UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☑ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2021

OR

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission file number 001-13175



VALERO ENERGY CORPORATION

(Exact name of registrant as specified in its charter)

Delaware	**74-1828067**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

One Valero Way
San Antonio, Texas 78249

(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: **(210) 345-2000**

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common stock	VLO	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None.

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
Yes ☑ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.
Yes ☐ No ☑

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☑ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☑ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☑ Accelerated filer ☐ Non-accelerated filer ☐
Smaller reporting company ☐ Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☑

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☑

The aggregate market value of the voting and non-voting common stock held by non-affiliates was approximately $31.9 billion based on the last sales price quoted as of June 30, 2021 on the New York Stock Exchange, the last business day of the registrant's most

recently completed second fiscal quarter.

As of February 18, 2022, 409,303,630 shares of the registrant's common stock were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

We intend to file with the Securities and Exchange Commission a definitive Proxy Statement for our Annual Meeting of Stockholders scheduled for April 28, 2022, at which directors will be elected. Portions of the 2022 Proxy Statement are incorporated by reference in PART III of this Form 10-K and are deemed to be a part of this report.

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CROSS-REFERENCE SHEET

The following table indicates the headings in the 2022 Proxy Statement where certain information required in PART III of this Form 10-K may be found.

Form 10-K Item No. and Caption		Heading in 2022 Proxy Statement
10.	Directors, Executive Officers and Corporate Governance	*"Information Regarding the Board of Directors — Committees of the Board — Audit Committee — Meetings and Current Members," "Proposal No. 1 Election of Directors — Information Concerning Nominees and Other Directors," "Proposal No. 1 Election of Directors — Nominees," "Identification of Executive Officers,"* and *"Miscellaneous — Governance Documents and Codes of Ethics"*
11.	Executive Compensation	*"Information Regarding the Board of Directors — Committees of the Board — Compensation Committee —Compensation Committee Interlocks and Insider Participation," "Compensation Discussion and Analysis," "Executive Compensation," "Director Compensation," "Pay Ratio Disclosure,"* and *"Certain Relationships and Related Transactions"*
12.	Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters	*"Beneficial Ownership of Valero Securities"* and *"Equity Compensation Plan Information"*
13.	Certain Relationships and Related Transactions, and Director Independence	*"Certain Relationships and Related Transactions"* and *"Information Regarding the Board of Directors — Independent Directors"*
14.	Principal Accountant Fees and Services	*"KPMG LLP Fees"*

Copies of all documents incorporated by reference, other than exhibits to such documents, will be provided without charge to each person who receives a copy of this Form 10-K upon written request to Valero Energy Corporation, Attn: Secretary, P.O. Box 696000, San Antonio, Texas 78269-6000.

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The terms “Valero,” “we,” “our,” and “us,” as used in this report, may refer to Valero Energy Corporation, one or more of its consolidated subsidiaries, or all of them taken as a whole. The term “DGD,” as 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. In this Form 10-K, we make certain forward-looking statements, including statements regarding our plans, strategies, objectives, expectations, intentions, and resources under the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. You should read our forward-looking statements together with our disclosures beginning on page 35 of this report under the heading “CAUTIONARY STATEMENT FOR THE PURPOSE OF SAFE HARBOR PROVISIONS OF THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995.” Note references in this report to Notes to Consolidated Financial Statements can be found beginning on page 76, under “PART II, ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.”

PART I

ITEMS 1. and 2. BUSINESS AND PROPERTIES

OUR BUSINESS

We are a Fortune 500 company based in San Antonio, Texas. Our corporate offices are at One Valero Way, San Antonio, Texas, 78249, and our telephone number is (210) 345-2000. We were incorporated in Delaware in 1981 under the name Valero Refining and Marketing Company. We changed our name to Valero Energy Corporation in 1997. Our common stock trades on the New York Stock Exchange (NYSE) under the trading symbol “VLO.”

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 own 15 petroleum refineries located in the U.S., Canada, and the U.K. with a combined throughput capacity of approximately 3.2 million barrels per day (BPD). We are a joint venture member in Diamond Green Diesel Holdings LLC (DGD)[1], which owns a renewable diesel plant located in the Gulf Coast region of the U.S. with a production capacity of 700 million gallons per year, and we own 12 ethanol plants located in the Mid-Continent region of the U.S. with a combined production capacity of approximately 1.6 billion gallons per year. We manage our operations through our Refining, Renewable Diesel, and Ethanol segments. See “OUR OPERATIONS” below for additional information about the operations, products, and properties of each of our reportable segments.

OUR COMPREHENSIVE LIQUID FUELS STRATEGY

Overview

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.

[1] DGD is a joint venture with Darling Ingredients Inc. (Darling) and we consolidate DGD’s financial statements. See Note 13 of Notes to Consolidated Financial Statements regarding our accounting for DGD.

Our petroleum refineries operate in locations with current operating cost and/or other advantages, as described below under "OUR OPERATIONS—*Refining*," 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 developed 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, as described below under "OUR OPERATIONS—*Renewable Diesel*," and "—*Ethanol*." These businesses have made us one of the world's largest low-carbon fuels producers and have helped governments across the world achieve their greenhouse gas (GHG) emissions reduction targets. Even so, we continue to seek low-carbon fuel opportunities and to improve our environmental, social, and governance (ESG) practices.

Regulations, Policies, and Standards Driving Low-Carbon Fuel Demand

Governments across the world 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 RFS, LCFS, and similar programs (collectively, the Renewable and Low-Carbon Fuel Blending Programs). The RFS and LCFS programs are defined and discussed below under "U.S. Environmental Protection Agency (EPA) Renewable Fuel Standard (RFS) Program" and "California Low Carbon Fuel Standard (LCFS)." 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 renewable diesel and ethanol products. We believe that our ability to supply these low-carbon fuels can play an important role in helping achieve GHG emissions reduction targets.

The U.S. and California low-carbon fuel regulations, policies, and standards discussed below currently have the most significant impact on our business. However, other municipal, state, and national governments across the world, including in many of the jurisdictions in which we operate, have issued, or are considering issuing, similar low-carbon fuel regulations, policies, and standards. See "ITEM 1A. RISK FACTORS—Legal, Governmental, and Regulatory Risks—*Compliance with, or developments concerning, the Renewable and Low-Carbon Fuel Blending Programs, and other regulations, policies, and standards impacting the demand for low-carbon fuels could adversely affect our performance*." In addition, see Note 1 of Notes to Consolidated Financial Statements regarding our accounting for the costs of the blending programs under "Costs of Renewable and Low-Carbon Fuel Blending Programs," Note 21 for disclosure of the costs of the blending programs under "Renewable and Low-Carbon Fuel Blending Programs Price Risk," and Note 18 for disclosure of our blender's tax credits under "*Segment Information*."

U.S. Environmental Protection Agency (EPA) Renewable Fuel Standard (RFS) Program

The EPA created the RFS program pursuant to the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007. Under the RFS program, by November 30 of each year, the EPA is required to set annual quotas for the volume of renewable fuels that must be blended into petroleum-based transportation fuels consumed in the U.S. in the next compliance year. The quotas are set by class of renewable fuel (i.e., biomass-based diesel, cellulosic biofuel, advanced biofuel, and total renewable fuel) and are collectively referred to as the renewable volume obligation (RVO). The RVO must be met by obligated parties, who are the producers and importers of the petroleum-based transportation fuels consumed in the U.S. Obligated parties demonstrate compliance annually by retiring the appropriate number of renewable identification numbers (RINs) associated with each class of renewable fuel to

satisfy their obligations for the previous calendar year. A RIN is effectively a compliance credit that is assigned to each gallon of qualifying renewable fuel produced in, or imported into, the U.S. RINs are obtained by blending renewable fuels into petroleum-based transportation fuels, and obligated parties can also achieve compliance by purchasing RINs in the open market.

We are an obligated party under this program and our Refining segment incurs obligations as a result of being a producer and importer of petroleum-based transportation fuels consumed in the U.S., but we are also a renewable fuels producer and blender under this program and generate RINs as a result of being a producer and blender of renewable diesel, renewable naphtha, and ethanol. Therefore, there is a cost to our refining business from this program because we must purchase RINs to comply with our RVO; however, we also generate revenue from this program because we produce and sell qualifying renewable fuels.

California Low Carbon Fuel Standard (LCFS)

Under California's Global Warming Solutions Act of 2006, the California Air Resources Board (CARB) was required to undertake a statewide effort to reduce GHG emissions. One of the programs designed to help achieve those reductions is the LCFS program. The LCFS program is designed to reduce GHG emissions by decreasing the carbon intensity (CI) of transportation fuels consumed in the state. Under this program, each fuel is assigned a CI value, which is intended to represent the GHG emissions associated with the feedstocks from which the fuel was produced, the fuel production and distribution activities, and the use of the finished fuel. CIs are determined using a CARB-developed life cycle GHG emissions analysis model, and CI pathways are certified by the CARB after low-carbon fuel producers submit operational data to demonstrate the life cycle GHG emissions. The certified CIs for both low-carbon and petroleum-based fuels are compared to a declining annual benchmark. Fuels below the benchmark generate credits, while fuels above the benchmark generate deficits. The lower the fuel's CI score compared to the benchmark, the greater number of credits generated. Each producer or importer of fuel must demonstrate that the overall mix of fuels it supplies for use in California meets the CI benchmarks for each compliance period. A producer or importer with a fuel mix that is above the CI benchmark must purchase LCFS credits sufficient to meet the CI benchmark.

We produce and import petroleum-based transportation fuels in California and thus must blend low-CI fuels or purchase credits to meet the CI benchmark. However, fuels produced by our Renewable Diesel and Ethanol segments have CI scores that are lower than traditional petroleum-based transportation fuels, and we benefit from the demand from other regulated entities for these low-carbon products. In addition, the demand for some of these low-carbon transportation fuels tends to drive higher values for those fuels compared to petroleum-based transportation fuels due to their lower CI scores. We seek to pursue opportunities to further lower the CI of many of our products, including our low-carbon fuels. See "*Our Low-Carbon Projects*" below.

U.S. Federal Tax Incentives

The U.S. federal government has enacted tax incentives to encourage the production of low-carbon fuels and/or reduce GHG emissions. For example, Section 6426 of the Internal Revenue Code of 1986, as amended (the Code), provides a tax credit (generally referred to as the blender's tax credit) to blenders of certain renewable fuels to encourage the production and blending of those fuels with traditional petroleum-based transportation fuels. Only blenders that have produced a mixture and either sold or used the fuel mixture as fuel are eligible for the blender's tax credit. The renewable diesel produced by our Renewable Diesel segment is a liquid fuel derived from biomass that meets the EPA's fuel registration requirements; therefore, renewable diesel that we produce and blend qualifies for this refundable tax credit of one dollar per gallon. Under existing legislation, this credit will not apply to any sale or use of

renewable diesel for any period after December 31, 2022 unless extended. The Build Back Better Act, as passed by the U.S. House of Representatives on November 19, 2021, would extend this credit through December 31, 2026, but there is no certainty that this legislation will become law or that the provision contained in this legislation authorizing the credit or the amount of the credit will not be revised. However, legislation authorizing this credit has been extended or retroactively extended since its inception in 2004.

In addition, Section 45Q (45Q) of the Code provides federal income tax credits to certain taxpayers who capture and sequester, store, or use qualified carbon oxides (e.g., carbon dioxide) in accordance with the provisions of 45Q. We continually evaluate such federal income tax incentives, and may strategically pursue certain opportunities to optimize the potential benefits therefrom. For instance, the carbon capture and sequestration projects at our ethanol plants discussed below under "*Our Low-Carbon Projects*" should increase the value of the ethanol product produced at those plants by helping decrease its CI score and through the expected generation of 45Q tax credits.

Our Low-Carbon Projects

We have invested $4.2 billion[2] to date in our low-carbon fuels businesses, and we expect additional growth opportunities in this area. In 2021, we completed the expansion of DGD's existing renewable diesel plant (the DGD Plant). The expansion increased the DGD Plant's renewable diesel production capacity by 410 million gallons per year, bringing DGD's total renewable diesel production capacity to 700 million gallons per year, and provided DGD with the ability to produce 30 million gallons per year of renewable naphtha. Also in 2021, DGD commenced construction of its second plant. Over the next 15 months, we expect to invest approximately $800 million to complete the construction of DGD's second plant, which is expected to have a production capacity of 470 million gallons of renewable diesel and 20 million gallons of renewable naphtha per year. See "OUR OPERATIONS—*Renewable Diesel*" below for additional information about the expansion of our renewable diesel business.

We continue to evaluate and advance investments in economic, low-carbon projects, including projects that are intended to lower the CI of our products. For example, in March 2021, we announced our participation in a large-scale carbon capture and sequestration pipeline system in the Mid-Continent region of the U.S. that is expected to capture, transport, and store carbon dioxide that results from the ethanol manufacturing process at our eight ethanol plants located in Iowa, Minnesota, Nebraska, and South Dakota. 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 CI ethanol product that we expect to market in low-carbon fuel markets, which is expected to result in a higher value for this product. A third party is expected to construct, own, and operate the system, and we believe that our capital investment to purchase, install, and connect the applicable carbon capture equipment to the system will not be material. Initial service is anticipated to begin in late 2024. Additionally, certain of our other ethanol plants are located near geology believed to be suitable for sequestering carbon dioxide, and we are evaluating stand-alone projects to sequester carbon dioxide that results from the ethanol manufacturing process at those plants. See "ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS—LIQUIDITY AND CAPITAL RESOURCES—*Our Capital Resources*

[2] Our investment to date in our low-carbon fuels businesses consists of $2.5 billion in capital investments to build our renewable diesel business and $1.7 billion to build our ethanol business. Capital investments in renewable diesel represent 100 percent of the capital investments made by DGD. See also "ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS—LIQUIDITY AND CAPITAL RESOURCES—*Our Capital Resources*—Capital Investments," which is incorporated by reference into this item for our definition of capital investments.

—Capital Investments" for further discussion of our capital investments associated with low-carbon projects.

ENVIRONMENTAL MANAGEMENT SYSTEMS

We have well-developed management structures that are central to our decision making and risk management, including three programs that support our environmental management as follows:

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

- 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.

- 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 are developing 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.

OUR OPERATIONS

Our operations are managed through the following reportable segments:

- our *Refining* segment, which includes the operations of our petroleum refineries, the associated activities to market our refined petroleum products, and the logistics assets that support those operations;

- our *Renewable Diesel* segment, which includes the operations of DGD and the associated activities to market renewable diesel; and

- our *Ethanol* segment, which includes the operations of our ethanol plants and the associated activities to market our ethanol and co-products.

Financial information about these segments is presented in Note 18 of Notes to Consolidated Financial Statements, which is incorporated by reference into this item.

See "ITEM 1A. RISK FACTORS—Risks Related to Our Business, Industry, and Operations—*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,"—"*Disruption of our ability to obtain crude oil, waste and renewable feedstocks, corn, and other feedstocks could adversely affect our operations*,"—"*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*,"—"*Our investments in joint ventures and other entities decrease our ability to manage risk*," and —"Legal, Governmental, and Regulatory Risks—*Compliance with, or developments concerning, the Renewable and Low-Carbon Fuel Blending Programs, and other regulations, policies, and standards impacting the demand for low-carbon fuels could adversely affect our performance*," which are incorporated by reference into this item.

Refining

Refineries

Overview

Our 15 petroleum refineries are located in the U.S., Canada, and the U.K., and they have a combined feedstock throughput capacity of approximately 3.2 million BPD. The following table presents the locations of these refineries and their feedstock throughput capacities as of December 31, 2021.

Refinery	Location	Throughput Capacity (a) (BPD)
U.S.:		
Benicia	California	170,000
Wilmington	California	135,000
Meraux	Louisiana	135,000
St. Charles	Louisiana	340,000
Ardmore	Oklahoma	90,000
Memphis	Tennessee	195,000
Corpus Christi (b)	Texas	370,000
Houston	Texas	255,000
McKee	Texas	200,000
Port Arthur	Texas	395,000
Texas City	Texas	260,000
Three Rivers	Texas	100,000
Canada:		
Quebec City	Quebec	235,000
U.K.:		
Pembroke	Wales	270,000
Total		3,150,000

(a) Throughput capacity represents estimated capacity for processing crude oil, intermediates, and other feedstocks. Total estimated crude oil capacity is approximately 2.6 million BPD.
(b) Represents the combined capacities of two refineries – the Corpus Christi East and Corpus Christi West Refineries.

- *California*
  - *Benicia Refinery*. Our Benicia Refinery is located northeast of San Francisco on the Carquinez Straits of San Francisco Bay. It processes sour crude oils into gasoline, diesel, jet fuel, and asphalt. Gasoline production is primarily California Reformulated Blendstock Gasoline for

Oxygenate Blending (CARBOB), which meets CARB specifications when blended with ethanol. The refinery receives crude oil feedstocks via a marine dock and crude oil pipelines connected to a southern California crude oil delivery system. Most of the refinery's products are distributed via pipeline and truck rack into northern California markets.

- *Wilmington Refinery*. Our Wilmington Refinery is located near Los Angeles. The refinery processes a blend of heavy and high-sulfur crude oils. The refinery produces CARBOB gasoline, diesel, CARB diesel, jet fuel, and asphalt. The refinery is connected by pipeline to marine terminals and associated dock facilities that move and store crude oil and other feedstocks. Refined petroleum products are distributed via pipeline systems to various third-party terminals in Southern California, Nevada, and Arizona.

- *Louisiana*
  - *Meraux Refinery*. Our Meraux Refinery is located approximately 15 miles southeast of New Orleans on the Mississippi River. The refinery processes sour and sweet crude oils into gasoline, diesel, jet fuel, and high-sulfur fuel oil. The refinery receives crude oil at its dock and has access to the Louisiana Offshore Oil Port. Finished products are shipped from the refinery's dock and through the Colonial Pipeline. The refinery is located about 40 miles from our St. Charles Refinery, allowing for integration of feedstocks and refined petroleum product blending.

  - *St. Charles Refinery*. Our St. Charles Refinery is located approximately 25 miles west of New Orleans on the Mississippi River. The refinery processes sour crude oils and other feedstocks into gasoline and diesel. The refinery receives crude oil over docks and has access to the Louisiana Offshore Oil Port. Finished products are shipped over these docks and through our Parkway pipeline and the Bengal pipeline, which ultimately provide access to the Plantation and Colonial pipeline networks.

- *Oklahoma*
  - *Ardmore Refinery*. Our Ardmore Refinery is located approximately 100 miles south of Oklahoma City. It processes sweet and sour crude oils into gasoline and diesel. The refinery predominantly receives Permian Basin and Cushing-sourced crude oil via third-party pipelines. Refined petroleum products are transported via rail, trucks, and the Magellan pipeline system.

- *Tennessee*
  - *Memphis Refinery*. Our Memphis Refinery is located on the Mississippi River. It processes primarily sweet crude oils. Most of its production is gasoline, diesel, and jet fuels. The refinery's crude oil supply is primarily delivered by pipeline from Cushing, Oklahoma via the Diamond Pipeline and from North Dakota via the Dakota Access Pipeline. Crude oil can also be received, along with other feedstocks, via barge. Most of the refinery's products are distributed via truck rack and barges.

- *Texas*
  - *Corpus Christi East and West Refineries*. Our Corpus Christi East and West Refineries are located on the Corpus Christi Ship Channel. The East Refinery processes sour crude oil, and the West Refinery processes sweet crude oil, sour crude oil, and residual fuel oil. The feedstocks are delivered by tanker and barge via deepwater docking facilities on the Corpus Christi Ship Channel, and West Texas or South Texas crude oil is delivered via pipelines. The refineries' physical locations allow for the transfer of various feedstocks and blending components between

them. The refineries produce gasoline, aromatics, jet fuel, diesel, and asphalt. Truck racks service local markets for gasoline, diesel, jet fuels, liquefied petroleum gases, and asphalt. These and other finished products are also distributed by ship and barge across docks and third-party pipelines.

- *Houston Refinery*. Our Houston Refinery is located on the Houston Ship Channel. It processes sweet crude and intermediate oils into gasoline, jet fuel, and diesel. The refinery receives its feedstocks primarily by various interconnecting pipelines and also has waterborne-receiving capability at deepwater docking facilities on the Houston Ship Channel. The majority of its finished products are delivered to local, mid-continent U.S., and northeastern U.S. markets through various pipelines, including the Colonial and Explorer pipelines.

- *McKee Refinery*. Our McKee Refinery is located in the Texas Panhandle. It processes primarily sweet crude oils into gasoline, diesel, jet fuels, and asphalt. The refinery has access to local and Permian Basin crude oil sources via third-party pipelines. Refined petroleum products are transported primarily via third-party pipelines and rail to markets in Texas, New Mexico, Arizona, Colorado, Oklahoma, and Mexico.

- *Port Arthur Refinery*. Our Port Arthur Refinery is located on the Texas Gulf Coast approximately 90 miles east of Houston. The refinery processes heavy sour crude oils and other feedstocks into gasoline, diesel, and jet fuel. The refinery receives crude oil by rail, marine docks, and pipelines. Finished products are distributed into the Colonial, Explorer, and other pipelines, and across the refinery docks into ships and barges. The refinery's new coker project is expected to be completed in the first half of 2023.

- *Texas City Refinery*. Our Texas City Refinery is located southeast of Houston on the Houston Ship Channel. The refinery processes crude oils into gasoline, diesel, and jet fuel. The refinery receives its feedstocks by pipeline and by ship or barge via deepwater docking facilities on the Houston Ship Channel. The refinery uses ships and barges, as well as the Colonial, Explorer, and other pipelines for distribution of its products.

- *Three Rivers Refinery*. Our Three Rivers Refinery is located in South Texas between Corpus Christi and San Antonio. It primarily processes sweet crude oils into gasoline, distillates, and aromatics. The refinery receives crude oil from West Texas and South Texas through third-party pipelines and trucks. The refinery distributes its refined petroleum products primarily through third-party pipelines.

- *Canada*
  - *Quebec City Refinery*. Our Quebec City Refinery is located in Lévis (near Quebec City). It processes sweet crude oils into gasoline, diesel, jet fuel, heating oil, and low-sulfur fuel oil. The refinery receives crude oil by ship at its deepwater dock on the St. Lawrence River and by pipeline and ship (via the St. Lawrence River from a crude terminal in Montreal) from western Canada. The refinery transports its products through our pipeline from Quebec City to our terminal in Montreal and to various other terminals throughout eastern Canada by rail, ships, trucks, and third-party pipelines.

- *U.K.*
  - *Pembroke Refinery*. Our Pembroke Refinery is located in the County of Pembrokeshire in South West Wales. The refinery processes primarily sweet crude oils into gasoline, diesel, jet fuel,

heating oil, and low-sulfur fuel oil. The refinery receives all of its feedstocks and delivers some of its products by ship and barge via deepwater docking facilities on the Milford Haven Waterway, with its remaining products being delivered through our Mainline pipeline system and by trucks. The refinery's new cogeneration project was completed and commissioned in the third quarter of 2021.

Feedstock Supply

Our crude oil feedstocks are purchased through a combination of term and spot contracts. Our term supply contracts are at market-related prices and feedstocks are purchased directly or indirectly from various national oil companies as well as international and U.S. oil companies. The contracts generally permit the parties to amend the contracts (or terminate them), effective as of the next scheduled renewal date, by giving the other party proper notice within a prescribed period of time (e.g., 60 days, 6 months) before expiration of the current term. The majority of the crude oil purchased under our term contracts is purchased at the producer's official stated price (i.e., the "market" price established by the seller for all purchasers) and not at a negotiated price specific to us.

Marketing

Overview

We sell refined petroleum products in both the wholesale rack and bulk markets. These sales include refined petroleum products that are manufactured in our refining operations, as well as refined petroleum products purchased or received on exchange from third parties. Most of our refineries have access to marine transportation facilities, and they interconnect with common-carrier pipeline systems, allowing us to sell products in the U.S., Canada, the U.K., Latin America, and other parts of the world.

Wholesale Rack Sales

We sell our gasoline and distillate products, as well as other products, such as asphalt, lube oils, and natural gas liquids (NGLs), on a wholesale basis through an extensive rack marketing network. The principal purchasers of our refined petroleum products from terminal truck racks are wholesalers, distributors, retailers, and truck-delivered end users throughout the U.S., Canada, the U.K., Ireland, and Latin America.

The majority of our rack volume is sold through unbranded channels. The remainder is sold to distributors and dealers that are members of the Valero-brand family that operate branded sites in the U.S., Canada, the U.K., Ireland, and Mexico. These sites are independently owned and are supplied by us under multi-year contracts. Approximately 7,000 outlets carry our brand names. For branded sites, products are sold under the Valero®, Beacon®, Diamond Shamrock®, and Shamrock® brands in the U.S., the Ultramar® brand in Canada, the Texaco® brand in the U.K. and Ireland, and the Valero® brand in Mexico.

Bulk Sales

We also sell our gasoline and distillate products, as well as other products, such as asphalt, petrochemicals, and NGLs, through bulk sales channels in the U.S. and international markets. Our bulk sales are made to various oil companies, traders, and bulk end users, such as railroads, airlines, and utilities. Our bulk sales are transported primarily by pipelines, barges, and tankers to major tank farms and trading hubs.

Logistics

We own logistics assets (crude oil pipelines, refined petroleum product pipelines, terminals, tanks, marine docks, truck rack bays, and other assets) that support our refining operations. Demand for transportation fuels in Latin America is expected to continue to grow. To support our wholesale rack operations in Latin

America, we have invested in or grown our access to terminals and transloading facilities in Mexico and Peru. Our U.S. Gulf Coast refineries are well positioned to support export growth to Latin America and other countries around the world.

Renewable Diesel

Our Relationship with DGD

DGD is a joint venture that we consolidate. We entered into the DGD joint venture in 2011 and it began operations in 2013. See Note 13 of Notes to Consolidated Financial Statements regarding our accounting for DGD. We operate the DGD Plant and perform certain management functions for DGD as an independent contractor under an agreement with DGD.

Renewable Diesel Plant

The DGD Plant produces renewable diesel and is located next to our St. Charles Refinery in Norco, Louisiana. Renewable diesel is a low-carbon liquid transportation fuel that is interchangeable with petroleum-based diesel. Renewable diesel is produced from waste and renewable feedstocks using a pre-treatment process and an advanced hydroprocessing-isomerization process. The market value of the renewable diesel can vary based on regional policies, feedstock preferences, and CI scores. Waste feedstocks (predominantly animal fats, used cooking oils, and inedible distillers corn oil) are the preferred feedstocks due to their lower CI scores. While several other companies have made, or have announced interest in making, investments in renewable diesel projects, the DGD Plant is currently one of only a few operational facilities that has the capacity to process 100 percent waste and renewable feedstocks, and this feedstock flexibility currently provides a margin advantage.

The DGD Plant receives waste and renewable feedstocks primarily by rail, trucks, ships, and barges owned by third parties. DGD is party to a raw material supply agreement with Darling under which Darling is obligated to offer to DGD a portion of its feedstock requirements at market pricing, but DGD is not obligated to purchase all or any part of its feedstock from Darling. Therefore, DGD pursues the most optimal feedstock supply available.

DGD began an expansion of the DGD Plant in 2019 and operations commenced in the fourth quarter of 2021. This expansion increased the DGD Plant's renewable diesel production capacity by 410 million gallons per year, bringing DGD's total renewable diesel production capacity to 700 million gallons per year, and provided DGD with the ability to produce 30 million gallons per year of renewable naphtha. Renewable naphtha is used to produce renewable gasoline and renewable plastics.

Additionally, in January 2021, DGD began construction of a new 470 million gallons per year renewable diesel plant located next to our Port Arthur Refinery in Port Arthur, Texas. This new plant is expected to commence operations in the first quarter of 2023, and is expected to increase DGD's total renewable diesel and renewable naphtha production capacities to approximately 1.2 billion gallons per year and 50 million gallons per year, respectively.

Marketing

DGD sells renewable diesel under the Diamond Green Diesel® brand primarily to be blended with petroleum-based diesel and to end users for use in their operations. DGD sells renewable diesel domestically and into international markets, primarily Canada and Europe. Renewable diesel is distributed primarily by rail and ships owned by third parties.

Ethanol

Ethanol Plants

Our ethanol business began in 2009 with the purchase of our first ethanol plants. We have since grown the business by purchasing additional ethanol plants. Our 12 ethanol plants are located in the Mid-Continent region of the U.S., and they have a combined ethanol production capacity of approximately 1.6 billion gallons per year. Our ethanol plants are dry mill facilities that process corn to produce ethanol and various co-products, including livestock feed (dry distillers grains, or DDGs, and syrup), and inedible corn oil.

The following table presents the locations of our ethanol plants, their annual production capacities for ethanol (in millions of gallons) and DDGs (in tons), and their annual corn processing capacities (in millions of bushels).

State	City	Ethanol Production Capacity	DDG Production Capacity	Corn Processing Capacity
Indiana	Bluffton	135	355,000	47
	Linden	135	355,000	47
	Mount Vernon	100	263,000	35
Iowa	Albert City (a)	135	355,000	47
	Charles City (a)	140	368,000	49
	Fort Dodge (a)	140	368,000	49
	Hartley (a)	140	368,000	49
	Lakota (a) (b)	110	289,000	38
Minnesota	Welcome (a)	140	368,000	49
Nebraska	Albion (a)	135	355,000	47
Ohio	Bloomingburg	135	355,000	47
South Dakota	Aurora (a)	140	368,000	49
Total		1,585	4,167,000	553

(a) These plants are expected to participate in the carbon capture and sequestration pipeline system discussed in "*Our Low-Carbon Projects*" above.

(b) This plant is able to produce USP-grade ethanol (a product that typically has a higher market value than fuel-grade ethanol), which reduces its ethanol production capacity to approximately 55 million gallons per year. USP stands for U.S. Pharmacopeia and is an organization that develops quality and safety standards for medicine, food, and dietary supplements.

The foregoing table excludes data relating to our Jefferson, Wisconsin and Riga, Michigan ethanol plants, which ceased operations in 2021 and 2020, respectively. See Note 7 of Notes to Consolidated Financial Statements regarding our accounting for these ceased operations.

We source our corn supply from local farmers and commercial elevators. We publish on our website a corn bid for local farmers and cooperative dealers to facilitate corn supply transactions. Our plants receive corn primarily by rail and truck.

Marketing

We sell our ethanol under term and spot contracts in bulk markets in the U.S. We also export our ethanol into the global markets. We distribute our ethanol primarily by rail (using some railcars owned by us) and

third-party trucks, barges, and vessels. We sell DDGs primarily to animal feed customers in the U.S., Mexico, and Asia, which are transported primarily by third-party rail, trucks, and vessels.

Seasonality

Demand for gasoline, diesel, and asphalt is higher during the spring and summer months than during the winter months in most of our markets, primarily due to seasonal increases in highway traffic and construction. The demand for renewable diesel has not significantly fluctuated by season. Ethanol is primarily blended into gasoline, and as a result, ethanol demand typically moves in line with the demand for gasoline.

GOVERNMENT REGULATIONS

We incorporate by reference into this Item the disclosures on government regulations, including environmental regulations, contained in the following sections of this report:

- —OUR COMPREHENSIVE LIQUID FUELS STRATEGY—*Regulations, Policies, and Standards Driving Low-Carbon Fuel Demand*";
- "ITEM 1A. RISK FACTORS—Legal, Governmental, and Regulatory Risks"; and
- "ITEM 3. LEGAL PROCEEDINGS—ENVIRONMENTAL ENFORCEMENT MATTERS."

Capital Expenditures Attributable to Compliance with Government Regulations

Compliance with government regulations, including environmental regulations, did not have a material effect on our capital expenditures in 2021, and we currently do not expect that compliance with these regulations will have material effects on our capital expenditures in 2022.

Other

Because our business is heavily regulated, our costs for compliance with government regulations are significant and can be material, especially costs associated with the Renewable and Low-Carbon Fuel Blending Programs disclosed in Notes 20 and 21 of Notes to Consolidated Financial Statements, which are incorporated by reference into this item.

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HUMAN CAPITAL

We believe that our employees provide a competitive advantage for our success. We seek to foster a culture that supports diversity, equality, and inclusion, and we strive to provide a safe, healthy, and rewarding work environment for our employees with opportunities for professional growth and long-term financial stability.

Headcount

On December 31, 2021, we had 9,813 employees. These employees were located in the following countries:

Country	Number of Employees
U.S.	8,172
Canada	647
U.K. and Ireland	835
Mexico and Peru	159
Total	9,813

Of our total employees as of December 31, 2021, 1,764 were covered by collective bargaining or similar agreements, and 9,794 were in permanent full-time positions. See also "ITEM 1A. RISK FACTORS—General Risk Factors—*Our business may be negatively affected by work stoppages, slowdowns, or strikes by our employees, as well as new labor legislation issued by regulators*."

Company Culture and Human Capital (People) Strategy

Our company culture and our well-defined expectations of ethics and behavior guide the daily work of our employees and support our efforts to produce exceptional company results. The six values that define our culture are *Safety, Accountability, Teamwork, Excellence, Do the Right Thing,* and *Caring*.

Our people strategy and programs are designed and implemented in support of our business and strategic objectives. In building and fostering great teams, we are guided by the following:

- We strive to hire and promote top-talent employees with team-oriented work ethics and values;
- Our pay, benefits, and support programs are designed to attract and retain excellent employees and to reward innovation, ingenuity, and excellence;
- We seek to provide a best-in-class, diverse, and inclusive work environment built on a foundation of respect, accountability, and trust;
- We promote a culture of learning intended to drive excellence at all levels of the organization and to foster career-long growth and development opportunities for employees; and
- We continually assess employee performance, organizational structures, and succession plans to support operational excellence, efficiency, and effectiveness.

