of our strategy under hypothetical oil and biofuel demand scenarios in a low-carbon marketplace.

Our first TCFD report, the Review of Climate-related Risks and Opportunities, was published in September 2018. At that time, we engaged Solomon to conduct an independent scenario analysis under multiple demand scenarios, including the potential transition to a lower-carbon economy consistent with the IEA's 450 PPM scenario, which is considered a 2°C scenario.

Our second TCFD report was published in September 2021. The 2021 TCFD Report and Scenario Analysis, for which we also engaged Solomon, examined our refining business and reviewed the resilience of our strategy under the IEA's Sustainable Development Scenario (SDS), referred to as a well-below 2°C scenario.

In each of our TCFD reports, Solomon concluded that our overall refinery portfolio would be resilient in the low-carbon marketplaces envisioned by the scenarios.

Valero's Vision

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

Our Business

We are a multinational manufacturer and marketer of petroleum-based and low-carbon liquid transportation fuels and petrochemical products, and we sell our products primarily in the United States (U.S.), Canada, the United Kingdom (U.K.), Ireland and Latin America. We manage our operations through our Refining, Renewable Diesel and Ethanol segments.

Refining

WORLD'S LOWEST-COST OPERATOR

- 15 petroleum refineries in the U.S., Canada and the U.K., with 3.2 million barrels per day (bpd) of high-complexity throughput capacity.
- Lowest-cost operator, producing gasoline, diesel, jet fuel and other specialty products, including petrochemicals and asphalt.
- Executing a viable and Board-approved path to reduce and displace refinery Scope 1 and 2 greenhouse gas (GHG) emissions by 100% by 2035.

Renewable Diesel

WORLD'S 2ND LARGEST RENEWABLE DIESEL PRODUCER

- Renewable diesel plant adjacent to the Valero St. Charles Refinery and a new renewable diesel plant adjacent to the Valero Port Arthur Refinery (expected to start up in Q4 2022).
- Current annual production capacity of 700 million gallons of renewable diesel and 30 million gallons of renewable naphtha (used for renewable gasoline and renewable plastics).
- Expected annual production capacity to increase in the fourth quarter of 2022 to 1.2 billion gallons of renewable diesel and 50 million gallons of renewable naphtha.
- Up to 80% reduction in life cycle GHG emissions, compared to petroleum diesel.
- 100% compatible with existing engines and infrastructure.

Ethanol

WORLD'S 2ND LARGEST CORN ETHANOL PRODUCER

- 12 ethanol plants with annual production capacity of 1.6 billion gallons of ethanol and 4.2 million tons of distillers grains.
- High-octane, low-carbon fuel offering at least 30% reduction in GHG emissions, compared to petroleum gasoline.
- Developing carbon sequestration projects to further reduce carbon intensity.

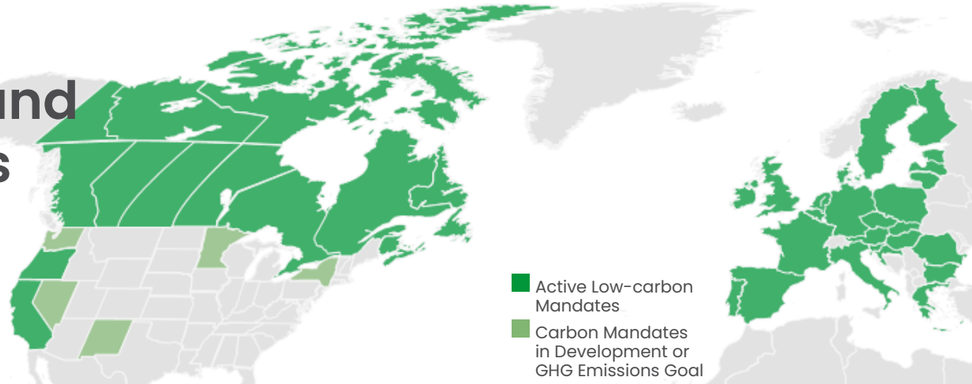
Global Policies Driving Demand Growth for Low-carbon Fuels

We strive to manage our business to responsibly meet the world's growing demand for reliable and affordable energy. We believe that liquid transportation fuels — both petroleum-based and low-carbon — help meet that demand, and we expect that they will continue to be an essential source of transportation fuels well into the future. Our strategic actions have enabled us to be a low-cost, efficient and reliable supplier of these liquid transportation fuels to much of the world.

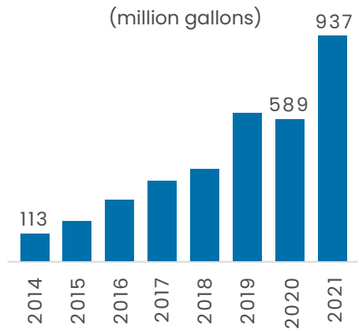
Our petroleum refineries operate in locations with advantaged operating costs and other favorable conditions, and we believe our refineries are positioned to meet the strong worldwide demand for our petroleum-based products. Through our refining business, we believe that we have the expertise in liquid fuels manufacturing and a platform for the marketing and distribution of liquid fuels, and we seek to leverage this expertise and platform to expand and optimize our low-carbon fuels businesses. We expect that low-carbon liquid fuels will continue to be a growing part of the energy mix, and we have made multibillion-dollar investments to develop and grow our low-carbon renewable diesel and ethanol businesses. These businesses have made us one of the world's largest low-carbon fuels producers and have helped governments across the world achieve their GHG emissions reduction targets.

Some governments have issued, or are considering issuing, low-carbon fuel regulations, policies and standards to help reduce GHG emissions and increase the percentage of low-carbon fuels in the transportation fuel mix. These regulations, policies and standards include, but are not limited to, the California Low Carbon Fuel Standard (LCFS) and Canada's Clean Fuel Regulations (CFR). While many of these regulations, policies and standards result in additional costs to our refining business, they have created opportunities for us to develop our renewable diesel and ethanol businesses, and they should continue to help drive the demand for our low-carbon fuels. We believe that our ability to supply these low-carbon fuels can play an important role in helping achieve GHG emissions reduction ambitions.

See the adjacent map and charts for a list of various low-carbon fuel policies.

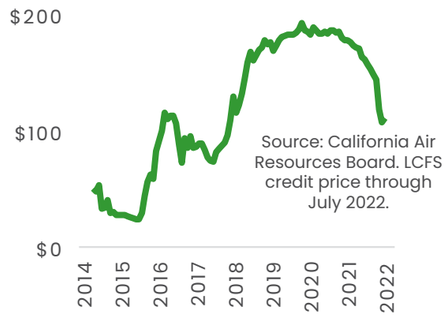


California Renewable Diesel Consumption



LCFS Credit Price

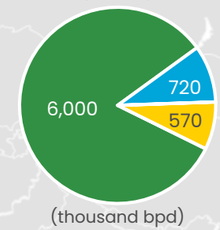
(monthly average, $ per metric ton)



Source: California Air Resources Board. LCFS credit price through July 2022.

Diesel Demand in Select Markets[1]

(~7,300)

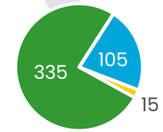


(thousand bpd)

EU & U.K.
Canada
Select U.S.

Current RD and BD Consumption[1]

(<500)



(thousand bpd)

We believe that our ability to supply renewable fuels can play an important role in helping achieve GHG emissions reduction ambitions.

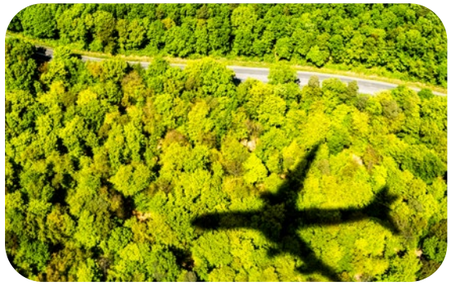
	2030 GHG Emissions Reduction Target	Net Zero GHG Emissions Target	Primary Transportation Fuel Policy Mechanism	2030 Transportation Fuels Goal
California	40%	Net Zero by 2045	Low Carbon Fuel Standard (LCFS)	Reduce the carbon intensity of transportation fuels by at least 20%
Canada	40 to 50%	Net Zero by 2050	Clean Fuel Regulations (CFR) – Obligation begins July 1, 2023	Reduce the carbon intensity of transportation fuels by 15%
EU	55%	Net Zero by 2050	Renewable Energy Directive II (RED II)	Replace 14% of transport fuels with renewable energy
UK	68%	Net Zero by 2050	Renewable Transport Fuel Obligation (RTFO)	Replace 17% of transport fuels with renewable fuels
Other Policies in Place	• Oregon's Clean Fuels Program requires a 10% carbon intensity reduction by 2025; has proposed a 37% reduction by 2035 • Washington State's legislature has passed a CFS that requires a 20% carbon intensity reduction by 2038; draft regulations for the CFS have been proposed • British Columbia and Ontario have existing low-carbon fuels policies • Sweden currently has a 66% GHG reduction requirement for diesel by 2030 • Finland aims for 30% of transport fuels to be biofuels by 2030			
Potential Policies	• New York continues to evaluate LCFS in order to meet its goal of reducing emissions 85% by 2050 • New Mexico, Nevada and Minnesota are exploring renewables mandates			

Source: DOE, agency websites, and industry consultants.
[1] 2019 diesel demand, inclusive of biofuels, and 2021 Renewable Diesel (RD) and Biodiesel (BD) consumption in Canada, EU, UK, and U.S. states with mandates in place or in consideration (CA, OR, WA, NY, NM, NV, and MN only).

Innovation for a Low-carbon Future

At Valero, we believe that liquid fuels are the affordable solution to reduce transportation GHG emissions in a reliable manner.

Over the last decade, we have become a leading manufacturer of low-carbon fuels, which offer lower GHG emissions. In the next decade, we will focus on bringing creative and innovative approaches to the decarbonization of transportation fuels. The following technological advances are examples of innovation that we are developing or evaluating:



Sustainable Aviation Fuel (SAF)

The IEA's Net Zero by 2050[2] forecasts that 50% of fuels used in aviation will be low emissions by 2040. Therefore, net zero goals in the aviation industry are dependent upon large-scale projects. At Valero, we believe that low-carbon aviation fuels will be part of the energy mix.

We are evaluating SAF production at our St. Charles and Port Arthur renewable diesel facilities.

Alcohol-to-jet (ATJ) is another low-carbon pathway to produce SAF. In this process, alcohols are converted to SAF using catalytic steps similar to those used in existing petroleum refining processes. Our large network of low-carbon ethanol plants and our leading refining expertise provide us with an advantage in the potential development of this product.

Large-scale SAF production could also be a demand driver for low-carbon hydrogen, carbon capture and renewable power projects.

[2] International Energy Agency (2021), *Net Zero by 2050. A Roadmap for the Global Energy Sector*, IEA, Paris.

Sustainable Aviation Fuel

Renewable Propane

Renewable Diesel

Carbon Capture and Storage

Low-carbon Hydrogen

Renewable Naphtha

Fiber Cellulosic Ethanol

Tailpipe CO_2 Onboard Capture

Low-carbon Hydrogen

Hydrogen is an important feedstock in refinery operations. When used in hydrotreating, contaminants such as sulfur, nitrogen, oxygen and metals are removed from refined products. As a feedstock in hydrocracking, hydrogen is used to convert lower value gasoil into higher value light products, such as gasoline and diesel. Both hydrotreating and hydrocracking provide an additional benefit of volume expansion, a key driver of refining margins.