Diversity, Equality, and Inclusion

We believe that having a diverse workforce and inclusive teams provides strengths and advantages for our success, and our board of directors (Board) and management team strive to promote and improve

diversity, equality, and inclusion. Of our total employees as of December 31, 2021, approximately 30 percent of our global professional employees were female, 11 percent of our hourly employees were female, and 19 percent of total employees were female. Approximately 36 percent of our U.S. employees have self-identified as Hispanic or Latino, Black or African American, Asian, American Indian or Alaskan Native, Native Hawaiian or Other Pacific Islander, or as two or more races. We strive to recruit and retain a diverse workforce and foster a culture of inclusion through various efforts, including targeted recruiting strategies aimed at improving our outreach to underrepresented groups and educational and training programs on diversity-related topics, such as objective hiring and the advantages of a diverse workforce. We are also committed to hiring and retaining veterans and reservists of the U.S. armed forces, who represent 12 percent of our U.S. workforce as of December 31, 2021.

From our intern program to our Board, and at all levels between, we strive to build diverse and inclusive teams. Our intern program class of 2021 was the most diverse in the history of our program, with 39 percent being female and 34 percent representing a racial or ethnic minority, and more than half of the independent members of our Board represent diversity of gender or race/ethnicity. In furtherance of the Board's diversity goals, the charter for the Nominating/Governance and Public Policy Committee of the Board was amended in 2021 to require that the initial list of candidates from which director nominees are chosen include, but need not be limited to, qualified diverse candidates (known as a "Rooney Rule" amendment).

Safety

We believe that safety and reliability are extremely important, not only for the protection of our employees and to the cultural values we aspire to as a company, but also for operational success, as a decrease in the number of employee safety events and process safety events should generally reduce unplanned shutdowns and increase the operational reliability of our refineries and plants. This, in turn, should also translate into fewer environmental incidents, a safer workplace, lower environmental impacts, and better community relations. We strive to improve safety and reliability by offering year-round safety training programs for our employees and contractors and by seeking to promote the same expectations and culture of safety among all of our workforce. We also seek to enhance our safety compliance by conducting safety audits, quality assurance visits, and comprehensive risk assessments.

In assessing safety performance, we measure our annual total recordable incident rate (TRIR), which includes data with respect to our employees and contractors and is defined as the number of recordable injuries per 200,000 working hours. We also annually measure our Tier 1 Process Safety Event Rate, which is a metric defined by the American Petroleum Institute that looks at process safety events per 200,000 total employee and contractor working hours. We use these measures and believe they are helpful in assessing our safety performance because they evaluate performance relative to the numbers of hours being worked. These metrics are also used by others in our industry, which allows for a more objective comparison of our performance. Our refinery employee and contractor TRIR for 2021 was 0.21 and 0.26, respectively, and our refinery Tier 1 Process Safety Event Rate for 2021 was 0.05. As a result, 2021 was our best year so far in terms of safety performance.

Compensation and Benefits

We believe that it is important to provide our employees with competitive compensation and benefits. The benefits we offer to employees, depending on work location and eligibility status, include, among others, healthcare plans that are generally available to all employees, extended sick leave, new-parent leave, access to financial planning, programs to support dual-working parents at different stages of their careers, caregiver support networks (including an on-site child care center at our headquarters) and support for children and parents with disabilities, a company 401(k) matching program, various company-sponsored

pension plans, on-site employee wellness centers (also available to eligible dependents at our headquarters), tuition reimbursement programs, fitness center access or a stipend, and employee recognition programs.

We believe that it is important to reward employee performance and have an annual bonus program that rewards achievements of various operational, financial, and strategic objectives. While such objectives include typical financial performance metrics, we believe ESG performance is also important and our annual bonus program rewards achievements in areas such as sustainability, diversity and inclusion, compliance, and corporate citizenship.

Our compensation programs are designed with consideration of fair treatment and equal pay concepts, and are built upon a foundational philosophy of market-competitive and performance-based pay.

Pay equity of our U.S. professional workforce is analyzed biennially by an independent consultant retained by us. Our most recent pay equity analysis, which was performed in 2020, reported that we had a gender pay equity ratio of 99 percent and a minority/nonminority pay equity ratio of 100 percent when considering factors that appropriately differentiate pay, such as time in role and pay grade.

Training and Development

We offer a comprehensive training and development program for our employees in subjects such as engineering and technical excellence, safety, maintenance and machinery/equipment repair, ethics, leadership, and employee performance. Our employee development initiatives include customized professional and technical curriculums, efforts to engage our leadership in the employee's development process, and providing employee performance discussions. We offer a robust virtual training curriculum, which allows for greater availability and access for employees located across our many facilities and enables just-in-time training.

Wellness

We strive to promote the health and well-being of our employees and their families. Our Total Wellness Program serves as the umbrella program for all aspects of employee wellness and is the program through which many of the benefits referenced above are provided. The heart of our Total Wellness Program is the annual wellness assessment, which is intended to provide a detailed picture of an employee's current health that may educate and inform health decisions by highlighting risk factors and providing information that can help save lives. Under our Total Wellness Program, educational sessions are also scheduled throughout the year on a variety of topics on health and finances. Our Total Wellness Program also supports the financial wellness of our employees through our financial benefit programs, depending on eligibility status and work location.

We also offer a wide range of support to our employees through our confidential employee assistance program, helping employees and their families manage relationship challenges, counseling needs, and substance abuse and recovery, as well as self-care programs for various behavioral health challenges.

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PROPERTIES

Our principal properties are described in "OUR OPERATIONS" above and that information is incorporated by reference into this item. We believe that our properties are generally adequate for our operations and that our refineries and plants are maintained in a good state of repair. As of December 31, 2021, we were the lessee under a number of cancelable and noncancelable leases for certain properties. Our leases are discussed in Note 6 of Notes to Consolidated Financial Statements, which is incorporated by reference into this item. Financial information about our properties is presented in Note 7 of Notes to Consolidated Financial Statements, which is incorporated by reference into this item.

Our patents relating to our refining operations are not material to us as a whole. The trademarks and tradenames under which we conduct our branded wholesale business — Valero®, Diamond Shamrock®, Shamrock®, Ultramar®, Beacon®, and Texaco®— and other trademarks employed in the marketing of refined petroleum products are integral to our wholesale rack marketing operations. The trademark and tradename under which DGD sells its renewable diesel — Diamond Green Diesel® — is integral to the sales of our Renewable Diesel segment.

AVAILABLE INFORMATION

Our website address is www.valero.com. Information (including any presentation or report) on our website is not part of, and is not incorporated into, this report or any other report we may file with or furnish to the U.S. Securities and Exchange Commission (SEC), whether made before or after the date of this annual report on Form 10-K and irrespective of any general incorporation language therein. Furthermore, references to our website URLs are intended to be inactive textual references only. Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and other reports, as well as any amendments to those reports, filed with or furnished to the SEC are available on our website (under Investors > Financials > SEC Filings) free of charge, soon after we file or furnish such material.

Additionally, on our website (under Investors > ESG), we post our corporate governance guidelines and other governance policies, codes of ethics, and the charters of the committees of our Board. In this same location, we also publish our 2021 Stewardship and Responsibility Report, which includes our 2021 SASB Report, our report disclosing certain U.S. workforce diversity statistics and data that corresponds to our 2020 U.S. Equal Employment Opportunity Information (EEO-1) Report (filed in 2021), our 2025 and 2035 GHG emissions reductions and offset targets and other disclosures, and our 2021 TCFD Report and Scenario Analysis. These documents are available in print to any stockholder that makes a written request to Valero Energy Corporation, Attn: Secretary, P.O. Box 696000, San Antonio, Texas 78269-6000. Our ESG Overview is also available on our website (under Responsibility > ESG: Environmental, Social and Governance) and disclosures concerning our political engagement, climate lobbying, and trade associations are available on our website (under Investors > ESG). These reports and disclosures are not a part of this annual report on Form 10-K, are not deemed filed with the SEC, and are not to be incorporated by reference into any of our filings under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date of this annual report on Form 10-K and irrespective of any general incorporation language therein. Furthermore, references to our website URLs are intended to be inactive textual references only.

ITEM 1A. RISK FACTORS

You should carefully consider the following risk factors in addition to the other information included in this report. Each of these risk factors could adversely affect our business, financial condition, results of operations, and/or liquidity, as well as adversely affect the value of an investment in our common stock or debt securities.

Risks Related to Our Business, Industry, and Operations

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 financial results are affected by the relationship, or margin, between our product prices and the prices for crude oil, corn, and other feedstocks, which can vary based on global, regional, and local market conditions, as well as by type and class of product. Historically, refining and ethanol margins have been volatile, and we believe they will continue to be volatile in the future. We expect that the volume of renewable diesel produced by competitors will increase going forward, and as the market becomes more competitive, or if there are changes in the regulations, policies, and standards affecting the demand for low-carbon fuels, our Renewable Diesel segment may experience increased volatility in product margins. Our cost to acquire feedstocks and the price at which we can ultimately sell products depend upon several factors beyond our control, including regional and global supply of and demand for crude oil, corn, and other feedstocks, gasoline, diesel, other liquid transportation fuels (such as jet fuel, renewable diesel, and ethanol), and other products. These in turn depend on, among other things, the availability and quantity of imports, the production levels of U.S. and international suppliers, levels of product inventories, productivity and growth (or the lack thereof) of U.S. and global economies, U.S. relationships with foreign governments, political affairs, and the extent of governmental regulation. The ability of the members of the Organization of Petroleum Exporting Countries (OPEC) to agree on and to maintain crude oil price and production controls has also had, and may continue to have, a significant impact on the market prices of crude oil and certain of our products. Additionally, the regulations, policies, and standards discussed under "ITEMS 1. and 2. BUSINESS AND PROPERTIES—OUR COMPREHENSIVE LIQUID FUELS STRATEGY—*Regulations, Policies, and Standards Driving Low-Carbon Fuel Demand*" have had, and may continue to have, a significant impact on the market prices of the feedstocks for, and products produced by, our low-carbon fuels businesses. Any adverse change in these regulations, policies, and standards, including the calculation of CI scores, or in our ability to obtain any approved fuel pathways, could have a material adverse effect on the margins we receive for our low-carbon products in certain markets.

Some of these factors can vary by region and may change quickly, adding to market volatility, while others may have longer-term effects. The longer-term effects of these and other factors on product margins are uncertain. We do not produce crude oil, corn, waste and renewable feedstocks, or other primary feedstocks and must purchase nearly all of the feedstocks we process. We generally purchase our feedstocks long before we process them and sell the resulting products. Price level changes during the period between purchasing feedstocks and selling the resulting products has had, and in the future could continue to have, a significant effect on our financial results. A decline in market prices could negatively impact the carrying value of our inventories.

Economic turmoil, inflation, cybersecurity incidents, and political unrest or hostilities, including the threat of future terrorist attacks, could affect the economies of the U.S. and other countries. Lower levels of

economic activity could result in declines in energy consumption, including declines in the demand for and consumption of our products, which could cause our revenues and margins to decline and limit our future growth prospects. Refining, renewable diesel, and ethanol margins also can be significantly impacted by the addition of capacity through the expansion of existing facilities or the construction of new refineries or plants. Worldwide refining capacity expansions may result in refining production capacity exceeding refined petroleum product demand, which would have an adverse effect on refining margins.

A significant portion of our profitability is derived from the ability to purchase and process crude oil feedstocks that historically have been cheaper than benchmark crude oils, such as Louisiana Light Sweet (LLS) and Brent crude oils. These crude oil feedstock differentials vary significantly depending on overall economic conditions and trends and conditions within the markets for crude oil and refined petroleum products. Previous declines in such differentials have had, and any future declines would again have, a negative impact on our results of operations.

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.

A reduction in the demand for our products could result from a transition to alternative fuel vehicles by consumers, such as electric vehicles (EVs) and hybrid vehicles, whether as a result of technological or scientific advances, government mandates, or consumer or investor sentiment towards fossil fuels and GHG emissions. New or changing technologies may be developed that make alternative fuel vehicles more affordable or desirable, including improvements in battery and storage technology, increases to EV driving ranges, increased availability of charging stations and other necessary infrastructure, and increased inventory, which may cause some consumers to shift to alternative fuel vehicles, including vehicles that use alternative fuels other than the liquid fuels we produce.

Additionally, there may be new entrants into the renewable fuels industry that could meet demand for lower-carbon transportation fuels and modes of transportation in a more efficient or less costly manner than our technologies and products, which could also have a material adverse effect on our low-carbon fuels businesses. For instance, several other companies have made, or announced interest in making, investments in renewable diesel projects. Should these projects develop, we would face competition from them for feedstocks and customers, which could strain margins on the products we sell and limit the growth and profitability of our low-carbon fuels businesses. It is not possible at this time to predict the ultimate form, timing, or extent of any such developments. However, a reduction in the demand for our products as a result of any of the foregoing events could materially and adversely affect our business, financial condition, results of operations, and liquidity.

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.

There have been efforts in recent years aimed at the investment community, including investment advisors, sovereign wealth funds, pension funds, universities, and other groups, to promote the divestment of securities of energy companies, as well as to pressure lenders and other financial services companies to limit or curtail activities with energy companies. As a result, some financial intermediaries, investors, and other capital markets participants have reduced or ceased lending to, or investing in, companies that operate in industries with higher perceived environmental exposure, such as the energy industry.

Additionally, pension funds at the U.S. state and municipal level, as well as in other countries and jurisdictions across the world, particularly in Europe, have announced similar plans. If these or similar divestment efforts are continued, the price of our common stock or debt securities, and our ability to access capital markets or to otherwise obtain new investment or financing, may be negatively impacted.

Members of the investment community are also increasing their focus on ESG practices and disclosures, including those related to climate change, GHG emissions targets, business resilience under the assumptions of demand-constrained scenarios, and net-zero ambitions in the energy industry in particular, as well as diversity, equality, and inclusion initiatives, political activities, and governance standards among companies more generally. As a result, we may face negative publicity, increasing pressure regarding our ESG practices and disclosures, and demands for ESG-focused engagement from investors, stakeholders, and other interested parties. This could result in higher costs, disruption and diversion of management attention, an increased strain on our resources, and the implementation of certain ESG practices or disclosures that may present a heightened level of legal and regulatory risk, or that threaten our credibility with other investors and stakeholders. Investors, stakeholders, and other interested parties are also increasingly focusing on issues related to environmental justice. This may result in increased scrutiny, protests, and negative publicity with respect to our business and operations, and those of our counterparties, which could in turn result in the cancellation or delay of projects, the revocation or delay of permits, termination of contracts, lawsuits, regulatory action, and policy change that may adversely affect our business strategy, increase our costs, and adversely affect our reputation and financial performance.

Additionally, members of the investment community may screen companies such as ours for ESG performance before investing in our common stock or debt securities, or lending to us. Credit rating agencies are also increasingly using ESG as a factor in their assessments, which could impact our cost of capital or access to financing. There has also been an acceleration in investor demand for ESG investing opportunities, and many institutional investors have committed to increasing the percentage of their portfolios that are allocated towards ESG-focused investments. As a result, there has been a proliferation of ESG-focused investment funds and market participants seeking ESG-oriented investment products. There has also been an increase in third-party providers of company ESG ratings, and more ESG-focused voting policies among proxy advisory firms, portfolio managers, and institutional investors. Some investors and stakeholders are also increasingly focused on pursuing strategies centered on ESG-related activism.

If we are unable to meet the ESG standards or investment, lending, ratings, or voting criteria and policies set by these parties, we may lose investors, investors may allocate a portion of their capital away from us, we may become a target for ESG-focused activism, our cost of capital may increase, the price of our securities may be negatively impacted, and our reputation may also be negatively affected.

The ongoing COVID-19 pandemic and the related events and circumstances have had, and may continue to have, negative impacts on our business, financial condition, results of operations, and liquidity and those of our customers, suppliers, and other counterparties.

At the onset of the COVID-19 pandemic in March 2020, governmental authorities around the world imposed restrictions, such as stay-at-home orders and other social distancing measures, to slow the spread of COVID-19. Many companies and individuals implemented similar efforts. These measures resulted in significant economic disruption globally as reduced economic activity negatively impacted many businesses, including ours.

During 2020, we experienced a decline in the demand for most of the liquid transportation fuels that we produce and sell, and thus also a decline in the market prices of those products, due to a decrease in the level of individual movement and travel resulting from the restrictions and general public health concerns. Some governmental authorities began lifting restrictions in the latter part of 2020 and this continued to varying degrees throughout 2021. These actions have contributed to increasing levels of individual movement and travel and a resulting increase in the demand for and market prices of our products. However, some governmental authorities continue to impose some level of restrictions due in part to new outbreaks, including those related to new variants of the virus (such as the delta and omicron variants). Additionally, the lingering effects of the COVID-19 pandemic and variants of the virus continue to negatively impact the level of air travel, global supply chains, and the labor market.

The distribution of vaccines beginning in late 2020 has helped decrease the rates and severity of infection and contributed to the lifting of many restrictions. The ongoing distribution of vaccines may result in the continued lifting of restrictions globally and may be seen as a key factor contributing to the ongoing restoration of public confidence, and thus also to stimulating and increasing global economic activity. However, the risk remains that vaccines may not be distributed widely on a timely basis, they may not be as effective against new variants of the virus, and/or the level of individuals' willingness to receive a vaccine may not be as strong or as timely as needed. Additionally, some governmental authorities have announced requirements and mandates, including steep fines for noncompliance, on employers concerning workforce vaccination and testing. Many large companies across the world, independent of such government regulations, have also begun implementing vaccine requirements and mandates for their workforces, or as a prerequisite to providing customers certain goods and services in person. These requirements and mandates have evoked mixed reactions and have created additional challenges and costs, both administratively and operationally, for employers (including us and our counterparties) and their workforces. Developments with respect to such requirements and mandates are evolving at a rapid pace and the ultimate impact thereof remains uncertain. The ultimate outcome of the uncertainties and other unforeseen effects of the COVID-19 pandemic could result in many adverse consequences including, but not limited to, reduced availability of critical staff necessary to maintain operations, disruption or delays to supply chains for critical equipment or feedstock, inflation, reduced economic activity and individual movement that negatively impact demand for our products, and increased administrative, compliance, and operational costs.

The ultimate extent of the impact of the COVID-19 pandemic will depend largely on future developments, particularly within the geographic areas where we operate, and the related impact on overall economic activity, all of which are currently unknown and cannot be predicted with certainty at this time. However, the adverse impacts of the economic effects from the COVID-19 pandemic on our business have been and may continue to be significant.

The adverse effects of the COVID-19 pandemic on our business, financial condition, results of operations, and liquidity have also had, and may continue to have, the effect of heightening many of the other risks described in the other risk factors in this section. Such risk factors may be amended or supplemented by subsequent quarterly reports on Form 10-Q and other reports and documents we file with the SEC after the date of this annual report on Form 10-K.

Our operations depend on natural gas and electricity, and such dependency could materially adversely affect our business, financial condition, results of operations, and liquidity.

Our operations depend on the use of natural gas and electricity. We consume a significant volume of natural gas and a significant amount of electricity to operate our refineries and plants, and natural gas and

electricity prices represent a large cost to our operations. We also purchase other commodities whose price may vary depending on the price of natural gas or electricity. Prices for both natural gas and electricity can be volatile and therefore represent ongoing challenges to our operating results. Additionally, the availability of natural gas and electricity can be affected by weather (such as Winter Storm Uri in 2021), pipeline interruptions, grid outages, and logistics disruptions. As electrification continues to grow, or if there are increased restrictions or costs imposed on the ability of electric utilities to utilize certain energy sources, there will likely be increased strains on, and risk to the integrity and resilience of, electrical grids, and natural gas and electricity supplies around the world, which could negatively affect the cost, reliability, and availability of our natural gas and electricity supplies. Additionally, increased governmental regulations and public opposition to pipeline and electricity generation and transmission projects may result in the underinvestment in, or unavailability of, the logistics assets and infrastructure necessary to obtain natural gas feedstocks and electricity in a reliable and cost-efficient manner.

Although we actively manage these costs through contracting and hedging our exposure to price volatility when appropriate, and by pursuing projects that reduce our reliance on third parties and fortify the resilience of our assets, increases in prices for natural gas and electricity, or disruptions to sources of natural gas and electricity supply, could materially and 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.

A significant portion of our refining feedstock requirements is satisfied through supplies originating in the Middle East, Africa, Europe, Asia, North America, and South America. We are, therefore, subject to the political, geographic, and economic risks attendant to doing business with suppliers located in, and supplies originating from, these areas. If one or more of our supply contracts were terminated, or if political events disrupt our traditional feedstock supply, we believe that adequate alternative supplies would be available, but it is possible that we would be unable to find alternative sources of supply. Our refineries and plants without access to waterborne deliveries or offtake must rely on rail, pipeline, or ground transportation and thus may be more susceptible to such risks. If we are unable to obtain adequate volumes or are able to obtain such volumes only at unfavorable prices, our business, financial condition, results of operations, and liquidity could be materially adversely affected, including from reduced sales volumes of products or reduced margins as a result of higher costs. Additionally, the U.S. government can prevent or restrict us from doing business in or with other countries. For instance, U.S. sanctions with respect to Iran and Venezuela limit the ability of U.S. companies to engage in oil transactions involving these countries, and currently there is a possibility of increased sanctions against Russia as well as potential responsive countermeasures. These restrictions, and those of other governments, may limit our access to business opportunities in various countries. Actions by the U.S. and other countries have affected our operations in the past and may continue to do so in the future.

Although Darling, the other joint venture member in DGD, supplies some of DGD's feedstock at competitive pricing, DGD must still secure a significant amount of its feedstock requirements from other sources. Should Darling's supply be disrupted or should supply from other sources become limited or only available at unfavorable terms, DGD could be required to develop alternate sources of supply, and it could be required to increase its utilization of feedstocks that produce lower margin products. To the extent the volume of renewable diesel produced by competitors begins to increase, the competition for feedstocks will likely increase, which could place downward pressure on the margins associated with the

products produced by DGD. Should DGD's feedstock supply be disrupted, such an event could adversely impact its and our business, financial condition, results of operations, and liquidity.

Our Ethanol segment relies on corn sourced from local farmers and commercial elevators in the Mid-Continent region of the U.S. As a result, the feedstock supply of our Ethanol segment is acutely exposed to the effects that weather and other environmental events occurring in that region can have on the amount or timing of crop production. Crop production can also be affected by governmental policies (such as farming subsidies) and by market factors (such as changes in fertilizer prices). Any reduction or delay in crop production from these or similar events could reduce and disrupt the supply of, or otherwise increase our costs to obtain, feedstocks for our Ethanol segment.

We are subject to risks arising from our operations outside the U.S. and generally to worldwide political and economic developments.

We operate and sell some of our products outside of the U.S., particularly in Canada, Europe, Mexico, Peru, and Latin American countries other than Mexico and Peru. Our business, financial condition, results of operations, and liquidity could be negatively impacted by disruptions in any of these markets, including due to expropriation or impoundment of assets, failure of foreign governments and state-owned entities to honor their contracts, property disputes, economic instability, restrictions on the transfer of funds, duties and tariffs, transportation delays, import and export controls, labor unrest, security issues involving key personnel and governmental decisions, investigations, regulations, issuances or revocations of permits and other authorizations, and changing regulatory and political environments. The occurrence of any such event could result in commercial restrictions, delay or cancellation of projects, increased costs, and otherwise reduce our profitability in the U.S. and abroad.

We are also required to comply with U.S. and international laws and regulations. Actual or alleged violations of these laws could disrupt our business, cause us to incur significant legal expenses, and result in a material adverse effect on our business, financial condition, results of operations, and liquidity.

We are subject to interruptions and increased costs as a result of our reliance on third-party transportation of crude oil and other feedstocks and the products that we manufacture.

We use the services of third parties to transport feedstocks to our refineries and plants and to transport the products we manufacture to market. If we experience prolonged interruptions of supply or increases in costs to deliver our products to market, or if the ability of the pipelines, vessels, trucks, or railroads to transport feedstocks or products is disrupted because of weather events, cybersecurity incidents, accidents, derailments, collisions, fires, explosions, or governmental or third-party actions, it could have a material adverse effect on our business, financial condition, results of operations, and liquidity.

Competitors that produce their own supply of crude oil feedstocks, own their own retail sites, have greater financial resources, or provide alternative energy sources may have a competitive advantage.

The refining and marketing industry is highly competitive with respect to both feedstock supply and refined petroleum product markets. We compete with many companies for available supplies of crude oil and other feedstocks, and for third-party retail outlets for our refined petroleum products. We do not produce any of our crude oil feedstocks and we do not have a company-owned retail network. Many of our competitors, however, obtain a significant portion of their feedstocks from company-owned production and some have extensive networks of retail sites. Such competitors are at times able to offset losses from refining operations with profits from producing or retailing operations, and they may be better

positioned to withstand periods of depressed refining margins or feedstock shortages. Some of our competitors also have materially greater financial and other resources than we have. Such competitors may have a greater ability to bear the economic risks inherent in all phases of our industry. In addition, we compete with other industries that provide alternative means to satisfy the energy and fuel requirements of our industrial, commercial, and individual consumers.

A significant interruption in one or more of our refineries or renewable diesel or ethanol plants could adversely affect our business.

Our refineries, renewable diesel plant, and ethanol plants are our principal operating assets. As a result, our operations could be subject to significant interruption if one or more of our refineries or plants were to experience a major accident or mechanical failure, be damaged by severe weather or natural disasters (such as hurricanes) or man-made disasters (such as cybersecurity incidents or acts of terrorism), or otherwise be forced to shut down. If any refinery or plant were to experience an interruption in operations, earnings from the refinery or plant could be materially adversely affected (to the extent not recoverable through insurance) because of lost production and repair costs. Significant interruptions in our refining, renewable diesel, or ethanol systems could also lead to increased volatility in prices for crude oil, waste and renewable feedstocks, corn, and many of our products.

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.

We may engage in capital projects based on the forecasted project economics, political and regulatory environments, and the expected return on the capital to be employed in the project. Large-scale projects take many years to complete, during which time the political and regulatory environment or other market conditions may change from our forecast. As a result, we may not fully realize our expected returns, which could negatively impact our business, financial condition, results of operations, and liquidity.

Our investments in joint ventures and other entities decrease our ability to manage risk.

We conduct some of our operations through joint ventures in which we may share control over certain economic, legal, and business interests with other joint venture members. We also conduct some of our operations through entities in which we have no equity ownership interest, such as some of the consolidated variable interest entities (VIEs), as described in Note 13 of Notes to Consolidated Financial Statements. The other joint venture members and the third-party equity holders of the VIEs may have economic, business, or legal interests, opportunities, or goals that are inconsistent with or different from our opportunities, goals, and interests, or may have different liquidity needs or financial condition characteristics than our own, be subject to different legal or contractual obligations than we are, or be unable to meet their obligations. For instance, while we operate the DGD Plant and perform certain day-to-day operating and management functions for DGD as an independent contractor, we do not have full control of every aspect of DGD's business and certain significant decisions concerning DGD, including, among others, the acquisition or disposition of assets above a certain value threshold, making certain changes to DGD's business plan, raising debt or equity capital, DGD's distribution policy, and entering into particular transactions, which also require certain approvals from Darling. Additionally, although we consolidate certain VIEs, we do not have full control of every aspect of these VIEs, or the actions taken by their third-party equity holders, some of which may affect our business, legal position, financial condition, results of operations, and liquidity. Failure by us, an entity in which we have a joint venture interest, or the VIEs to adequately manage the risks associated with such entities, and any differences in views among us and other joint venture members or the third-party equity holders in the VIEs, could

prevent or delay actions that are in the best interest of us, the joint venture, or the VIE, and could have a material adverse effect on our, or the applicable joint venture's or VIE's, financial condition, results of operations, and liquidity.

We may incur losses and additional costs as a result of our forward-contract activities and derivative transactions.

We currently use commodity derivative instruments, and we expect to continue their use in the future. If the instruments we use to hedge our exposure to various types of risk are not effective, we may incur losses. In addition, we may be required to incur additional costs in connection with future regulation of derivative instruments to the extent such future regulation is applicable to us.

Legal, Governmental, and Regulatory Risks

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.

Many state, provincial, and national governments across the world have imposed, and may impose in the future, increases in fuel economy standards, low-carbon fuel standards, restrictions on vehicles using liquid fuel, and other policies or regulations (such as tariffs, tax incentives, or subsidies) aimed at steering the public towards less petroleum-dependent modes of transportation, which could reduce demand for our liquid fuels. For example, in September 2020, the governor of California issued an executive order seeking to require that sales of all new passenger vehicles be zero-emission by 2035 and medium to heavy-duty vehicles be zero-emission by 2045, where feasible. The executive order also requires state agencies to build out sufficient electric vehicle charging infrastructure. Other U.S. and governmental authorities across the world, such as the U.K. and Quebec, have also announced similar plans and/or restrictions with respect to the sale of new internal combustion-engine vehicles.

The U.S. federal government under the current presidential administration has also been aggressive in the scope, magnitude, and number of actions it has taken to regulate climate change, and steer the public towards less petroleum-dependent modes of transportation. For instance, shortly after taking office, the current administration issued a series of executive orders designed to address climate change, as well as an executive order requiring agencies to review environmental actions taken by the previous administration. Additionally, in April 2021, the EPA issued a notice of proposed rulemaking seeking to reinstate California's prior authority to set vehicle GHG emissions standards, including standards that exceed or conflict with U.S. federal standards. In a parallel action finalized in December 2021, the National Highway Traffic Administration (NHTSA) withdrew its previous regulatory determination in the Safer Affordable Fuel-Efficient Vehicles Rule that California is preempted under the Energy Policy and Conservation Act from regulating fuel economy. Such authority could allow California to impose more stringent requirements on the use of our liquid fuels, such as EV mandates, and could potentially revive other states' authority to adopt standards similar to California's standards. If the California waiver is reinstated and California adopts GHG emissions standards different than U.S. federal standards, then, regardless of whether other U.S. states adopt similar standards, the size of the California auto market and the difficulty and expense of designing, manufacturing, and selling alternative vehicle fleets to comply with different standards, such California standards, could become the *de facto* national standard for vehicles sold for use in the U.S. Further, in August 2021, NHTSA released a new proposed rule that would increase the current corporate average fuel economy (CAFE) and carbon dioxide standards for certain passenger cars and light trucks under the previously adopted Safer Affordable Fuel-Efficient

Vehicles Rule. Higher CAFE standards and fuel efficiency standards may reduce demand for our petroleum-based products. In December 2021, the current U.S. presidential administration issued an executive order that directs the U.S. federal government to use its scale and procurement power to achieve a number of aspirational net-zero emissions goals, including, among others, 100 percent zero-emission vehicle acquisitions by 2035 and 100 percent zero-emission light-duty vehicle acquisitions by 2027. On December 30, 2021, the EPA finalized its "Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emission Standards," in which the EPA states that its final rule is projected to reduce gasoline consumption by more than 360 billion gallons by 2050, reaching a 15 percent reduction in annual U.S. gasoline consumption in 2050.

Moreover, in 2005, the Kyoto Protocol to the 1992 United Nations (U.N.) Framework Convention on Climate Change, which establishes a binding set of emission targets for GHGs, became binding on all countries that had ratified it. In 2015, the U.N. Climate Change Conference in Paris resulted in the creation of the Paris Agreement. The Paris Agreement requires countries to review and "represent a progression" in their nationally determined contributions, which set emissions reduction goals every five years beginning in 2020. The terms of the Paris Agreement and the executive orders discussed above are expected to result in additional regulations or changes to existing regulations, which could have a material adverse effect on our business in the U.S. and the U.K., and that of our customers. In addition, incentives to conserve energy or use alternative energy sources in many of the countries where we currently operate, or may operate in the future, could have a negative impact on our business across the world.

These and other legal, regulatory, political, and international accord matters and developments regarding climate change, GHG or other air emissions, fuel efficiency, or the environment, including executive orders that mandate or encourage the use of alternative energy sources or discourage or ban the use of internal combustion engines, may increase consumer preferences for, and adoption of, alternative fuel vehicles and decrease demand for our liquid fuels, although they may also increase demand for our low-carbon fuels. These legal, regulatory, and political developments, as well as other similarly focused laws and regulations, such as, among others, the California and Quebec cap-and-trade programs, the U.K. Emissions Trading Scheme, the U.K. Renewable Transport Fuel Obligation, and CARB's Control Measure for Ocean-Going Vessels At Berth Rule, could also result in increased costs or capital expenditures to (i) operate and maintain our facilities, (ii) install new emission controls at our facilities, and (iii) administer and manage any emissions or blending programs, including acquiring emission credits, allowances, or allotments.

Many of these legal, regulatory, political, and international accord matters and developments are subject to considerable uncertainty due to a number of factors, including technological and economic feasibility, legal challenges, and potential changes in law, regulation, or policy, and it is not possible at this time to predict the ultimate effects of these matters and developments on us. However, a reduction in the demand for our products or an increase in costs or capital expenditures as a result of any of the foregoing events could materially and adversely affect our business, financial condition, results of operations, and liquidity.

Compliance with, or developments concerning, the Renewable and Low-Carbon Fuel Blending Programs, and other regulations, policies, and standards impacting the demand for low-carbon fuels could adversely affect our performance.

As described under "ITEMS 1. and 2. BUSINESS AND PROPERTIES—OUR COMPREHENSIVE LIQUID FUELS STRATEGY—*Regulations, Policies, and Standards Driving Low-Carbon Fuel Demand*," governments across the world 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. We strategically market our low-carbon fuels based on regional policies, feedstock preferences, CI scores, and our ability to obtain fuel pathways. A significant portion of our low-carbon fuels are sold in California, Canada, and Europe.

Concerning the RFS, on December 7, 2021, the EPA released a proposed rule to retroactively revise the 2020 RVOs, set overdue RVOs for 2021 and 2022, and propose certain other changes to the RFS including, among others, changes to registration, reporting, recordkeeping, and other requirements. Separately, the EPA proposed to deny more than 60 small refinery exemption (SRE) petitions.