Low-carbon hydrogen is also a critical technology in decarbonization pathways. In part due to the acceleration of renewable energy and carbon sequestration, studies around scalability of this technology show how quickly it can be deployed. Valero intends to use low-carbon hydrogen, produced from renewable propane, to reduce the amount of fossil fuel-derived hydrogen used in renewable diesel production.

At our Corpus Christi refinery, we use renewable natural gas from municipal solid waste to produce low-carbon transportation fuels. We expect to process nearly 1 trillion BTUs of renewable natural gas in 2022 and nearly 3.7 trillion BTUs of renewable natural gas in 2023. The resulting low-carbon transportation fuels are valued at a premium and are exported to Europe to meet certain GHG emissions reduction goals.

Renewable Naphtha

Renewable naphtha is already produced at our renewable diesel plants. Renewable naphtha is a gasoline blending component that lowers the carbon intensity of gasoline. It can also be used in plastic production, resulting in low-carbon plastics or in the production of low-carbon hydrogen.

Tailpipe CO_2 Onboard Capture System

Valero is supporting Southwest Research Institute (SwRI) in the development of a solid filtration membrane to remove CO_2 from the exhaust tailpipe of internal combustion engine vehicles. The objective of this revolutionary technology is to reduce CO_2 emissions in the atmosphere with an affordable solution.

In concept, applying this technology to vehicles using blends of low-carbon fuels would result in net negative life cycle carbon emissions, exceeding the performance of any competing technology, such as electric vehicles and hydrogen fuel cells.

Preliminary testing of this system passively removes more than

90%

of the expected CO_2 emissions of the vehicle.

Electric Vehicles (EVs) Are Not Zero-emission Vehicles.

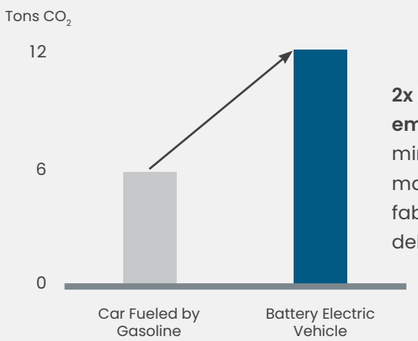
Often EVs' embedded emissions do not include metal mining, processing, battery manufacturing and recycling at the end of life.

Life cycle GHG emissions analysis represents the emissions from cradle to grave.

- An EV is not "zero emissions," as the electricity that powers an EV is usually generated by fossil fuels.
- The infrastructure build-out necessary to support an increase in EVs will be costly, time-intensive and fossil-fuel dependent, thus emitting a large amount of CO_2 itself.
- According to the IEA's *The Role of Critical Minerals in Clean Energy Transitions*,[4] minerals necessary for EVs are not produced domestically, and the world does not have the mineral resource capacity to meet the demand increase of technologies such as EV batteries.

- According to the IEA's *Global EV Outlook 2022*,[3] significant EV battery metal price increases reflect concerns of tightening supply and availability. It also features foreign countries' dominance on the entire global downstream EV battery supply chain.

Embedded CO_2 Emissions
(zero miles traveled)



2x higher emissions from mining raw materials to fabrication to delivery

- Before EVs leave the showroom, EVs have already generated an average of 12 tons of CO_2 emissions vs. 6 tons of CO_2 emissions from cars fueled by gasoline.

Significant Issues and Emissions From EV Life Cycle

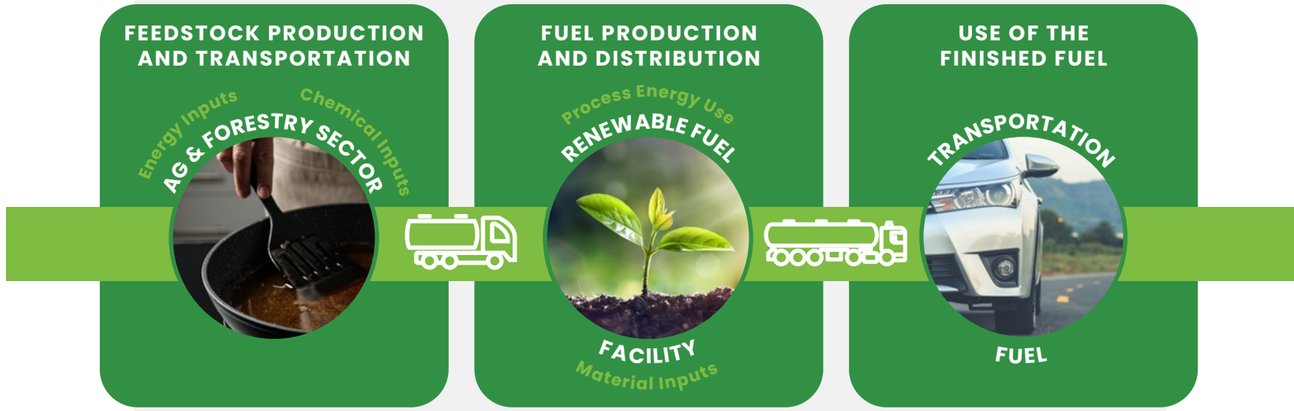
[3] International Energy Agency (2022), *Global EV Outlook 2022,* IEA, Paris. All rights reserved.
[4] International Energy Agency (2021), *The Role of Critical Minerals in Clean Energy Transitions,* IEA, Paris. All rights reserved.

See page 43 for notes regarding this page.

Renewable Diesel: An Affordable Solution to Reduce GHG Emissions Right Now.

- Life cycle analysis captures feedstock production and transportation, fuel production and distribution and use of the finished product.

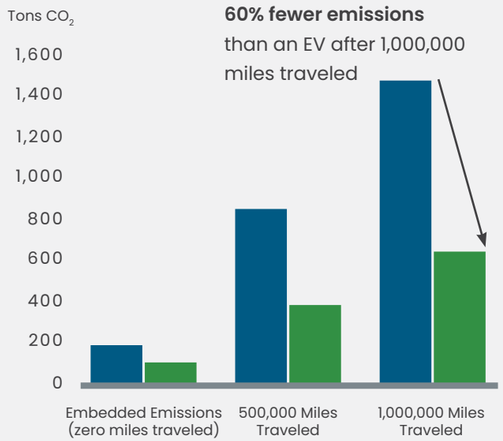
Tomorrow is built on actions taken today. We are committed to meeting the growing demand for reliable, affordable low-carbon fuels.



- Renewable diesel is a drop-in fuel, which means that it is 100% compatible with existing infrastructure and diesel engines, from light- to heavy-duty long-haul vehicles. This makes renewable diesel a viable solution to immediately reduce transportation GHG emissions without requiring a costly, time-intensive and CO_2-emitting infrastructure build-out as with EVs.
- Our renewable diesel is typically made from waste materials and manufactured in jurisdictions with strict environmental, labor and governance regulations.
- Unlike with EVs, owners of vehicles running on renewable diesel do not incur a high up-front cost to replace their current vehicles, nor the expenses related to charging and other new infrastructure needed to support an EV.
- As detailed on the right, a vehicle running on renewable diesel can significantly reduce life cycle GHG emissions compared with an EV.

U.S. Heavy-duty Long-haul Vehicle Life Cycle Emissions
2022 Southwest Research Institute Study

60% fewer emissions than an EV after 1,000,000 miles traveled



See page 43 for notes regarding this page.

IEA Scenarios and Global Mineral Capacity in the Energy Transition

IEA Scenarios

As part of this report, we are assessing our business strategy by focusing on a hypothetical transition to a lower-carbon economy under a scenario created by the IEA, the Net Zero by 2050 Scenario. A description of relevant IEA scenarios is set forth in the following paragraphs.

In creating such hypothetical scenarios for assessment purposes, the IEA considers energy market data and dynamic representations of energy technologies, and acknowledges that there is not a single storyline about the future and that all scenarios are possible.

Stated Policies Scenario (STEPS)

The aim of the **STEPS** scenario is to provide a detailed sense of the direction in which existing policies and recently announced commitments and plans would impact the energy sector by 2040.[5]

Sustainable Development Scenario (SDS)

Aligned with the Paris Agreement and described as a well-below 2°C scenario, the **SDS** scenario has many advanced economies reaching net-zero emissions by 2050, putting the world on track for net zero emissions by 2070. [5]

[5] International Energy Agency (2020), *World Energy Model Documentation: 2020 version*, IEA, Paris, last updated May 7, 2021. All rights reserved.

Net Zero by 2050 Scenario

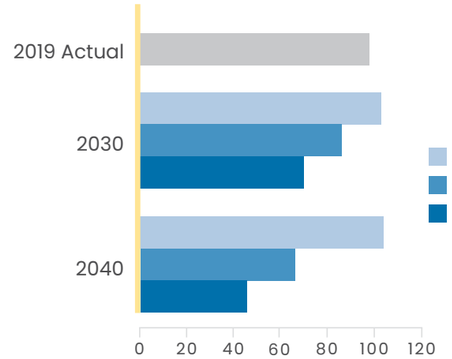
Also aligned with the Paris Agreement and described as a 1.5°C scenario, **NZE**[6] reaches worldwide net-zero emissions by 2050. This scenario is a compilation of 18 IEA scenarios that also limit warming to 1.5°C by 2100.

STEPS forecasts that global oil demand would increase to 104.1 million bpd by 2040 from 97.9 million bpd in 2019. SDS forecasts that global oil demand would decline to 86.5 million bpd in 2030 and 66.2 million bpd in 2040. In a more accelerated timeframe, NZE forecasts that global oil demand would be 71.7 million bpd in 2030, 42.6 million bpd in 2040 and 24.1 million bpd in 2050.

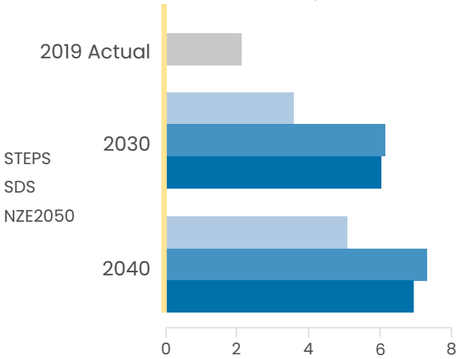
Net Zero relies on innovation in direct air capture, carbon sequestration and major individual behavioral changes to achieve its goals.

In terms of low-carbon fuels, STEPS forecasts that global demand for low-carbon fuels would increase to 5.1 million bpd in 2040. SDS forecasts that global demand for low-carbon fuels would increase to 7.4 million bpd in 2040. NZE forecasts that global low-carbon fuels demand would reach 7 million bpd by 2050.

Global Oil Demand by Scenario (million bpd)



Global Low-carbon Fuels Demand by Scenario (million bpd)



Sources: International Energy Agency (2020), *World Energy Outlook 2020*, IEA, Paris. All rights reserved; and International Energy Agency (2021), *Net Zero by 2050*, IEA, Paris. All rights reserved; as modified by Valero.

How Many Pathways Have Been Identified to Reach Net Zero?

The Intergovernmental Panel on Climate Change (IPCC) Special Report on Global Warming of 1.5°C (SR15)[7] alone cites 78 scenarios[8] that provide hypothetical descriptions of how the future may develop based on a set of assumptions to achieve global warming of 1.5°C. Scenarios are neither forecasts nor predictions but are used to provide a view of the potential implications of developments and actions. **Thus, NZE is only one more scenario on the long list of hypothetical future developments.**

[6] International Energy Agency (2021), *Net Zero by 2050. A Roadmap for the Global Energy Sector,* IEA, Paris, last updated July 2021 (3rd version). All rights reserved.

[7] IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 3-24, doi:10.1017/9781009157940.001.

[8] IAMC 1.5°C Scenario Explorer and Data hosted by IIASA, release 2.0.

The Substantial Personal Cost of Reaching Net Zero by 2050

A transition to Net Zero by 2050 substantially increases the expenses of working families and restricts the conveniences of the modern world.

In the developed world, conveniences of modern society would have to be curtailed in order to achieve the Net Zero by 2050 goals. In developing countries, economies would not be able to flourish to reach the standards of living that the developed world enjoys.

Under the IEA's Net Zero by 2050 Scenario, reaching net zero emissions globally by 2050 would demand an unprecedented personal cost to individuals in both the developed and developing worlds.

Despite expected population growth and the universal desire of upward mobility, the following list[9] demands that advanced economies lower their living standards by:

- Increasing electricity costs from about 35% of working-class household energy bills in 2020 to 90% in 2050 for developed economies. The increase is more than double in 2050 versus 2020 levels for developing economies.
- Buying an EV for those who can afford it and using mass transportation (if available), bicycling and/or walking for those who cannot afford an EV.
- Phasing out conventional vehicles from large cities and replacing with cycling, walking and public transportation.
- Eliminating new passenger internal combustion engine car sales globally by 2035.
- Restricting air travel – keeping business and long-haul leisure flights at 2019 levels and replacing short-distance flights with high-speed rail, if feasible.
- For all residential and commercial buildings, setting thermostats at 66-68°F for heating and 75-77°F for cooling.
- Moving closer to your office and schools or working from home to reduce the number of miles driven by road.
- Allowing only solar water heaters.
- Eliminating natural gas stoves.
- Upgrading homes to switch to LED lighting and smart appliances.
- Reducing meat consumption.
- Setting highway speed limit to less than 100 km/h or 62 mph.
- Washing clothes with cold water and eliminating dryers.

Illustration of Behavioral Changes Assumed by Net Zero

[9] International Energy Agency (2021), *Net Zero by 2050. A Roadmap for the Global Energy Sector,* IEA, Paris, last updated July 2021 (3rd version). All rights reserved.

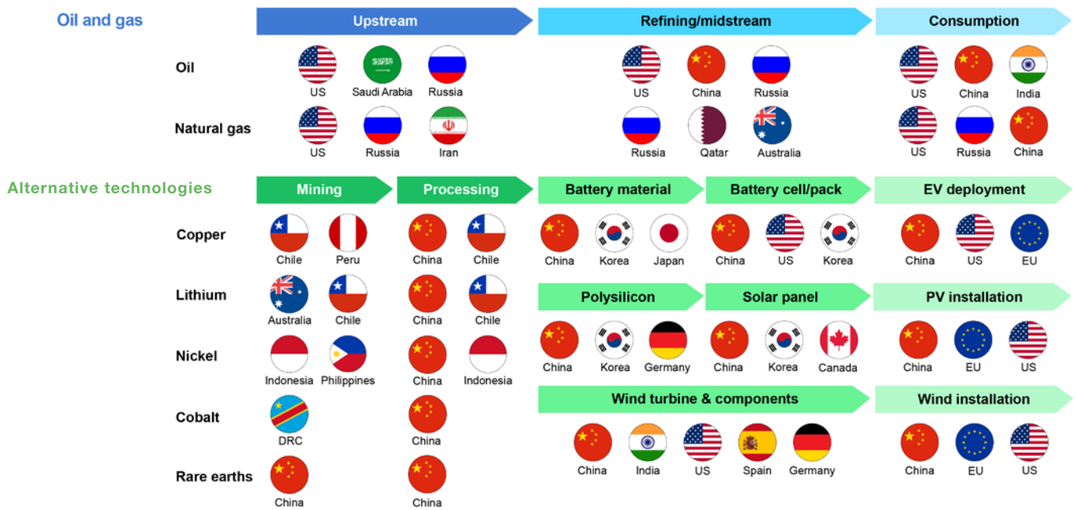
Mineral Resources in the Energy Transition

Reaching net zero emissions globally by 2050 would demand an accelerated deployment of various alternative energy initiatives, many of which have not been commercially proven.

The IEA published in May 2021 *The Role of Critical Minerals in Clean Energy Transitions* to provide an assessment of the mineral resource requirements for a wide variety of alternative energy initiatives such as renewable power, nuclear power, EVs, battery storage and hydrogen.

These technologies require metals and alloys, which are produced by processing mineral-containing ores. It is **questionable whether the world has available mineral resource supply and adequate investment plans to meet the demand increase necessary to support such energy transitions in a sustainable and responsible manner**.

Supply Chains of Oil and Gas and Alternative Energy Technologies

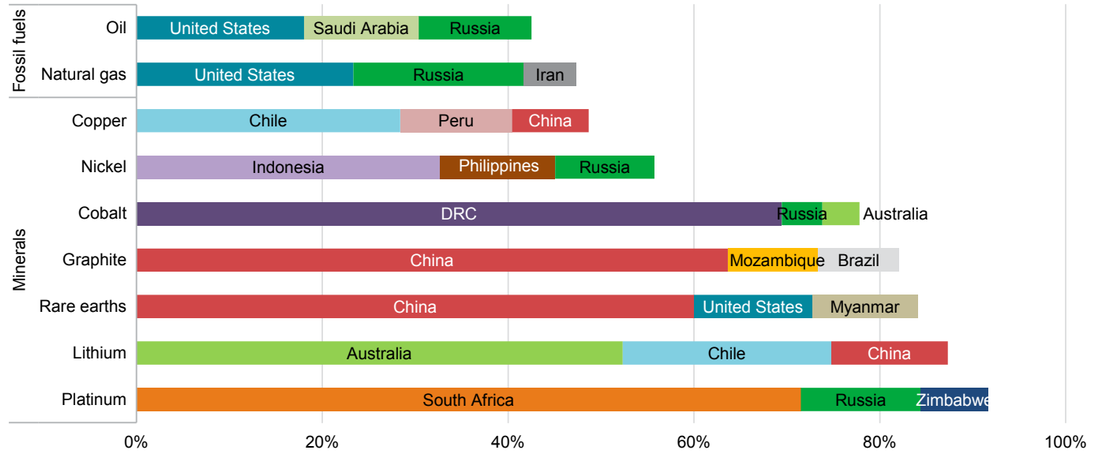


Notes: DRC = Democratic Republic of Congo; EU = European Union; US = United States; Russia = Russian Federation; China = People's Republic of China. Largest producers and consumers are noted in each case to provide an indication, rather than a complete account.

Source: International Energy Agency (2021), *The Role of Critical Minerals in Clean Energy Transitions*, IEA, Paris. All rights reserved.

Share of Top Three Producing Countries in Total Production for Selected Minerals and Fossil Fuels

(2019)



Source: International Energy Agency (2021), *The Role of Critical Minerals in Clean Energy Transitions*, IEA, Paris. All rights reserved.

Exploitation of Mineral Resources Gives Rise to a Variety of Environmental and Social Implications that Must be Carefully Managed to Ensure Reliable Supplies

The following information includes selected environmental and social challenges related to energy transition minerals, as described by the IEA in *The Role of Critical Minerals in Clean Energy Transitions*.

Lithium shown in the photo. Under NZE, lithium mining is expected to grow by more than 40 times, and graphite, cobalt and nickel are expected to grow at 20 to 25 times.

Environmental Risks:

Climate Change

- With higher GHG emission intensities than bulk metals (e.g. aluminum, iron and nickel), production of energy transition minerals can be a significant source of emissions as demand rises.
- Changing patterns of demand and types of resource targeted for development pose upward pressure.

Land Use

- Mining brings major changes in land cover that can have adverse impacts on biodiversity.
- Changes in land use can result in the displacement of communities and the loss of habitats that are home to endangered species.

Water Management

- Mining and mineral processing require large volumes of water for their operations and pose contamination risks through acid mine drainage, wastewater discharge and the disposal of tailings.
- Water scarcity is a major barrier to the development of mineral resources: Around half of global lithium and copper production are concentrated in areas of high water stress.

Waste

- Declining ore quality can lead to a major increase in mining waste (e.g. tailings, waste rocks); tailings dam failure can cause large-scale environmental disasters (e.g. Brumadinho dam collapse in Brazil).
- Mining and mineral processing generate hazardous waste (e.g. heavy metals, radioactive material).

Social Risks:

Governance

- Mineral revenues in resource-rich countries have not always been used to support economic and industrial growth and are often diverted to finance armed conflict or for private gain.
- Corruption and bribery pose major liability risks for companies.

Health and Safety

- Workers face poor working conditions and workplace hazards (e.g. accidents, exposure to toxic chemicals).
- Workers at artisanal and small-scale mine (ASM) sites often work in unstable underground mines without access to safety equipment.

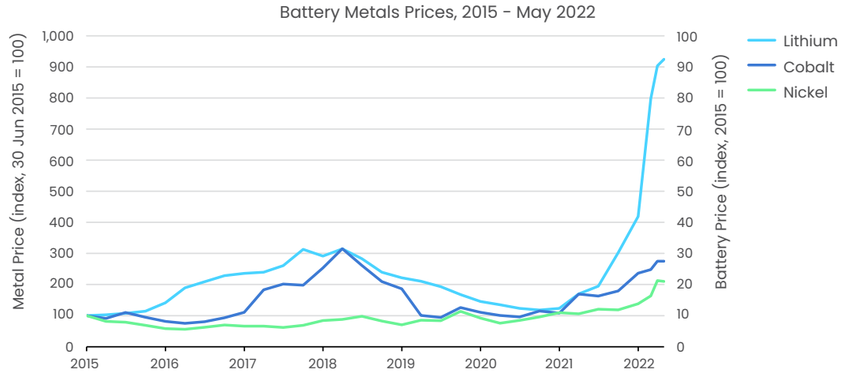
Human Rights

- Mineral exploitation may lead to adverse impacts on the local population, such as child or forced labor (e.g., children have been found to be present at about 30% of cobalt ASM sites in the DRC).
- Changes in the community associated with mining may also have an unequal impact on women.

To limit temperature rise at 1.5°C, as in Net Zero, mineral requirements for alternative energy technologies would need to grow six times more by 2040. Moreover, under such scenario, the mineral demand for use in EVs and battery storage is expected to grow at least 30 times by 2040.

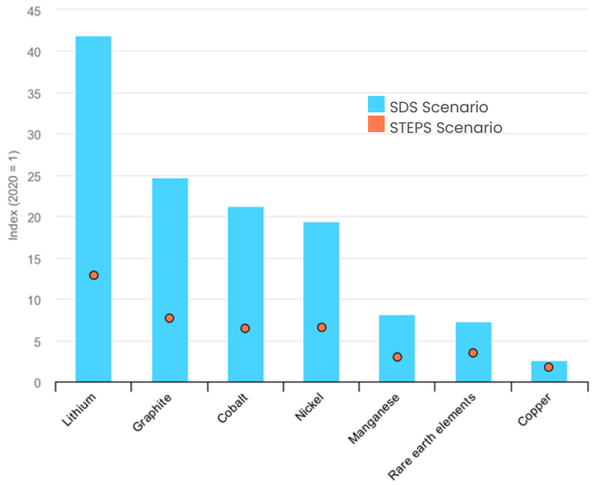
Exponential demand has sent lithium prices up 750% since the start of 2021.[10]

Battery Metal Prices Increased Dramatically in Early 2022, Posing a Significant Challenge to the EV Industry



Source: IEA analysis based on S&P Global.