We are exposed to the volatility in the market price of RINs, LCFS credits, and other credits, as described in Note 21 of Notes to Consolidated Financial Statements. We cannot predict the future prices of RINs, LCFS credits, or other credits. Prices for RINs, LCFS credits, and other credits are dependent upon a variety of factors, including, as applicable, EPA regulations, regulations of other countries and jurisdictions, the availability of RINs, LCFS credits, and other credits for purchase, transportation fuel production levels, which can vary significantly each quarter, approved CI pathways, and CI scores. The ultimate outcome of the recently proposed RVOs, RFS changes, and SRE denials may also affect prices. If an insufficient number of RINs, LCFS credits, or other credits is available for purchase, if we have to pay significantly higher prices for them, or if we are otherwise unable to meet the EPA's RFS mandates or our other obligations under the Renewable and Low-Carbon Fuel Blending Programs, our business, financial condition, results of operations, and liquidity could be adversely affected. Furthermore, to the extent fewer SRE waivers are granted in the future or RVO obligations are reallocated or increased, the demand for and the price of RINs may also increase, and our business, financial condition, results of operations, and liquidity could be adversely affected.

In addition to the RFS and LCFS, we operate in multiple jurisdictions that have issued, or are considering issuing, similar low-carbon fuel regulations, policies, and standards. The RFS, LCFS, and similar U.S. state and international low-carbon fuel regulations, policies, and standards are extremely complex, often have different or conflicting requirements or methodologies, and are frequently evolving, requiring us to periodically update our systems and controls to maintain compliance and monitoring, which could require significant expenditures, and presents an increased risk of administrative error. Our low-carbon fuels businesses could be materially and adversely affected if (i) these regulations, policies, and standards are adversely changed, not enforced, or discontinued, (ii) the benefits therefrom are reduced (such as the 45Q tax credit, the blender's tax credit, and other incentives), (iii) any of the products we produce are deemed not to qualify for compliance therewith, or (iv) we are unable to satisfy or maintain any approved pathways. Such changes could also negatively impact the economic assumptions and projections with respect to many of our low-carbon projects and could have a material adverse impact on the timing of completion, project returns, and other outcomes with respect to such projects.

Compliance with and changes in environmental, health, and safety laws could adversely affect our performance.

Our operations are subject to extensive environmental, health, and safety laws and regulations, including those relating to the discharge of materials into the environment, waste management, pollution prevention measures, GHG emissions, and characteristics and composition of fuels, including gasoline and diesel. Certain of these laws and regulations could impose obligations to conduct assessment or remediation efforts at our refineries and plants, as well as at formerly owned properties or third-party sites where we have taken wastes for disposal or where our wastes may have migrated. The principal environmental risks associated with our operations are emissions into the air, handling of waste, and releases into the soil, surface water, or groundwater. Environmental laws and regulations also may impose liability on us for the

conduct of third parties or for actions that complied with applicable requirements when taken, regardless of negligence or fault. If we violate or fail to comply with these laws and regulations, we could be fined, sanctioned, or enjoined.

Because environmental, health, and safety laws and regulations are becoming more stringent and new environmental, health, and safety laws and regulations are continuously being enacted or proposed, the level of expenditures required for environmental matters could increase in the future. Current and future legislative action and regulatory initiatives could result in increased difficulty in obtaining permits, changes to operating permits, material changes in operations, increased capital expenditures and operating costs, increased costs of the products we sell, and decreased demand for our products that cannot be assessed with certainty at this time. We may be required to make expenditures to modify operations, discontinue use of certain process units or certain chemicals, or install pollution control equipment that could materially and adversely affect our business, financial condition, results of operations, and liquidity. We may also face liability for personal injury, property damage, natural resource damage, environmental justice impacts, or clean-up costs due to alleged contamination and/or exposure to chemicals or other regulated materials, such as various perfluorinated compounds, per- and polyfluoroalkyl substances, benzene, MTBE, and petroleum hydrocarbons, at or from our current and formerly owned facilities. Such liability or expenditures could materially and adversely affect our business, financial condition, results of operations, and liquidity.

Climate change and "greenwashing" litigation could adversely affect our performance.

We could face increased climate-related litigation with respect to our operations, disclosures, or products. Governments and private parties across the world, such as California, Vermont, and New York in the U.S., and the Netherlands in Europe, have filed lawsuits or initiated regulatory action against energy companies. The lawsuits allege damages as a result of climate change, and the plaintiffs seek damages and/or abatement under various tort and other theories. Similar lawsuits may be filed in other jurisdictions. Additionally, governments and private parties are also increasingly filing lawsuits or initiating regulatory action based on allegations that certain public statements regarding ESG-related matters and practices by companies are false and misleading "greenwashing" that violate deceptive trade practices and consumer protection statutes. Similar issues can also arise relating to aspirational statements such as net-zero or carbon neutrality targets that are made without an adequate basis to support such statements. While we are currently not a party to any of these lawsuits, they present a high degree of uncertainty regarding the extent to which energy companies face an increased risk of liability stemming from climate change or ESG disclosures and practices.

Any attempt by the U.S. government to withdraw from, re-enter, or materially modify any existing international trade agreements, or enter into any new international trade agreements in the future, could adversely affect our business, financial condition, results of operations, and liquidity.

The previous U.S. presidential administration questioned certain existing and proposed trade agreements. For example, the administration withdrew the U.S. from the Trans-Pacific Partnership. In addition, the previous administration implemented and proposed various trade tariffs, which resulted in foreign governments responding with tariffs on U.S. goods. Changes in U.S. social, political, regulatory, and economic conditions or in laws and policies governing foreign trade, manufacturing, development, and investment could adversely affect our business. For example, the imposition of tariffs or other international trade barriers could affect our ability to obtain feedstocks from international sources, increase our costs, and reduce the competitiveness of our products. Although there is currently uncertainty around the likelihood, timing, and details of many such actions, if the current U.S. administration takes

action to withdraw from, re-enter, or materially modify any existing international trade agreements, or to enter into any new international trade agreements in the future, our business, financial condition, results of operations, and liquidity could be adversely affected.

Compliance with and changes in tax laws could adversely affect our performance.

We are subject to extensive tax liabilities imposed by multiple jurisdictions, including income taxes, indirect taxes (excise/duty, sales/use, gross receipts, and value-added taxes (VAT)), payroll taxes, franchise taxes, withholding taxes, and ad valorem taxes. New tax laws and regulations and changes in existing tax laws and regulations are continuously being enacted or proposed that could result in increased expenditures for tax liabilities in the future. Many of these liabilities are subject to periodic audits by the respective taxing authorities. Although we believe we have used reasonable interpretations and assumptions in calculating our tax liabilities, the final determination of these tax audits and any related proceedings cannot be predicted with certainty. Any adverse outcome of any of such tax audits or related proceedings could result in unforeseen tax-related liabilities that may, individually or in the aggregate, materially affect our cash tax liabilities, and, as a result, our business, financial condition, results of operations, and liquidity. Tax rates in the various jurisdictions in which we operate may change significantly as a result of political or economic factors beyond our control. It is also possible that future changes to tax laws (including tax treaties with any of the jurisdictions in which we operate) could impact our ability to realize the tax savings recorded to date. Additionally, our future effective tax rates could be adversely affected by changes in tax laws (including tax treaties) or their interpretations.

The phase-out or replacement of the London Interbank Offered Rate (LIBOR) with an alternative reference rate may adversely affect financial markets and the interest rates we pay on any floating-rate debt.

On March 5, 2021, the Financial Conduct Authority in the U.K. issued an announcement on the future cessation or loss of representativeness of LIBOR benchmark settings currently published by ICE Benchmark Administration. That announcement confirmed that LIBOR would either cease to be provided by any administrator or would no longer be representative after December 31, 2021 for all non-U.S. dollar LIBOR reference rates and for certain short-term U.S. dollar LIBOR reference rates, and after June 30, 2023 for other reference rates. In the future, we may need to renegotiate our financial agreements, including, but not limited to, our $4.0 billion revolving credit facility, or incur other indebtedness, and we may be required to select and use a replacement reference rate for such debt. Such replacement reference rate could include the secured overnight financing rate, also known as SOFR, published by the Federal Reserve Bank of New York. The phase-out of LIBOR or the use of any replacement reference rate may negatively impact the terms of, and our ability to refinance, such indebtedness and could also adversely affect the interest rate payable on, and the liquidity and value of, such indebtedness. In addition, the overall financial market and the ability to raise future indebtedness in a cost-effective manner may be disrupted as a result of the phase-out or replacement of LIBOR. Disruption in the financial market could have an adverse effect on our business, financial condition, results of operations, and liquidity.

Cyber Security and Privacy Related Risks

A significant interruption related to our information technology systems could adversely affect our business.

Our information technology systems and network infrastructure may be subject to unauthorized access or attack, including ransomware attacks, which could result in (i) a loss of intellectual property, proprietary

information, or employee, customer or vendor data; (ii) public disclosure of sensitive information; (iii) increased costs to prevent, respond to, or mitigate cybersecurity events, such as deploying additional personnel and protection technologies, training employees, and engaging third-party experts and consultants; (iv) systems interruption; (v) disruption of our business operations; (vi) remediation costs for repairs of system damage; (vii) reputational damage that adversely affects customer or investor confidence; and (viii) damage to our competitiveness, the price of our common stock or debt securities, and long-term stockholder value. A breach could also originate from or compromise our customers', vendors', or other third-party networks outside of our control that could impact our business and operations, as occurred with the Colonial Pipeline cybersecurity incident in May 2021. A breach may also result in legal claims or proceedings against us by our stockholders, employees, customers, vendors, and governmental authorities (U.S. and international). There can be no assurance that our infrastructure protection technologies and disaster recovery plans can prevent technology systems breaches, cyber and ransomware attacks, or systems failures, any of which could have a material adverse effect on our business, financial condition, results of operations, and liquidity. Furthermore, the continuing and evolving threat of cybersecurity incidents has resulted in increased regulatory focus on prevention, such as the directive issued by the U.S. Transportation Security Administration following the Colonial Pipeline cybersecurity incident. To the extent we experience increased regulatory requirements, we may be required to expend significant additional resources to comply therewith or incur fines for noncompliance.

Increasing regulatory focus on data privacy and security issues and expanding or changing laws could expose us to increased liability, subject us to lawsuits, investigations, and other liabilities and restrictions on our operations that could significantly and adversely affect our business.

Along with our own data and information in the normal course of our business, we collect and retain certain data that is subject to specific laws and regulations. The transfer and use of this data both domestically and across international borders is becoming increasingly complex. This data is subject to governmental regulation at the federal, state, international, provincial, and local levels in many areas of our business, including data privacy and security laws such as the California Consumer Privacy Act (CCPA), the U.K. General Data Protection Regulation (GDPR), and Quebec's recently enacted Bill 64 (Bill 64), which amends the province's main statute regulating the collection of information.

The CCPA, which came into effect on January 1, 2020, gives California residents specific rights in relation to their personal information, requires that companies take certain actions, including notifications for security incidents, and may apply to activities regarding personal information that is collected by us, directly or indirectly, from California residents. The recently adopted California Privacy Rights Act also expands the compliance requirements of, and authority to enforce, the CCPA. As the interpretation and enforcement of the CCPA continues to evolve, there may be a range of new compliance obligations and scrutiny, with the possibility for significant financial penalties for noncompliance that may materially adversely affect our business, financial condition, results of operations, and liquidity.

The GDPR applies to activities related to personal data that may be conducted by us, directly or indirectly through vendors and subcontractors, from an establishment in the U.K. The future of the GDPR remains in flux for political reasons. As interpretations and enforcement of the GDPR evolve, they could create a range of new compliance obligations, which could cause us to incur additional costs. Those costs could become even more severe if interpretations or enforcement of the GDPR deviate in the future. In both cases, failure to comply could result in significant penalties of up to a maximum of 4 percent of our global turnover that may materially adversely affect our business, reputation, financial condition, results of operations, and liquidity. Our business and operations may also be impacted if the U.K. Parliament approves new standard contractual clauses (SCCs) for the international transfer of personal data outside of

the U.K. If adopted on March 21, 2022, the new SCCs may apply to our existing contracts involving the international transfer of personal data that is restricted under the GDPR, requiring us to renegotiate any nonconforming contracts by September 21, 2022, which could be expensive and could divert senior management's attention from our business.

Bill 64, which was adopted in September 2021, is intended to modify the obligations of public bodies and private sector enterprises by modernizing the framework applicable to the protection of personal information. Most provisions of Bill 64 will take effect over the course of the next three years, with some provisions taking effect in September 2022. Bill 64 largely focuses on increasing the number of individual privacy rights and imposes a range of compliance and procedural obligations, with the possibility for significant penalties and private rights of action for noncompliance that may materially adversely affect our business, financial condition, results of operations, and liquidity.

The CCPA, the GDPR, and Bill 64, as well as other data privacy laws that may become applicable to us, pose increasingly complex compliance challenges, as well as monitoring and control obligations, that could raise our costs, and place increased demand on company resources. Any failure by us to comply with these laws and regulations, including as a result of a security or privacy breach, could result in significant penalties and liabilities for us. Further, if we acquire a company that has violated or is not in compliance with these laws and regulations, we may incur significant liabilities and penalties as a result.

General Risk Factors

Uncertainty and illiquidity in credit and capital markets can impair our ability to obtain credit and financing on acceptable terms, and can adversely affect the financial strength of our business counterparties.

Our ability to obtain credit and capital depends in large measure on capital markets and liquidity factors that we do not control. Our ability to access credit and capital markets may be restricted at a time when we would like, or need, to access those markets, which could have an impact on our flexibility to react to changing economic and business conditions. In addition, the cost and availability of debt and equity financing may be adversely impacted by unstable or illiquid market conditions. Protracted uncertainty and illiquidity in these markets also could have an adverse impact on our lenders, commodity hedging counterparties, or our customers, causing them to fail to meet their obligations to us. In addition, decreased returns on pension fund assets may also materially increase our pension funding requirements.

Our access to credit and capital markets also depends on the credit ratings assigned to our debt by independent credit rating agencies. We currently maintain investment-grade ratings by Standard & Poor's Ratings Services, Moody's Investors Service, and Fitch Ratings on our senior unsecured debt. Ratings from credit agencies are not recommendations to buy, sell, or hold our securities. Each rating should be evaluated independently of any other rating. We cannot provide assurance that any of our current ratings will remain in effect for any given period of time or that a rating will not be lowered or withdrawn entirely by a rating agency if, in its judgment, circumstances so warrant. Specifically, if rating agencies were to downgrade our long-term rating, particularly below investment grade, our borrowing costs may increase, which could adversely affect our ability to attract potential investors and our funding sources could decrease. In addition, we may not be able to obtain favorable credit terms from our suppliers or they may require us to provide collateral, letters of credit, or other forms of security, which would increase our operating costs. As a result, a downgrade below investment grade in our credit ratings could have a material adverse impact on our business, financial condition, results of operations, and liquidity.

From time to time, our cash needs may exceed our internally generated cash flow, and our business could be materially and adversely affected if we were unable to obtain necessary funds from financing activities. From time to time, we may need to supplement our cash generated from operations with proceeds from financing activities. We have existing revolving credit facilities, committed letter of credit facilities, and an accounts receivable sales facility intended to provide us with available financing to meet our ongoing cash needs. In addition, we rely on the counterparties to our derivative instruments to fund their obligations under such arrangements. Uncertainty and illiquidity in financial markets may materially impact the ability of the participating financial institutions and other counterparties to fund their commitments to us under our various financing facilities or our derivative instruments, which could have a material adverse effect on our business, financial condition, results of operations, and liquidity.

Severe weather events may have an adverse effect on our assets and operations.

Severe weather events, such as storms, hurricanes, droughts, or floods, could have an adverse effect on our operations and could increase our costs. For instance, severe weather events can have an impact on crops production and reduce the supply of, or increase our costs to obtain, feedstocks for our Ethanol and Renewable Diesel segments. If climate changes result in more intense or frequent severe weather events, the physical and disruptive effects could have a material adverse impact on our operations and assets.

Our business may be negatively affected by work stoppages, slowdowns, or strikes by our employees, as well as new labor legislation issued by regulators.

Certain employees at five of our U.S. refineries, as well as at each of our Canadian and U.K. refineries, are covered by collective bargaining or similar agreements, which generally have unique and independent expiration dates. To the extent we are in negotiations for labor agreements expiring in the future, there is no assurance an agreement will be reached without a strike, work stoppage, or other labor action. Any prolonged strike, work stoppage, or other labor action at our facilities or at facilities owned or operated by third parties that support our operations could have an adverse effect on our business, financial condition, results of operations, and liquidity. In addition, future U.S. federal, state, or international labor legislation could result in labor shortages and higher costs, especially during critical maintenance periods.

We are subject to operational risks and our insurance may not be sufficient to cover all potential losses arising from operating hazards. Failure to obtain or maintain adequate insurance coverage could materially and adversely affect our business, financial condition, results of operations, and liquidity.

Our operations are subject to various hazards common to the industry, including explosions, fires, toxic emissions, maritime hazards, and natural catastrophes. As protection against these hazards, we maintain insurance coverage against some, but not all, potential losses and liabilities. We may not be able to maintain or obtain insurance of the type and amount we need, or at acceptable rates. As a result of market conditions, premiums, and deductibles for certain insurance policies could increase substantially. In some instances, certain insurance could become unavailable or available only for reduced amounts of coverage. For example, coverage for hurricane damage is very limited, and coverage for terrorism risks includes very broad exclusions. If we incur a significant loss or liability for which we are not fully insured, it could have a material adverse effect on our business, financial condition, results of operations, and liquidity.

Our insurance program includes a number of insurance carriers. Significant disruptions in financial markets could lead to a deterioration in the financial condition of many financial institutions, including insurance companies. We can provide no assurance that we will be able to obtain the full amount of our insurance coverage for insured events.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 3. LEGAL PROCEEDINGS

LITIGATION

We incorporate by reference into this Item our disclosures made in Note 1 of Notes to Consolidated Financial Statements under "Legal Contingencies."

ENVIRONMENTAL ENFORCEMENT MATTERS

While it is not possible to predict the outcome of the following environmental proceedings, if any one or more of them were decided against us, we believe that there would be no material effect on our financial condition, results of operations, and liquidity. We are reporting these proceedings to comply with SEC regulations, which require us to disclose certain information about proceedings arising under U.S. federal, state, or local provisions regulating the discharge of materials into the environment or protecting the environment if we reasonably believe that such proceedings have the potential to result in monetary sanctions of $300,000 or more.

EPA (Benicia Refinery). In our annual report on Form 10-K for the year ended December 31, 2020, we reported that the EPA had issued a Notice of Potential Violations and Opportunity to Confer related to a series of inspections conducted by the EPA in 2019 arising out of a 2019 emissions event. We are working with the EPA to resolve this matter.

Attorney General of the State of Texas (Texas AG) (Corpus Christi Asphalt Plant). In our quarterly report on Form 10-Q for the quarter ended March 31, 2019, we reported that we had received a letter and draft Agreed Final Judgment from the Texas AG related to a contaminated water backflow incident that related to the Valero Corpus Christi Asphalt Plant. We have reached a final agreement with the Texas AG resolving the matter upon entry of the Agreed Final Judgment with the court.

Texas AG (Port Arthur Refinery). In our quarterly report on Form 10-Q for the quarter ended June 30, 2019, we reported that the Texas AG had filed suit against our Port Arthur Refinery in the 419th Judicial District Court of Travis County, Texas, Cause No. D-1-GN-19-004121, for alleged violations of the Clean Air Act seeking injunctive relief and penalties. We are working with the Texas AG to resolve this matter.

Bay Area Air Quality Management District (BAAQMD) (Benicia Refinery). In our quarterly report on Form 10-Q for the quarter ended September 30, 2021, we reported that we had received a Violation Notice from the BAAQMD related to atmospheric emissions at our Benicia Refinery. We are working with the BAAQMD to resolve this matter.

Texas Commission on Environmental Quality (TCEQ) (Corpus Christi East Refinery). In our quarterly report on Form 10-Q for the quarter ended September 30, 2021, we reported that we had received a Notice of Enforcement from the TCEQ relating to Title V permit deviations at our Corpus Christi East Refinery. We are working with the TCEQ to resolve this matter.

ITEM 4. MINE SAFETY DISCLOSURES

None.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Our common stock trades on the NYSE under the trading symbol "VLO."

As of January 31, 2022, there were 4,813 holders of record of our common stock.

Dividends are considered quarterly by the Board, may be paid only when approved by the Board, and will depend on our financial condition, results of operations, cash flows, prospects, industry conditions, capital requirements, and other factors and restrictions our board deems relevant. There can be no assurance that we will pay a dividend in the future at the rates we have paid historically, or at all.

The following table discloses purchases of shares of our common stock made by us or on our behalf during the fourth quarter of 2021.

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Not Purchased as Part of Publicly Announced Plans or Programs (a)	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs (b)
October 2021	3,083	$ 80.40	3,083	—	$1.4 billion
November 2021	147,445	$ 76.04	147,445	—	$1.4 billion
December 2021	7,928	$ 69.68	7,928	—	$1.4 billion
Total	158,456	$ 75.81	158,456	—	$1.4 billion

(a) The shares reported in this column represent purchases settled in the fourth quarter of 2021 relating to (i) our purchases of shares in open-market transactions to meet our obligations under stock-based compensation plans and (ii) our purchases of shares from our employees and non-employee directors in connection with the exercise of stock options, the vesting of restricted stock, and other stock compensation transactions in accordance with the terms of our stock-based compensation plans.

(b) On January 23, 2018, we announced that our Board authorized our purchase of up to $2.5 billion of our outstanding common stock (the 2018 Program), with no expiration date. As of December 31, 2021, we had $1.4 billion remaining available for purchase under the 2018 Program. We have not purchased any shares of our common stock under the 2018 Program since mid-March 2020, and we will evaluate the timing of repurchases when appropriate. We have no obligation to make purchases under the 2018 Program.

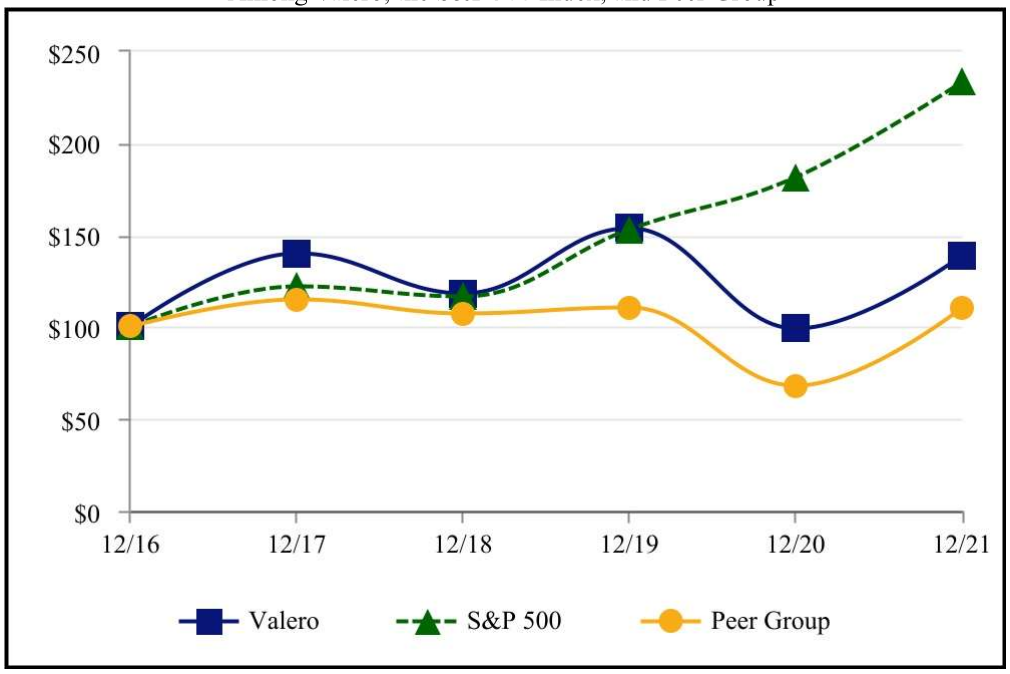
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The following performance graph is not "soliciting material," is not deemed filed with the SEC, and is not to be incorporated by reference into any of our filings under the Securities Act of 1933 or the Securities Exchange Act of 1934, as amended, respectively.

This performance graph and the related textual information are based on historical data and are not indicative of future performance. The following line graph compares the cumulative total return[3] on an investment in our common stock against the cumulative total return of the S&P 500 Composite Index and an index of peers (that we selected) for the five-year period commencing December 31, 2016 and ending December 31, 2021. Our selected peer group comprises the following ten members: ConocoPhillips; CVR Energy, Inc.; Delek US Holdings, Inc.; the Energy Select Sector SPDR Fund; EOG Resources, Inc.; HollyFrontier Corporation; Marathon Petroleum Corporation; Occidental Petroleum Corporation; PBF Energy Inc.; and Phillips 66. The Energy Select Sector SPDR Fund (XLE) serves as a proxy for stock price performance of the energy sector and includes energy companies with which we compete for capital. We believe that our peer group represents a group of companies for making head-to-head performance comparisons in a competitive operating environment that is primarily characterized by U.S.-based companies that have business models predominantly consisting of downstream refining operations, together with similarly sized energy companies that share operating similarities to us, and that are in adjacent segments of the oil and gas industry.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN[3]

Among Valero, the S&P 500 Index, and Peer Group



	As of December 31,					
	2016	2017	2018	2019	2020	2021
Valero common stock	$ 100.00	$ 139.98	$ 117.98	$ 153.80	$ 99.04	$ 138.98
S&P 500 index	100.00	121.83	116.49	153.17	181.35	233.41
Peer Group	100.00	114.94	107.11	110.73	68.00	110.49

[3] Assumes that an investment in Valero common stock, the S&P 500 index, and our peer group was $100 on December 31, 2016. Cumulative total return is based on share price appreciation plus reinvestment of dividends from December 31, 2016 through December 31, 2021.

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ITEM 6. [RESERVED]

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis is management's perspective of our current financial condition and results of operations, and should be read in conjunction with "ITEM 1A. RISK FACTORS" and "ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA" included in this report. This discussion and analysis includes the years ended December 31, 2021 and 2020 and comparisons between such years. The discussions for the year ended December 31, 2019 and comparisons between the years ended December 31, 2020 and 2019 have been omitted from this annual report on Form 10-K for the year ended December 31, 2021, as such information can be found in "ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS" in our annual report on Form 10-K for the year ended December 31, 2020, which was filed on February 23, 2021.

CAUTIONARY STATEMENT FOR THE PURPOSE OF SAFE HARBOR PROVISIONS OF THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995

This report, including without limitation our disclosures below under "OVERVIEW AND OUTLOOK," includes 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. You can identify our forward-looking statements by the words "anticipate," "believe," "expect," "plan," "intend," "scheduled," "estimate," "project," "projection," "predict," "budget," "forecast," "goal," "guidance," "target," "could," "would," "should," "may," "strive," "seek," "potential," "opportunity," "aimed," "considering," "continue," and similar expressions.

These forward-looking statements include, among other things, statements regarding:

- the effect, impact, potential duration or timing, or other implications of the COVID-19 pandemic, government restrictions, requirements, or mandates in response thereto, variants of the COVID-19 virus, vaccine distribution and administration levels, economic activity, and global crude oil production levels, and any expectations we may have with respect thereto, including with respect to our responses thereto, our operations and the production levels of our assets;
- future Refining segment margins, including gasoline and distillate margins, and discounts;
- future Renewable Diesel segment margins;
- future Ethanol segment margins;
- expectations regarding feedstock costs, including crude oil differentials, product prices for each of our segments, and operating expenses;
- anticipated levels of crude oil and liquid transportation fuel inventories and storage capacity;
- expectations regarding the levels of, and timing with respect to, the production and operations at our existing refineries and plants and projects under construction;
- our anticipated level of capital investments, including deferred turnaround and catalyst cost expenditures, our expected allocation between, and/or within, growth capital expenditures and sustaining capital expenditures, capital expenditures for environmental and other purposes, and joint venture investments, the expected timing applicable to such capital investments and any related projects, and the effect of those capital investments on our business, financial condition, results of operations, and liquidity;

- our anticipated level of cash distributions or contributions, such as our dividend payment rate and contributions to our qualified pension plans and other postretirement benefit plans;
- our ability to meet future cash requirements, whether from funds generated from our operations or our ability to access financial markets effectively, and our ability to maintain sufficient liquidity;
- our evaluation of, and expectations regarding, any future activity under our share repurchase program or transactions involving our debt securities;
- anticipated trends in the supply of, and demand for, crude oil and other feedstocks and refined petroleum products, renewable diesel, and ethanol and corn related co-products in the regions where we operate, as well as globally;
- expectations regarding environmental, tax, and other regulatory matters, including the anticipated amounts and timing of payment with respect to our deferred tax liabilities, matters impacting our ability to repatriate cash held by our foreign subsidiaries, and the anticipated effect thereof on our business, financial condition, results of operations, and liquidity;
- the effect of general economic and other conditions on refining, renewable diesel, and ethanol industry fundamentals;
- expectations regarding our risk management activities, including the anticipated effects of our hedge transactions;
- expectations regarding our counterparties, including our ability to pass on increased compliance costs and timely collect receivables, and the credit risk within our accounts receivable or accounts payable;
- expectations regarding adoptions of new, or changes to existing, low-carbon fuel standards or policies, blending and tax credits, or efficiency standards that impact demand for renewable fuels; and
- expectations regarding our publicly announced GHG emissions reduction/offset targets and our current and any future carbon transition projects.

We based our forward-looking statements on our current expectations, estimates, and projections about ourselves, our industry, and the global economy and financial markets generally. We caution that these statements are not guarantees of future performance or results and involve known and unknown risks and uncertainties, the ultimate outcomes of which we cannot predict with certainty. In addition, we based many of these forward-looking statements on assumptions about future events, the ultimate outcomes of which we cannot predict with certainty and which may prove to be inaccurate. Accordingly, actual performance or results may differ materially from the future performance or results that we have expressed, suggested, or forecast in the forward-looking statements. Differences between actual performance or results and any future performance or results expressed, suggested, or forecast in these forward-looking statements could result from a variety of factors, including the following:

- demand for, and supplies of, refined petroleum products (such as gasoline, diesel, jet fuel, and petrochemicals), renewable diesel, and ethanol and corn related co-products;
- demand for, and supplies of, crude oil and other feedstocks;
- the effects of public health threats, pandemics, and epidemics, such as the COVID-19 pandemic and variants of the virus, governmental and societal responses thereto, including requirements and mandates with respect to vaccines, vaccine distribution and administration levels, and the adverse impacts of the foregoing on our business, financial condition, results of operations, and liquidity, including, but not limited to, our growth, operating costs, administrative costs, supply chain, labor availability, logistical capabilities, customer demand for our products, and industry demand generally, margins, production and throughput capacity, utilization, inventory value, cash

position, taxes, the price of our securities and trading markets with respect thereto, our ability to access capital markets, and the global economy and financial markets generally;
- acts of terrorism aimed at either our refineries and plants or third-party facilities that could impair our ability to produce or transport refined petroleum products, renewable diesel, ethanol, or corn related co-products, to receive feedstocks, or otherwise operate efficiently;
- political and economic conditions in nations that produce crude oil or other feedstocks or consume refined petroleum products, renewable diesel, ethanol or corn related co-products;
- the ability of the members of OPEC to agree on and to maintain crude oil price and production controls;
- the level of consumer demand, consumption and overall economic activity, including seasonal fluctuations;
- refinery, renewable diesel plant, or ethanol plant overcapacity or undercapacity;
- the risk that any divestitures may not provide the anticipated benefits or may result in unforeseen detriments;
- the actions taken by competitors, including both pricing and adjustments to refining capacity or renewable fuels production in response to market conditions;
- the level of competitors' imports into markets that we supply;
- accidents, unscheduled shutdowns, weather events, civil unrest, expropriation of assets, and other economic, diplomatic, legislative, or political events or developments, terrorism, cyberattacks, or other catastrophes or disruptions affecting our operations, production facilities, machinery, pipelines and other logistics assets, equipment, or information systems, or any of the foregoing of our suppliers, customers, or third-party service providers;
- changes in the cost or availability of transportation or storage capacity for feedstocks and our products;
- political pressure and influence of environmental groups and other stakeholders upon policies and decisions related to the production, transportation, storage, refining, processing, marketing, and sales of crude oil or other feedstocks, refined petroleum products, renewable diesel, ethanol, or corn related co-products;
- the price, availability, technology related to, and acceptance of alternative fuels and alternative-fuel vehicles, as well as sentiment and perceptions with respect to GHG emissions more generally;
- the levels of government subsidies for, and executive orders, mandates, or other policies with respect to, alternative fuels, alternative-fuel vehicles, and other low-carbon technologies or initiatives, including those related to carbon capture, carbon sequestration, and low-carbon fuels, or affecting the price of natural gas and/or electricity;
- the volatility in the market price of compliance credits (primarily RINs needed to comply with the RFS) and emission credits needed under the other environmental emissions programs;
- delay of, cancellation of, or failure to implement planned capital projects and realize the various assumptions and benefits projected for such projects or cost overruns in constructing such planned capital projects;
- earthquakes, hurricanes, tornadoes, and other weather events, which can unforeseeably affect the price or availability of electricity, natural gas, crude oil, waste and renewable feedstocks, corn, and other feedstocks, critical supplies, refined petroleum products, renewable diesel, and ethanol;
- rulings, judgments, or settlements in litigation or other legal or regulatory matters, including unexpected environmental remediation costs, in excess of any reserves or insurance coverage;
- legislative or regulatory action, including the introduction or enactment of legislation or rulemakings by governmental authorities, such as tariffs, environmental regulations, changes to income tax rates, introduction of a global minimum tax, tax changes or restrictions impacting the foreign repatriation of cash, actions implemented under the Renewable and Low-Carbon Fuel

Blending Programs and the other environmental emissions programs, including changes to volume requirements or other obligations or exemptions under the RFS, and actions arising from the EPA's or other governmental agencies' regulations, policies, or initiatives concerning GHGs, including mandates for or bans of specific technology, which may adversely affect our business or operations;

- changing economic, regulatory, and political environments and related events in the various countries in which we operate or otherwise do business, including expropriation or impoundment of assets, failure of foreign governments and state-owned entities to honor their contracts, property disputes, and decisions, investigations, regulations, issuances or revocations of permits and other authorizations, and other actions, policies and initiatives by the states, counties, cities, and other jurisdictions in the countries in which we operate or otherwise do business;
- changes in the credit ratings assigned to our debt securities and trade credit;
- the operating, financing, and distribution decisions of our joint ventures or other joint venture members that we do not control;
- changes in currency exchange rates, including the value of the Canadian dollar, the pound sterling, the euro, the Mexican peso, and the Peruvian sol relative to the U.S. dollar;
- the adequacy of capital resources and liquidity, including availability, timing, and amounts of cash flow or our ability to borrow or access financial markets;
- the costs, disruption, and diversion of resources associated with campaigns and negative publicity commenced by investors, stakeholders, or other interested parties;
- overall economic conditions, including the stability and liquidity of financial markets; and
- other factors generally described in the "RISK FACTORS" section included in "ITEM 1A. RISK FACTORS" in this report.