Growth in Demand for Minerals by Scenario in 2040 Relative to 2020



An even faster transition, to hit net zero globally by 2050, would require more minerals than the demand growth required under SDS (as shown in the chart).

Source: IEA, Growth in demand for selected minerals from clean energy technologies by scenario, 2040 relative to 2020, IEA, Paris https://www.iea.org/data-and-statistics/charts/growth-in-demand-for-selected-minerals-from-clean-energy-technologies-by-scenario-2040-relative-to-2020

[10]As reported by The Wall Street Journal, The Place With the Most Lithium is Blowing the Electric-Car Revolution, August 10, 2022.

Governance and Risk Management

Valero's board of directors ("Board") considers oversight of Valero's risk management to be a responsibility of the full Board.

The following chart summarizes Valero's risk identification, management and oversight structure.

Full Board

- Risk management is a responsibility of the full Board, and the Board exercises its oversight responsibilities directly and through its committees.
- The full Board regularly receives reports from senior management and third parties on applicable topics, as well as from committee chairs on matters discussed at committee meetings, which helps to coordinate the Board's risk oversight role.
- Update reports from Valero's senior management on operations, market performance and dynamics, finances, and legal and public policy matters are considered "standing meeting agenda items" and are generally delivered at each regularly scheduled meeting of the full Board.
- ***Valero's energy transition strategy is a priority and focus for the full Board. In fact, Valero's energy transition strategy was the key topic at the annual strategic planning meeting in 2021, which featured presentations from third-party experts on climate, liquid fuels, energy transition and policy matters.***

Audit Committee	Nominating and Corporate Governance Committee	Sustainability and Public Policy Committee	Human Resources and Compensation Committee
KEY AREAS OF OVERSIGHT AND RESPONSIBILITY INCLUDE:			
• strategies and initiatives respecting cybersecurity and IT risks; • compliance with legal and regulatory requirements, with a focus on those with the potential to impact its financial statements or accounting policies; • financial statements and public financial information integrity; • global compliance program, and annual compliance plan; • policies and guidelines concerning financial risk exposures and the steps management has taken to monitor and control such exposures; and • internal audit function and independent auditor.	• identifying individuals qualified to become Board members, and recommending to the Board director nominees; • developing and recommending a set of corporate governance principles applicable to Valero; • the Board's and the committees' annual self-evaluation of performance; • Valero's new director orientation and director continuing education programs; and • any related-person transactions.	• corporate responsibility and reputation management; • Health, safety and environment (HSE) matters; • sustainability and climate-related risks and opportunities; • social, community, and public policy strategies and initiatives; • political issues, including political contributions and lobbying activities; and • compliance with legal and regulatory requirements for the operations of the company.	• matters related to our compensation programs, policies and strategies; • management succession planning for Valero's CEO and other senior executives; • Valero's initiatives and strategies in the areas of diversity, equity and inclusion (DEI), human capital management and leadership development; and • compliance with Valero's stock ownership and retention guidelines.

Management

Engages in day-to-day risk identification and management, including:

- executing our risk management and identification programs, plans and systems, including our Commitment to Excellence Management System, Environmental Excellence and Risk Assessment, and Fuels Regulatory Assurance Program;
- taking an interdisciplinary approach that coordinates the views of various teams and subject-matter experts across Valero, and facilitating continual communication on risk-related matters; and
- reporting to the Board and its committees, and engaging with stockholders and stakeholders throughout the year.

Full Board. The Board considers oversight of Valero's risk assessment and risk management to be a responsibility of the full Board. The Board exercises its oversight responsibility for risk assessment and risk management directly and through its committees. The Board's oversight role includes receiving reports from its committees, members of senior management and third parties on areas of potential material risk to Valero, and/or to the success of a particular project or endeavor under consideration.

The full Board regularly receives from management, and discusses at Board meetings, updates on operational, financial, market, legal, regulatory, strategic, human capital, political, reputational, ESG and sustainability, HSE, cybersecurity and IT, public policy and climate-related risks facing Valero. From time to time, the Board also requests reports on areas of special or current relevance. For example, the full Board recently conducted reviews with management of:

(i) operational, financial and health risks arising from the COVID-19 pandemic,

(ii) Valero's cybersecurity and IT initiatives,

(iii) Valero's assessment of ESG performance and climate-related risks and opportunities,

(iv) human capital issues, including the recruiting and retention of a diverse and talented workforce,

(v) Valero's policies and procedures concerning issues of workplace safety, sexual harassment and discrimination,

(vi) political spending and lobbying,

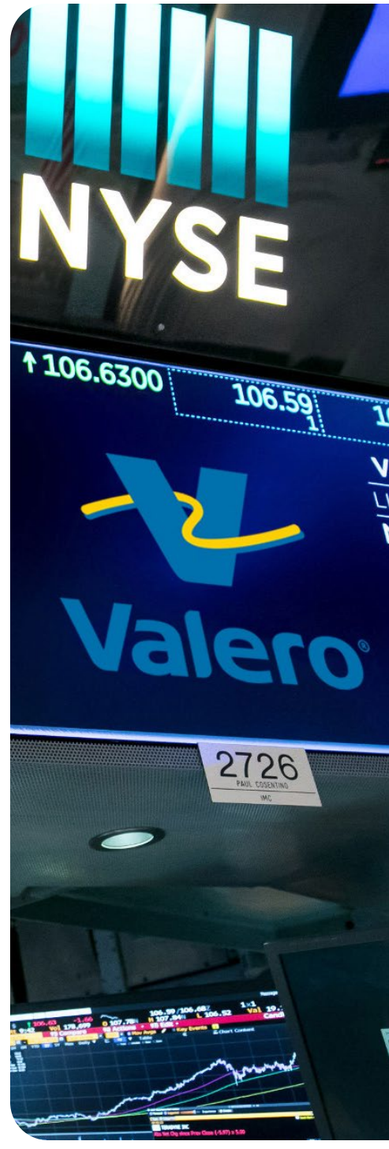
(vii) compliance,

(viii) Valero's insurance and risk management program and policies,

(ix) the status of Valero's pension and retirement plans,

(x) Valero's enterprise risk identification and management, and

(xi) Valero's emergency response preparedness and the resilience of Valero's assets.



The Board also discusses significant risks and strategies at the Board's annual strategic planning meeting. The Board regularly discusses the strategic priorities of Valero and the risks to Valero's successful execution of its strategy, including global economic and other significant trends, as well as changes in the energy industry and regulatory initiatives. **In particular, Valero's energy transition strategy is a topic that is a priority and focus for the full Board.** In addition to receiving and discussing reports from management in strategic planning sessions, Valero invites, and the Board is able to interact with, third-party experts who make presentations to the Board on short- and long-term risks facing Valero and its businesses.

The oversight of risk is shared between the full Board and its committees. The full Board (or appropriate Board committee) regularly receives reports from management to enable the Board (or committee) to assess Valero's risk identification, risk management and risk mitigation strategies. When a report is vetted at the committee level, the chair of that committee thereafter reports on the matter to the full Board. This enables the Board and its committees to coordinate the Board's risk oversight role.

Sustainability and Public Policy Committee

ESG and sustainability matters present risks, challenges and opportunities that are broad, complex and increasingly significant. Our Sustainability and Public Policy Committee is responsible for assisting the Board with oversight of (i) corporate responsibility and reputation management, (ii) HSE matters, (iii) sustainability and climate-related risks and opportunities, (iv) social, community and public policy strategies and initiatives, (v) political issues, including political contributions and lobbying activities, and (vi) compliance with legal and regulatory requirements for the operations of the company.

In addition, the management team has well-developed structures central to decision-making and risk management, including:

- The use of long-term product supply and demand assessments and forecasts as part of our capital allocation process. These assessments and forecasts incorporate our estimates on potential impacts of climate and environmental-related risks, among many other factors, and are distinct from the hypothetical IEA scenarios.
- The use of a four-stage "phase-gate" process for project development and execution considers regulatory risks and opportunities before a capital project can move forward. This process applies higher return-on-investment thresholds for projects with greater financial and regulatory uncertainty. Major capital projects must be approved by the Board after going through this process.
- Continuing engagement with stockholders and other stakeholders and monitoring of current and proposed climate and environmental-related policies, laws and regulations to help us shape effective business strategies.
- Robust operational and environmental management systems following three programs: CTEMS, EERA and Fuels Compliance, as defined in the next page.

Christine James, Director Refinery Operations, Valero Houston Refinery

Environmental Management Systems

1

Our Commitment to Excellence Management System (CTEMS) is a proprietary systematic approach to planning, executing, checking and acting to improve everyday work activities at our refineries and plants.

CTEMS has 10 elements: leadership accountability, protecting people and the environment, people and skills development, operations reliability and mechanical integrity, technical excellence and knowledge management, change management, business competitiveness, stakeholder relationships, assurance and review, and continual improvement. Risks related to regulatory issues and physical threats to our refineries and plants are among those assessed as we implement CTEMS.

2

Environmental Excellence and Risk Assessment (EERA) elevates the environmental audit and compliance functions to an environmental excellence vision. Its main goal is to assess the design and effectiveness of environmental performance regarding specific excellence objectives, and to facilitate continuous improvement across the company. EERA defines more than 100 expectations and involves a proprietary five-step process using due diligence on data and field assessments reviewed by a combination of external and internal subject matter experts. The five-step process includes:

1. Self-assessment is conducted by refinery leadership. Each refinery compares itself to rating criteria.
2. Third-party and in-house subject-matter experts conduct an extensive deep-dive review of refinery environmental data and report in a due-diligence-style process.
3. Technical field assessment is conducted using industry standards and advanced technology to evaluate effectiveness in controlling emissions.
4. Results from the technology review and due-diligence process are used by a team of experts in a substantive on-site inspection and cultural assessment.
5. Experts and leadership teams produce a final gap assessment report with mitigation pathway and scoring improvement actions.

3

Our Fuels Regulatory Assurance Program provides operational safeguards, software, training and protocols for uniformity across our refineries and plants to reinforce our compliance with applicable fuels regulations. Building on the success of this system, we have developed a proprietary Low-carbon Assurance Program designed to provide tools and oversight to assure compliance with the increasingly complex array of low-carbon fuels programs.

Strategy

Global energy supply must increase to meet the demand created by a growing world population that desires access to the standard of living enjoyed by developed countries.

Liquid transportation fuels are reliable, affordable and scalable, and we believe they will continue to be an essential source of transportation fuels well into the future.

Our strategic actions have enabled us to be a low-cost, efficient and reliable supplier of liquid transportation fuels to the world. Our refineries operate in locations with advantaged operating costs and other favorable conditions and the ability to export fuel to meet demand in developing countries, or in niche markets that enjoy raw-material cost or product-margin advantages. During the last decade, we have been growing our low-carbon fuels businesses. Our ethanol plants are located near abundant raw material, have some of the lowest operating costs in the industry and have the ability to export to meet world demand. Our renewable diesel segment produces a low-carbon, high-margin product that represents an affordable and immediate solution to reduce transportation GHG emissions. We pursue opportunities to lower the carbon intensity of many of our products, including our low-carbon fuels.

Throughout Valero's history, we have proactively managed our business portfolio through acquisitions and divestitures and have made selective investments to build a portfolio of assets that we expect to thrive under most energy demand forecasts, and we intend to continue to optimize as conditions warrant.

We closely follow existing and proposed climate-related policies such as vehicle mileage standards, EV mandates, low-carbon fuel standards and carbon taxes. When appropriate, we act in a strategic fashion to capture opportunities related to these policies. For example, our investments in capacity expansion projects for our renewable diesel segment help capitalize on the growing demand for low-carbon liquid fuels, such as renewable diesel in low-carbon fuel standard markets. And our participation in a large-scale carbon capture and sequestration pipeline system in the Mid-Continent region of the U.S. is expected to capture, transport and store carbon dioxide that results from the ethanol manufacturing process at eight of our ethanol plants. We expect to be the anchor shipper with those eight ethanol plants connected to the system. The capture and sequestration of this carbon dioxide should result in the generation of 45Q tax credits and the production of a lower carbon intensity ethanol product that we expect to place in low-carbon fuel markets, which is expected to result in a higher value for this product.

Products and Operations

We believe that our strategy to be a low-cost, efficient and reliable supplier of transportation fuels to the world is durable, even in IEA's lower-carbon scenarios.

Two of our three business segments are focused on low-carbon fuels: renewable diesel and ethanol. These products will continue contributing to meet the world's demand for low-carbon fuel alternatives as well as GHG emissions reduction targets.

We believe that our refining strategy will provide an advantage over refineries operating in other regions of the world, and that an opportunity is to export gasoline, diesel and jet fuel to meet continuing demand growth for these products in developing countries, including Mexico and Latin America. We have built a system of assets that we expect to thrive, and we intend to continue to optimize our portfolio as conditions demand.

Supply Chain

Our long-term product supply and demand assessments and forecasts incorporate our estimates of the potential impacts of climate-related risks and opportunities, among many other factors, and are distinct from the hypothetical IEA scenarios.

We have been executing, and plan to continue to execute, refining as well as low-carbon projects and initiatives that take advantage of today's market opportunities and that we believe will retain their value in the future.

Capital Allocation

Valero's capital allocation supports the development of high-return projects with products placed into high-growth markets, including markets with low-carbon standards.

Valero deployed more than 70% of growth capital to low-carbon projects in 2021.

See page 43 for Non-GAAP disclosures.

Resiliency of North America Refining

We view the cost to produce transportation fuels as a key indicator of the competitiveness of a refinery. Cost to produce is largely driven by operating expenses, access to skilled labor and raw material costs. Refinery operating expenses can be influenced by a number of factors, including energy costs.

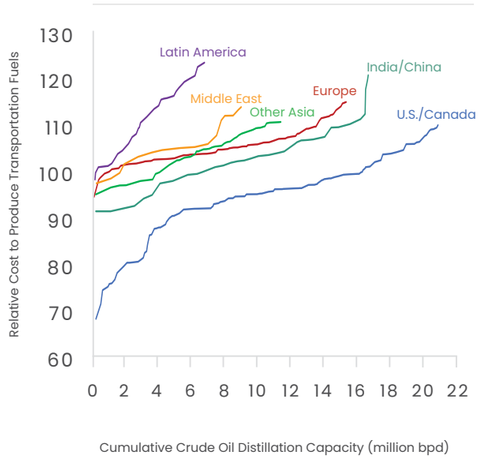
Natural gas is the primary energy used in North America to power refinery processes. The North American refining sector benefits from lower natural gas costs compared with most global competitors.

North American refineries also benefit from access to crude oil, the primary raw material for refineries. Crude oil produced in the U.S. and Canada often trades at location-related discounts compared with the price of similar quality crude oil traded in international markets. Relatively high refinery complexity and access to a deep pool of skilled labor are additional competitive advantages enjoyed by North American refiners.

Lower energy costs and advantaged North American crude oil result in lower costs to produce transportation fuels in North America as reflected in the chart below. These cost advantages exceed the cost to transport gasoline, diesel and jet fuel to other key regions in the world, thereby allowing North American refineries to operate and export fuel even when refineries in the destination regions face closure under assumed reduced demand in the IEA scenarios.

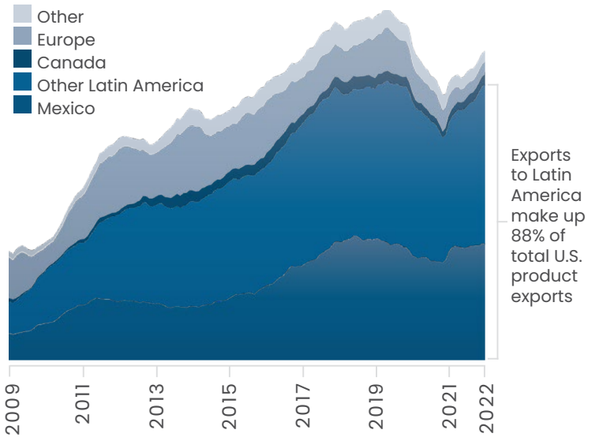
For all of these reasons, we expect the North American refining sector to maintain its cost advantages and continue to export transportation fuels to the rest of the world for many years into the future, even in the hypothetical scenarios.

U.S. Refining Cost Advantage (2018)



Source: HSB Solomon Associates LLC

U.S. Product Exports
(12-month moving average, mbpd)



Total Gasoline[11] and Diesel

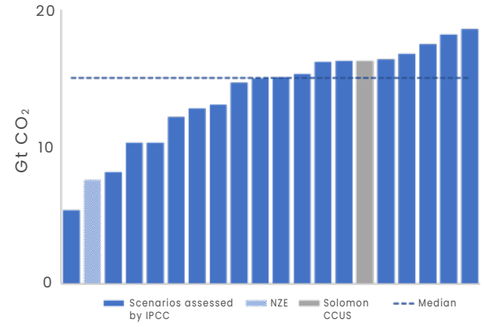
Source: DOE Petroleum Supply Monthly data through May 2022.
[11]Gasoline represents all finished gasoline plus all blendstocks (including ethanol, MTBE and other oxygenates).

Resiliency of Valero's Refining Strategy

We engaged Solomon to assist us in evaluating the resiliency of our global refining strategy and our alignment with the goals of Net Zero under the hypothetical conditions of such scenario. Solomon is a leading benchmarking and advisory firm serving the refining industry and compiles high-quality data through its biennial Fuels Study, which compares the competitiveness of refineries around the world based upon their cost to produce transportation fuels.

For purposes of our analysis, we asked Solomon to assist us in independently assessing how our refining portfolio would compare to our global competition under the assumptions of NZE. The cost to produce transportation fuel was the determining factor of being aligned with NZE.

CCUS for Net Zero Emissions in 2050 Scenarios



Source: International Energy Agency (2021), *Net Zero by 2050. A Roadmap for the Global Energy Sector*, IEA, Paris, last updated July 2021 (3rd version). All rights reserved.

Solomon's independent scenario analysis under NZE assumptions:

- Solomon locked in the GHG emissions reduction goals from NZE and attempted to fit refinery yields to the product demand assumptions as provided.
- Data gaps in NZE assumptions, as well as the unrealistic refinery product yields that did not align with product demand assumptions, prevented the balancing of the scenario.
- To bridge these data gaps and to ensure feasible refinery production, Solomon reverted to regional product demand assumptions for 2030 and 2040 from the more detailed SDS regional oil demand projections and held these assumptions until 2050 in the NZE analysis.
- Solomon mitigated the increase in GHG emissions resulting from closing the data gaps and demand assumptions by applying a designated carbon capture, utilization and storage (CCUS) scenario slightly above the median of IEA's 18 CCUS scenarios designed to limit global warming to 1.5°C by 2100 (see chart above).
- Solomon determined that the refiners with the highest cost to produce transportation fuel would close as demand fell.
- Solomon balanced regional refined production by adjusting regional refinery runs and trade flows primarily based on differences in feedstock costs, operating costs and inter-regional transportation costs using its WORLD Model.
- Solomon examined data from the 2018 Worldwide Fuels Study (which is the most reliable industry data set that was not distorted by COVID-related demand destruction) and adjusted the 2018 data with known refinery closures and probable refining capacity additions from public data to estimate refining capacity at risk under NZE.

Independently of Valero, Solomon's conclusions under Net Zero are:

- Valero's overall refining portfolio would be resilient in the low-carbon marketplace of NZE as applied by Solomon.
- Valero's strategy of continuing to operate one of the most competitive and efficient refining fleets would be aligned with the net zero goals of the Paris Agreement.
- Solomon's analysis identified that market conditions for three of our refineries could be challenging under certain conditions of the hypothetical scenario on an individual or regional basis.
- Solomon identified that strategic actions could be needed for those refineries to remain competitive under the hypothetical scenario.

We have been executing and plan to continue to execute refining projects and initiatives that take advantage of today's market opportunities, and that we expect will retain their value in the future, including:

- Completion of the construction of alkylation units at our Houston and St. Charles refineries that produce a high-octane gasoline blendstock, a product we believe is necessary to help meet increased fuel efficiency standards.
- The addition of light crude distillation units at our Houston and Corpus Christi refineries that allow us to process increased volumes of light crude from U.S. shale oil resources.
- Reduction of refinery operating costs through cogeneration plants at our Wilmington and Pembroke refineries that reduce costs, improve reliability of power and steam supplies and lower overall GHG emissions.
- Investments to improve margins and light product yields with the construction of a new Port Arthur coker unit with expected startup in the first half of 2023, creating two independent coker trains that will improve turnaround efficiency and reduce maintenance-related lost margins and opportunity.
- Investments to grow wholesale fuel volumes and exports to regions where demand for refined products is expected to outpace supply, such as in Mexico where our wholesale business is supported by a growing and flexible logistics supply system.

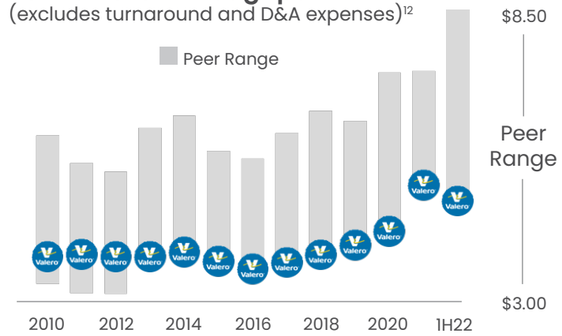
In summary, we believe that our strategy to be a low-cost, efficient and reliable producer of transportation fuels is durable, even in low-carbon scenarios such as NZE.

Fueled by natural gas, our cogeneration plant in Pembroke reduces our reliance on the local power grid and reduces cost and emissions. Cogeneration is a highly efficient way of producing electricity and thermal energy or steam.