Any one of these factors, or a combination of these factors, could materially affect our future results of operations and whether any forward-looking statements ultimately prove to be accurate. Our forward-looking statements are not guarantees of future performance, and actual results and future performance may differ materially from those expressed, suggested, or forecast in any forward-looking statements. Such forward-looking statements speak only as of the date of this annual report on Form 10-K and we do not intend to update these statements unless we are required by applicable securities laws to do so.

All subsequent written and oral forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by the foregoing, as it may be updated or modified by our future filings with the SEC. We undertake no obligation to publicly release any revisions to any such forward-looking statements that may be made to reflect events or circumstances after the date of this report or to reflect the occurrence of unanticipated events unless we are required by applicable securities laws to do so.

NON-GAAP FINANCIAL MEASURES

The discussions in "OVERVIEW AND OUTLOOK," "RESULTS OF OPERATIONS," and "LIQUIDITY AND CAPITAL RESOURCES" below include references to financial measures that are not defined under U.S. generally accepted accounting principles (GAAP). These non-GAAP financial measures include adjusted operating income (loss) (including adjusted operating income (loss) for each of our reportable segments, as applicable); Refining, Renewable Diesel, and Ethanol segment margin; and capital investments attributable to Valero. We have included these non-GAAP financial measures to help facilitate the comparison of operating results between years, to help assess our cash flows, and because we believe they provide useful information as discussed further below. See the tables in note (e) beginning on page 51 for reconciliations of adjusted operating income (loss) (including adjusted operating

income (loss) for each of our reportable segments, as applicable) and Refining, Renewable Diesel, and Ethanol segment margin to their most directly comparable GAAP financial measures. Also in note (e), we disclose the reasons why we believe our use of such non-GAAP financial measures provides useful information. See the table on page 60 for a reconciliation of capital investments attributable to Valero to its most directly comparable GAAP financial measure. On page 59, we disclose the reasons why we believe our use of this non-GAAP financial measure provides useful information.

IMPACT OF THE COVID-19 PANDEMIC TO OUR BUSINESS

The COVID-19 pandemic has negatively impacted our business. Although we experienced improvements in our business in 2021 compared to the significant negative effects from the pandemic in 2020, the long-term implications of the pandemic on our results of operations and financial position remain uncertain. Information about the uncertainties of the COVID-19 pandemic on our business is discussed in ITEM 1A. RISK FACTORS—*The ongoing COVID-19 pandemic and the related events and circumstances have had, and may continue to have, negative impacts on our business, financial condition, results of operations, and liquidity and those of our customers, suppliers, and other counterparties."* and Note 2 of Notes to Consolidated Financial Statements.

OVERVIEW AND OUTLOOK

Overview

Business Operations Update

Our business continued to recover throughout 2021 after experiencing significant negative effects from a decrease in demand and market prices for most of our products in 2020 as a result of the COVID-19 pandemic. The outbreak of COVID-19 and its development into a pandemic in March 2020 disrupted the global economy and significantly reduced the demand and market prices for most of our products, primarily gasoline and diesel. However, by mid-2020, we began experiencing increased demand and higher market prices for most of our products, and these improvements continued throughout 2021 along with the ongoing recovery of the global economy as worldwide efforts to address the virus progressed, including the development and distribution of multiple COVID-19 vaccines and therapeutics. Gasoline and diesel demand returned to pre-pandemic levels during 2021 in most of the regions where we operate, and at times during 2021, we experienced demand for diesel in excess of pre-pandemic levels. Jet fuel demand also improved in 2021, although at a slower pace than other products we produce relative to pre-pandemic levels. These improvements in demand and an associated increase in refining margins were primary contributors to us reporting $930 million of net income attributable to Valero stockholders for the year ended December 31, 2021. Our operating results for 2021, including operating results by segment, are described in the following summary, and detailed descriptions can be found below under "RESULTS OF OPERATIONS."

Our improved 2021 results, however, were negatively impacted by estimated excess energy costs of $579 million ($467 million after taxes) as a result of a significant increase in the cost of electricity and natural gas at certain of our refineries and ethanol plants arising out of Winter Storm Uri in February 2021. In addition, our operations were negatively impacted by Hurricane Ida in August 2021, which caused us to shut down two refineries and our renewable diesel plant in Louisiana in preparation for the storm. Although the refineries and the plant sustained minimal damage from the hurricane, we were delayed from restarting operations until electrical supply and other utilities were restored and from shipping product to our customers until the Mississippi River was reopened to ship and barge traffic.

As a result of our improved business and overall market conditions, our operations generated $5.9 billion of cash in 2021, which included the receipt of our 2020 U.S. federal income tax refund of $962 million in May 2021. This cash was used to make $2.5 billion of capital investments in our business and return $1.6 billion to our stockholders through dividend payments. In addition, we reduced our long-term debt by $1.3 billion in 2021 through a series of debt reduction and refinancing transactions, as described in Note 10 of Notes to Consolidated Financial Statements. As a result of this and other activity, our cash and cash equivalents increased by $809 million during 2021, from $3.3 billion as of December 31, 2020 to $4.1 billion as of December 31, 2021. We had $9.3 billion in liquidity as of December 31, 2021. The components of our liquidity and descriptions of our cash flows, capital investments, and other matters impacting our liquidity and capital resources, can be found below under "LIQUIDITY AND CAPITAL RESOURCES."

Results for the Year Ended December 31, 2021

For 2021, we reported net income attributable to Valero stockholders of $930 million compared to a net loss attributable to Valero stockholders of $1.4 billion for 2020. The increase of $2.4 billion was primarily due to higher operating income of $3.7 billion, partially offset by higher income tax expense of $1.2 billion. The details of our operating income (loss) and adjusted operating income (loss) by segment and in total are reflected below. Adjusted operating income (loss) excludes the adjustments reflected in the tables in note (e) on page 51.

	Year Ended December 31,		
	2021	2020	Change
Refining segment:			
Operating income (loss)	$ 1,862	$ (1,342)	$ 3,204
Adjusted operating income (loss)	1,945	(1,105)	3,050
Renewable Diesel segment:			
Operating income	709	638	71
Adjusted operating income	712	638	74
Ethanol segment:			
Operating income (loss)	473	(69)	542
Adjusted operating income (loss)	522	(36)	558
Total company:			
Operating income (loss)	2,130	(1,579)	3,709
Adjusted operating income (loss)	2,265	(1,309)	3,574

While our operating income increased by $3.7 billion in 2021 compared to 2020, adjusted operating income increased by $3.6 billion primarily due to the following:

- *Refining segment.* Refining segment adjusted operating income increased by $3.1 billion primarily due to higher gasoline and distillate (primarily diesel) margins and higher throughput volumes, partially offset by the higher cost of compliance credits, lower discounts on crude oils, and estimated excess energy costs arising from Winter Storm Uri.

- *Renewable Diesel segment.* Renewable Diesel segment adjusted operating income increased by $74 million primarily due to higher renewable diesel prices and higher sales volumes, partially offset by higher feedstock costs, an unfavorable impact from commodity derivative instruments associated with our price risk management activities, and higher operating expenses (excluding depreciation and amortization expense).

- *Ethanol segment.* Ethanol segment adjusted operating income increased by $558 million primarily due to higher ethanol and corn related co-product prices and higher production volumes, partially offset by higher corn prices and estimated excess energy costs arising from Winter Storm Uri.

Outlook

As previously discussed, many uncertainties remain with respect to the COVID-19 pandemic, and while it is difficult to predict the ultimate economic impacts that the pandemic will have on us and how quickly we can (or ultimately will) fully recover once the pandemic subsides, we have noted several factors below that have impacted or may impact our results of operations during the first quarter of 2022.

- Gasoline and diesel demand has returned to pre-pandemic levels and is expected to follow typical seasonal patterns. Jet fuel demand continues to improve slowly but remains below pre-pandemic levels.

- Sour crude oil discounts are expected to continue to improve as OPEC increases its production of sour crude oils in response to anticipated continued growth in global crude oil demand.

- Renewable diesel margins are expected to moderate from the levels achieved in 2021. Following the start-up of the expansion of the DGD Plant in the fourth quarter of 2021, renewable diesel production capacity increased by 410 million gallons per year, from 290 million gallons to 700 million gallons per year.

- Ethanol margins are expected to decline from the record high levels achieved in 2021 as ethanol inventory levels rise throughout the U.S. market.

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RESULTS OF OPERATIONS

The following tables, including the reconciliations of non-GAAP financial measures to their most directly comparable GAAP financial measures in note (e), highlight our results of operations, our operating performance, and market reference prices that directly impact our operations. Note references in this section can be found on pages 50 through 53.

Financial Highlights by Segment and Total Company (millions of dollars)

	Year Ended December 31, 2021				
	Refining	**Renewable Diesel**	**Ethanol**	**Corporate and Eliminations**	**Total**
Revenues:					
Revenues from external customers	$ 106,947	$ 1,874	$ 5,156	$ —	$ 113,977
Intersegment revenues	14	468	433	(915)	—
Total revenues	106,961	2,342	5,589	(915)	113,977
Cost of sales:					
Cost of materials and other (a)	97,759	1,438	4,428	(911)	102,714
Operating expenses (excluding depreciation and amortization expense reflected below) (a)	5,088	134	556	(2)	5,776
Depreciation and amortization expense	2,169	58	131	—	2,358
Total cost of sales	105,016	1,630	5,115	(913)	110,848
Other operating expenses	83	3	1	—	87
General and administrative expenses (excluding depreciation and amortization expense reflected below)	—	—	—	865	865
Depreciation and amortization expense	—	—	—	47	47
Operating income by segment	$ 1,862	$ 709	$ 473	$ (914)	2,130
Other income, net (c)					16
Interest and debt expense, net of capitalized interest					(603)
Income before income tax expense					1,543
Income tax expense (d)					255
Net income					1,288
Less: Net income attributable to noncontrolling interests					358
Net income attributable to Valero Energy Corporation stockholders					$ 930

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Financial Highlights by Segment and Total Company (continued)
(millions of dollars)

	Year Ended December 31, 2020				
	Refining	**Renewable Diesel**	**Ethanol**	**Corporate and Eliminations**	**Total**
Revenues:					
Revenues from external customers	$ 60,840	$ 1,055	$ 3,017	$ —	$ 64,912
Intersegment revenues	8	212	226	(446)	—
Total revenues	60,848	1,267	3,243	(446)	64,912
Cost of sales:					
Cost of materials and other (b)	56,093	500	2,784	(444)	58,933
Lower of cost or market (LCM) inventory valuation adjustment	(19)	—	—	—	(19)
Operating expenses (excluding depreciation and amortization expense reflected below)	3,944	85	406	—	4,435
Depreciation and amortization expense	2,138	44	121	—	2,303
Total cost of sales	62,156	629	3,311	(444)	65,652
Other operating expenses	34	—	1	—	35
General and administrative expenses (excluding depreciation and amortization expense reflected below)	—	—	—	756	756
Depreciation and amortization expense	—	—	—	48	48
Operating income (loss) by segment	$ (1,342)	$ 638	$ (69)	$ (806)	(1,579)
Other income, net					132
Interest and debt expense, net of capitalized interest					(563)
Loss before income tax benefit					(2,010)
Income tax benefit					(903)
Net loss					(1,107)
Less: Net income attributable to noncontrolling interests					314
Net loss attributable to Valero Energy Corporation stockholders					$ (1,421)

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Average Market Reference Prices and Differentials

	Year Ended December 31,	
	2021	2020
Refining		
Feedstocks (dollars per barrel)		
Brent crude oil	$ 70.79	$ 43.15
Brent less West Texas Intermediate (WTI) crude oil	2.83	3.84
Brent less Alaska North Slope (ANS) crude oil	0.35	0.82
Brent less LLS crude oil	1.33	1.91
Brent less Argus Sour Crude Index (ASCI) crude oil	3.92	3.26
Brent less Maya crude oil	6.48	6.89
LLS crude oil	69.46	41.24
LLS less ASCI crude oil	2.59	1.35
LLS less Maya crude oil	5.15	4.98
WTI crude oil	67.97	39.31
Natural gas (dollars per million British Thermal Units)	7.85	2.00
Products (dollars per barrel)		
U.S. Gulf Coast:		
Conventional Blendstock of Oxygenate Blending (CBOB) gasoline less Brent	13.66	2.97
Ultra-low-sulfur (ULS) diesel less Brent	13.75	7.11
Propylene less Brent	(6.43)	(12.12)
CBOB gasoline less LLS	14.99	4.88
ULS diesel less LLS	15.08	9.02
Propylene less LLS	(5.10)	(10.22)
U.S. Mid-Continent:		
CBOB gasoline less WTI	17.36	6.96
ULS diesel less WTI	18.70	12.11
North Atlantic:		
CBOB gasoline less Brent	16.89	5.50
ULS diesel less Brent	15.91	9.17
U.S. West Coast:		
CARBOB 87 gasoline less ANS	24.17	10.33
CARB diesel less ANS	17.60	12.42
CARBOB 87 gasoline less WTI	26.64	13.36
CARB diesel less WTI	20.08	15.44

Average Market Reference Prices and Differentials, (continued)

	Year Ended December 31,	
	2021	2020
Renewable Diesel		
New York Mercantile Exchange ULS diesel (dollars per gallon)	$ 2.07	$ 1.25
Biodiesel RIN (dollars per RIN)	1.49	0.64
California LCFS (dollars per metric ton)	177.78	200.12
Chicago Board of Trade (CBOT) soybean oil (dollars per pound)	0.58	0.32
Ethanol		
CBOT corn (dollars per bushel)	5.80	3.64
New York Harbor ethanol (dollars per gallon)	2.49	1.36

2021 Compared to 2020

Total Company, Corporate, and Other

The following table includes selected financial data for the total company, corporate, and other for 2021 and 2020. The selected financial data is derived from the Financial Highlights by Segment and Total Company tables, unless otherwise noted.

	Year Ended December 31,		
	2021	2020	Change
Revenues	$ 113,977	$ 64,912	$ 49,065
Cost of materials and other (see notes (a) and (b))	102,714	58,933	43,781
Operating expenses (excluding depreciation and amortization expense) (see note (a))	5,776	4,435	1,341
Last-in, first-out (LIFO) liquidation adjustment (see note (b))	—	224	(224)
General and administrative expenses (excluding depreciation and amortization expense)	865	756	109
Operating income (loss)	2,130	(1,579)	3,709
Adjusted operating income (loss) (see note (e))	2,265	(1,309)	3,574
Other income, net (see note (c))	16	132	(116)
Interest and debt expense, net of capitalized interest	(603)	(563)	(40)
Income tax expense (benefit) (see note (d))	255	(903)	1,158
Net income attributable to noncontrolling interests	358	314	44

Revenues increased by $49.1 billion in 2021 compared to 2020 primarily due to increases in the product prices of the petroleum-based transportation fuels associated with sales made by our refining segment. This increase in revenues was partially offset by an increase in cost of materials and other of $43.8 billion primarily due to increases in crude oil and other feedstock costs; higher operating expenses (excluding depreciation and amortization expense) of $1.3 billion, which includes the impact of estimated excess energy costs of $532 million arising out of Winter Storm Uri; and an increase in general and administrative expenses (excluding depreciation and amortization expense) of $109 million primarily due to an increase in certain employee compensation expenses of $69 million, higher advertising expenses of $15 million, and higher charitable contributions of $12 million. The increase in cost of materials and other was partially offset by the favorable effect from a $224 million LIFO liquidation adjustment in 2020.

These changes resulted in a $3.7 billion increase in operating income, from an operating loss of $1.6 billion in 2020 to operating income of $2.1 billion in 2021.

Adjusted operating income increased by $3.6 billion, from an adjusted operating loss of $1.3 billion in 2020 to adjusted operating income of $2.3 billion in 2021. The components of this $3.6 billion increase in adjusted operating income are discussed by segment in the segment analyses that follow.

“Other income, net” decreased by $116 million in 2021 compared to 2020 primarily due to a charge of $193 million from the early redemption and retirement of debt and an asset impairment loss of $24 million resulting from the cancellation of a pipeline extension project by our nonconsolidated joint venture, Diamond Pipeline LLC, partially offset by the gain of $62 million on the sale of a 24.99 percent membership interest in MVP Terminalling, LLC (MVP). These items occurred in 2021 and are more fully described in note (c).

“Interest and debt expense, net of capitalized interest” increased by $40 million in 2021 compared to 2020 primarily due to the effect of 2021 reflecting a full year of interest expense associated with $4.0 billion aggregate principal amount of debt we issued in public debt offerings in 2020. See Note 10 of Notes to Consolidated Financial Statements for additional information.

Income tax expense increased by $1.2 billion in 2021 compared to 2020 primarily as a result of higher income before income tax expense. In addition, the increase in income tax expense was impacted by a $64 million charge, which resulted from certain statutory tax rate changes in 2021, as discussed in note (d), as well as a higher benefit in 2020 of $304 million associated with the U.S. federal tax net operating loss for 2020, which was carried back to 2015 when the U.S. federal statutory rate was 35 percent. See Note 16 of Notes to Consolidated Financial Statements for additional information on these tax matters.

Net income attributable to noncontrolling interests increased by $44 million in 2021 compared to 2020 primarily due to higher earnings associated with DGD, a consolidated joint venture. See Note 13 of Notes to Consolidated Financial Statements regarding our accounting for DGD.

Refining Segment Results

The following table includes selected financial and operating data of our Refining segment for 2021 and 2020. The selected financial data is derived from the Financial Highlights by Segment and Total Company tables, unless otherwise noted.

	Year Ended December 31,		
	2021	2020	Change
Operating income (loss)	$ 1,862	$ (1,342)	$ 3,204
Adjusted operating income (loss) (see note (e))	1,945	(1,105)	3,050
Refining margin (see note (e))	$ 9,202	$ 4,977	$ 4,225
Operating expenses (excluding depreciation and amortization expense reflected below) (see note (a))	5,088	3,944	1,144
Depreciation and amortization expense	2,169	2,138	31
Throughput volumes (thousand BPD) (see note (f))	2,787	2,555	232

Refining segment operating income increased by $3.2 billion in 2021; however, Refining segment adjusted operating income, which excludes the adjustments in the table in note (e), increased by $3.1 billion in 2021 compared to 2020. The components of this increase in the adjusted results, along with the reasons for the changes in those components, are outlined below.

- Refining segment margin increased by $4.2 billion in 2021 compared to 2020.

  Refining segment margin is primarily affected by the prices of the petroleum-based transportation fuels that we sell and the cost of crude oil and other feedstocks that we process. The table on page 44 reflects market reference prices and differentials that we believe had a material impact on the change in our Refining segment margin in 2021 compared to 2020.

  The increase in Refining segment margin was primarily due to the following:

  - An increase in gasoline margins had a favorable impact of approximately $3.8 billion.
  - An increase in distillate (primarily diesel) margins had a favorable impact of approximately $1.7 billion.
  - An increase in throughput volumes of 232,000 BPD had a favorable impact of approximately $766 million. As noted above in "OVERVIEW AND OUTLOOK—*Overview*—Business Operations Update," we continued to recover from the negative impacts of the COVID-19 pandemic throughout 2021 and have increased production of most of our products at our refineries to align with improvements in demand.
  - An increase in the cost of credits (primarily RINs) needed to comply with the Renewable and Low-Carbon Fuels Blending Programs had an unfavorable impact of $1.3 billion.
  - Lower discounts on crude oils had an unfavorable impact of approximately $710 million.

- Refining segment operating expenses (excluding depreciation and amortization expense) increased by $1.1 billion primarily due to higher energy costs of $845 million, which includes the effect of estimated excess energy costs arising out of Winter Storm Uri of $478 million (see note (a)), and an increase in certain employee compensation expenses of $138 million.

Renewable Diesel Segment Results

The following table includes selected financial and operating data of our Renewable Diesel segment for 2021 and 2020. The selected financial data is derived from the Financial Highlights by Segment and Total Company tables, unless otherwise noted.

	Year Ended December 31,		
	2021	2020	Change
Operating income	$ 709	$ 638	$ 71
Adjusted operating income (see note (e))	712	638	74
Renewable Diesel margin (see note (e))	$ 904	$ 767	$ 137
Operating expenses (excluding depreciation and amortization expense reflected below)	134	85	49
Depreciation and amortization expense	58	44	14
Sales volumes (thousand gallons per day) (see note (f))	1,014	787	227

Renewable Diesel segment operating income increased by $71 million in 2021; however, Renewable Diesel segment adjusted operating income, which excludes the adjustment in the table in note (e), increased by $74 million in 2021 compared to 2020. The components of this increase in the adjusted results, along with the reasons for the changes in those components, are outlined below.

- Renewable Diesel segment margin increased by $137 million in 2021 compared to 2020.

  Renewable Diesel segment margin is primarily affected by the price of the renewable diesel that we sell and the cost of the feedstocks that we process. The table on page 45 reflects market reference prices that we believe had a material impact on the change in our Renewable Diesel segment margin in 2021 compared to 2020.

  The increase in Renewable Diesel segment margin was primarily due to the following:

  - Higher renewable diesel prices had a favorable impact of approximately $768 million.
  - An increase in sales volumes of 227,000 gallons per day had a favorable impact of approximately $202 million. The increase in sales volume was primarily due to the additional production capacity resulting from the expansion of the DGD Plant that commenced operations in the fourth quarter of 2021.
  - An increase in the cost of the feedstocks we process had an unfavorable impact of approximately $731 million.
  - Price risk management activities had an unfavorable impact of $80 million. We recognized a hedge loss of $46 million in 2021 compared to a hedge gain of $34 million in 2020.

- Renewable Diesel segment operating expenses (excluding depreciation and amortization expense) increased by $49 million primarily due to higher chemical and catalyst costs of $14 million,

higher outside services of $11 million, an increase in certain employee compensation expenses of $11 million, and higher energy costs of $4 million.

Ethanol Segment Results

The following table includes selected financial and operating data of our Ethanol segment for 2021 and 2020. The selected financial data is derived from the Financial Highlights by Segment and Total Company tables, unless otherwise noted.

	Year Ended December 31,		
	2021	2020	Change
Operating income (loss)	$ 473	$ (69)	$ 542
Adjusted operating income (loss) (see note (e))	522	(36)	558
Ethanol margin (see note (e))	$ 1,161	$ 461	$ 700
Operating expenses (excluding depreciation and amortization expense reflected below) (see note (a))	556	406	150
Depreciation and amortization expense	131	121	10
Production volumes (thousand gallons per day) (see note (f))	3,949	3,588	361

Ethanol segment operating income increased by $542 million in 2021; however, Ethanol segment adjusted operating income, which excludes the adjustments in the table in note (e), increased by $558 million in 2021 compared to 2020. The components of this increase in the adjusted results, along with the reasons for the changes in these components, are outlined below.

- Ethanol segment margin increased by $700 million in 2021 compared to 2020.

  Ethanol segment margin is primarily affected by prices of the ethanol and corn related co-products that we sell and the cost of corn that we process. The table on page 45 reflects market reference prices that we believe had a material impact on the change in our Ethanol segment margin in 2021 compared to 2020.

  The increase in Ethanol segment margin was primarily due to the following:

  - Higher ethanol prices had a favorable impact of approximately $1.4 billion.
  - Higher prices on the co-products that we produce, primarily DDGs, had a favorable impact of approximately $270 million.
  - An increase in production volumes of 361,000 gallons per day had a favorable impact of approximately $114 million. As noted above in "OVERVIEW AND OUTLOOK—*Overview*—Business Operations Update," we continued to recover from the impacts of the COVID-19 pandemic throughout 2021 and have increased the aggregate production of ethanol across our plants to align with improvements in demand.
  - Higher corn prices had an unfavorable impact of approximately $1.1 billion.

- Ethanol segment operating expenses (excluding depreciation and amortization expense) increased by $150 million primarily due to higher energy costs, which includes the effect of estimated excess energy costs arising out of Winter Storm Uri of $54 million (see note (a)).

The following notes relate to references on pages 42 through 50.

(a) In mid-February 2021, many of our refineries and plants were impacted to varying extents by the severe cold, utility disruptions, and higher energy costs arising out of Winter Storm Uri. The higher energy costs resulted from an increase in the prices of natural gas and electricity that significantly exceeded rates that we consider normal, such as the average rates we incurred the month preceding the storm. As a result, our operating income for the year ended December 31, 2021 includes estimated excess energy costs of $579 million.

The above-mentioned pre-tax estimated excess energy charge is reflected in our statement of income line items and attributable to our reportable segments for the year ended December 31, 2021 as follows (in millions):

	Refining	Renewable Diesel	Ethanol	Total
Cost of materials and other	$ 47	$ —	$ —	$ 47
Operating expenses (excluding depreciation and amortization expense)	478	—	54	532
Total estimated excess energy costs	$ 525	$ —	$ 54	$ 579

(b) Cost of materials and other for the year ended December 31, 2020 includes a charge of $224 million related to the liquidation of LIFO inventory layers attributable to our Refining and Ethanol segments. Our inventory levels decreased throughout 2020 due to lower production resulting from lower demand for our products caused by the negative economic impacts of COVID-19 on our business. As a result, our inventory levels at December 31, 2020 were below their December 31, 2019 levels. Of the $224 million charge recognized for the year ended December 31, 2020, $222 million and $2 million is attributable to our Refining and Ethanol segments, respectively.

(c) “Other income, net” for the year ended December 31, 2021 includes the following:

- a gain of $62 million on the sale of a 24.99 percent membership interest in MVP, a nonconsolidated joint venture with a subsidiary of Magellan Midstream Partners, L.P., for $270 million;
- a charge of $24 million representing our portion of the asset impairment loss recognized by Diamond Pipeline LLC, a nonconsolidated joint venture with a subsidiary of Plains All American Pipeline, L.P., resulting from the joint venture’s cancellation of its pipeline extension project; and
- a charge of $193 million from the early redemption and retirement of approximately $2.1 billion aggregate principal amount of various series of our senior notes during the year ended December 31, 2021.

(d) Certain statutory income tax rate changes (primarily an increase in the U.K. rate from 19 percent to 25 percent effective in 2023) were enacted during the year ended December 31, 2021 that resulted in the remeasurement of our deferred tax liabilities. Under GAAP, we are required to recognize the effect of a change in tax law in the period of enactment. As a result, we recognized deferred income tax expense of $64 million during the year ended December 31, 2021, which represents the net increase in our deferred tax liabilities resulting from the changes in the tax rates.

(e) We use certain financial measures (as noted below) that are not defined under GAAP and are considered to be non-GAAP financial measures.

We have defined these non-GAAP measures and believe they are useful to the external users of our financial statements, including industry analysts, investors, lenders, and rating agencies. We believe these measures are useful to assess our ongoing financial performance because, when reconciled to their most comparable GAAP measures, they provide improved comparability between periods through the exclusion of certain items that we believe are not indicative of our core operating performance and that may obscure our underlying business results and trends. These non-GAAP measures should not be considered as alternatives to their most comparable GAAP measures nor should they be considered in isolation or as a substitute for an analysis of our results of operations as reported under GAAP. In addition, these non-GAAP measures may not be comparable to similarly titled measures used by other companies because we may define them differently, which diminishes their utility.

Non-GAAP financial measures are as follows:

- **Refining margin** is defined as Refining segment operating income (loss) excluding the LIFO liquidation adjustment, the LCM inventory valuation adjustment, operating expenses (excluding depreciation and amortization expense), depreciation and amortization expense, and other operating expenses, as reflected in the table below.

	Year Ended December 31,	
	2021	**2020**
Reconciliation of Refining operating income (loss) to Refining margin		
Refining operating income (loss)	$ 1,862	$ (1,342)
Adjustments:		
LIFO liquidation adjustment (see note (b))	—	222
LCM inventory valuation adjustment	—	(19)
Operating expenses (excluding depreciation and amortization expense) (see note (a))	5,088	3,944
Depreciation and amortization expense	2,169	2,138
Other operating expenses	83	34
Refining margin	$ 9,202	$ 4,977

- **Renewable Diesel margin** is defined as Renewable Diesel segment operating income excluding operating expenses (excluding depreciation and amortization expense), depreciation and amortization expense, and other operating expenses, as reflected in the table below.

	Year Ended December 31,	
	2021	**2020**
Reconciliation of Renewable Diesel operating income to Renewable Diesel margin		
Renewable Diesel operating income	$ 709	$ 638
Adjustments:		
Operating expenses (excluding depreciation and amortization expense)	134	85
Depreciation and amortization expense	58	44
Other operating expenses	3	—
Renewable Diesel margin	$ 904	$ 767

- **Ethanol margin** is defined as Ethanol segment operating income (loss) excluding the LIFO liquidation adjustment, operating expenses (excluding depreciation and amortization expense), depreciation and amortization expense, and other operating expenses, as reflected in the table below.

	Year Ended December 31,	
	2021	**2020**
Reconciliation of Ethanol operating income (loss) to Ethanol margin		
Ethanol operating income (loss)	$ 473	$ (69)
Adjustments:		
LIFO liquidation adjustment (see note (b))	—	2
Operating expenses (excluding depreciation and amortization expense) (see note (a))	556	406
Depreciation and amortization expense	131	121
Other operating expenses	1	1
Ethanol margin	$ 1,161	$ 461

- **Adjusted Refining operating income (loss)** is defined as Refining segment operating income (loss) excluding the LIFO liquidation adjustment, the LCM inventory valuation adjustment, and other operating expenses, as reflected in the table below.

	Year Ended December 31,	
	2021	**2020**
Reconciliation of Refining operating income (loss) to adjusted Refining operating income (loss)		
Refining operating income (loss)	$ 1,862	$ (1,342)
Adjustments:		
LIFO liquidation adjustment (see note (b))	—	222
LCM inventory valuation adjustment	—	(19)
Other operating expenses	83	34
Adjusted Refining operating income (loss)	$ 1,945	$ (1,105)

- **Adjusted Renewable Diesel operating income** is defined as Renewable Diesel segment operating income excluding other operating expenses, as reflected in the table below.

	Year Ended December 31,	
	2021	**2020**
Reconciliation of Renewable Diesel operating income to adjusted Renewable Diesel operating income		
Renewable Diesel operating income	$ 709	$ 638
Adjustment: Other operating expenses	3	—
Adjusted Renewable Diesel operating income	$ 712	$ 638

- **Adjusted Ethanol operating income (loss)** is defined as Ethanol segment operating income (loss) excluding the changes in estimated useful lives of two of our ethanol plants, the LIFO liquidation adjustment, and other operating expenses, as reflected in the table below.

	Year Ended December 31,	
	2021	**2020**
Reconciliation of Ethanol operating income (loss) to adjusted Ethanol operating income (loss)		
Ethanol operating income (loss)	$ 473	$ (69)
Adjustments:		
Changes in estimated useful lives of two ethanol plants	48	30
LIFO liquidation adjustment (see note (b))	—	2
Other operating expenses	1	1
Adjusted Ethanol operating income (loss)	$ 522	$ (36)

- **Adjusted operating income (loss)** is defined as total company operating income (loss) excluding the LIFO liquidation adjustment, the LCM inventory valuation adjustment, the changes in estimated useful lives of two of our ethanol plants, and other operating expenses, as reflected in the table below.

	Year Ended December 31,	
	2021	**2020**
Reconciliation of total company operating income (loss) to adjusted operating income (loss)		
Total company operating income (loss)	$ 2,130	$ (1,579)
Adjustments:		
LIFO liquidation adjustment (see note (b))	—	224
LCM inventory valuation adjustment	—	(19)
Changes in estimated useful lives of two ethanol plants	48	30
Other operating expenses	87	35
Adjusted operating income (loss)	$ 2,265	$ (1,309)

(f) We use throughput volumes, sales volumes, and production volumes for the Refining segment, Renewable Diesel segment, and Ethanol segment, respectively, due to their general use by others who operate facilities similar to those included in our segments.

LIQUIDITY AND CAPITAL RESOURCES

Overview

Our liquidity was positively impacted by the cash generated by our operations in 2021 notwithstanding the lingering impacts of the COVID-19 pandemic, excess energy costs arising out of Winter Storm Uri, and the effects of Hurricane Ida, as described in "OVERVIEW AND OUTLOOK—*Overview*—Business Operations Update."

We completed debt reduction and refinancing transactions in 2021 that reduced our long-term debt by $1.3 billion. Our refinancing transactions included the issuance of $500 million of 2.800 percent Senior Notes due December 1, 2031 and $950 million of 3.650 percent Senior Notes due December 1, 2051. Proceeds from these issuances and cash on hand were used to repurchase and retire, or redeem approximately $2.1 billion of various series of our senior notes. In addition, we redeemed our $575 million Floating Rate Senior Notes due September 15, 2023.

In February 2022, we completed additional debt reduction and refinancing transactions that reduced our long-term debt by an additional $750 million. These additional refinancing transactions included the issuance of $650 million of 4.000 percent Senior Notes due June 1, 2052. Proceeds from this issuance and cash on hand were used to repurchase and retire approximately $1.4 billion of various series of our senior notes.

Our Liquidity

Our liquidity consisted of the following as of December 31, 2021 (in millions):

Available capacity from our committed facilities (a):		
Valero Revolver	$	3,712
Canadian Revolver (b)		115
Accounts receivable sales facility		1,300
Letter of credit facility		50
Total available capacity		5,177
Cash and cash equivalents (c)		4,086
Total liquidity	$	9,263

(a) Excludes the committed facilities of the consolidated VIEs.
(b) The amount for our Canadian Revolver is shown in U.S. dollars. As set forth in the summary of our credit facilities in Note 10 of Notes to Consolidated Financial Statements, the availability under our Canadian Revolver as of December 31, 2021 in Canadian dollars was C$145 million.
(c) Excludes $36 million of cash and cash equivalents related to the consolidated VIEs that is available for use only by the VIEs.

Information about our outstanding borrowings, letters of credit issued, and availability under our credit facilities is reflected in Note 10 of Notes to Consolidated Financial Statements.

Our debt and financing agreements do not have rating agency triggers that would automatically require us to post additional collateral. However, in the event of certain downgrades of our senior unsecured debt by the ratings agencies, the cost of borrowings under some of our bank credit facilities and other arrangements may increase. As of December 31, 2021, all of our ratings on our senior unsecured debt, including debt guaranteed by us, were at or above investment grade level as follows:

Rating Agency	Rating
Moody's Investors Service	Baa2 (negative outlook)
Standard & Poor's Ratings Services	BBB (stable outlook)
Fitch Ratings	BBB (stable outlook)

We cannot provide assurance that these ratings will remain in effect for any given period of time or that one or more of these ratings will not be lowered or withdrawn entirely by a rating agency. We note that these credit ratings are not recommendations to buy, sell, or hold our securities. Each rating should be evaluated independently of any other rating. Any future reduction below investment grade or withdrawal of one or more of our credit ratings could have a material adverse impact on our ability to obtain short- and long-term financing and the cost of such financings.

We believe we have sufficient funds from operations and from available capacity under our credit facilities to fund our ongoing operating requirements and other commitments over the next 12 months and thereafter for the foreseeable future. We expect that, to the extent necessary, we can raise additional cash through equity or debt financings in the public and private capital markets or the arrangement of additional credit facilities. However, there can be no assurances regarding the availability of any future financings or additional credit facilities or whether such financings or additional credit facilities can be made available on terms that are acceptable to us.

Cash Flows

Components of our cash flows are set forth below (in millions):

	Year Ended December 31,	
	2021	2020
Cash flows provided by (used in):		
Operating activities	$ 5,859	$ 948
Investing activities	(2,159)	(2,425)
Financing activities:		
Debt issuances and borrowings	1,828	4,570
Repayments of debt and finance lease obligations (including premiums on early redemption and retirement of debt)	(3,214)	(495)
Other financing activities	(1,460)	(1,998)
Financing activities	(2,846)	2,077
Effect of foreign exchange rate changes on cash	(45)	130
Net increase in cash and cash equivalents	$ 809	$ 730

Cash Flows for the Year Ended December 31, 2021

In 2021, we used $5.9 billion of cash generated by our operations and $1.8 billion in debt issuances and borrowings to make $2.2 billion of investments in our business, repay $3.2 billion of debt and finance lease obligations (including premiums on the early redemption and retirement of debt), fund $1.5 billion

of other financing activities, and increase our available cash on hand by $809 million. The debt issuances, borrowings, and repayments are described in Note 10 of Notes to Consolidated Financial Statements.

As previously noted, our operations generated $5.9 billion of cash in 2021, driven primarily by noncash charges to income of $2.3 billion, a positive change in working capital of $2.2 billion, and net income of $1.3 billion. Noncash charges primarily included $2.4 billion of depreciation and amortization expense and a $193 million loss on the early redemption and retirement of debt, partially offset by a $126 million deferred income tax benefit and a $62 million gain on the sale of a partial interest in MVP, as described in Note 13 of Notes to Consolidated Financial Statements. Details regarding the components of the change in working capital, along with the reasons for the changes in those components, are described in Note 19 of Notes to Consolidated Financial Statements. In addition, see "RESULTS OF OPERATIONS" for an analysis of the significant components of our net income.

Our investing activities of $2.2 billion consisted of $2.5 billion in capital investments, as defined below under "Capital Investments," of which $1.0 billion related to self-funded capital investments by DGD and $110 million related to capital expenditures of VIEs other than DGD, partially offset by $270 million of proceeds received from the sale of a partial interest in MVP, as described in Note 13 of Notes to Consolidated Financial Statements.

Other financing activities of $1.5 billion consisted primarily of $1.6 billion in dividend payments and $27 million for the purchase of common stock for treasury in connection with stock-based compensation plans, partially offset by $189 million in contributions from noncontrolling interests.

Cash Flows for the Year Ended December 31, 2020

In 2020, we used $948 million of cash generated by our operations and $4.6 billion in debt issuances and borrowings to make $2.4 billion of investments in our business, repay $495 million of debt and finance lease obligations, fund $2.0 billion of other financing activities, and increase our available cash on hand by $730 million. The debt issuances, borrowings, and repayments are described in Note 10 of Notes to Consolidated Financial Statements.

As previously noted, our operations generated $948 million of cash in 2020, which resulted from noncash charges to income of $2.4 billion, partially offset by an unfavorable change in working capital of $345 million. Noncash charges primarily included $2.4 billion of depreciation and amortization expense and $158 million of deferred income tax expense. The change in working capital was affected primarily by a $740 million use of cash[4] resulting from the rapid decline in market prices of refined petroleum products and crude oil as a result of the negative economic effects of the COVID-19 pandemic that impacted our receivables and accounts payable. This use of cash, along with other uses of cash, were partially offset by a $1.0 billion source of cash driven by a reduction in inventory levels on hand. Details regarding the components of the change in working capital, along with the reasons for the changes in those components, are described in Note 19 of Notes to Consolidated Financial Statements. In addition, see "RESULTS OF OPERATIONS" for an analysis of the significant components of our net loss.

Our investing activities of $2.4 billion consisted of $2.5 billion in capital investments, of which $548 million related to self-funded capital investments by DGD and $251 million related to capital expenditures of VIEs other than DGD.

[4] Represents the net cash flow change in "receivables, net" of $3.3 billion and accounts payable of $4.1 billion during the year ended December 31, 2020, as described in Note 19 of Notes to Consolidated Financial Statements.

Other financing activities of $2.0 billion consisted primarily of $1.6 billion in dividend payments, $208 million to pay distributions to noncontrolling interests, and $156 million for the purchase of common stock for treasury.

Our Capital Resources

Our material cash requirements as of December 31, 2021 primarily consist of working capital requirements, capital investments, contractual obligations, and other matters, as described below. Our operations have historically generated positive cash flows to fulfill our working capital requirements.

Capital Investments

Capital investments are comprised of our capital expenditures, deferred turnaround and catalyst cost expenditures, and investments in nonconsolidated joint ventures, as reflected in our consolidated statements of cash flows as shown on page 75. Capital investments exclude strategic investments or acquisitions, if any.

We also identify our capital investments by the nature of the project with which the expenditure is associated as follows:

- *Sustaining capital investments* are generally associated with projects that are expected to extend the lives of our property assets, sustain their operating capabilities and safety (including deferred turnaround and catalyst cost expenditures), or comply with regulatory requirements. Regulatory compliance capital investments are generally associated with projects that are incurred to comply with governmental regulatory requirements, such as requirements to reduce emissions and prohibited elements from our products.

- *Growth capital investments*, including low-carbon growth capital investments that support the development and growth of our low-carbon renewable diesel and ethanol businesses, are generally associated with projects for the construction of new property assets that are expected to enhance our profitability and cash-generating capabilities, including investments in nonconsolidated joint ventures.

We have developed an extensive multi-year capital investment program, which we update and revise based on changing internal and external factors. The following table reflects our expected capital investments for the year ending December 31, 2022 by nature of the project and reportable segment, along with historical amounts for the years ended December 31, 2021 and 2020 (in millions). The following table also reflects capital investments attributable to Valero, which is a non-GAAP measure that we define and reconcile to capital investments below under "Capital Investments Attributable to Valero."

	Year Ending December 31, 2022 (a)	Year Ended December 31, 2021	2020
Capital investments by nature of the project (b):			
Sustaining capital investments	$ 1,290	$ 1,129	$ 1,126
Growth capital investments:			
Low-carbon growth capital investments	760	1,042	566
Other growth capital investments	340	296	798
Total growth capital investments	1,100	1,338	1,364
Total capital investments	$ 2,390	$ 2,467	$ 2,490
Capital investments by segment:			
Refining	$ 1,540	$ 1,378	$ 1,887
Renewable Diesel	780	1,048	548
Ethanol	40	15	21
Corporate	30	26	34
Total capital investments	2,390	2,467	2,490
Adjustments:			
Renewable Diesel capital investments attributable to the other joint venture member in DGD	(390)	(524)	(274)
Capital expenditures of other VIEs	—	(110)	(251)
Capital investments attributable to Valero	$ 2,000	$ 1,833	$ 1,965

(a) All expected amounts for the year ending December 31, 2022 exclude capital expenditures that the consolidated VIEs other than DGD may incur because we do not operate those VIEs.

(b) Capital investments attributable to Valero by nature of the project are as follows (in millions):

	Year Ending December 31, 2022	Year Ended December 31, 2021	2020
Sustaining capital investments	$ 1,275	$ 1,105	$ 1,110
Growth capital investments:			
Low-carbon growth capital investments	385	538	308
Other growth capital investments	340	190	547
Total growth capital investments	725	728	855
Total capital investments	$ 2,000	$ 1,833	$ 1,965

We have publicly announced GHG emissions reduction/offset targets for 2025 and 2035. We believe that our expected allocation of growth capital into lower-carbon projects is consistent with such targets. Certain of these lower-carbon projects have been completed or are already in execution and the associated capital investments are included in our expected capital investments for 2022. Our capital investments in future years to achieve these targets are expected to include investments associated with certain lower-carbon projects currently at various stages of progress, evaluation, or approval. See "ITEMS 1. and 2. BUSINESS AND PROPERTIES—OUR COMPREHENSIVE LIQUID FUELS STRATEGY—*Our Low-Carbon Projects*" for a description of our low-carbon projects.

Capital Investments Attributable to Valero

Capital investments attributable to Valero is a non-GAAP financial measure that reflects our net share of capital investments and is defined as all capital expenditures, deferred turnaround and catalyst cost expenditures, and investments in nonconsolidated joint ventures, excluding the portion of DGD's capital investments attributable to the other joint venture member and all of the capital expenditures of other consolidated VIEs.

We are a 50 percent joint venture member in DGD and consolidate its financial statements. As a result, all of DGD's net cash provided by operating activities (or operating cash flow) is included in our consolidated net cash provided by operating activities. 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 our net share of capital investments. We also exclude all of the capital expenditures of other VIEs that we consolidate because we do not operate those VIEs. See Note 13 of Notes to Consolidated Financial Statements for more information about the VIEs that we consolidate. We believe capital investments attributable to Valero is an important measure because it more accurately reflects our capital investments.

Capital investments attributable to Valero should not be considered as an alternative to capital investments, which is the most comparable GAAP measure, nor should it be considered in isolation or as a substitute for an analysis of our cash flows as reported under GAAP. In addition, this non-GAAP measure may not be comparable to similarly titled measures used by other companies because we may define it differently, which may diminish its utility.

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	Year Ended December 31,	
	2021	2020
Reconciliation of capital investments to capital investments attributable to Valero		
Capital expenditures (excluding VIEs)	$ 513	$ 1,014
Capital expenditures of VIEs:		
DGD	1,042	523
Other VIEs	110	251
Deferred turnaround and catalyst cost expenditures (excluding VIEs)	787	623
Deferred turnaround and catalyst cost expenditures of DGD	6	25
Investments in nonconsolidated joint ventures	9	54
Capital investments	2,467	2,490
Adjustments:		
DGD's capital investments attributable to our joint venture member	(524)	(274)
Capital expenditures of other VIEs	(110)	(251)
Capital investments attributable to Valero	$ 1,833	$ 1,965

Contractual Obligations

Below is a summary of our contractual obligations (in millions) as of December 31, 2021 that are expected to be paid within the next year and thereafter. These obligations are reflected in our balance sheets, except (i) the interest payments related to debt obligations, operating lease liabilities, and finance lease obligations and (ii) purchase obligations.

	Payments Due by Period		
	Short-Term	Long-Term	Total
Debt obligations (a)	$ 1,110	$ 10,926	$ 12,036
Interest payments related to debt obligations (b)	527	5,868	6,395
Operating lease liabilities (c)	351	1,157	1,508
Finance lease obligations (c)	228	2,476	2,704
Other long-term liabilities (d)	—	2,464	2,464
Purchase obligations (e)	23,211	8,669	31,880

(a) Debt obligations are described in Note 10 of Notes to Consolidated Financial Statements, which is incorporated by reference into this item and includes a maturity analysis of our debt. Debt obligations exclude amounts related to net unamortized debt issuance costs and other.

(b) Interest payments related to debt obligations are the expected payments based on information available as of December 31, 2021.

(c) Operating lease liabilities and finance lease obligations are described in Note 6 of Notes to Consolidated Financial Statements, which is incorporated by reference into this item and includes maturity analyses of remaining minimum lease payments. Operating lease liabilities and finance lease obligations reflected in this table include related interest expense.

(d) Other long-term liabilities are described in Note 9 of Notes to Consolidated Financial Statements, which is incorporated by reference into this item. Other long-term liabilities exclude amounts related to the long-term portion of operating lease liabilities that are separately presented above.

(e) Purchase obligations are described in Note 11 of Notes to Consolidated Financial Statements, which is incorporated by reference into this item. Purchase obligations are based on (i) fixed or minimum quantities to be purchased and (ii) fixed or estimated prices to be paid based on current market conditions.

The amounts outstanding associated with the debt instruments described below are reflected in current portion of debt and finance lease obligations in our balance sheet as of December 31, 2021, and they are also included in the table above in debt obligations – short-term. However, the final cash flows for these instruments cannot be predicted with certainty at this time for the reasons noted below.

- The $300 million of 4.00 percent Gulf Opportunity Zone Revenue Bonds Series 2010 (GO Zone Bonds) are due December 1, 2040, but they are subject to mandatory tender on June 1, 2022 (the Mandatory Tender Date) at a price equal to par plus accrued and unpaid interest up to, but excluding, the Mandatory Tender Date. However, we have the option to effectuate a remarketing of these bonds, and we currently expect to remarket them effective on or soon after the Mandatory Tender Date or otherwise refinance them, but we cannot provide any assurance that we will be able to do so.

- The IEnova Revolver, as defined and described in Note 10 of Notes to Consolidated Financial Statements, is subject to repayment on demand; however, we do not expect the lender to demand repayment during the next 12 months.

We have not entered into any transactions, agreements, or other contractual arrangements that would result in off-balance sheet liabilities.

Other Matters Impacting Liquidity and Capital Resources

Stock Purchase Program

On January 23, 2018, our Board authorized the 2018 Program for the purchase of our outstanding common stock. As of December 31, 2021, we had $1.4 billion available for purchase under the 2018 Program, which has no expiration date. We have not purchased any shares of our common stock under the 2018 Program since mid-March 2020, and we will evaluate the timing of repurchases when appropriate. We have no obligation to make purchases under this program.

Pension Plan Funding

We plan to contribute $116 million to our pension plans and $22 million to our other postretirement benefit plans during 2022. See Note 14 of Notes to Consolidated Financial Statements for a discussion of our employee benefit plans.

Environmental Matters

Our operations are subject to extensive environmental regulations by governmental authorities relating to the discharge of materials into the environment, waste management, pollution prevention measures, GHG emissions, and characteristics and composition of many of our products. Because environmental laws and regulations are becoming more complex and stringent and new environmental laws and regulations are continuously being enacted or proposed, the level of future expenditures required for environmental matters could increase in the future. See Note 9 of Notes to Consolidated Financial Statements for disclosure of our environmental liabilities.

Tax Matters

During 2020, we deferred payment on $250 million of value-added and motor fuel taxes that were otherwise due in 2020 as permitted by various taxing authorities to help companies address the negative impacts of the COVID-19 pandemic. We paid $220 million of the deferred amount in 2021 and the remaining $30 million in January 2022.

Cash Held by Our Foreign Subsidiaries

As of December 31, 2021, $3.3 billion of our cash and cash equivalents was held by our foreign subsidiaries. Cash held by our foreign subsidiaries can be repatriated to us without any U.S. federal income tax consequences on dividends, but certain other taxes may apply, including, but not limited to, withholding taxes imposed by certain foreign jurisdictions, U.S. state income taxes, and U.S. federal income tax on foreign exchange gains. Therefore, there is a cost to repatriate cash held by certain of our foreign subsidiaries to us. However, we have accrued for withholding taxes and U.S. state income taxes on a portion of the cash held by certain of our foreign subsidiaries and we believe that the remaining cost is not material to our financial position and liquidity.

Concentration of Customers

Our operations have a concentration of customers in the refining industry and customers who are refined petroleum product wholesalers and retailers. These concentrations of customers may impact our overall exposure to credit risk, either positively or negatively, in that these customers may be similarly affected by changes in economic or other conditions, including the uncertainties concerning the COVID-19 pandemic and volatility in the global crude oil markets. However, we believe that our portfolio of accounts receivable is sufficiently diversified to the extent necessary to minimize potential credit risk. Historically, we have not had any significant problems collecting our accounts receivable. See also "ITEM 1A. RISK FACTORS—Risks Related to Our Business, Industry, and Operations—*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*."

CRITICAL ACCOUNTING ESTIMATES

The preparation of financial statements in accordance with GAAP requires us to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results could differ from those estimates. The following summary provides further information about our critical accounting policies that involve critical accounting estimates, and should be read in conjunction with Note 1 of Notes to Consolidated Financial Statements, which summarizes our significant accounting policies. The following accounting policies involve estimates that are considered critical due to the level of subjectivity and judgment involved, as well as the impact on our financial position and results of operations. We believe that all of our estimates are reasonable. Unless otherwise noted, estimates of the sensitivity to earnings that would result from changes in the assumptions used in determining our estimates is not practicable due to the number of assumptions and contingencies involved, and the wide range of possible outcomes.

Unrecognized Tax Benefits

We take tax positions in our tax returns from time to time that ultimately may not be allowed by the relevant taxing authorities. When we take such positions, we evaluate the likelihood of sustaining those positions and determine the amount of tax benefit arising from such positions, if any, that should be recognized in our financial statements. Tax benefits not recognized by us are recorded as a liability for unrecognized tax benefits, which represents our potential future obligation to various taxing authorities if the tax positions are not sustained.

The evaluation of tax positions and the determination of the benefit arising from such positions that are recognized in our financial statements requires us to make significant judgments and estimates based on an analysis of complex tax laws and regulations and related interpretations. These judgments and

estimates are subject to change due to many factors, including the progress of ongoing tax audits, case law, and changes in legislation.

Details of our liability for unrecognized tax benefits, along with other information about our unrecognized tax benefits, are included in Note 16 of Notes to Consolidated Financial Statements.

Impairment of Long-Lived Assets

Long-lived assets (primarily property, plant, and equipment) are tested for recoverability whenever events or changes in circumstances indicate that the carrying amount of the asset may not be recoverable. A long-lived asset is not recoverable if its carrying amount exceeds the sum of the undiscounted cash flows expected to result from its use and eventual disposition. If a long-lived asset is not recoverable, an impairment loss is recognized for the amount by which the carrying amount of the long-lived asset exceeds its fair value, with fair value determined based on discounted estimated net cash flows or other appropriate methods.

In order to test for recoverability, we must make estimates of projected cash flows related to the asset being evaluated. Such estimates include, but are not limited to, assumptions about future sales volumes, commodity prices, operating costs, margins, the use or disposition of the asset, the asset's estimated remaining useful life, and future expenditures necessary to maintain the asset's existing service potential in light of existing and expected regulations. Due to the significant subjectivity of the assumptions used to test for recoverability, changes in market conditions could result in significant impairment charges in the future, thus affecting our earnings.

As of December 31, 2021, we determined there was no impairment of our long-lived assets.

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ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

COMMODITY PRICE RISK

We are exposed to market risks related to the volatility in the price of feedstocks (primarily crude oil, waste and renewable feedstocks, and corn), the products we produce, and natural gas used in our operations. To reduce the impact of price volatility on our results of operations and cash flows, we use commodity derivative instruments, including futures and options to manage the volatility of:

- inventories and firm commitments to purchase inventories generally for amounts by which our current year inventory levels (determined on a LIFO basis) differ from our previous year-end LIFO inventory levels; and

- forecasted purchases and/or product sales at existing market prices that we deem favorable.

Our positions in commodity derivative instruments are monitored and managed on a daily basis by our risk control group to ensure compliance with our stated risk management policy that has been approved by our Board.

As of December 31, 2021 and 2020, the amount of gain or loss that would have resulted from a 10 percent increase or decrease in the underlying price for all of our commodity derivative instruments entered into for purposes other than trading with which we have market risk was not material. See Note 21 of Notes to Consolidated Financial Statements for notional volumes associated with these derivative contracts as of December 31, 2021.

COMPLIANCE PROGRAM PRICE RISK

We are exposed to market risk related to the volatility in the price of credits needed to comply with the Renewable and Low-Carbon Fuel Blending Programs. To manage this risk, we enter into contracts to purchase these credits. As of December 31, 2021 and 2020, the amount of gain or loss in the fair value of derivative instruments that would have resulted from a 10 percent increase or decrease in the underlying price of the contracts was not material. See Note 21 of Notes to Consolidated Financial Statements for a discussion about these blending programs.

INTEREST RATE RISK

The following table provides information about our debt instruments (dollars in millions), the fair values of which are sensitive to changes in interest rates. Principal cash flows and related weighted-average interest rates by expected maturity dates are presented. See Note 10 of Notes to Consolidated Financial Statements for additional information related to our debt.

	December 31, 2021 (a)							
	Expected Maturity Dates							
	2022 (b)(c)	2023	2024	2025	2026	There-after	Total	Fair Value
Fixed rate	$ 300	$ —	$ 169	$ 1,374	$ 1,726	$ 7,637	$ 11,206	$ 12,838
Average interest rate	4.0 %	— %	1.2 %	3.0 %	3.9 %	5.0 %	4.5 %	
Floating rate	$ 810	$ 20	$ —	$ —	$ —	$ —	$ 830	$ 830
Average interest rate	3.5 %	3.9 %	— %	— %	— %	— %	3.5 %	

	December 31, 2020 (a)							
	Expected Maturity Dates							
	2021 (c)	2022 (b)	2023	2024	2025	There-after	Total	Fair Value
Fixed rate	$ —	$ 300	$ 850	$ 925	$ 1,650	$ 8,174	$ 11,899	$ 13,899
Average interest rate	— %	4.0 %	2.7 %	1.2 %	3.1 %	5.1 %	4.4 %	
Floating rate	$ 603	$ 6	$ 595	$ —	$ —	$ —	$ 1,204	$ 1,204
Average interest rate	3.9 %	3.0 %	1.4 %	— %	— %	— %	2.7 %	

(a) Excludes unamortized discounts and debt issuance costs.
(b) See "ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS—LIQUIDITY AND CAPITAL RESOURCES—*Our Capital Resources*—Contractual Obligations" for a discussion of the Mandatory Tender Date and maturity date of our GO Zone Bonds.
(c) Our floating rate debt included outstanding borrowings under the DGD Revolver, the DGD Loan Agreement, and the IEnova Revolver (each as defined and described in Note 10 of Notes to Consolidated Financial Statements). The respective lenders of these debt instruments do not have recourse against us.

FOREIGN CURRENCY RISK

We are exposed to exchange rate fluctuations on transactions related to our foreign operations that are denominated in currencies other than the local (functional) currencies of those operations. To manage our exposure to these exchange rate fluctuations, we often use foreign currency contracts. As of December 31, 2021 and 2020, the fair value of our foreign currency contracts was not material.

See Note 21 of Notes to Consolidated Financial Statements for a discussion about our foreign currency risk management activities.

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ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Our management is responsible for establishing and maintaining adequate "internal control over financial reporting" (as defined in Rule 13a-15(f) under the Securities Exchange Act of 1934) for Valero Energy Corporation. Our management evaluated the effectiveness of Valero's internal control over financial reporting as of December 31, 2021. In its evaluation, management used the criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Management believes that as of December 31, 2021, our internal control over financial reporting was effective based on those criteria.

Our independent registered public accounting firm has issued an attestation report on the effectiveness of our internal control over financial reporting, which begins on page 69 of this report.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders
Valero Energy Corporation:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Valero Energy Corporation and subsidiaries (the Company) as of December 31, 2021 and 2020, the related consolidated statements of income, comprehensive income, equity, and cash flows for each of the years in the three-year period ended December 31, 2021, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2021, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 22, 2022 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of a critical audit matter does not alter in any way our opinion on the consolidated

financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Assessment of gross unrecognized tax benefits

As discussed in Note 16 to the consolidated financial statements, as of December 31, 2021, the Company has gross unrecognized tax benefits, excluding related interest and penalties, of $816 million. The Company's tax positions are subject to examination by local taxing authorities and the resolution of such examinations may span multiple years. Due to the complexities inherent in the interpretation of income tax laws in domestic and foreign jurisdictions, it is uncertain whether some of the Company's income tax positions will be sustained upon examination.

We identified the assessment of the Company's gross unrecognized tax benefits as a critical audit matter. Complex auditor judgment was required in evaluating the Company's interpretation of income tax laws and assessing the Company's estimate of the ultimate resolution of its income tax positions.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls over the Company's income tax process. This included controls to evaluate which of the Company's income tax positions may not be sustained upon examination and estimate the gross unrecognized tax benefits. We involved domestic and international income tax professionals with specialized skills and knowledge, who assisted in:

- obtaining an understanding and evaluating the Company's income tax positions as filed or intended to be filed
- evaluating the Company's interpretation of income tax laws by developing an independent assessment of the Company's income tax positions and comparing the results to the Company's assessment
- inspecting settlements and communications with applicable taxing authorities
- assessing the expiration of applicable statutes of limitations.

In addition, we evaluated the Company's ability to estimate its gross unrecognized tax benefits by comparing historical uncertain income tax positions, including the gross unrecognized tax benefits, to actual results upon conclusion of tax examinations.

/s/ KPMG LLP

We have served as the Company's auditor since 2004.

San Antonio, Texas
February 22, 2022

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders
Valero Energy Corporation:

Opinion on Internal Control Over Financial Reporting

We have audited Valero Energy Corporation and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2021 and 2020, the related consolidated statements of income, comprehensive income, equity, and cash flows for each of the years in the three-year period ended December 31, 2021, and the related notes (collectively, the consolidated financial statements), and our report dated February 22, 2022 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the

assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG LLP

San Antonio, Texas
February 22, 2022

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VALERO ENERGY CORPORATION
CONSOLIDATED BALANCE SHEETS
(millions of dollars, except par value)

	December 31,	
	2021	**2020**
ASSETS		
Current assets:		
Cash and cash equivalents	$ 4,122	$ 3,313
Receivables, net	10,378	6,109
Inventories	6,265	6,038
Prepaid expenses and other	400	384
Total current assets	21,165	15,844
Property, plant, and equipment, at cost	49,072	46,967
Accumulated depreciation	(18,225)	(16,578)
Property, plant, and equipment, net	30,847	30,389
Deferred charges and other assets, net	5,876	5,541
Total assets	$ 57,888	$ 51,774
LIABILITIES AND EQUITY		
Current liabilities:		
Current portion of debt and finance lease obligations	$ 1,264	$ 723
Accounts payable	12,495	6,082
Accrued expenses	1,253	994
Taxes other than income taxes payable	1,461	1,372
Income taxes payable	378	112
Total current liabilities	16,851	9,283
Debt and finance lease obligations, less current portion	12,606	13,954
Deferred income tax liabilities	5,210	5,275
Other long-term liabilities	3,404	3,620
Commitments and contingencies		
Equity:		
Valero Energy Corporation stockholders' equity:		
Common stock, $0.01 par value; 1,200,000,000 shares authorized; 673,501,593 and 673,501,593 shares issued	7	7
Additional paid-in capital	6,827	6,814
Treasury stock, at cost; 264,305,955 and 265,096,171 common shares	(15,677)	(15,719)
Retained earnings	28,281	28,953
Accumulated other comprehensive loss	(1,008)	(1,254)
Total Valero Energy Corporation stockholders' equity	18,430	18,801
Noncontrolling interests	1,387	841
Total equity	19,817	19,642
Total liabilities and equity	$ 57,888	$ 51,774

See Notes to Consolidated Financial Statements.

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VALERO ENERGY CORPORATION
CONSOLIDATED STATEMENTS OF INCOME
(millions of dollars, except per share amounts)

	Year Ended December 31,		
	2021	**2020**	**2019**
Revenues (a)	$ 113,977	$ 64,912	$ 108,324
Cost of sales:			
Cost of materials and other	102,714	58,933	96,476
Lower of cost or market (LCM) inventory valuation adjustment	—	(19)	—
Operating expenses (excluding depreciation and amortization expense reflected below)	5,776	4,435	4,868
Depreciation and amortization expense	2,358	2,303	2,202
Total cost of sales	110,848	65,652	103,546
Other operating expenses	87	35	21
General and administrative expenses (excluding depreciation and amortization expense reflected below)	865	756	868
Depreciation and amortization expense	47	48	53
Operating income (loss)	2,130	(1,579)	3,836
Other income, net	16	132	104
Interest and debt expense, net of capitalized interest	(603)	(563)	(454)
Income (loss) before income tax expense (benefit)	1,543	(2,010)	3,486
Income tax expense (benefit)	255	(903)	702
Net income (loss)	1,288	(1,107)	2,784
Less: Net income attributable to noncontrolling interests	358	314	362
Net income (loss) attributable to Valero Energy Corporation stockholders	$ 930	$ (1,421)	$ 2,422
Earnings (loss) per common share	$ 2.27	$ (3.50)	$ 5.84
Weighted-average common shares outstanding (in millions)	407	407	413
Earnings (loss) per common share – assuming dilution	$ 2.27	$ (3.50)	$ 5.84
Weighted-average common shares outstanding – assuming dilution (in millions)	407	407	414

Supplemental information:

(a) Includes excise taxes on sales by certain of our foreign operations	$ 5,645	$ 4,797	$ 5,595

See Notes to Consolidated Financial Statements.

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VALERO ENERGY CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(millions of dollars)

	Year Ended December 31,		
	2021	**2020**	**2019**
Net income (loss)	$ 1,288	$ (1,107)	$ 2,784
Other comprehensive income:			
Foreign currency translation adjustment	(47)	161	349
Net gain (loss) on pension and other postretirement benefits	378	(80)	(234)
Net gain (loss) on cash flow hedges	(2)	2	(8)
Other comprehensive income before income tax expense (benefit)	329	83	107
Income tax expense (benefit) related to items of other comprehensive income	82	(16)	(48)
Other comprehensive income	247	99	155
Comprehensive income (loss)	1,535	(1,008)	2,939
Less: Comprehensive income attributable to noncontrolling interests	359	316	361
Comprehensive income (loss) attributable to Valero Energy Corporation stockholders	$ 1,176	$ (1,324)	$ 2,578

See Notes to Consolidated Financial Statements.

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VALERO ENERGY CORPORATION
CONSOLIDATED STATEMENTS OF EQUITY
(millions of dollars)

	Valero Energy Corporation Stockholders' Equity							
	Common Stock	Additional Paid-in Capital	Treasury Stock	Retained Earnings	Accumulated Other Comprehensive Loss	Total	Non-controlling Interests	Total Equity
Balance as of December 31, 2018	$ 7	$ 7,048	$ (14,925)	$ 31,044	$ (1,507)	$ 21,667	$ 1,064	$ 22,731
Net income	—	—	—	2,422	—	2,422	362	2,784
Dividends on common stock ($3.60 per share)	—	—	—	(1,492)	—	(1,492)	—	(1,492)
Stock-based compensation expense	—	77	—	—	—	77	—	77
Transactions in connection with stock-based compensation plans	—	(50)	30	—	—	(20)	—	(20)
Open market stock purchases	—	—	(753)	—	—	(753)	—	(753)
Acquisition of Valero Energy Partners LP (VLP) publicly held common units	—	(328)	—	—	—	(328)	(622)	(950)
Distributions to noncontrolling interests	—	—	—	—	—	—	(70)	(70)
Other	—	74	—	—	—	74	—	74
Other comprehensive income (loss)	—	—	—	—	156	156	(1)	155
Balance as of December 31, 2019	7	6,821	(15,648)	31,974	(1,351)	21,803	733	22,536
Net income (loss)	—	—	—	(1,421)	—	(1,421)	314	(1,107)
Dividends on common stock ($3.92 per share)	—	—	—	(1,600)	—	(1,600)	—	(1,600)
Stock-based compensation expense	—	76	—	—	—	76	—	76
Transactions in connection with stock-based compensation plans	—	(83)	59	—	—	(24)	—	(24)
Open market stock purchases	—	—	(130)	—	—	(130)	—	(130)
Distributions to noncontrolling interests	—	—	—	—	—	—	(208)	(208)
Other comprehensive income	—	—	—	—	97	97	2	99
Balance as of December 31, 2020	7	6,814	(15,719)	28,953	(1,254)	18,801	841	19,642
Net income	—	—	—	930	—	930	358	1,288
Dividends on common stock ($3.92 per share)	—	—	—	(1,602)	—	(1,602)	—	(1,602)
Stock-based compensation expense	—	80	—	—	—	80	—	80
Transactions in connection with stock-based compensation plans	—	(67)	42	—	—	(25)	—	(25)
Contributions from noncontrolling interests	—	—	—	—	—	—	189	189
Distributions to noncontrolling interests	—	—	—	—	—	—	(2)	(2)
Other comprehensive income	—	—	—	—	246	246	1	247
Balance as of December 31, 2021	$ 7	$ 6,827	$ (15,677)	$ 28,281	$ (1,008)	$ 18,430	$ 1,387	$ 19,817

See Notes to Consolidated Financial Statements.