Increased Refinery Mechanical Availability Has Driven Valero to be the Lowest-cost Producer

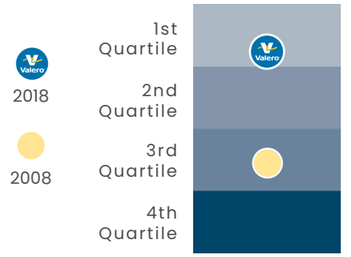
Refining Cash Operating Expenses Per Barrel of Throughput

(excludes turnaround and D&A expenses)[12]



Peer group includes PSX, MPC, DINO and PBF

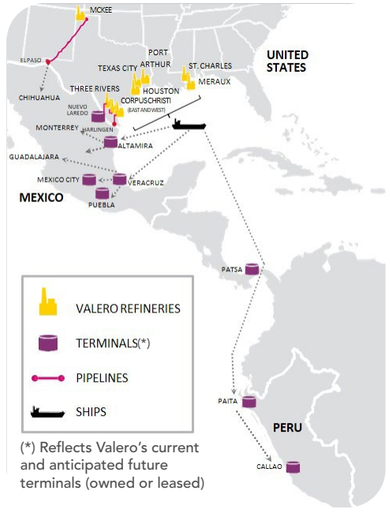
Improvement in Mechanical Availability Versus Industry Benchmarks



Industry benchmarking and Valero's performance statistics from Solomon Associates and Valero, respectively.

Investing to Grow Product Exports into Higher Netback Markets

Advantaged Refineries and Logistics



(*) Reflects Valero's current and anticipated future terminals (owned or leased)

[12] 2021 refining cash operating expenses per barrel of throughput include impacts from Winter Storm Uri.

Resiliency of Valero's Low-carbon Fuels Strategy: Renewable Diesel and Ethanol

Valero is the world's second-largest producer of both renewable diesel and corn ethanol. To date, we have invested more than $4.65 billion in the development of these low-carbon fuels businesses.

Renewable Diesel

A drop-in fuel, our renewable diesel uses a combination of used cooking oil, recycled animal fats and inedible corn oil to produce low-carbon intensity renewable diesel that reduces life cycle GHG emissions up to 80%, compared with traditional diesel.

A second-generation fuel, renewable diesel is primarily produced from used cooking oil, animal fats and inedible corn oil.

Through DGD, our consolidated joint venture that started operations in 2013 at a plant adjacent to our St. Charles refinery in Louisiana, we have the capacity to produce 700 million gallons of renewable diesel per year. Another renewable diesel plant, adjacent to our refinery in Port Arthur, Texas, is on track to be completed in the fourth quarter 2022, which will result in a combined annual capacity of about 1.2 billion gallons of renewable diesel and 50 million gallons of renewable naphtha (a gasoline blendstock and a petrochemical feedstock).

Growth Capital

In 2021, more than 70% of growth capital was invested in low-carbon projects. In 2022, we are allocating approximately 50% of growth capital expenditures to low-carbon projects. We hold our low-carbon projects to a minimum after-tax internal rate of return threshold, just like other projects. Many state, provincial and national governments across the world have implemented, or are considering implementing, low-carbon fuel policies and stricter fuel-efficiency standards to help reach GHG emissions reduction targets. Some of these and other low-carbon policies and standards aimed at reducing GHG emissions should drive the demand for both renewable diesel and ethanol.

The growth of our renewable fuels businesses not only contributes to lower carbon emissions but also provides, and should continue to provide, a high financial return to our stockholders.

The IEA projects significantly increased demand for renewable fuels in NZE to 7 million bpd by 2040. Our renewable fuels production facilities are well-positioned to meet increasing demand as projected in this scenario.

See page 43 for Non-GAAP disclosures.

Ethanol

Valero was the first traditional refiner to enter large-scale ethanol production. Today, we own 12 ethanol plants across the U.S. Midwest with a combined production capacity of 1.6 billion gallons per year. A clean-burning, high-octane renewable fuel, ethanol has at least 30% lower life cycle GHG emissions, compared with petroleum gasoline.

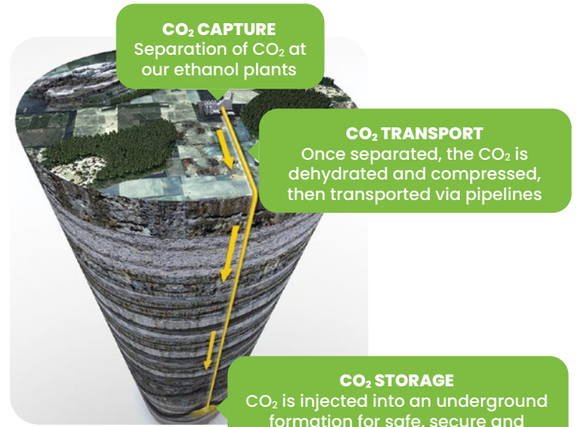
In order to continue reducing the carbon intensity of ethanol, we have implemented additional processes using enzymes to further break down the corn kernel to produce cellulosic ethanol. This type of ethanol offers even lower life cycle GHG emissions compared with corn ethanol.

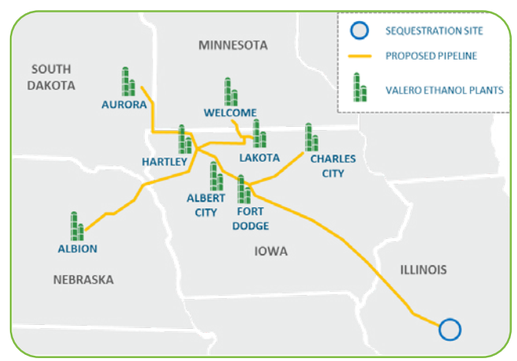
Large-scale Carbon Capture and Storage Project[13] to Further Reduce the Carbon Intensity of Ethanol

With initial startup activities to begin late 2024, this project involves capturing high-concentration CO_2 streams produced in the fermentation process at eight of our ethanol plants. Valero is expected to be the anchor shipper with the ethanol plants connected to the 1,300-mile carbon capture pipeline across five states in the U.S. Midwest.

The capture of CO_2 from our ethanol plants has the potential to further reduce the carbon intensity of ethanol by an additional 40% and make ethanol more valuable in low-carbon fuel markets.

We are also working on local carbon sequestration opportunities for our other ethanol plants.





Map is indicative only.

[13] Working with BlackRock Global Energy & Power Infrastructure Fund III and Navigator Energy Services.

Summary of Risks and Opportunities

Potential Risks	Explanation
Current Regulation	• Legal, regulatory and political matters and developments regarding climate change, GHG or other air emissions, fuel efficiency or the environment may decrease the demand for our petroleum-based products and could adversely affect our performance. • Compliance with, or developments concerning, the RFS, the LCFS and other similar regulations, policies and standards impacting the demand for low-carbon fuels could adversely affect our performance.
Emerging Regulation	• Compliance with and changes in environmental, health and safety laws, including attempted EV mandates, could adversely affect our performance.
Litigation	• Litigation related to climate change could adversely affect our performance.
Market	• Our financial results are affected by volatile margins, which are dependent upon factors beyond our control, including the price of crude oil, corn and other feedstocks and the market price at which we can sell our products. • Our operations depend on natural gas and electricity, and such dependency could materially adversely affect our business, financial condition, results of operations and liquidity. • Disruption of our ability to obtain crude oil, waste and renewable feedstocks, corn and other feedstocks could adversely affect our operations. • We are subject to risks arising from our operations outside the U.S. and generally to worldwide political and economic developments. • Large capital projects can take many years to complete, and the political and regulatory environments or other market conditions may change or deteriorate over time, negatively impacting project returns.
Reputation	• Investor and market sentiment towards climate change, fossil fuels, GHG emissions, environmental justice and other ESG matters could adversely affect our business, cost of capital and the price of our common stock and debt securities.
Technology	• Technological and industry developments, and evolving investor and market sentiment regarding fossil fuels and GHG emissions, may decrease the demand for our products and could adversely affect our performance.
Weather	• Severe weather events may have an adverse effect on our assets and operations.

Potential Opportunities	Explanation
Market Expansion for Low-cost Reliable Fuels	• A growing global economy may result in increased demand for transportation fuels by middle-class families in developing countries. We believe that our strategy to be a low-cost, efficient and reliable supplier of transportation fuels to the world is durable in both strong future demand conditions and in a lower-carbon scenario. We believe that our strategy will provide an advantage over less-competitive domestic refineries and refineries operating in other regions of the world, and that our primary refining opportunity is to export gasoline, diesel and jet fuel to meet continuing stronger demand for these products in developing countries, including Mexico and others in Latin America.
Market Expansion of Renewable Fuels	• A growing global economy, emerging regulatory policies and demand for low-carbon transportation fuels may result in increased demand for our low-carbon fuels. We strive to manage our business to responsibly meet the world's demand for reliable and affordable energy and have made multibillion-dollar investments to develop and grow our low-carbon renewable diesel and ethanol businesses. These renewable fuels businesses have made us one of the world's largest renewable fuels producers. We have invested more than $4.65 billion to date in our low-carbon fuels businesses.
Technology	• A transition to a low-carbon economy could spur the development and deployment of new efficiency measures and technologies for our facilities. We announced our participation in a large-scale carbon capture and storage project[14], which is expected to capture CO_2 streams produced in the fermentation process at eight of our ethanol plants. This project has the potential to further reduce the carbon intensity of ethanol by more than 40% and make ethanol more valuable in low-carbon fuel markets. • We are focusing on bringing creative and innovative approaches to the decarbonization of transportation fuels using technological advances that we are developing or evaluating, such as renewable diesel, cellulosic ethanol, sustainable aviation fuel, low-carbon hydrogen, renewable naphtha, tailpipe CO_2 onboard capture system and others.
Consumer Preferences	• Our complex refining system is capable and well-positioned to adapt to growing demand for products as well as a potential shift to high-octane fuels that improve fuel efficiency.

[14] See page 33 for details.

Physical Risks

According to the IPCC, the physical risks of climate change could be widespread and varied in terms of level of confidence and magnitude.

With refineries along coastlines and ethanol plants in the U.S. Midwest, Valero has long evaluated and prepared for physical risks to its facilities from natural disasters and weather events, including hurricanes, tornadoes and other threats.