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VALERO ENERGY CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
(millions of dollars)

	Year Ended December 31,		
	2021	**2020**	**2019**
Cash flows from operating activities:			
Net income (loss)	$ 1,288	$ (1,107)	$ 2,784
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation and amortization expense	2,405	2,351	2,255
Loss on early redemption and retirement of debt	193	—	22
LCM inventory valuation adjustment	—	(19)	—
Gain on sale of partial interest in MVP Terminalling, LLC (MVP)	(62)	—	—
Deferred income tax expense (benefit)	(126)	158	234
Changes in current assets and current liabilities	2,225	(345)	294
Changes in deferred charges and credits and other operating activities, net	(64)	(90)	(58)
Net cash provided by operating activities	5,859	948	5,531
Cash flows from investing activities:			
Capital expenditures (excluding variable interest entities (VIEs))	(513)	(1,014)	(1,627)
Capital expenditures of VIEs:			
Diamond Green Diesel Holdings LLC (DGD)	(1,042)	(523)	(142)
Other VIEs	(110)	(251)	(225)
Deferred turnaround and catalyst cost expenditures (excluding VIEs)	(787)	(623)	(762)
Deferred turnaround and catalyst cost expenditures of DGD	(6)	(25)	(18)
Proceeds from sale of partial interest in MVP	270	—	—
Investments in nonconsolidated joint ventures	(9)	(54)	(164)
Other investing activities, net	38	65	(63)
Net cash used in investing activities	(2,159)	(2,425)	(3,001)
Cash flows from financing activities:			
Proceeds from debt issuances and borrowings (excluding VIEs)	1,446	4,320	1,892
Proceeds from borrowings of VIEs:			
DGD	301	—	—
Other VIEs	81	250	239
Repayments of debt and finance lease obligations (excluding VIEs)	(2,849)	(490)	(1,790)
Repayments of debt and finance lease obligations of VIEs:			
DGD	(180)	—	—
Other VIEs	(6)	(5)	(6)
Premiums on early redemption and retirement of debt	(179)	—	(21)
Purchases of common stock for treasury	(27)	(156)	(777)
Common stock dividend payments	(1,602)	(1,600)	(1,492)
Acquisition of VLP publicly held common units	—	—	(950)
Contributions from noncontrolling interests	189	—	—
Distributions to noncontrolling interests	(2)	(208)	(70)
Other financing activities, net	(18)	(34)	(22)
Net cash provided by (used in) financing activities	(2,846)	2,077	(2,997)
Effect of foreign exchange rate changes on cash	(45)	130	68
Net increase (decrease) in cash and cash equivalents	809	730	(399)
Cash and cash equivalents at beginning of year	3,313	2,583	2,982
Cash and cash equivalents at end of year	$ 4,122	$ 3,313	$ 2,583

See Notes to Consolidated Financial Statements.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. DESCRIPTION OF BUSINESS, BASIS OF PRESENTATION, AND SIGNIFICANT ACCOUNTING POLICIES

Description of Business

The terms "Valero," "we," "our," and "us," as used in this report, may refer to Valero Energy Corporation, one or more of its consolidated subsidiaries, or all of them taken as a whole. The term "DGD," as 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.

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 own 15 petroleum refineries located in the U.S., Canada, and the U.K. with a combined throughput capacity of approximately 3.2 million barrels per day as of December 31, 2021. We are a joint venture member in DGD, which owns a renewable diesel plant located in the Gulf Coast region of the U.S. with a production capacity of 700 million gallons per year, and we own 12 ethanol plants located in the Mid-Continent region of the U.S. with a combined production capacity of approximately 1.6 billion gallons per year as of December 31, 2021.

Basis of Presentation

General

These consolidated financial statements were prepared in accordance with U.S. generally accepted accounting principles (GAAP) and with the rules and regulations of the U.S. Securities and Exchange Commission (SEC).

Reclassifications

Certain prior year amounts in the consolidated statements of cash flows have been reclassified to conform to the 2021 presentation. Prior year amounts that were presented separately for our acquisition of ethanol plants and our acquisitions of undivided interests have been combined into "other investing activities, net."

Significant Accounting Policies

Principles of Consolidation

These financial statements include those of Valero, our wholly owned subsidiaries, and VIEs in which we have a controlling financial interest. The VIEs that we consolidate are described in Note 13. The ownership interests held by others in the VIEs are recorded as noncontrolling interests. Intercompany items and transactions have been eliminated in consolidation. Investments in less than wholly owned entities where we have significant influence are accounted for using the equity method.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires us to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results could differ from those estimates. On an ongoing basis, we review our estimates based on currently available information. Changes in facts and circumstances may result in revised estimates.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Cash Equivalents

Our cash equivalents are short-term, highly liquid investments that are readily convertible to known amounts of cash and have a maturity of three months or less when acquired.

Receivables

Trade receivables are carried at amortized cost, which is the original invoice amount adjusted for cash collections, write-offs, and foreign exchange. We maintain an allowance for credit losses, which is adjusted based on management's assessment of our customers' historical collection experience, known or expected credit risks, and industry and economic conditions.

Inventories

The cost of (i) refinery feedstocks and refined petroleum products and blendstocks, (ii) renewable diesel feedstocks (i.e., waste and renewable feedstocks, predominately animal fats, used cooking oils, and inedible distillers corn oil) and products, and (iii) ethanol feedstocks and products is determined under the last-in, first-out (LIFO) method using the dollar-value LIFO approach, with any increments valued based on average purchase prices during the year. Our LIFO inventories are carried at the lower of cost or market. The cost of products purchased for resale and the cost of materials and supplies are determined principally under the weighted-average cost method. Our non-LIFO inventories are carried at the lower of cost or net realizable value. If the aggregate market value of our LIFO inventories or the aggregate net realizable value of our non-LIFO inventories is less than the related aggregate cost, we recognize a loss for the difference in our statements of income. To the extent the aggregate market value of our LIFO inventories subsequently increases, we recognize an increase to the value of our inventories (not to exceed cost) and a gain in our statements of income.

Property, Plant, and Equipment

The cost of property, plant, and equipment (property assets) purchased or constructed, including betterments of property assets, is capitalized. However, the cost of repairs to and normal maintenance of property assets is expensed as incurred. Betterments of property assets are those that extend the useful life, increase the capacity or improve the operating efficiency of the asset, or improve the safety of our operations. The cost of property assets constructed includes interest and certain overhead costs allocable to the construction activities.

Our operations are highly capital intensive. Each of our refineries and plants comprises a large base of property assets, consisting of a series of interconnected, highly integrated and interdependent crude oil and other feedstock processing facilities and supporting infrastructure (Units) and other property assets that support our business. Improvements consist of the addition of new Units and other property assets and betterments of those Units and assets. We plan for these improvements by developing a multi-year capital investment program that is updated and revised based on changing internal and external factors.

Depreciation of crude oil processing and waste and renewable feedstocks processing facilities is recorded on a straight-line basis over the estimated useful lives of these assets primarily using the composite method of depreciation. We maintain a separate composite group of property assets for each of our refineries and our renewable diesel plant. We estimate the useful life of each group based on an evaluation of the property assets comprising the group, and such evaluations consist of, but are not limited to, the physical inspection of the assets to determine their condition, consideration of the manner in which the assets are maintained, assessment of the need to replace assets, and evaluation of the manner in which

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

improvements impact the useful life of the group. The estimated useful lives of our composite groups range primarily from 20 to 30 years.

Under the composite method of depreciation, the cost of an improvement is added to the composite group to which it relates and is depreciated over that group's estimated useful life. We design improvements to our crude oil processing and waste and renewable feedstocks processing facilities in accordance with engineering specifications, design standards, and practices we believe to be accepted in our industry, and these improvements have design lives consistent with our estimated useful lives. Therefore, we believe the use of the group life to depreciate the cost of improvements made to the group is reasonable because the estimated useful life of each improvement is consistent with that of the group.

Also under the composite method of depreciation, the historical cost of a minor property asset (net of salvage value) that is retired or replaced is charged to accumulated depreciation and no gain or loss is recognized. However, a gain or loss is recognized for a major property asset that is retired, replaced, sold, or for an abnormal disposition of a property asset (primarily involuntary conversions). Gains and losses are reflected in depreciation and amortization expense, unless such amounts are reported separately due to materiality.

Depreciation of our corn processing facilities, administrative buildings, and other assets is recorded on a straight-line basis over the estimated useful lives of the related assets using the component method of deprecation. The estimated useful life of our corn processing facilities is 20 years.

Leasehold improvements are amortized on a straight-line basis over the shorter of the lease term or the estimated useful life of the related asset. Finance lease right-of-use assets are amortized as discussed below under "Leases."

Deferred Charges and Other Assets

"Deferred charges and other assets, net" primarily include the following:

- turnaround costs, which are incurred in connection with planned major maintenance activities at our refineries, renewable diesel plant, and ethanol plants, are deferred when incurred and amortized on a straight-line basis over the period of time estimated to lapse until the next turnaround occurs;
- fixed-bed catalyst costs, representing the cost of catalyst that is changed out at periodic intervals when the quality of the catalyst has deteriorated beyond its prescribed function, are deferred when incurred and amortized on a straight-line basis over the estimated useful life of the specific catalyst;
- operating lease right-of-use assets, which are amortized as discussed below under "Leases";
- investments in nonconsolidated joint ventures;
- noncurrent income taxes receivable;

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

- intangible assets, which are amortized over their estimated useful lives; and
- goodwill.

Leases

We evaluate if a contract is or contains a lease at inception of the contract. If we determine that a contract is or contains a lease, we recognize a right-of-use (ROU) asset and lease liability at the commencement date of the lease based on the present value of lease payments over the lease term. The present value of the lease payments is determined by using the implicit rate when readily determinable. If not readily determinable, our centrally managed treasury group provides an incremental borrowing rate based on quoted interest rates obtained from financial institutions. The rate used is for a term similar to the duration of the lease based on information available at the commencement date. Lease terms include options to extend or terminate the lease when it is reasonably certain that we will exercise those options.

We recognize ROU assets and lease liabilities for leasing arrangements with terms greater than one year. Except for the marine transportation asset class, we account for lease and nonlease components in a contract as a single lease component for all classes of underlying assets. Our marine transportation contracts include nonlease components, such as maintenance and crew costs. We allocate the consideration in these contracts based on pricing information provided by the third-party broker.

Expense for an operating lease is recognized as a single lease cost on a straight-line basis over the lease term and is reflected in the appropriate income statement line item based on the leased asset's function. Amortization expense of a finance lease ROU asset is recognized on a straight-line basis over the lesser of the useful life of the leased asset or the lease term. However, if the lessor transfers ownership of the finance lease ROU asset to us at the end of the lease term, the finance lease ROU asset is amortized over the useful life of the leased asset. Amortization expense is reflected in depreciation and amortization expense. Interest expense is incurred based on the carrying value of the lease liability and is reflected in "interest and debt expense, net of capitalized interest."

Impairment of Assets

Long-lived assets are tested for recoverability whenever events or changes in circumstances indicate that the carrying amount of the asset may not be recoverable. A long-lived asset is not deemed recoverable if its carrying amount exceeds the sum of the undiscounted cash flows expected to result from its use and eventual disposition. If a long-lived asset is not deemed recoverable, an impairment loss is recognized for the amount by which the carrying amount of the long-lived asset exceeds its fair value, with fair value determined based on discounted estimated net cash flows or other appropriate methods.

We evaluate our equity method investments for impairment when there is evidence that we may not be able to recover the carrying amount of our investments or the investee is unable to sustain an earnings capacity that justifies the carrying amount. A loss in the value of an investment that is other than a temporary decline is recognized based on the difference between the estimated current fair value of the investment and its carrying amount.

Goodwill is not amortized, but is tested for impairment annually on October 1st and in interim periods when events or changes in circumstances indicate that the fair value of a reporting unit with goodwill is below its carrying amount. A goodwill impairment loss is recognized for the amount that the carrying

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

amount of a reporting unit, including goodwill, exceeds its fair value, limited to the total amount of goodwill allocated to that reporting unit.

Asset Retirement Obligations

We record a liability, which is referred to as an asset retirement obligation, at fair value for the estimated cost to retire a tangible long-lived asset at the time we incur that liability, which is generally when the asset is purchased, constructed, or leased. We record the liability when we have a legal obligation to incur costs to retire the asset and when a reasonable estimate of the fair value of the liability can be made. If a reasonable estimate cannot be made at the time the liability is incurred, we record the liability when sufficient information is available to estimate the liability's fair value.

We have obligations with respect to certain of our assets at our refineries and plants to clean and/or dispose of various component parts of the assets at the time they are retired. However, these component parts can be used for extended and indeterminate periods of time as long as they are properly maintained and/or upgraded. It is our practice and current intent to maintain all our assets and continue making improvements to those assets based on technological advances. As a result, we believe that assets at our refineries and plants have indeterminate lives for purposes of estimating asset retirement obligations because dates or ranges of dates upon which we would retire such assets cannot reasonably be estimated at this time. We will recognize a liability at such time when sufficient information exists to estimate a date or range of potential settlement dates that is needed to employ a present value technique to estimate fair value.

Environmental Matters

Liabilities for future remediation costs are recorded when environmental assessments and/or remedial efforts are probable and the costs can be reasonably estimated. Other than for assessments, the timing and magnitude of these accruals generally are based on the completion of investigations or other studies or a commitment to a formal plan of action. Amounts recorded for environmental liabilities have not been reduced by possible recoveries from third parties and have not been measured on a discounted basis.

Legal Contingencies

We are subject to legal proceedings, claims, and liabilities that arise in the ordinary course of business. We accrue losses associated with legal claims when such losses are probable and reasonably estimable. If we determine that a loss is probable and cannot estimate a specific amount for that loss but can estimate a range of loss, the best estimate within the range is accrued. If no amount within the range is a better estimate than any other, the minimum amount of the range is accrued. Estimates are adjusted as additional information becomes available or circumstances change. Legal defense costs associated with loss contingencies are expensed in the period incurred.

Foreign Currency Translation

Generally, our foreign subsidiaries use their local currency as their functional currency. Balance sheet amounts are translated into U.S. dollars using exchange rates in effect as of the balance sheet date. Income statement amounts are translated into U.S. dollars using the exchange rates in effect at the time the underlying transactions occur. Foreign currency translation adjustments are recorded as a component of accumulated other comprehensive loss.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Revenue Recognition

Our revenues are primarily generated from contracts with customers. We generate revenue from contracts with customers from the sale of products by our Refining, Renewable Diesel, and Ethanol segments. Revenues are recognized when we satisfy our performance obligation to transfer products to our customers, which typically occurs at a point in time upon shipment or delivery of the products, and for an amount that reflects the transaction price that is allocated to the performance obligation.

The customer is able to direct the use of, and obtain substantially all of the benefits from, the products at the point of shipment or delivery. As a result, we consider control to have transferred upon shipment or delivery because we have a present right to payment at that time, the customer has legal title to the asset, we have transferred physical possession of the asset, and the customer has significant risks and rewards of ownership of the asset.

Our contracts with customers state the final terms of the sale, including the description, quantity, and price for goods sold. Payment is typically due in full within two to ten days from receipt of invoice. In the normal course of business, we generally do not accept product returns.

The transaction price is the consideration that we expect to be entitled to in exchange for our products. The transaction price for substantially all of our contracts is generally based on commodity market pricing (i.e., variable consideration). As such, this market pricing may be constrained (i.e., not estimable) at the inception of the contract but will be recognized based on the applicable market pricing, which will be known upon transfer of the goods to the customer. Some of our contracts also contain variable consideration in the form of sales incentives to our customers, such as discounts and rebates. For contracts that include variable consideration, we estimate the factors that determine the variable consideration in order to establish the transaction price.

We have elected to exclude from the measurement of the transaction price all taxes assessed by governmental authorities that are both imposed on and concurrent with a specific revenue-producing transaction and collected by us from a customer (e.g., sales tax, use tax, value-added tax, etc.). We continue to include in the transaction price excise taxes that are imposed on certain inventories in our foreign operations. The amount of such taxes is provided in supplemental information in a footnote on the statements of income.

There are instances where we provide shipping services in relation to the goods sold to our customer. Shipping and handling costs that occur before the customer obtains control of the goods are deemed to be fulfillment activities and are included in cost of materials and other. We have elected to account for shipping and handling activities that occur after the customer has obtained control of a good as fulfillment activities rather than as a promised service and we have included these activities in cost of materials and other.

We enter into certain purchase and sale arrangements with the same counterparty that are deemed to be made in contemplation of one another. We combine these transactions and present the net effect in cost of materials and other. We also enter into refined petroleum product exchange transactions to fulfill sales contracts with our customers by accessing refined petroleum products in markets where we do not operate

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

our own refineries. These refined petroleum product exchanges are accounted for as exchanges of nonmonetary assets, and no revenues are recorded on these transactions.

Cost Classifications

Cost of materials and other primarily includes the cost of materials that are a component of our products sold. These costs include (i) the direct cost of materials (such as crude oil and other refinery feedstocks, refined petroleum products and blendstocks, renewable diesel feedstocks and products, and ethanol feedstocks and products) that are a component of our products sold; (ii) costs related to the delivery (such as shipping and handling costs) of products sold; (iii) costs related to our obligations to comply with the Renewable and Low-Carbon Fuel Blending Programs defined below under "Costs of Renewable and Low-Carbon Fuel Blending Programs"; (iv) the blender's tax credit recognized on qualified fuel mixtures; (v) gains and losses on our commodity derivative instruments; and (vi) certain excise taxes.

Operating expenses (excluding depreciation and amortization expense) include costs to operate our refineries (and associated logistics assets), renewable diesel plant, and ethanol plants, except for depreciation and amortization expense. These costs primarily include employee-related expenses, energy and utility costs, catalysts and chemical costs, and repair and maintenance expenses.

Depreciation and amortization expense associated with our operations is separately presented in our statement of income as a component of cost of sales and general and administrative expenses and is disclosed by reportable segment in Note 18.

Other operating expenses include costs, if any, incurred by our reportable segments that are not associated with our cost of sales.

Costs of Renewable and Low-Carbon Fuel Blending Programs

We purchase credits to comply with various governmental and regulatory blending programs, such as the U.S. Environmental Protection Agency's Renewable Fuel Standard, the California Low Carbon Fuel Standard, and similar programs in other jurisdictions in which we operate (collectively, the Renewable and Low-Carbon Fuel Blending Programs). We purchase compliance credits (primarily Renewable Identification Numbers (RINs)) to comply with government regulations that require us to blend a certain volume of renewable and low-carbon fuels into the petroleum-based transportation fuels we produce in, or import into, the respective jurisdiction to be consumed therein based on annual quotas. To the degree that we are unable to blend renewable and low-carbon fuels at the required quotas, we must purchase compliance credits to meet our obligations.

The costs of purchased compliance credits are charged to cost of materials and other when such credits are needed to satisfy our compliance obligations. To the extent we have not purchased enough credits nor entered into fixed-price purchase contracts to satisfy our obligations as of the balance sheet date, we charge cost of materials and other for such deficiency based on the market prices of the credits as of the balance sheet date, and we record a liability for our obligation to purchase those credits. See Note 20 for disclosure of our fair value liability. If the number of purchased credits exceeds our obligation as of the balance sheet date, we record a prepaid asset equal to the amount paid for those excess credits.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Stock-Based Compensation

Compensation expense for our share-based compensation plans is based on the fair value of the awards granted and is recognized on a straight-line basis over the shorter of (i) the requisite service period of each award or (ii) the period from the grant date to the date retirement eligibility is achieved if that date is expected to occur during the vesting period established in the award.

Income Taxes

Income taxes are accounted for under the asset and liability method. Under this method, deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. Deferred amounts are measured using enacted tax rates expected to apply to taxable income in the year those temporary differences are expected to be recovered or settled. Deferred tax assets are reduced by unrecognized tax benefits, if such items may be available to offset the unrecognized tax benefit. Income tax effects are released from accumulated other comprehensive loss to retained earnings, when applicable, on an individual item basis as those items are reclassified into income.

We have elected to classify any interest expense and penalties related to the underpayment of income taxes in income tax expense.

We have elected to treat the global intangible low-taxed income (GILTI) tax as a period expense.

Earnings per Common Share

Earnings per common share is computed by dividing net income attributable to Valero stockholders by the weighted-average number of common shares outstanding for the year. Participating securities are included in the computation of basic earnings per share using the two-class method. Earnings per common share – assuming dilution is computed by dividing net income attributable to Valero stockholders by the weighted-average number of common shares outstanding for the year increased by the effect of dilutive securities. Potentially dilutive securities are excluded from the computation of earnings per common share – assuming dilution when the effect of including such shares would be antidilutive.

Financial Instruments

Our financial instruments include cash and cash equivalents, receivables, payables, debt, operating and finance lease obligations, commodity derivative contracts, and foreign currency derivative contracts. The estimated fair values of these financial instruments approximate their carrying amounts, except for certain debt as discussed in Note 20.

Derivatives and Hedging

All derivative instruments, not designated as normal purchases or sales, are recognized in the balance sheet as either assets or liabilities measured at their fair values with changes in fair value recognized currently in income or in other comprehensive income as appropriate. To manage commodity price risk, we primarily use cash flow hedges and economic hedges, and we also use fair value hedges from time to time. The cash flow effects of all of our derivative instruments are reflected in operating activities in the consolidated statements of cash flows.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Accounting Pronouncement Adopted During 2021

Financial Accounting Standards Board (FASB) Accounting Standards Update (ASU) 2021-01—"Reference Rate Reform (Topic 848): Scope" was issued and adopted prospectively by us on January 7, 2021. Our adoption of this ASU did not have a material impact on our financial statements or related disclosures.

2. UNCERTAINTIES

At the onset of the COVID-19 pandemic in March 2020, governmental authorities around the world imposed restrictions, such as stay-at-home orders and other social distancing measures, to slow the spread of COVID-19. These measures resulted in significant economic disruption globally as reduced economic activity negatively impacted many businesses, including our business.

During 2020, we experienced a decline in the demand for most of the liquid transportation fuels that we produce and sell, and thus also a decline in the market prices of those products, due to a decrease in the level of individual movement and travel resulting from the restrictions and general public health concerns. Some governmental authorities began lifting restrictions in the latter part of 2020 and this continued to varying degrees throughout 2021. These actions have contributed to increasing levels of individual movement and travel and a resulting increase in the demand for and market prices of our products. However, some governmental authorities continue to impose some level of restrictions due in part to new outbreaks, including those related to new variants of the virus (such as the delta and omicron variants). Additionally, the lingering effects of the COVID-19 pandemic and variants of the virus continue to negatively impact the level of air travel, global supply chains, and the labor market.

The distribution of vaccines beginning in late 2020 has helped decrease the rates and severity of infection and contributed to the lifting of many restrictions. The ongoing distribution of vaccines may result in the continued lifting of restrictions globally and may be seen as a key factor contributing to the ongoing restoration of public confidence, and thus also to stimulating and increasing global economic activity. However, the risk remains that vaccines may not be distributed widely on a timely basis, they may not be as effective against new variants of the virus, and/or the level of individuals' willingness to receive a vaccine may not be as strong or as timely as needed. Additionally, some governmental authorities have announced requirements and mandates, including steep fines for noncompliance, on employers concerning workforce vaccination and testing. Many large companies across the world, independent of such government regulations, have also begun implementing vaccine requirements and mandates for their workforces, or as a prerequisite to providing customers certain goods and services in person. These requirements and mandates have evoked mixed reactions and have created additional challenges and costs, both administratively and operationally, for employers (including us and our counterparties) and their workforces. Developments with respect to such requirements and mandates are evolving at a rapid pace and the ultimate impact thereof remains uncertain. The ultimate outcome of the uncertainties and other unforeseen effects of the COVID-19 pandemic could result in many adverse consequences including, but not limited to, reduced availability of critical staff necessary to maintain operations, disruption or delays to supply chains for critical equipment or feedstock, inflation, reduced economic activity and individual movement that negatively impact demand for our products, and increased administrative, compliance, and operational costs.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The ultimate extent of the impact of the COVID-19 pandemic will depend largely on future developments, particularly within the geographic areas where we operate, and the related impact on overall economic activity, all of which are currently unknown and cannot be predicted with certainty at this time. Based on these and other circumstances that cannot be predicted, the long-term implications of the pandemic on our financial position and results of operations remain uncertain and may continue to be significant. We believe we have proactively responded to many of the known impacts of the pandemic on our business to the extent practicable and we strive to continue to do so, but there can be no assurance that these or other measures will be fully effective.

3. MERGER WITH VLP

On January 10, 2019, we completed our acquisition of all of the outstanding publicly held common units of VLP pursuant to a definitive Agreement and Plan of Merger (Merger Agreement, and together with the transactions contemplated thereby, the Merger Transaction) with VLP. Upon completion of the Merger Transaction, each outstanding publicly held common unit was converted into the right to receive $42.25 per common unit in cash without any interest thereon, and all such publicly traded common units were automatically canceled and ceased to exist. Upon completion of the Merger Transaction, we paid aggregate merger consideration of $950 million, which was funded with available cash on hand.

Prior to the completion of the Merger Transaction, we consolidated the financial statements of VLP and reflected noncontrolling interests on our balance sheet for the portion of VLP's partners' capital held by VLP's public common unitholders. Upon completion of the Merger Transaction, VLP became our indirect wholly owned subsidiary and, as a result, we no longer reflect noncontrolling interests on our balance sheet with respect to VLP. In addition, we no longer attribute a portion of VLP's net income to noncontrolling interests. Because we had a controlling financial interest in VLP before the Merger Transaction and retained our controlling financial interest in VLP after the Merger Transaction, the change in our ownership interest in VLP as a result of the merger was accounted for as an equity transaction. Accordingly, we did not recognize a gain or loss on the Merger Transaction.

4. RECEIVABLES

Receivables consisted of the following (in millions):

	December 31,	
	2021	2020
Receivables from contracts with customers	$ 6,228	$ 3,642
Receivables from certain purchase and sale arrangements	3,768	1,212
Receivables before allowance for credit losses	9,996	4,854
Allowance for credit losses	(28)	(47)
Receivables after allowance for credit losses	9,968	4,807
Income taxes receivable	21	1,024
Other receivables	389	278
Receivables, net	$ 10,378	$ 6,109

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

5. INVENTORIES

Inventories consisted of the following (in millions):

	December 31,	
	2021	2020
Refinery feedstocks	$ 1,995	$ 1,979
Refined petroleum products and blendstocks	3,567	3,425
Renewable diesel feedstocks and products	135	50
Ethanol feedstocks and products	273	297
Materials and supplies	295	287
Inventories	$ 6,265	$ 6,038

We compare the market value of inventories to their cost on an aggregate basis, excluding materials and supplies. In determining the market value of our inventories, we assume that feedstocks are converted into refined products, which requires us to make estimates regarding the refined products expected to be produced from those feedstocks and the conversion costs required to convert those feedstocks into refined products. We also estimate the usual and customary transportation costs required to move the inventory from our plants to the appropriate points of sale. We then apply an estimated selling price to our inventories. If the aggregate market value is less than the aggregate cost, we recognize a loss for the difference in our statements of income. To the extent the aggregate market value of our LIFO inventories subsequently increases, we recognize an increase to the value of our inventories (not to exceed cost) and a gain in our statements of income.

The market value of our LIFO inventories fell below their LIFO inventory carrying amounts as of March 31, 2020, and as a result, we recorded an LCM inventory valuation reserve of $2.5 billion in order to state our inventories at market. As of September 30, 2020, we reevaluated our inventories and determined that our cost was lower than market. As a result, our LCM inventory valuation reserve was fully reversed as of September 30, 2020. The change in our LCM inventory valuation reserve resulted in a net benefit of $19 million for the year ended December 31, 2020 due to the foreign currency translation effect of the portion of the LCM inventory valuation adjustment attributable to our foreign operations. As of December 31, 2021 and 2020, the replacement cost (market value) of LIFO inventories exceeded their LIFO carrying amounts by $5.2 billion and $1.3 billion, respectively.

During the year ended December 31, 2020, we had a liquidation of LIFO inventory layers that increased cost of materials and other by $224 million. Our LIFO inventory levels decreased during the year ended December 31, 2020 due to lower production resulting from lower demand for our products caused by the negative economic impacts of the COVID-19 pandemic on our business.

Our non-LIFO inventories accounted for $1.4 billion and $918 million of our total inventories as of December 31, 2021 and 2020, respectively.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

6. LEASES

General

We have entered into long-term leasing arrangements for the right to use various classes of underlying assets as follows:

- *Pipelines, Terminals, and Tanks* includes facilities and equipment used in the storage, transportation, production, and sale of refinery feedstock, refined petroleum product, ethanol, and corn inventories;
- *Marine Transportation* includes time charters for ocean-going tankers and coastal vessels;
- *Rail Transportation* includes railcars and related storage facilities;
- *Feedstock Processing Equipment* includes machinery, equipment, and various facilities used in our refining, renewable diesel, and ethanol operations;
- *Energy and Gases* includes facilities and equipment related to industrial gases and power used in our operations;
- *Real Estate* includes land and rights-of-way associated with our refineries, plants, and pipelines and other logistics assets, as well as office facilities; and
- *Other* includes equipment primarily used at our corporate offices, such as printers and copiers.

In addition to fixed lease payments, some arrangements contain provisions for variable lease payments. Certain leases for pipelines, terminals, and tanks provide for variable lease payments based on, among other things, throughput volumes in excess of a base amount. Certain marine transportation leases contain provisions for payments that are contingent on usage. Additionally, if the rental increases are not scheduled in the lease, such as an increase based on subsequent changes in the index or rate, those rents are considered variable lease payments. In all instances, variable lease payments are recognized in the period in which the obligation for those payments is incurred.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Lease Costs and Other Supplemental Information

Our total lease cost comprises costs that are included in our income statement, as well as costs capitalized as part of an item of property, plant, and equipment or inventory. Total lease cost by class of underlying asset was as follows (in millions):

	Pipelines, Terminals, and Tanks	Transportation		Feedstock Processing Equipment	Energy and Gases	Real Estate	Other	Total
		Marine	Rail					
Year ended December 31, 2021								
Finance lease cost:								
Amortization of ROU assets	$ 137	$ —	$ 2	$ 19	$ 4	$ —	$ 5	$ 167
Interest on lease liabilities	66	—	1	3	2	—	—	72
Operating lease cost	163	105	64	12	8	26	3	381
Variable lease cost	51	21	—	2	—	2	3	79
Short-term lease cost	5	44	1	46	—	—	—	96
Sublease income	—	(4)	—	—	—	(3)	—	(7)
Total lease cost	$ 422	$ 166	$ 68	$ 82	$ 14	$ 25	$ 11	$ 788
Year ended December 31, 2020								
Finance lease cost:								
Amortization of ROU assets	$ 109	$ —	$ 2	$ 13	$ 4	$ —	$ —	$ 128
Interest on lease liabilities	92	—	—	3	3	—	—	98
Operating lease cost	165	156	61	15	7	26	4	434
Variable lease cost	53	40	1	3	—	2	—	99
Short-term lease cost	9	45	—	37	—	—	—	91
Sublease income	—	(10)	—	—	—	(2)	—	(12)
Total lease cost	$ 428	$ 231	$ 64	$ 71	$ 14	$ 26	$ 4	$ 838
Year ended December 31, 2019								
Finance lease cost:								
Amortization of ROU assets	$ 44	$ —	$ —	$ 7	$ 3	$ —	$ —	$ 54
Interest on lease liabilities	47	—	—	1	2	—	—	50
Operating lease cost	182	145	52	20	9	27	4	439
Variable lease cost	66	35	—	1	—	1	—	103
Short-term lease cost	9	53	—	29	—	—	—	91
Sublease income	—	(27)	—	—	—	(3)	—	(30)
Total lease cost	$ 348	$ 206	$ 52	$ 58	$ 14	$ 25	$ 4	$ 707

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following table presents additional information related to our operating and finance leases (in millions, except for lease terms and discount rates):

	December 31, 2021		December 31, 2020	
	Operating Leases	Finance Leases	Operating Leases	Finance Leases
Supplemental balance sheet information				
ROU assets, net reflected in the following balance sheet line items:				
Property, plant, and equipment, net	$ —	$ 1,846	$ —	$ 1,622
Deferred charges and other assets, net	1,284	—	1,204	—
Total ROU assets, net	$ 1,284	$ 1,846	$ 1,204	$ 1,622
Current lease liabilities reflected in the following balance sheet line items:				
Current portion of debt and finance lease obligations	$ —	$ 154	$ —	$ 120
Accrued expenses	315	—	285	—
Noncurrent lease liabilities reflected in the following balance sheet line items:				
Debt and finance lease obligations, less current portion	—	1,766	—	1,544
Other long-term liabilities	940	—	885	—
Total lease liabilities	$ 1,255	$ 1,920	$ 1,170	$ 1,664
Other supplemental information				
Weighted-average remaining lease term	7.1 years	14.3 years	7.6 years	14.5 years
Weighted-average discount rate	4.2 %	4.0 %	4.7 %	4.1 %

Supplemental cash flow information related to our operating and finance leases is presented in Note 19.