Enhancing Physical Resilience

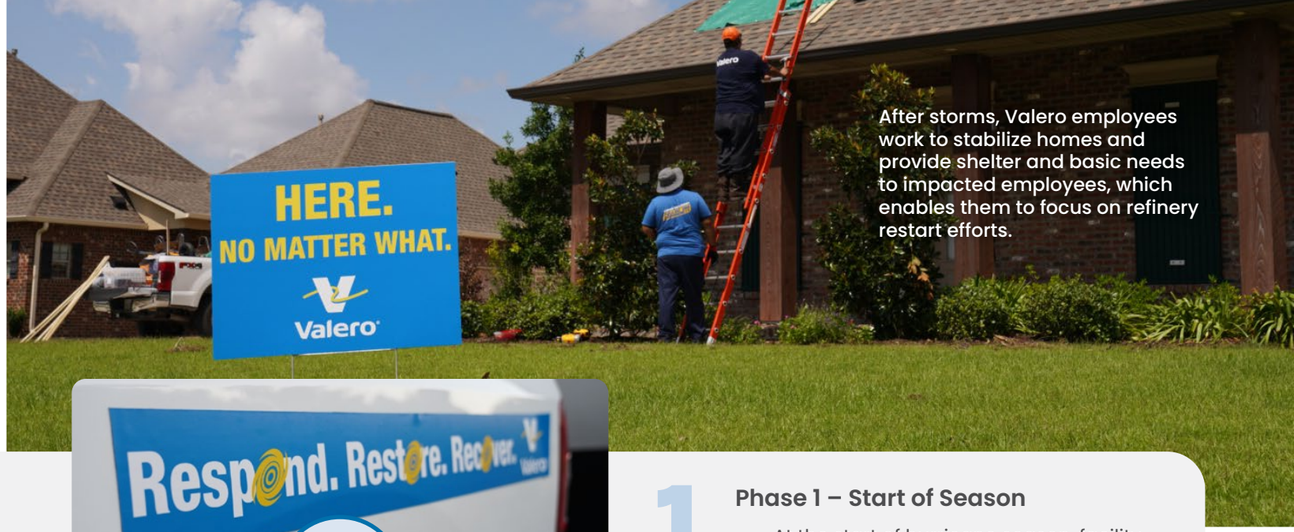
In the last 10 years, Valero has invested more than $14 billion of capital to sustain its operations, including turnarounds, catalysts, investments in safety, preventive equipment maintenance, environmental mitigation, and reliability and regulatory compliance. Sustaining capital is used to keep our facilities performing and to mitigate and reduce physical risks to our operations and our people, including:

- New infrastructure at raised elevations to reduce the effects of flooding.
- Upgraded critical buildings, including control rooms and employee shelters resilient to physical risks.
- Refineries designed to withstand hurricane forces, with safe shutdowns and non-essential personnel evacuations initiated in advance of major hurricanes.

Emergency Preparedness and Response

Our emergency management planning and response program actively assesses potential risks posed to our people and operations, and implements solutions:

- Emergency response plans at each facility that comply with all local, state and federal regulations, and are regularly updated with third-party assessments to ensure excellence.
- Qualified emergency response teams that have built strong relationships with outside response personnel.
- Regular drills and assessments to promote response readiness, incorporating the focus of our Goal Zero program.
- Critical capital resources allocated to emergency planning and response in the strategic planning and capital budget processes to make our facilities efficient and resilient.
- Use of emerging technologies to optimize decision-making and response execution.



After storms, Valero employees work to stabilize homes and provide shelter and basic needs to impacted employees, which enables them to focus on refinery restart efforts.

Hurricane Preparedness

Valero's U.S. Gulf Coast facilities are periodically exposed to hurricanes and their associated weather events, including strong winds, storm surges and flooding.

Our management and refinery leadership teams use a sophisticated hurricane preparedness program to promote the safety and reliability of our assets and the safety of our people.

The program includes pre-hurricane season activities, as well as a five-phase process to monitor evolving conditions as the storm approaches, to provide adequate time and resources for our employees and facilities to safely prepare:

1 Phase 1 – Start of Season

- At the start of hurricane season, facility plans reviewed and updated, inventory and supplies restocked, begin daily monitoring for potential storms.

2 Phase 2 – Predicted Storm Impact to Gulf

- Assess predicted storm path and potential for impact.
- Communicate with site(s) likely to be impacted or under threat.

3 Phase 3 – Significant Impact to Site(s) Likely

- Activate Corporate Emergency Operations Center (EOC) and Employee Call Center.
- Execute site operational and contingency plans and prepare site(s) for storm impacts, including the staging of equipment from service providers.

4 Phase 4 – Shutdown/Ride-Out

- Execute shutdown, ride-out and/or evacuation plans.

5 Phase 5 – Post-Hurricane

- Initiate post-hurricane response, including the assessment of impacts on employees, the environment and surrounding communities.
- Implement plans for recovery and support for safe startup and return to operations.

Targets

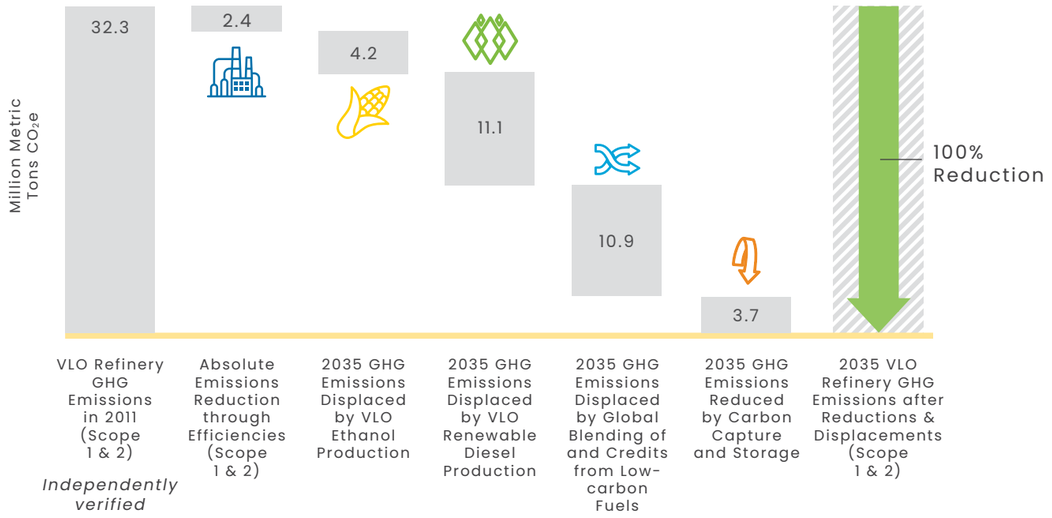
Valero's refineries are among the most efficient and are expected to be resilient according to the benchmarking analysis conducted as part of our TCFD hypothetical scenario analysis. We believe that our assets and strategies for our petroleum-based and low-carbon fuels are well positioned to make Valero a resilient company in a lower-carbon economy.

In 2021, absolute improvements have **reduced our global refinery Scope 1 and 2 GHG emissions by 11.5%** against our 2011 baseline (verified global refinery Scope 1 and 2 in 2021 account for 28.5 million metric tons CO_2e).

The growth of our **low-carbon fuels** production and blending have also displaced fossil fuels from less efficient refiners.

2035 GHG Emissions Target

We are on track to achieve our 2025 target, which focuses on reducing and displacing our global refinery Scope 1 and 2 GHG emissions by 63%. By 2035, we plan to increase that percentage to 100% through Board-approved projects and carbon sequestration projects under development.



See pages 108 and 109 of the ESG Report for notes regarding this page. The ESG Report can be found at www.valero.com> Investors > ESG > Reports and Presentations.

Environmental Metrics

[a] Million metric tons CO_2e. Independently verified. Scope 1 is defined as the direct GHG emissions from our 15 refineries. Scope 2 (market-based) is the indirect GHG emissions from purchased electricity and purchased steam used by our 15 refineries. For more information, see note EM-RM-110a.1 regarding GHG emissions on page 109 of the ESG Report, which can be found at www.valero.com > Investors > ESG.

[b] Metric tons.

[c] Million m^3.

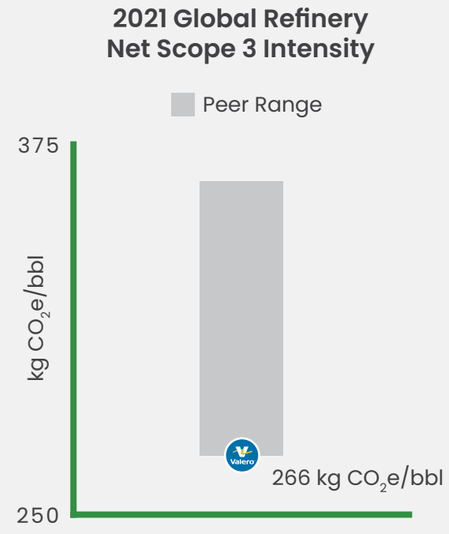
[d] Count of oil spill events to land or water of more than one barrel.

Environmental metrics in the years 2020 and 2021 were impacted by COVID-19-related demand destruction. See page 43 for details on data verification.

GLOBAL REFINERY[a]	2018	2019	2020	2021
GHG Emissions Scope 1[a]	25.4	24.8	23.0	23.7
GHG Emissions Scope 2[a]	5.0	4.7	4.5	4.9
NOx[b]	9,000	8,700	7,900	8,400
SOx[b]	7,700	8,800	7,600	7,600
PM_{10}[b]	2,300	2,200	2,200	2,600
VOCs[b]	10,300	7,700	7,500	7,500
Fresh Water withdrawn[c]	165.8	164.1	164.6	175.0
Oil spilled to land (>1 bbl)[d]	25	14	21	28
Oil spilled to water (>1 bbl)[d]	4	3	4	0

Net Scope 3 Intensity

In the chart to the right, you will find a calculation of Valero's Net Scope 3 Intensity in kg CO_2e per barrel. Scope 3 is largely a duplication of what is already being reported by others in our supply chain in their Scope 1 or 2. We recognize that Scope 3 is duplicative in substance and methodology and offers limited value; however, some stakeholders have asked for the disclosure for purposes of evaluating relative peer performance in terms of GHG emissions from the use of the products we manufacture. As expected from the leader in refining efficiency and in the production of low-carbon fuels, the estimated GHG emissions from the use of our collective products are an industry-leading low.



See page 43 for details on Valero's Net Scope 3 Intensity and the peer group.

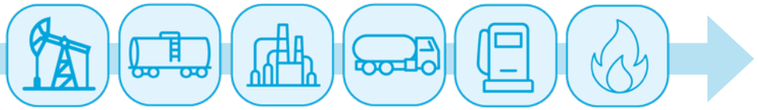
GHG Emissions from the Use of the Products We Manufacture

We have explained that, based on third-party benchmarking data, our refineries are among the most efficient.

After conducting three reports following the recommendations of TCFD and multiple scenario analyses from the IEA, we are not expecting to close any assets in the future. Therefore, our GHG emissions reductions are expected to come from low-carbon fuels we produce or innovations, such as the low-carbon hydrogen or the carbon capture and storage project we introduced earlier in the report.

In response to our stockholder engagement during the last year, we analyzed our value chain for GHG emissions disclosures.

Value Chain Analysis



We reviewed approximately 3 million transactions conducted in 2021 with more than 3,000 counterparties upstream and downstream of our refineries for feedstock purchases and product sales, respectively. We found that many of our crude oil feedstock suppliers provided limited or no public disclosure of Scope 1 and 2 emissions. Similarly, an analysis of our more than 2,800 customers revealed that many, including some of the largest purchasers of our fuels, have limited or no public disclosure of Scope 1 and 2 emissions.

Furthermore, as a merchant refiner, we were unable to ascertain the final use of all of our products. Our customers do not disclose their intended purposes for the materials purchased. For example, some of our products, including naphtha and liquefied petroleum gases, have several downstream uses aside from combustion, such as in plastics and petrochemicals production. After careful consideration, it became clear that the lack of publicly available emissions disclosures proved to be an insurmountable hurdle for fully calculating our value chain GHG emissions.

Another limitation of the value chain analysis is its lack of consideration for life cycle emissions benefits from low-carbon fuels. We were unable to find a generally accepted way to integrate the avoided GHG emissions from the displacement of petroleum-based fuels by low-carbon fuels and the reduction in emissions from carbon sequestration projects.

In conclusion, the value chain analysis proved to be complicated and yielded insufficient data to meaningfully quantify GHG emissions related to the use of products we manufacture.