MVP Terminal Finance Lease

We have a 25.01 percent membership interest in MVP, a nonconsolidated joint venture with a subsidiary of Magellan Midstream Partners LP (Magellan). MVP owns and operates a marine terminal (the MVP Terminal) located on the Houston Ship Channel in Pasadena, Texas. Concurrent with the formation of MVP, we entered into a terminaling agreement with MVP to utilize the MVP Terminal upon completion of construction of the terminal, which occurred in the first quarter of 2020. During the three months ended March 31, 2020, we recognized a finance lease ROU asset and related liability of approximately $1.4 billion in connection with this agreement. The lease term included the initial term of 12 years and renewal option periods. In the fourth quarter of 2020, we evaluated our strategy with regard to certain of our logistics investments, including MVP. As a result of this review, we formally notified MVP that we did not intend to renew the terminaling agreement after its initial noncancelable term. Consequently, we reassessed the lease term and remeasured the finance lease liability based on the shortened lease term. We derecognized approximately $600 million of the finance lease liability and related ROU asset, which were

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

noncash financing and investing activities, respectively. As of December 31, 2020, the total lease liability was approximately $800 million.

Maturity Analyses

As of December 31, 2021, the remaining minimum lease payments due under our long-term leases were as follows (in millions):

	Operating Leases	Finance Leases
2022	$ 351	$ 228
2023	280	230
2024	207	214
2025	142	213
2026	111	190
Thereafter	417	1,629
Total undiscounted lease payments	1,508	2,704
Less: Amount associated with discounting	253	784
Total lease liabilities	$ 1,255	$ 1,920

7. PROPERTY, PLANT, AND EQUIPMENT

Summary by Major Class

Major classes of property, plant, and equipment, including assets held under finance leases, consisted of the following (in millions):

	December 31,	
	2021	2020
Land	$ 494	$ 485
Crude oil processing facilities	32,744	32,246
Transportation and terminaling facilities	5,747	5,290
Waste and renewable feedstocks processing facilities	1,826	631
Corn processing facilities	1,216	1,212
Administrative buildings	1,055	1,038
Finance lease ROU assets (see Note 6)	2,293	1,902
Other	1,835	1,764
Construction in progress	1,862	2,399
Property, plant, and equipment, at cost	49,072	46,967
Accumulated depreciation	(18,225)	(16,578)
Property, plant, and equipment, net	$ 30,847	$ 30,389

Depreciation expense for the years ended December 31, 2021, 2020, and 2019 was $1.7 billion, $1.6 billion, and $1.5 billion, respectively.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Changes in Useful Lives

In September 2021 and 2020, we reduced the estimated useful lives of our ethanol plants in Jefferson, Wisconsin and Riga, Michigan, respectively, which reduced their net book values to estimated salvage value. The additional depreciation expense for the years ended December 31, 2021 and 2020 of $48 million and $30 million, respectively, resulting from these changes did not have a material impact on our results of operations nor was there a material impact to our financial position.

The Jefferson plant was temporarily idled in 2020 at the onset of the COVID-19 pandemic in response to the decreased demand for ethanol resulting from the effects of the pandemic on our business, and we had previously evaluated this plant for potential impairment assuming that operations would resume. However, we completed an evaluation of the plant during the third quarter of 2021 and concluded that it was no longer a strategic asset for our ethanol business. The plant's operations permanently ceased at that time.

The Riga plant was temporarily idled in 2019 due to corn quality issues with the local third-party corn feedstock supply. Although we expected operations to resume after an improved corn harvest, we completed an evaluation of this plant during the third quarter of 2020 and concluded that it was no longer a strategic asset for our ethanol business. The plant's operations permanently ceased at that time.

8. DEFERRED CHARGES AND OTHER ASSETS

"Deferred charges and other assets, net" consisted of the following (in millions):

	December 31,	
	2021	2020
Deferred turnaround and catalyst costs, net	$ 1,853	$ 1,703
Operating lease ROU assets, net (see Note 6)	1,284	1,204
Investments in nonconsolidated joint ventures	734	972
Income taxes receivable	586	589
Goodwill	260	260
Intangible assets, net	218	248
Other	941	565
Deferred charges and other assets, net	$ 5,876	$ 5,541

Amortization expense for deferred turnaround and catalyst costs and intangible assets was $695 million, $748 million, and $759 million for the years ended December 31, 2021, 2020, and 2019, respectively.

The entire balance of goodwill is related to our Refining segment. See Note 18 for information on our reportable segments.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

9. ACCRUED EXPENSES AND OTHER LONG-TERM LIABILITIES

Accrued expenses and other long-term liabilities consisted of the following (in millions):

	Accrued Expenses		Other Long-Term Liabilities	
	December 31,		December 31,	
	2021	2020	2021	2020
Operating lease liabilities (see Note 6)	$ 315	$ 285	$ 940	$ 885
Liability for unrecognized tax benefits (see Note 16)	—	—	863	859
Defined benefit plan liabilities (see Note 14)	41	45	601	878
Repatriation tax liability (see Note 16) (a)	—	—	367	422
Environmental liabilities	35	59	269	272
Wage and other employee-related liabilities	349	210	133	124
Accrued interest expense	88	99	—	—
Contract liabilities from contracts with customers (see Note 18)	78	55	—	—
Blending program obligations (see Note 20)	268	159	—	—
Other accrued liabilities	79	82	231	180
Accrued expenses and other long-term liabilities	$ 1,253	$ 994	$ 3,404	$ 3,620

(a) The current portion of repatriation tax liability is included in income taxes payable. There was no current portion of repatriation tax liability as of December 31, 2021, as it was deemed paid in connection with the additional tax net operating loss (NOL) carryback on the superseding 2020 federal income tax return filed in the fourth quarter of 2021. As of December 31, 2020, the current portion of repatriation tax liability was $54 million.

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

10. DEBT AND FINANCE LEASE OBLIGATIONS

Debt, at stated values, and finance lease obligations consisted of the following (in millions):

	Final Maturity	December 31, 2021	December 31, 2020
Credit facilities:			
Valero Revolver	2024	$ —	$ —
Canadian Revolver	2022	—	—
Accounts Receivable Sales Facility	2022	—	—
364-Day Revolving Credit Facility	2021	—	—
DGD Revolver	2024	100	—
DGD Loan Agreement	2022	25	—
IEnova Revolver	2028	679	598
Public debt:			
Valero Senior Notes			
6.625%	2037	1,500	1,500
3.400%	2026	1,250	1,250
2.850%	2025	1,050	1,050
4.000%	2029	1,000	1,000
3.650%	2051	950	—
4.350%	2028	750	750
7.5%	2032	750	750
4.90%	2045	650	650
2.150%	2027	600	600
2.800%	2031	500	—
3.65%	2025	324	600
8.75%	2030	200	200
1.200%	2024	169	925
10.500%	2039	113	250
7.45%	2097	100	100
6.75%	2037	24	24
2.700%	2023	—	850
Floating Rate Notes at 1.3665%	2023	—	575
VLP Senior Notes			
4.500%	2028	500	500
4.375%	2026	376	500
Gulf Opportunity Zone Revenue Bonds, Series 2010, 4.00%	2040	300	300
Debenture, 7.65%	2026	100	100
Other debt	2023	26	31
Net unamortized debt issuance costs and other		(86)	(90)
Total debt		11,950	13,013
Finance lease obligations (see Note 6)		1,920	1,664
Total debt and finance lease obligations		13,870	14,677
Less: Current portion		1,264	723
Debt and finance lease obligations, less current portion		$ 12,606	$ 13,954

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Credit Facilities

Valero Revolver

We have a revolving credit facility (the Valero Revolver) with a borrowing capacity of $4 billion that matures in March 2024. The Valero Revolver also provides for the issuance of letters of credit of up to $2.4 billion.

Outstanding borrowings under the Valero Revolver bear interest, at our option, at either (i) the adjusted LIBO rate (as defined in the Valero Revolver) for the applicable interest period in effect from time to time plus the applicable margin or (ii) the alternate base rate (as defined in the Valero Revolver) plus the applicable margin. The Valero Revolver also requires payments for customary fees, including facility fees, letter of credit participation fees, and administrative agent fees. The interest rate and facility fees under the Valero Revolver are subject to adjustment based upon the credit ratings assigned to our senior unsecured debt.

Canadian Revolver

In November 2021, one of our Canadian subsidiaries amended its committed revolving credit facility (the Canadian Revolver) of C$150 million to extend the maturity date from November 2021 to November 2022. The Canadian Revolver also provides for the issuance of letters of credit.

Accounts Receivable Sales Facility

We have an accounts receivable sales facility with a group of third-party entities and financial institutions to sell eligible trade receivables on a revolving basis. In July 2021, we extended the maturity date of this facility to July 2022 and increased the facility amount from $1.0 billion to $1.3 billion. Under this program, one of our marketing subsidiaries (Valero Marketing) sells eligible receivables, without recourse, to another of our subsidiaries (Valero Capital), whereupon the receivables are no longer owned by Valero Marketing. Valero Capital, in turn, sells an undivided percentage ownership interest in the eligible receivables, without recourse, to the third-party entities and financial institutions. To the extent that Valero Capital retains an ownership interest in the receivables it has purchased from Valero Marketing, such interest is included in our financial statements solely as a result of the consolidation of the financial statements of Valero Capital with those of Valero Energy Corporation; the receivables are not available to satisfy the claims of the creditors of Valero Marketing or Valero Energy Corporation.

As of December 31, 2021 and 2020, $2.8 billion and $1.4 billion, respectively, of our accounts receivable composed the designated pool of accounts receivable included in the program. All amounts outstanding under the accounts receivable sales facility are reflected as debt on our balance sheets and proceeds and repayments are reflected as cash flows from financing activities.

364-Day Revolving Credit Facility

In April 2020, we entered into an $875 million 364-Day Credit Agreement (the 364-Day Revolving Credit Facility) with several lenders. This facility provided for a revolving credit facility in an aggregate principal amount of up to $875 million. No borrowings were made under this facility prior to its maturity on April 12, 2021 and the facility was not renewed.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

DGD Revolver

In March 2021, DGD, as described in Note 13, entered into a $400 million unsecured revolving credit facility (the DGD Revolver) with a syndicate of financial institutions that matures in March 2024. DGD has the option to increase the aggregate commitments under the DGD Revolver to $550 million, subject to certain restrictions. Initially, the DGD Revolver also provided for the issuance of letters of credit of up to $10 million. In September 2021, the DGD Revolver was amended to increase the letter of credit sublimit from $10 million to $50 million and to limit DGD's indebtedness arising under other letters of credit that DGD may obtain up to $25 million at any one time outstanding. This restriction does not impact Valero's letter of credit facilities. The DGD Revolver is only available to fund the operations of DGD. DGD's lenders do not have recourse against us. As of December 31, 2021, all outstanding borrowings under this revolver are reflected in current portion of debt as payment is expected to occur in 2022.

Outstanding borrowings under the DGD Revolver generally bear interest, at DGD's option, at either (i) an alternate base rate plus the applicable margin or (ii) an adjusted London Interbank Offered Rate (LIBOR) for the applicable interest period in effect from time to time plus the applicable margin. As of December 31, 2021, the variable interest rate on the DGD Revolver was 1.860 percent. The DGD Revolver also requires payments for customary fees, including unused commitment fees, letter of credit fees, and administrative agent fees.

DGD Loan Agreement

DGD has a $50 million unsecured revolving loan agreement (the DGD Loan Agreement) with its members (Darling Ingredients Inc. (Darling) and us) that matures on April 29, 2022, unless extended by agreement of the parties. Each member has committed $25 million, resulting in aggregate commitments of $50 million. The DGD Loan Agreement is only available to fund the operations of DGD. Any outstanding borrowings under this revolver represent loans made by the noncontrolling member as any transactions between DGD and us under this revolver are eliminated in consolidation.

Outstanding borrowings under the DGD Loan Agreement bear interest at the LIBO Rate (as defined in the DGD Loan Agreement) for the applicable interest period in effect from time to time plus the applicable margin. As of December 31, 2021, the variable interest rate on the DGD Loan Agreement was 2.603 percent. Principal and accrued interest are due on the last day of the calendar month unless DGD provides at least two days prior written notice of their election to extend repayment to the next calendar month end. As of December 31, 2021, outstanding borrowings under this revolver are reflected in current portion of debt.

IEnova Revolver

Central Mexico Terminals, as described in Note 13, has a combined unsecured revolving credit facility (IEnova Revolver) with IEnova (defined in Note 13) that matures in February 2028. In 2020, the borrowing capacity under the IEnova Revolver was increased from $491 million to $660 million, and during the year ended December 31, 2021, it was increased to $830 million. IEnova may terminate this revolver at any time and demand repayment of all outstanding amounts; therefore, all outstanding borrowings are reflected in current portion of debt. The IEnova Revolver is only available to the operations of Central Mexico Terminals, and the creditors of Central Mexico Terminals do not have recourse against us.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Outstanding borrowings under the IEnova Revolver bear interest at the three-month LIBOR for the applicable interest period in effect from time to time plus the applicable margin. The interest rate under this revolver is subject to adjustment, with agreement by both parties, based upon changes in market conditions. As of December 31, 2021 and 2020, the variable interest rate was 3.781 percent and 3.870 percent, respectively.

Summary of Credit Facilities

We had outstanding borrowings, letters of credit issued, and availability under our credit facilities as follows (amounts in millions and currency in U.S. dollars, except as noted):

			December 31, 2021		
	Facility Amount	Maturity Date	Outstanding Borrowings	Letters of Credit Issued (a)	Availability
Committed facilities:					
Valero Revolver	$ 4,000	March 2024	$ —	$ 288	$ 3,712
Canadian Revolver	C$ 150	November 2022	C$ —	C$ 5	C$ 145
Accounts receivable sales facility	$ 1,300	July 2022	$ —	n/a	$ 1,300
Letter of credit facility	$ 50	November 2022	n/a	$ —	$ 50
Committed facilities of VIEs (b):					
DGD Revolver	$ 400	March 2024	$ 100	$ —	$ 300
DGD Loan Agreement (c)	$ 25	April 2022	$ 25	n/a	$ —
IEnova Revolver	$ 830	February 2028	$ 679	n/a	$ 151
Uncommitted facilities:					
Letter of credit facilities	n/a	n/a	n/a	$ 331	n/a

(a) Letters of credit issued as of December 31, 2021 expire at various times in 2022 through 2023.
(b) Creditors of the VIEs do not have recourse against us.
(c) The amounts shown for this facility represent the facility amount available from, and borrowings outstanding to, the noncontrolling member as any transactions between DGD and us under this facility are eliminated in consolidation.

We are charged letter of credit issuance fees under our various uncommitted short-term bank credit facilities. These uncommitted credit facilities have no commitment fees or compensating balance requirements.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Activity under our credit facilities was as follows (in millions):

	Year Ended December 31,		
	2021	2020	2019
Borrowings:			
Accounts receivable sales facility	$ —	$ 300	$ 900
DGD Revolver	276	—	—
DGD Loan Agreement	25	—	—
IEnova Revolver	81	250	239
Repayments:			
Accounts receivable sales facility	—	(400)	(900)
DGD Revolver	(176)	—	—

Public Debt

During the year ended December 31, 2021, the following activity occurred:

- In November 2021, we issued $500 million of 2.800 percent Senior Notes due December 1, 2031 and $950 million of 3.650 percent Senior Notes due December 1, 2051. Proceeds from these debt issuances totaled $1.446 billion before deducting the underwriting discounts and other debt issuance costs. In November and December 2021, these proceeds and cash on hand were used to repurchase and retire, or redeem the following notes in connection with our cash tender offers that were publicly announced on November 18, 2021 and updated on December 3, 2021 (in millions):

Debt Repurchased and Retired, or Redeemed	Principal Amount
2.700% Senior Notes due 2023	$ 850
1.200% Senior Notes due 2024	756
3.65% Senior Notes due 2025	276
4.375% VLP Senior Notes due 2026	124
10.500% Senior Notes due 2039	137
Total	$ 2,143

  In connection with the early debt redemption and retirement activity described above, we recognized a charge of $193 million in “other income, net” comprised of $179 million of premiums paid, $10 million of unamortized debt discounts and deferred debt costs, and $4 million of bank fees.

- In September 2021, we redeemed our Floating Rate Senior Notes due September 15, 2023 (the Floating Rate Notes) for $575 million.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

During the year ended December 31, 2020, the following activity occurred:

- In September 2020, we issued the following senior notes:
  - the Floating Rate Notes, which bore interest at a rate of three-month LIBOR plus 1.150 percent per annum, subject to certain adjustments set forth in the terms of the Floating Rate Notes;
  - $925 million of 1.200 percent Senior Notes due March 15, 2024;
  - $400 million of 2.850 percent Senior Notes due April 15, 2025 that constitute an additional issuance of our 2.850 percent Senior Notes due April 15, 2025 that were issued in April 2020 (see below); and
  - $600 million of 2.150 percent Senior Notes due September 15, 2027.
- In April 2020, we issued $850 million of 2.700 percent Senior Notes due April 15, 2023 and $650 million of 2.850 percent Senior Notes due April 15, 2025.

Proceeds from the April and September 2020 debt issuances totaled $4.020 billion before deducting the underwriting discount and other debt issuance costs.

During the year ended December 31, 2019, the following activity occurred:

- We issued $1.0 billion of 4.000 percent Senior Notes due April 1, 2029. Proceeds from this debt issuance totaled $992 million before deducting the underwriting discount and other debt issuance costs. The proceeds were used to redeem our 6.125 percent Senior Notes due February 1, 2020 for $871 million, which included an early debt redemption premium of $21 million that is reflected in “other income, net.”
- In connection with the completion of the Merger Transaction described in Note 3, Valero Energy Corporation, the parent company, entered into a guarantee agreement to fully and unconditionally guarantee the prompt payment, when due, of the following debt issued by VLP, one of its wholly owned subsidiaries, that was outstanding upon completion of the Merger Transaction:
  - $500 million of 4.375 percent Senior Notes due December 15, 2026; and
  - $500 million of 4.500 percent Senior Notes due March 15, 2028.

  Effective March 31, 2020, we early applied the SEC’s Final Rule Release No. 33-10762, *Financial Disclosures About Guarantors and Issuers of Guaranteed Securities and Affiliates Whose Securities Collateralize a Registrant’s Securities.* This rule allowed us to cease providing the previously required condensed consolidating financial information in our periodic reports while the senior notes issued by VLP noted above are outstanding, as VLP’s reporting obligation was suspended on January 22, 2019 in connection with the completion of the Merger Transaction.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

On February 7, 2022 we issued $650 million of 4.000 percent Senior Notes due June 1, 2052. Proceeds from this debt issuance totaled $639 million before deducting the underwriting discount and other debt issuance costs. On February 17, 2022, the proceeds and cash on hand were used to repurchase and retire the following notes in connection with our cash tender offers that were publicly announced on February 2, 2022 and updated on February 16, 2022 (in millions):

Debt Repurchased and Retired	Principal Amount
3.65% Senior Notes due 2025	$ 72
2.850% Senior Notes due 2025	507
4.375% VLP Senior Notes due 2026	168
3.400% Senior Notes due 2026	653
Total	$ 1,400

In connection with the early debt retirement activity described above, $48 million of premiums were paid.

Other Disclosures

"Interest and debt expense, net of capitalized interest" is comprised as follows (in millions):

	Year Ended December 31,		
	2021	2020	2019
Interest and debt expense	$ 651	$ 638	$ 544
Less: Capitalized interest	48	75	90
Interest and debt expense, net of capitalized interest	$ 603	$ 563	$ 454

Our credit facilities and other debt arrangements contain various customary restrictive covenants, including cross-default and cross-acceleration clauses.

Principal maturities for our debt obligations as of December 31, 2021 were as follows (in millions):

2022 (a)	$ 1,110
2023	20
2024	169
2025	1,374
2026	1,726
Thereafter	7,637
Net unamortized debt issuance costs and other	(86)
Total debt	$ 11,950

(a) Maturities for 2022 include the DGD Revolver, the DGD Loan Agreement, the IEnova Revolver, and our 4.00 percent Gulf Opportunity Zone Revenue Bonds Series 2010 (GO Zone Bonds). Our GO Zone Bonds are due December 1, 2040, but they are subject to mandatory tender on June 1, 2022 (the Mandatory Tender Date) at a price equal to par plus accrued and unpaid interest up to, but excluding, the Mandatory Tender Date, and are reflected in current portion of debt and finance lease obligations as of December 31, 2021.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

11. COMMITMENTS AND CONTINGENCIES

Purchase Obligations

We have various purchase obligations under certain crude oil and other feedstock supply arrangements, industrial gas supply arrangements (such as hydrogen supply arrangements), natural gas supply arrangements, and various throughput, transportation and terminaling agreements. We enter into these contracts to ensure an adequate supply of feedstock and utilities and adequate storage capacity to operate our refineries and ethanol plants. Substantially all of our purchase obligations are based on market prices or adjustments based on market indices. Certain of these purchase obligations include fixed or minimum volume requirements, while others are based on our usage requirements. None of these obligations is associated with suppliers' financing arrangements. These purchase obligations are not reflected as liabilities.

Self-Insurance

We are self-insured for certain medical and dental, workers' compensation, automobile liability, general liability, and other third-party liability claims up to applicable retention limits. Liabilities are accrued for self-insured claims, or when estimated losses exceed coverage limits, and when sufficient information is available to reasonably estimate the amount of the loss. These liabilities are included in accrued expenses and other long-term liabilities.

12. EQUITY

Share Activity

Activity in the number of shares of common stock and treasury stock was as follows (in millions):

	Common Stock	Treasury Stock
Balance as of December 31, 2018	673	(256)
Transactions in connection with stock-based compensation plans	—	1
Open market stock purchases	—	(9)
Balance as of December 31, 2019	673	(264)
Transactions in connection with stock-based compensation plans	—	1
Open market stock purchases	—	(2)
Balance as of December 31, 2020	673	(265)
Transactions in connection with stock-based compensation plans	—	1
Balance as of December 31, 2021	673	(264)

Preferred Stock

We have 20 million shares of preferred stock authorized with a par value of $0.01 per share. No shares of preferred stock were outstanding as of December 31, 2021 or 2020.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Treasury Stock

We purchase shares of our outstanding common stock as authorized under our common stock purchase program (described below) and to meet our obligations under employee stock-based compensation plans.

On January 23, 2018, our board of directors (Board) authorized our purchase of up to $2.5 billion of our outstanding common stock (the 2018 Program) with no expiration date. During the year ended December 31, 2021, we did not purchase any shares of our common stock under the 2018 Program. During the years ended December 31, 2020 and 2019, we purchased $83 million and $752 million, respectively, of our common stock under the 2018 program. As of December 31, 2021, we have approval under the 2018 Program to purchase approximately $1.4 billion of our common stock.

Common Stock Dividends

On January 20, 2022, our Board declared a quarterly cash dividend of $0.98 per common share payable on March 3, 2022 to holders of record at the close of business on February 3, 2022.

Income Tax Effects Related to Components of Other Comprehensive Income

The tax effects allocated to each component of other comprehensive income were as follows (in millions):

	Before-Tax Amount	Tax Expense (Benefit)	Net Amount
Year ended December 31, 2021			
Foreign currency translation adjustment	$ (47)	$ —	$ (47)
Pension and other postretirement benefits:			
Gain arising during the year related to:			
Net actuarial gain	317	69	248
Prior service cost	(4)	(1)	(3)
Amounts reclassified into income related to:			
Net actuarial loss	80	18	62
Prior service credit	(25)	(6)	(19)
Curtailment and settlement loss	8	2	6
Effect of exchange rates	2	—	2
Net gain on pension and other postretirement benefits	378	82	296
Derivative instruments designated and qualifying as cash flow hedges:			
Net loss arising during the year	(48)	(5)	(43)
Net loss reclassified into income	46	5	41
Net loss on cash flow hedges	(2)	—	(2)
Other comprehensive income	$ 329	$ 82	$ 247

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

	Before-Tax Amount	Tax Expense (Benefit)	Net Amount
Year ended December 31, 2020			
Foreign currency translation adjustment	$ 161	$ —	$ 161
Pension and other postretirement benefits:			
Loss arising during the year related to:			
Net actuarial loss	(128)	(26)	(102)
Prior service cost	(5)	(1)	(4)
Amounts reclassified into income related to:			
Net actuarial loss	74	17	57
Prior service credit	(26)	(6)	(20)
Curtailment and settlement loss	5	1	4
Net loss on pension and other postretirement benefits	(80)	(15)	(65)
Derivative instruments designated and qualifying as cash flow hedges:			
Net gain arising during the year	36	3	33
Net gain reclassified into income	(34)	(4)	(30)
Net gain on cash flow hedges	2	(1)	3
Other comprehensive income	$ 83	$ (16)	$ 99
Year ended December 31, 2019			
Foreign currency translation adjustment	$ 349	$ —	$ 349
Pension and other postretirement benefits:			
Loss arising during the year related to:			
Net actuarial loss	(245)	(54)	(191)
Prior service cost	(3)	(1)	(2)
Miscellaneous loss	—	4	(4)
Amounts reclassified into income related to:			
Net actuarial loss	38	9	29
Prior service credit	(28)	(6)	(22)
Curtailment and settlement loss	4	1	3
Net loss on pension and other postretirement benefits	(234)	(47)	(187)
Derivative instruments designated and qualifying as cash flow hedges:			
Net loss arising during the year	(6)	(1)	(5)
Net gain reclassified into income	(2)	—	(2)
Net loss on cash flow hedges	(8)	(1)	(7)
Other comprehensive income	$ 107	$ (48)	$ 155

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Accumulated Other Comprehensive Loss

Changes in accumulated other comprehensive loss by component, net of tax, were as follows (in millions):

	Foreign Currency Translation Adjustment	Defined Benefit Plans Items	Gains (Losses) on Cash Flow Hedges	Total
Balance as of December 31, 2018	$ (1,022)	$ (485)	$ —	$ (1,507)
Other comprehensive income (loss) before reclassifications	346	(197)	(2)	147
Amounts reclassified from accumulated other comprehensive loss	—	10	(1)	9
Other comprehensive income (loss)	346	(187)	(3)	156
Balance as of December 31, 2019	(676)	(672)	(3)	(1,351)
Other comprehensive income (loss) before reclassifications	161	(106)	14	69
Amounts reclassified from accumulated other comprehensive loss	—	41	(13)	28
Other comprehensive income (loss)	161	(65)	1	97
Balance as of December 31, 2020	(515)	(737)	(2)	(1,254)
Other comprehensive income (loss) before reclassifications	(47)	245	(21)	177
Amounts reclassified from accumulated other comprehensive loss	—	49	18	67
Effect of exchange rates	—	2	—	2
Other comprehensive income (loss)	(47)	296	(3)	246
Balance as of December 31, 2021	$ (562)	$ (441)	$ (5)	$ (1,008)

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Gains (losses) reclassified out of accumulated other comprehensive loss and into net income (loss) were as follows (in millions):

Details about Accumulated Other Comprehensive Loss Components	Year Ended December 31, 2021	2020	2019	Affected Line Item in the Statement of Income
Amortization of items related to defined benefit pension plans:				
Net actuarial loss	$ (80)	$ (74)	$ (38)	(a) Other income, net
Prior service credit	25	26	28	(a) Other income, net
Curtailment and settlement	(8)	(5)	(4)	(a) Other income, net
	(63)	(53)	(14)	Total before tax
	14	12	4	Tax benefit
	$ (49)	$ (41)	$ (10)	Net of tax
Gains (losses) on cash flow hedges:				
Commodity contracts	$ (46)	$ 34	$ 2	Revenues
	(46)	34	2	Total before tax
	5	(4)	—	Tax (expense) benefit
	$ (41)	$ 30	$ 2	Net of tax
Total reclassifications for the year	$ (90)	$ (11)	$ (8)	Net of tax

(a) These accumulated other comprehensive loss components are included in the computation of net periodic benefit cost, as discussed in Note 14.

13. VARIABLE INTEREST ENTITIES

Consolidated VIEs

In the normal course of business, we have financial interests in certain entities that have been determined to be VIEs. We consolidate a VIE when we have a variable interest in an entity for which we are the primary beneficiary such that we have (i) the power to direct the activities of the VIE that most significantly impact the VIE's economic performance and (ii) the obligation to absorb losses of or the right to receive benefits from the VIE that could potentially be significant to the VIE. In order to make this determination, we evaluated our contractual arrangements with the VIE, including arrangements for the use of assets, purchases of products and services, debt, equity, or management of operating activities.

The following discussion summarizes our involvement with the consolidated VIEs:

- DGD is a joint venture with a subsidiary of Darling that owns and operates a plant that processes waste and renewable feedstocks (predominately animal fats, used cooking oils, and inedible distillers corn oils) into renewable diesel. The plant is located in Norco, Louisiana next to our St. Charles Refinery. Our significant agreements with DGD include an operations agreement that outlines our responsibilities as operator of the plant.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

As operator, we operate the plant and perform certain day-to-day operating and management functions for DGD as an independent contractor. The operations agreement provides us (as operator) with certain power to direct the activities that most significantly impact DGD's economic performance. Because this agreement conveys such power to us and is separate from our ownership rights, we determined that DGD was a VIE. For this reason and because we hold a 50 percent ownership interest that provides us with significant economic rights and obligations, we determined that we are the primary beneficiary of DGD. DGD has risk associated with its operations because it generates revenues from third-party customers.

- Central Mexico Terminals is a collective group of three subsidiaries of Infraestructura Energetica Nova, S.A.P.I. de C.V. (IEnova), a Mexican company and indirect subsidiary of Sempra Energy, a U.S. public company. We have terminaling agreements with Central Mexico Terminals that represent variable interests because we have determined them to be finance leases due to our exclusive use of the terminals. Although we do not have an ownership interest in the entities that own each of the three terminals, the finance leases convey to us (i) the power to direct the activities that most significantly impact the economic performance of all three terminals and (ii) the ability to influence the benefits received or the losses incurred by the terminals because of our use of the terminals. As a result, we determined each of the entities was a VIE and that we are the primary beneficiary of each. Substantially all of Central Mexico Terminals' revenues will be derived from us; therefore, we believe there is limited risk to us associated with Central Mexico Terminals' operations.

- We also have financial interests in other entities that have been determined to be VIEs because the entities' contractual arrangements transfer the power to us to direct the activities that most significantly impact their economic performance or reduce the exposure to operational variability and risk of loss created by the entity that otherwise would be held exclusively by the equity owners. Furthermore, we determined that we are the primary beneficiary of these VIEs because (i) certain contractual arrangements (exclusive of our ownership rights) provide us with the power to direct the activities that most significantly impact the economic performance of these entities and/or (ii) our 50 percent ownership interests provide us with significant economic rights and obligations.

The assets of the consolidated VIEs can only be used to settle their own obligations and the creditors of the consolidated VIEs have no recourse to our other assets. We generally do not provide financial guarantees to the VIEs. Although we have provided credit facilities to some of the VIEs in support of their construction or acquisition activities, these transactions are eliminated in consolidation. Our financial position, results of operations, and cash flows are impacted by the performance of the consolidated VIEs, net of intercompany eliminations, to the extent of our ownership interest in each VIE.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following tables present summarized balance sheet information for the significant assets and liabilities of the consolidated VIEs, which are included in our balance sheets (in millions):

	DGD	Central Mexico Terminals	Other	Total
December 31, 2021				
Assets				
Cash and cash equivalents	$ 21	$ —	$ 15	$ 36
Other current assets	558	10	13	581
Property, plant, and equipment, net	2,629	676	91	3,396
Liabilities				
Current liabilities, including current portion of debt and finance lease obligations	$ 398	$ 729	$ 9	$ 1,136
Debt and finance lease obligations, less current portion	264	—	20	284
December 31, 2020				
Assets				
Cash and cash equivalents	$ 144	$ 1	$ 16	$ 161
Other current assets	219	24	8	251
Property, plant, and equipment, net	1,232	590	96	1,918
Liabilities				
Current liabilities, including current portion of debt and finance lease obligations	$ 90	$ 620	$ 8	$ 718
Debt and finance lease obligations, less current portion	1	—	25	26

Nonconsolidated VIEs

We hold variable interests in VIEs that have not been consolidated because we are not considered the primary beneficiary. These nonconsolidated VIEs are not material to our financial position or results of operations and are accounted for as equity investments.

On April 19, 2021, we sold a 24.99 percent membership interest in MVP, a nonconsolidated joint venture with Magellan, for $270 million that resulted in a gain of $62 million, which is included in “other income, net” for the year ended December 31, 2021. MVP owns and operates a marine terminal located on the Houston Ship Channel in Pasadena, Texas. We retained a 25.01 percent membership interest in MVP.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

14. EMPLOYEE BENEFIT PLANS

Defined Benefit Plans

We have defined benefit pension plans, some of which are subject to collective bargaining agreements, that cover most of our employees. These plans provide eligible employees with retirement income based primarily on years of service and compensation during specific periods under final average pay and cash balance formulas. We fund all of our pension plans as required by local regulations. In the U.S., all qualified pension plans are subject to the Employee Retirement Income Security Act's minimum funding standard. We typically do not fund or fully fund U.S. nonqualified and certain foreign pension plans that are not subject to funding requirements because contributions to these pension plans may be less economic and investment returns may be less attractive than our other investment alternatives.