To address the limitations of the value chain analysis, we introduced Net Scope 3 Intensity on page 39, which shows our leadership position in GHG emissions from our entire portfolio of fuels.

Conclusions

We believe that demand for our products will continue to increase, together with the growing economies of the developing world.

Regarding the scenario analysis, we believe that Solomon's approach to addressing data gaps and conclusions regarding resilience of our refining fleet under Net Zero are sound. If anything, the assumptions in the analysis forecast the worst-case hypothetical scenario.

In this TCFD report, we have cited a number of factors that we believe support our strategy and confirm how well-positioned Valero is as the world transitions to a lower carbon marketplace. As summarized below, we believe Valero's strategy to have the most efficient and advantaged refining system in the world and our investments in low-carbon liquid fuels and projects have resulted in excellent results and generated shareholder value.

The IEA's *Role of Critical Minerals in Clean Energy Transitions* has determined that there would not be sufficient mineral resources to convert the world's transportation systems from liquid fuels to an electric solution.

With a modest increase in demand for electric vehicles, we have recently witnessed mineral scarcity, significantly higher costs and disruption in the supply chain of battery and electric vehicle production. These factors confirm the increased costs and issues associated with transitioning to a single technology solution. It should be noted that battery backup systems for electric grids, increasingly loaded by significant additions of wind and solar, will also be competing for the same limited mineral resources, adding to supply chain disruptions and pressures as well as increasing costs.

The IEA's *Role of Critical Minerals in Clean Energy Transitions* also highlighted the significant geopolitical risk for western democracies associated with becoming dependent on existing sources and processing of critical minerals dominated by foreign powers.

Regarding the feasibility of the IEA oil demand scenarios, the electrification assumptions are based upon an accelerated deployment of alternative technologies that are still in early stages of evaluation, if any. Whereas decarbonization of existing technologies is based on current developments without the added optimism that alternative technologies enjoy in the eyes of the forecasters.

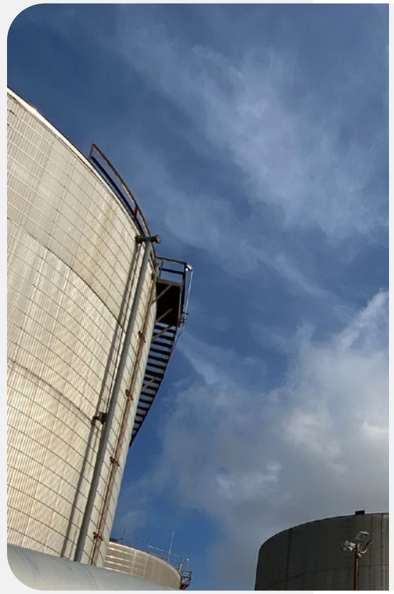
For instance, researchers agree that battery technology would continue providing modest performance improvements in the next years. However, the IEA scenarios are based on exponential performance improvements and breakthroughs in battery technology, which are unsubstantiated.

Other emissions reduction technologies such as carbon capture, onboard carbon capture systems and direct air capture, which were unimaginable just a few years ago, now seem poised to provide great carbon reduction potential at relatively lower cost per ton. Furthermore, the potential for these technologies to build off of economic and geopolitical strengths would increase the likelihood that these technologies will gain greater acceptance.

Net Zero requires immense sacrifices being made by consumers.
It also assumes that growing developing world populations will be limited to a more moderate energy footprint and that industrialized countries will make significant sacrifices in their lifestyles and energy consumptions. However, polling has shown that while consumers are concerned and want to lower carbon emissions, they are generally unwilling to make personal sacrifices. Given this consumer sentiment, we believe that a scenario that involves greater energy consumption than the scenario forecasts, more efforts to reduce, capture and sequester carbon and increasing emphasis on affordable technologies would ultimately be the direction the world would adopt.

In conclusion, we believe that our strategy to invest in flexible and efficient refining, low-carbon fuel projects, and the infrastructure critical to our operations helps us to meet today's energy needs and prepare for future market demands. Our executive management team, with the ongoing oversight of our Board, expects to continue to address climate-related risks and opportunities through the governance and risk management framework described in this report. When appropriate, we plan to act strategically to capture climate-related opportunities and mitigate risks.

We continue looking for investments and innovations that allow us to remain the lowest-cost, safest operator in our industry as we provide reliable and affordable liquid transportation fuels for the modern world, while serving the needs of all stakeholders.



Non-GAAP Disclosures

Capital investments attributable to Valero

Valero defines capital investments attributable to Valero as all capital expenditures, deferred turnaround and catalyst cost expenditures, and investments in nonconsolidated joint ventures presented in Valero's consolidated statements of cash flows, excluding the portion of DGD's capital investments attributable to the other joint venture member and all of the capital expenditures of other variable interest entities (VIEs). Capital investments attributable to Valero are allocated between sustaining capital investments attributable to Valero and growth capital investments attributable to Valero.

DGD's members use DGD's operating cash flow (excluding changes in its current assets and current liabilities) to fund its capital investments rather than distribute all of that cash to themselves. Because DGD's operating cash flow is effectively attributable to each member, only 50 percent of DGD's capital investments should be attributed to Valero's net share of capital investments. Valero also excludes the capital expenditures of other consolidated VIEs because Valero does not operate those VIEs. Valero believes that capital investments attributable to Valero is an important measure because it more accurately reflects capital investments of Valero.

Reconciliation of Sustaining and Growth Capital Investments to Sustaining and Growth Capital Investments Attributable to Valero (in millions)	Year ended Dec. 31, 2021	Year ending Dec. 31, 2022
Sustaining capital investments attributable to Valero:		
Sustaining capital expenditures (excluding VIEs)	$ 1,085	$ 1,259
Sustaining capital expenditures of VIEs:		
DGD	40	30
Other VIEs	4	3
Investments in nonconsolidated joint ventures	-	1
Sustaining capital investments	$ 1,129	$ 1,293
Adjustments:		
DGD's sustaining capital expenditures attributable to the other joint venture member	(20)	(15)
Sustaining capital expenditures of other VIEs	(4)	(3)
Sustaining capital investments attributable to Valero	$ 1,105	$ 1,275
Growth capital investments attributable to Valero:		
Growth capital expenditures (excluding VIEs)	$ 215	$ 350
Growth capital expenditures of VIEs:		
DGD	1,008	750
Other VIEs	106	16
Investments in nonconsolidated joint ventures	9	-
Growth capital investments	$ 1,338	$ 1,116
Adjustments:		
DGD's growth capital expenditures attributable to the other joint venture member	(504)	(375)
Growth capital expenditures of other VIEs	(106)	(16)
Growth capital investments attributable to Valero	$ 728	$ 725
Low-carbon growth capital investments attributable to Valero:		
DGD's growth capital expenditures attributable to Valero	$ 504	$ 375
Ethanol growth capital expenditures	34	10
Low-carbon growth capital investments attributable to Valero	$ 538	$ 385

Notes

Notes from Page 12: Southwest Research Institute Ted Talk, presented by Graham Conway. Life cycle emissions from EVs are significant from mining raw materials to fabrication to delivery to the showroom. Two times as much CO_2 emissions are generated compared to cars fueled by gasoline. Before it leaves the showroom, 12 tons of CO_2 emissions have already been generated vs. 6 tons of CO_2 emissions from cars fueled by gasoline.

Notes from Page 13: U.S. Heavy-Duty Long-Haul Vehicle (HDV) Life Cycle Emissions study conducted by Southwest Research Institute – "Life Cycle Analysis Report" (2022). Class 8 heavy-duty truck with a 1,000,000-mile (~15 years) lifetime, electric truck with a 500-mile battery range, electricity based on 2019 EIA average mix, one battery replacement, and diesel engine running on 100% waste oil based renewable diesel. Embedded emissions capture the emissions involved in the manufacturing, assembly and production of the vehicle as well as maintenance items over the lifetime of the vehicle such as battery, fluids, ADR (assembly, disposal and recycling), and components.

Notes from Page 39: Data Verification. Valero uses third parties to conduct GHG emissions, carbon intensity and fuel compliance verifications. Governments across the world with cap-and-trade and low-carbon fuel policies require independent third-party assurance of our GHG emissions and the carbon intensity of our products. For instance, California requires the mandatory verification of GHG emissions data reports as well as low-carbon fuels. Verification services are performed by qualified and trained third-party verifiers. We engaged LRQA to evaluate and issue an assurance statement on the accuracy and reliability of our global refinery Scope 1 and 2 GHG emissions. We intend to continue attaining assurance statements on our global refinery GHG emissions each year.

Valero's Net Scope 3 Intensity was calculated using Valero's reported GHG emissions in 2021 under the EPA 40 CFR Part 98 netted for avoided emissions and emissions reductions from low-carbon fuels displacement of petroleum-based fuels and carbon capture, divided by total refining throughput, and ethanol and renewable diesel production. Avoided emissions are determined using the total produced and purchased/blended ethanol, renewable diesel and biodiesel volumes converted to energy-equivalent volumes of gasoline and diesel and multiplied by the corresponding emissions factors. Emissions reductions include carbon capture initiatives. GHG emissions for the refineries in Canada and the U.K. were calculated in conformance with EPA 40 CFR Part 98 methodology.

Peer group consists of publicly listed independent pure play refiners. Net Scope 3 Intensity for the peer group was calculated using company reported 2021 GHG emissions, if publicly available, or otherwise 2020 GHG emissions (latest reported GHG emissions) under the EPA 40 CFR Part 98 netted for avoided emissions from low-carbon fuels displacement of petroleum-based fuels, if publicly available or based on an assumed blending and credits for 10% ethanol and the U.S. national average of 4.4% for biodiesel and renewable diesel divided by total refining throughput, and actual ethanol, biodiesel and/or renewable diesel production as disclosed in publicly available financial statements for the same year as the peer latest reported GHG emissions.

There is not currently any standardized methodology for calculating Scope 3 emissions and the inherent unreliability of Scope 3 calculations may be of limited value. While our Net Scope 3 Intensity calculations include data reported under EPA 40 CFR Part 98, Net Scope 3 Intensity itself is not based on any standardized industry methodology and is not necessarily calculated in the same manner or comparable to similarly titled measures presented by other companies, including the peer group, or estimates published by third parties.

TCFD Recommendations Disclosure

TCFD Recommendations Disclosure		Report Location
Governance **Disclose the organization's governance around climate-related risks and opportunities.**	a) Describe the board's oversight of climate-related risks and opportunities.	22-24
	b) Describe management's role in assessing and managing climate related risks and opportunities.	24-25
Strategy **Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.**	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	34-37
	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	26-27, 34-37
	c) Describe the resilience of the organization's strategy, taking into consideration different climate related scenarios, including a 2°C or lower scenario.	28-33

TCFD Recommendations Disclosure published January 31, 2023.

TCFD Recommendations Disclosure		Report Location
Risk Management **Disclose how the organization identifies, assesses, and manages climate-related risks.**	a) Describe the organization's processes for identifying and assessing climate-related risks.	22, 24-25
	b) Describe the organization's processes for managing climate-related risks.	26-27, 30, 36-37
	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	26-27, 30, 36-37
Metrics and Targets **Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.**	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	38-39
	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	39-40
	c) Describe the targets used by the organization to manage climate related risks and opportunities and performance against targets.	38

TCFD Recommendations Disclosure published January 31, 2023.

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