We also provide health care and life insurance benefits for certain retired employees through our postretirement benefit plans. Most of our employees become eligible for these benefits if, while still working for us, they reach normal retirement age or take early retirement. These plans are unfunded, and retired employees share the cost with us. Individuals who became our employees as a result of an acquisition became eligible for postretirement benefits under our plans as determined by the terms of the relevant acquisition agreement.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The changes in benefit obligation related to all of our defined benefit plans, the changes in fair value of plan assets[a], and the funded status of our defined benefit plans as of and for the years ended below were as follows (in millions):

	Pension Plans		Other Postretirement Benefit Plans	
	December 31,		December 31,	
	2021	2020	2021	2020
Changes in benefit obligation				
Benefit obligation as of beginning of year	$ 3,625	$ 3,239	$ 358	$ 336
Service cost	161	140	7	6
Interest cost	73	85	7	9
Participant contributions	—	—	13	12
Benefits paid	(284)	(195)	(29)	(28)
Actuarial (gain) loss	(111)	339	(9)	23
Other	(1)	17	—	—
Benefit obligation as of end of year	$ 3,463	$ 3,625	$ 347	$ 358
Changes in plan assets (a)				
Fair value of plan assets as of beginning of year	$ 3,067	$ 2,709	$ —	$ —
Actual return on plan assets	389	413	—	—
Company contributions	135	129	16	16
Participant contributions	—	—	13	12
Benefits paid	(284)	(195)	(29)	(28)
Other	(4)	11	—	—
Fair value of plan assets as of end of year	$ 3,303	$ 3,067	$ —	$ —
Reconciliation of funded status (a)				
Fair value of plan assets as of end of year	$ 3,303	$ 3,067	$ —	$ —
Less: Benefit obligation as of end of year	3,463	3,625	347	358
Funded status as of end of year	$ (160)	$ (558)	$ (347)	$ (358)
Accumulated benefit obligation	$ 3,238	$ 3,398	n/a	n/a

(a) Plan assets include only the assets associated with pension plans subject to legal minimum funding standards. Plan assets associated with U.S. nonqualified pension plans are not included here because they are not protected from our creditors and therefore cannot be reflected as a reduction from our obligations under the pension plans. As a result, the reconciliation of funded status does not reflect the effect of plan assets that exist for all of our defined benefit plans. See Note 20 for the assets associated with certain U.S. nonqualified pension plans.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The actuarial gain for the year ended December 31, 2021 primarily resulted from an increase in the discount rates used to determine our benefit obligations for our pension plans from 2.62 percent in 2020 to 2.93 percent in 2021. The actuarial loss for the year ended December 31, 2020 primarily resulted from a decrease in the discount rates used to determine our benefit obligations for our pension plans from 3.14 percent in 2019 to 2.62 percent in 2020.

The fair value of our plan assets as of December 31, 2021 and 2020 were favorably impacted by the return on plan assets resulting primarily from an improvement in equity market prices for each year.

Amounts recognized in our balance sheet for our pension and other postretirement benefits plans include (in millions):

	Pension Plans		Other Postretirement Benefit Plans	
	December 31,		December 31,	
	2021	2020	2021	2020
Deferred charges and other assets, net	$ 135	$ 7	$ —	$ —
Accrued expenses	(19)	(24)	(22)	(21)
Other long-term liabilities	(276)	(541)	(325)	(337)
	$ (160)	$ (558)	$ (347)	$ (358)

The following table presents information for our pension plans with projected benefit obligations in excess of plan assets (in millions):

	December 31,	
	2021	2020
Projected benefit obligation	$ 335	$ 3,561
Fair value of plan assets	40	2,997

The following table presents information for our pension plans with accumulated benefit obligations in excess of plan assets (in millions):

	December 31,	
	2021	2020
Accumulated benefit obligation	$ 265	$ 3,336
Fair value of plan assets	31	2,997

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Benefit payments that we expect to pay, including amounts related to expected future services that we expect to receive, are as follows for the years ending December 31 (in millions):

	Pension Benefits	Other Postretirement Benefits
2022	$ 189	$ 22
2023	236	21
2024	185	21
2025	207	21
2026	223	20
2027-2031	1,068	91

We plan to contribute $116 million to our pension plans and $22 million to our other postretirement benefit plans during 2022.

The components of net periodic benefit cost related to our defined benefit plans were as follows (in millions):

	Pension Plans			Other Postretirement Benefit Plans		
	Year Ended December 31,			Year Ended December 31,		
	2021	2020	2019	2021	2020	2019
Service cost	$ 161	$ 140	$ 119	$ 7	$ 6	$ 5
Interest cost	73	85	98	7	9	11
Expected return on plan assets	(192)	(179)	(166)	—	—	—
Amortization of:						
Net actuarial (gain) loss	81	74	41	(1)	—	(3)
Prior service credit	(18)	(19)	(19)	(7)	(7)	(9)
Special charges	8	5	4	—	—	1
Net periodic benefit cost	$ 113	$ 106	$ 77	$ 6	$ 8	$ 5

The components of net periodic benefit cost other than the service cost component (i.e., the non-service cost components) are included in “other income, net.”

Amortization of prior service credit shown in the preceding table was based on a straight-line amortization of the cost over the average remaining service period of employees expected to receive benefits under each respective plan. Amortization of the net actuarial (gain) loss shown in the preceding table was based on the straight-line amortization of the excess of the unrecognized (gain) loss over 10 percent of the greater of the projected benefit obligation or market-related value of plan assets (smoothed asset value) over the average remaining service period of active employees expected to receive benefits under each respective plan.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Pre-tax amounts recognized in other comprehensive income were as follows (in millions):

	Pension Plans			Other Postretirement Benefit Plans		
	Year Ended December 31,			Year Ended December 31,		
	2021	2020	2019	2021	2020	2019
Net gain (loss) arising during the year:						
Net actuarial gain (loss)	$ 308	$ (105)	$ (204)	$ 9	$ (23)	$ (41)
Prior service cost	(4)	(5)	—	—	—	(3)
Net (gain) loss reclassified into income:						
Net actuarial (gain) loss	81	74	41	(1)	—	(3)
Prior service credit	(18)	(19)	(19)	(7)	(7)	(9)
Curtailment and settlement loss	8	5	4	—	—	—
Effect of exchange rates	2	—	—	—	—	—
Total changes in other comprehensive income	$ 377	$ (50)	$ (178)	$ 1	$ (30)	$ (56)

The pre-tax amounts in accumulated other comprehensive loss that have not yet been recognized as components of net periodic benefit cost were as follows (in millions):

	Pension Plans		Other Postretirement Benefit Plans	
	December 31,		December 31,	
	2021	2020	2021	2020
Net actuarial (gain) loss	$ 615	$ 1,014	$ (4)	$ 4
Prior service credit	(44)	(66)	(6)	(13)
Total	$ 571	$ 948	$ (10)	$ (9)

The weighted-average assumptions used to determine the benefit obligations were as follows:

	Pension Plans		Other Postretirement Benefit Plans	
	December 31,		December 31,	
	2021	2020	2021	2020
Discount rate	2.93 %	2.62 %	2.96 %	2.64 %
Rate of compensation increase	3.70 %	3.66 %	n/a	n/a
Interest crediting rate for cash balance plans	3.03 %	3.03 %	n/a	n/a

The discount rate assumption used to determine the benefit obligations as of December 31, 2021 and 2020 for the majority of our pension plans and other postretirement benefit plans was based on the Aon AA Only Above Median yield curve and considered the timing of the projected cash outflows under our plans. This curve was designed by Aon, our actuarial consultant, to provide a means for plan sponsors to

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

value the liabilities of their pension plans or postretirement benefit plans. To develop this curve, a hypothetical double-A yield curve represented by a series of annualized individual discount rates with maturities from one-half year to 99 years is constructed. Each bond issue underlying the double-A yield curve is required to have an average rating of double-A when averaging all available ratings by Moody's Investors Service, Standard & Poor's Ratings Services, and Fitch Ratings. Only the bonds representing the 50 percent highest yielding issuances of this double-A yield curve are then included in the Aon AA Only Above Median yield curve.

We based our discount rate assumption on the Aon AA Only Above Median yield curve because we believe it is representative of the types of bonds we would use to settle our pension and other postretirement benefit plan liabilities as of those dates. We believe that the yields associated with the bonds used to develop this yield curve reflect the current level of interest rates.

The weighted-average assumptions used to determine the net periodic benefit cost were as follows:

	Pension Plans			Other Postretirement Benefit Plans		
	Year Ended December 31,			Year Ended December 31,		
	2021	2020	2019	2021	2020	2019
Discount rate	2.62 %	3.14 %	4.24 %	2.64 %	3.32 %	4.40 %
Expected long-term rate of return on plan assets	7.09 %	7.20 %	7.22 %	n/a	n/a	n/a
Rate of compensation increase	3.66 %	3.75 %	3.78 %	n/a	n/a	n/a
Interest crediting rate for cash balance plans	3.03 %	3.03 %	3.04 %	n/a	n/a	n/a

The assumed health care cost trend rates were as follows:

	December 31,	
	2021	2020
Health care cost trend rate assumed for the next year	6.61 %	6.83 %
Rate to which the cost trend rate was assumed to decline (the ultimate trend rate)	5.00 %	5.00 %
Year that the rate reaches the ultimate trend rate	2026	2026

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following table presents the fair values of the assets of our pension plans (in millions) as of December 31, 2021 and 2020 by level of the fair value hierarchy. Assets categorized in Level 1 of the hierarchy are measured at fair value using a market approach based on unadjusted quoted prices from national securities exchanges. Assets categorized in Level 2 of the hierarchy are measured at net asset value in a market that is not active or inputs other than quoted prices that are observable. No assets were categorized in Level 3 of the hierarchy as of December 31, 2021 or 2020. As previously noted, we do not fund or fully fund U.S. nonqualified and certain foreign pension plans that are not subject to funding requirements, and we do not fund our other postretirement benefit plans.

	2021			2020		
	Level 1	Level 2	Total	Level 1	Level 2	Total
Equity securities (a)	$ 681	$ —	$ 681	$ 682	$ —	$ 682
Mutual funds	246	—	246	244	—	244
Corporate debt instruments (a)	—	355	355	—	297	297
Government securities	94	141	235	85	142	227
Common collective trusts (b)	—	1,202	1,202	—	1,066	1,066
Pooled separate accounts (c)	—	370	370	—	316	316
Private funds	—	112	112	—	128	128
Insurance contract	—	15	15	—	15	15
Interest and dividends receivable	5	—	5	5	—	5
Cash and cash equivalents	82	—	82	98	—	98
Securities transactions payable, net	—	—	—	(11)	—	(11)
Total pension plan assets	$ 1,108	$ 2,195	$ 3,303	$ 1,103	$ 1,964	$ 3,067

(a) This class of securities includes domestic and international securities, which are held in a wide range of industry sectors.
(b) This class primarily includes investments in approximately 80 percent equities and 20 percent bonds as of December 31, 2021 and 2020.
(c) This class primarily includes investments in approximately 55 percent equities and 45 percent bonds as of December 31, 2021. As of December 31, 2020, this class included primarily investments in approximately 60 percent equities and 40 percent bonds. These pension assets are held by our foreign pension plans.

The investment policies and strategies for the assets of our pension plans incorporate a well-diversified approach that is expected to earn long-term returns from capital appreciation and a growing stream of current income. This approach recognizes that assets are exposed to risk and the market value of the pension plans' assets may fluctuate from year to year. Risk tolerance is determined based on our financial ability to withstand risk within the investment program and the willingness to accept return volatility. In line with the investment return objective and risk parameters, the pension plans' mix of assets includes a diversified portfolio of equity and fixed-income investments. Equity securities include international securities and a blend of U.S. growth and value stocks of various sizes of capitalization. Fixed income securities include bonds and notes issued by the U.S. government and its agencies, corporate bonds, and mortgage-backed securities. The aggregate asset allocation is reviewed on an annual basis. As of December 31, 2021, the target allocations for plan assets under our primary pension plan are 70 percent equity securities and 30 percent fixed income investments.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The expected long-term rate of return on plan assets is based on a forward-looking expected asset return model. This model derives an expected rate of return based on the target asset allocation of a plan's assets. The underlying assumptions regarding expected rates of return for each asset class reflect Aon's best expectations for these asset classes. The model reflects the positive effect of periodic rebalancing among diversified asset classes. We select an expected asset return that is supported by this model.

Defined Contribution Plans

We have defined contribution plans that cover most of our employees. Our contributions to these plans are based on employees' compensation and/or a partial match of employee contributions to the plans. Our contributions to these defined contribution plans were $82 million, $80 million, and $77 million for the years ended December 31, 2021, 2020, and 2019, respectively.

15. STOCK-BASED COMPENSATION

Overview

Under our 2020 Omnibus Stock Incentive Plan (the 2020 OSIP), various stock and stock-based awards may be granted to employees, non-employee directors, and third-party service providers. The 2020 OSIP permits grants of (i) restricted stock and restricted stock units; (ii) stock options (including incentive and non-qualified stock options); (iii) stock appreciation rights; (iv) performance awards of cash, stock, or other securities; and (v) other stock-based awards (e.g., stock unit awards). Awards under the 2020 OSIP are granted at the discretion of our compensation committee and may be subject to vesting or performance periods, performance goals, or other restrictions. The 2020 OSIP was approved by our stockholders on April 30, 2020, and as of such date, any shares of common stock that were available to be awarded under the 2011 Omnibus Stock Incentive Plan (the 2011 OSIP) became available for issuance under the 2020 OSIP and any shares of common stock subject to awards under the 2011 OSIP outstanding as of April 30, 2020, that are subsequently forfeited, terminated, canceled or rescinded, settled in cash in lieu of common stock, exchanged for awards not involving common stock, or expire unexercised also become available for issuance under the 2020 OSIP. No future awards will be made under the 2011 OSIP. As of December 31, 2021, 13,566,535 shares of our common stock remained available to be awarded under the 2020 OSIP.

The following table reflects activity related to our stock-based compensation arrangements (in millions):

	Year Ended December 31,		
	2021	2020	2019
Stock-based compensation expense:			
Restricted stock	$ 65	$ 63	$ 64
Performance awards	21	15	23
Stock options and other awards	2	2	2
Total stock-based compensation expense	$ 88	$ 80	$ 89
Tax benefit recognized on stock-based compensation expense	$ 13	$ 13	$ 19
Tax benefit realized for tax deductions resulting from exercises and vestings	1	1	17

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Restricted Stock

Restricted stock is our most significant stock-based compensation arrangement. Employees, non-employee directors, and third-party service providers are eligible to receive restricted stock, which vests in accordance with individual written agreements between the participants and us, usually in equal annual installments over a period of three years beginning one year after the date of grant. The fair value of each share of restricted stock is equal to the market price of our common stock. A summary of the status of our restricted stock awards is presented in the following table:

	Number of Shares	Weighted-Average Grant-Date Fair Value Per Share
Nonvested shares as of January 1, 2021	1,437,912	$ 69.47
Granted	831,337	77.71
Vested	(797,751)	75.36
Forfeited	(13,307)	70.64
Nonvested shares as of December 31, 2021	1,458,191	70.93

As of December 31, 2021, there was $57 million of unrecognized compensation cost related to outstanding unvested restricted stock awards, which is expected to be recognized over a weighted-average period of approximately two years.

The following table reflects activity related to our restricted stock:

	Year Ended December 31,		
	2021	2020	2019
Weighted-average grant-date fair value per share of restricted stock granted	$ 77.71	$ 55.62	$ 98.75
Fair value of restricted stock vested (in millions)	59	35	74

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

16. INCOME TAXES

Income Statement Components

Income (loss) before income tax expense (benefit) was as follows (in millions):

	Year Ended December 31,		
	2021	2020	2019
U.S. operations	$ 1,023	$ (2,072)	$ 2,496
Foreign operations	520	62	990
Income (loss) before income tax expense (benefit)	$ 1,543	$ (2,010)	$ 3,486

Statutory income tax rates applicable to the countries in which we operate during each of the years ended December 31, 2021, 2020, and 2019 were as follows:

U.S.	21 %
Canada	15 %
U.K.	19 %
Ireland	13 %
Peru	30 %
Mexico	30 %

The following is a reconciliation of income tax expense (benefit) computed by applying statutory income tax rates to actual income tax expense (benefit) (in millions):

	U.S.		Foreign		Total	
	Amount	Percent	Amount	Percent	Amount	Percent
Year ended December 31, 2021						
Income tax expense at statutory rates	$ 215	21.0 %	$ 73	14.0 %	$ 288	18.7 %
U.S. state and Canadian provincial tax expense, net of federal income tax effect	16	1.6 %	53	10.2 %	69	4.5 %
Permanent differences	(34)	(3.3)%	(14)	(2.7)%	(48)	(3.1)%
Changes in tax law (a)	(10)	(1.0)%	74	14.2 %	64	4.1 %
CARES Act (b)	(56)	(5.5)%	—	—	(56)	(3.6)%
GILTI tax	125	12.2 %	—	—	125	8.1 %
Foreign tax credits	(103)	(10.1)%	—	—	(103)	(6.7)%
Settlements	(22)	(2.1)%	—	—	(22)	(1.4)%
Tax effects of income associated with noncontrolling interests	(74)	(7.2)%	30	5.8 %	(44)	(2.9)%
Other, net	(7)	(0.7)%	(11)	(2.1)%	(18)	(1.2)%
Income tax expense	$ 50	4.9 %	$ 205	39.4 %	$ 255	16.5 %

See notes on page 117.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

	U.S.		Foreign		Total	
	Amount	Percent	Amount	Percent	Amount	Percent
Year ended December 31, 2020						
Income tax benefit at statutory rates	$ (435)	21.0 %	$ (10)	(16.1)%	$ (445)	22.1 %
U.S. state and Canadian provincial tax expense (benefit), net of federal income tax effect	(33)	1.6 %	27	43.5 %	(6)	0.3 %
Permanent differences	(23)	1.1 %	15	24.2 %	(8)	0.4 %
CARES Act (b)	(360)	17.4 %	—	—	(360)	17.9 %
Lapse of federal statute of limitations	(39)	1.8 %	—	—	(39)	1.9 %
Change in tax law	—	—	21	33.9 %	21	(1.0)%
Tax effects of income associated with noncontrolling interests	(66)	3.2 %	(8)	(12.9)%	(74)	3.7 %
Other, net	7	(0.3)%	1	1.6 %	8	(0.4)%
Income tax expense (benefit)	$ (949)	45.8 %	$ 46	74.2 %	$ (903)	44.9 %
Year ended December 31, 2019						
Income tax expense at statutory rates	$ 524	21.0 %	$ 147	14.8 %	$ 671	19.2 %
U.S. state and Canadian provincial tax expense, net of federal income tax effect	16	0.7 %	88	8.9 %	104	3.0 %
Permanent differences	(36)	(1.5)%	10	1.0 %	(26)	(0.7)%
GILTI tax	115	4.6 %	—	—	115	3.3 %
Foreign tax credits	(95)	(3.8)%	—	—	(95)	(2.7)%
Repatriation withholding tax	45	1.8 %	—	—	45	1.3 %
Tax effects of income associated with noncontrolling interests	(77)	(3.1)%	2	0.2 %	(75)	(2.2)%
Other, net	(36)	(1.4)%	(1)	(0.1)%	(37)	(1.1)%
Income tax expense	$ 456	18.3 %	$ 246	24.8 %	$ 702	20.1 %

(a) During the three months ended June 30, 2021, certain statutory income tax rate changes (primarily an increase in the U.K. rate from 19 percent to 25 percent effective in 2023) were enacted that resulted in the remeasurement of our deferred tax liabilities and related deferred income tax expense.
(b) See "*CARES Act*" on page 122 for a discussion of significant changes in tax law in the U.S. that were enacted in 2020.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Components of income tax expense (benefit) were as follows (in millions):

	U.S.	Foreign	Total
Year ended December 31, 2021			
Current:			
Country	$ 68	$ 215	$ 283
U.S. state / Canadian provincial	1	97	98
Total current	69	312	381
Deferred:			
Country	5	(63)	(58)
U.S. state / Canadian provincial	(24)	(44)	(68)
Total deferred	(19)	(107)	(126)
Income tax expense	$ 50	$ 205	$ 255
Year ended December 31, 2020			
Current:			
Country	$ (1,033)	$ (34)	$ (1,067)
U.S. state / Canadian provincial	9	(3)	6
Total current	(1,024)	(37)	(1,061)
Deferred:			
Country	126	53	179
U.S. state / Canadian provincial	(51)	30	(21)
Total deferred	75	83	158
Income tax expense (benefit)	$ (949)	$ 46	$ (903)
Year ended December 31, 2019			
Current:			
Country	$ 145	$ 186	$ 331
U.S. state / Canadian provincial	37	100	137
Total current	182	286	468
Deferred:			
Country	290	(28)	262
U.S. state / Canadian provincial	(16)	(12)	(28)
Total deferred	274	(40)	234
Income tax expense	$ 456	$ 246	$ 702

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Income Taxes Paid (Refunded)

Income taxes paid to (received from) U.S. and foreign taxing authorities were as follows (in millions):

	Year Ended December 31,		
	2021	2020	2019
U.S.	$ (878) (a)	$ 130	$ (298) (b)
Foreign	36	73	182
Income taxes paid (refunded), net	$ (842)	$ 203	$ (116)

(a) This amount includes a refund of $962 million that we received related to our U.S. federal income tax return for 2020.

(b) This amount includes a refund of $348 million, including interest, that we received related to the settlement of the combined audit of our U.S. federal income tax returns for 2010 and 2011. See "*Tax Returns Under Audit*–U.S. Federal" on page 121.

Deferred Income Tax Assets and Liabilities

The tax effects of significant temporary differences representing deferred income tax assets and liabilities were as follows (in millions):

	December 31,	
	2021	2020
Deferred income tax assets:		
Tax credit carryforwards	$ 679	$ 681
NOLs	697	678
Inventories	217	70
Compensation and employee benefit liabilities	123	199
Environmental liabilities	53	64
Other	149	128
Total deferred income tax assets	1,918	1,820
Valuation allowance	(1,262)	(1,223)
Net deferred income tax assets	656	597
Deferred income tax liabilities:		
Property, plant, and equipment	4,866	4,895
Deferred turnaround costs	308	302
Inventories	191	269
Investments	268	171
Other	233	235
Total deferred income tax liabilities	5,866	5,872
Net deferred income tax liabilities	$ 5,210	$ 5,275

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

We had the following income tax credit and loss carryforwards as of December 31, 2021 (in millions):

	Amount	Expiration
U.S. state income tax credits (gross amount)	$ 80	2022 through 2033
U.S. state income tax credits (gross amount)	21	Unlimited
U.S. foreign tax credits	598	2027
U.S. state income tax NOLs (gross amount)	12,394	2022 through 2041
U.S. state income tax NOLs (gross amount)	465	Unlimited
Foreign NOLs (gross amount)	38	2025 through 2031
Foreign NOLs (gross amount)	59	Unlimited

We have recorded a valuation allowance as of December 31, 2021 and 2020 due to uncertainties related to our ability to utilize some of our deferred income tax assets associated with our U.S. foreign tax credits, certain U.S. state income tax credits, certain foreign deferred tax assets, and certain NOLs before they expire. The valuation allowance is based on our estimates of future taxable income in the various jurisdictions in which we operate and the period over which deferred income tax assets will be recoverable. The valuation allowance increased by $39 million in 2021 primarily due to increases in U.S. state income tax NOLs and unrealizable assets in a foreign jurisdiction.

Unrecognized Tax Benefits

Change in Unrecognized Tax Benefits

The following is a reconciliation of the change in unrecognized tax benefits, excluding related interest and penalties, (in millions):

	Year Ended December 31,		
	2021	2020	2019
Balance as of beginning of year	$ 847	$ 897	$ 970
Additions for tax positions related to the current year	3	5	19
Additions for tax positions related to prior years	13	9	30
Reductions for tax positions related to prior years	(25)	(20)	(101)
Reductions for tax positions related to the lapse of applicable statute of limitations	—	(44)	(14)
Settlements	(22)	—	(7)
Balance as of end of year	$ 816	$ 847	$ 897

Liability for Unrecognized Tax Benefits

The following is a reconciliation of unrecognized tax benefits to our liability for unrecognized tax benefits presented in our balance sheets (in millions).

	December 31,	
	2021	2020
Unrecognized tax benefits	$ 816	$ 847
Tax refund claims not yet filed but that we intend to file	(28)	(26)
Interest and penalties	86	110
Liability for unrecognized tax benefits presented in our balance sheets	$ 874	$ 931

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Our liability for unrecognized tax benefits is reflected in the following balance sheet line items (in millions):

	December 31,	
	2021	2020
Income taxes payable	$ 1	$ 59
Other long-term liabilities	863	859
Deferred tax liabilities	10	13
Liability for unrecognized tax benefits presented in our balance sheets	$ 874	$ 931

As of December 31, 2021 and 2020, our liability for unrecognized tax benefits included $525 million of refund claims associated with taxes paid on incentive payments received from the U.S. federal government for blending biofuels into petroleum-based transportation fuels. We recorded a tax refund receivable of $525 million in connection with our refund claims, but we also recorded a liability for unrecognized tax benefits of $525 million due to the complexity of this matter and uncertainties with respect to sustaining these refund claims. Therefore, our financial position, results of operations, and liquidity will not be negatively impacted if we are unsuccessful in sustaining these refund claims.

As of December 31, 2021 and 2020, there was $708 million and $729 million, respectively, of unrecognized tax benefits that if recognized would reduce our annual effective tax rate.

During the next 12 months, it is reasonably possible that our tax audit resolutions could reduce our liability for unrecognized tax benefits either because our tax positions are sustained upon audit or because we agree to their disallowance. We do not expect these reductions to have a material impact on our financial statements because such reductions would not materially affect our annual effective tax rate.

Tax Returns Under Audit

U.S. Federal

In 2019, we settled the combined audit related to our U.S. federal income tax returns for 2010 and 2011 and received a refund of $348 million, including interest. We did not have a significant change to our liability for unrecognized tax benefits upon settlement of the audit. As of December 31, 2021, our U.S. federal income tax returns for 2012 through 2015, 2017, and 2018 were under audit by the Internal Revenue Service (IRS). The IRS has proposed adjustments for certain open years and we are currently contesting the proposed adjustments with the Office of Appeals of the IRS. We are continuing to work with the IRS to resolve these matters and we believe that they will be resolved for amounts consistent with our recorded amounts of unrecognized tax benefits associated with these matters.

We have amended our U.S federal income tax returns for 2005 through 2011 to exclude from taxable income incentive payments received from the U.S. federal government for blending biofuels into petroleum-based transportation fuels, and we have claimed $525 million in refunds. The 2005 through 2009 amended return refund claims have been disallowed by the IRS and we have filed a lawsuit in a U.S. district court seeking refunds for these years. As noted above in the discussion of our liability for unrecognized tax benefits, an ultimate disallowance of these refund claims would not negatively impact our financial condition, results of operations, and liquidity.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

U.S. State

In 2021, we settled the audits related to our California tax returns for 2004 through 2006. We did not have a significant change to our liability for unrecognized tax benefits upon settlement of the audits. As of December 31, 2021, our California tax returns for 2007 and 2011 through 2016 were under audit by the state of California. We do not expect the ultimate disposition of these audits will result in a material change to our financial condition, results of operations, and liquidity. We believe these audits will be resolved for amounts consistent with our recorded amounts for unrecognized tax benefits associated with these audits.

Foreign

As of December 31, 2021, certain of our Canadian subsidiaries' federal tax returns for 2013 through 2018 were under audit by the Canada Revenue Agency and our Quebec provincial tax returns for 2013 through 2018 were under audit by Revenue Quebec. We are also protesting proposed adjustments related to our Peruvian subsidiary's federal tax returns for 2016 and 2018, which were under audit by La Superintendencia Nacional de Aduanas y de Administración Tributaria. Additionally, our U.K. subsidiary's tax returns for 2019 and 2020 were opened for inquiry by Her Majesty's Revenue and Customs. We do not expect the ultimate disposition of these audits or inquiries will result in a material change to our financial condition, results of operations, and liquidity.

CARES Act

On March 27, 2020, the Coronavirus Aid, Relief and Economic Security (CARES) Act was enacted, which resulted in significant changes to the U.S. Internal Revenue Code of 1986, as amended. The most significant changes affecting us were as follows:

- Modification of the limitations previously set by Tax Reform by providing that tax NOLs arising in a tax year beginning in 2018, 2019, or 2020 can be carried back five years. This provision allows the taxpayer to recover taxes previously paid at a 35 percent federal income tax rate during tax years prior to 2018. In addition, the CARES Act removed the taxable income limitation to allow a tax NOL to fully offset taxable income for tax years beginning before January 1, 2021.

- Increased the deductibility of interest expense from 30 percent to 50 percent of adjusted taxable income for 2019 and 2020. Also, a taxpayer can elect to use its 2019 adjusted taxable income in 2020 to determine the deductible amount of interest expense in that year.

Our income tax benefit for the year ended December 31, 2020 included a tax benefit of $360 million attributable to the tax NOL carryback provided under the CARES Act for our 2020 tax NOL to our 2015 tax year in which we paid federal income taxes at a 35 percent tax rate. Upon filing our superseding 2020 federal income tax return in the fourth quarter of 2021, we recorded an additional tax benefit of $56 million during the year ended December 31, 2021 related to the additional 2020 tax NOL carryback to 2015.

Other Disclosures

Undistributed Earnings of Foreign Subsidiaries

As of December 31, 2021, the cumulative undistributed earnings of our foreign subsidiaries that is considered permanently reinvested in the relevant foreign countries were approximately $4.5 billion. We

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

are able to distribute cash via a dividend from our foreign subsidiaries with a full dividend received deduction in the U.S. However, there may be a cost to repatriate the undistributed earnings of certain of our foreign subsidiaries to us, including, but not limited to, withholding taxes imposed by certain foreign jurisdictions, U.S. state income taxes, and U.S. federal income tax on foreign exchange gains. It is not practicable to estimate the amount of additional tax that would be payable on those earnings, if distributed.

Our repatriation tax liability relates to our recognition of a one-time transition tax on the deemed repatriation of previously undistributed accumulated earnings and profits of our foreign subsidiaries. This transition tax will be remitted to the IRS over the eight-year period provided in the Code, with the first annual remittance paid in 2018.

Interest and Penalties

Interest and penalties incurred during the years ended December 31, 2021, 2020, and 2019 were immaterial.

17. EARNINGS (LOSS) PER COMMON SHARE

Earnings (loss) per common share was computed as follows (dollars and shares in millions, except per share amounts):

	Year Ended December 31,		
	2021	2020	2019
Earnings (loss) per common share:			
Net income (loss) attributable to Valero stockholders	$ 930	$ (1,421)	$ 2,422
Less: Income allocated to participating securities	6	5	7
Net income (loss) available to common stockholders	$ 924	$ (1,426)	$ 2,415
Weighted-average common shares outstanding	407	407	413
Earnings (loss) per common share	$ 2.27	$ (3.50)	$ 5.84
Earnings (loss) per common share – assuming dilution:			
Net income (loss) attributable to Valero stockholders	$ 930	$ (1,421)	$ 2,422
Less: Income allocated to participating securities	6	5	7
Net income (loss) available to common stockholders	$ 924	$ (1,426)	$ 2,415
Weighted-average common shares outstanding	407	407	413
Effect of dilutive securities	—	—	1
Weighted-average common shares outstanding – assuming dilution	407	407	414
Earnings (loss) per common share – assuming dilution	$ 2.27	$ (3.50)	$ 5.84

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Participating securities include restricted stock and performance awards granted under our 2020 OSIP or our 2011 OSIP. Dilutive securities include participating securities as well as outstanding stock options.

18. REVENUES AND SEGMENT INFORMATION

Revenue from Contracts with Customers

Disaggregation of Revenue

Revenue is presented in the table below under *"Segment Information"* disaggregated by product because this is the level of disaggregation that management has determined to be beneficial to users of our financial statements.

Contract Balances

Contract balances were as follows (in millions):

	December 31,	
	2021	2020
Receivables from contracts with customers (see Note 4)	$ 6,228	$ 3,642
Contract liabilities, included in accrued expenses (see Note 9)	78	55

During the years ended December 31, 2021, 2020, and 2019, we recognized as revenue $47 million, $50 million, and $31 million, respectively, that was included in contract liabilities as of December 31, 2020, 2019, and 2018, respectively.

Remaining Performance Obligations

We have spot and term contracts with customers, the majority of which are spot contracts with no remaining performance obligations. We do not disclose remaining performance obligations for contracts that have terms of one year or less. The transaction price for our remaining term contracts includes a fixed component and variable consideration (i.e., a commodity price), both of which are allocated entirely to a wholly unsatisfied promise to transfer a distinct good that forms part of a single performance obligation. The fixed component is not material and the variable consideration is highly uncertain. Therefore, as of December 31, 2021, we have not disclosed the aggregate amount of the transaction price allocated to our remaining performance obligations.

Segment Information

We have three reportable segments — Refining, Renewable Diesel, and Ethanol. Each segment is a strategic business unit that offers different products and services by employing unique technologies and marketing strategies and whose operations and operating performance are managed and evaluated separately. Operating performance is measured based on the operating income generated by the segment, which includes revenues and expenses that are directly attributable to the management of the respective segment. Intersegment sales are generally derived from transactions made at prevailing market rates. The following is a description of each segment's business operations.

- The *Refining segment* includes the operations of our petroleum refineries, the associated activities to market our refined petroleum products, and the logistics assets that support our refining operations. The principal products manufactured by our refineries and sold by this segment include gasolines and blendstocks, distillates, and other products.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

- The *Renewable Diesel segment* represents the operations of DGD, our consolidated joint venture as discussed in Note 13, and the associated activities to market renewable diesel. The principal product manufactured by DGD and sold by this segment is renewable diesel. This segment sells some renewable diesel to the Refining segment, which is then sold to that segment's customers.

- The *Ethanol segment* includes the operations of our ethanol plants and the associated activities to market our ethanol and co-products. The principal products manufactured by our ethanol plants are ethanol and distillers grains. This segment sells some ethanol to the Refining segment for blending into gasoline, which is sold to that segment's customers as a finished gasoline product.

Operations that are not included in any of the reportable segments are included in the corporate category.

The following tables reflect information about our operating income (loss) and total expenditures for long-lived assets by reportable segment (in millions):

	Refining	Renewable Diesel	Ethanol	Corporate and Eliminations	Total
Year ended December 31, 2021					
Revenues:					
Revenues from external customers	$ 106,947	$ 1,874	$ 5,156	$ —	$ 113,977
Intersegment revenues	14	468	433	(915)	—
Total revenues	106,961	2,342	5,589	(915)	113,977
Cost of sales:					
Cost of materials and other (a)	97,759	1,438	4,428	(911)	102,714
Operating expenses (excluding depreciation and amortization expense reflected below)	5,088	134	556	(2)	5,776
Depreciation and amortization expense	2,169	58	131	—	2,358
Total cost of sales	105,016	1,630	5,115	(913)	110,848
Other operating expenses	83	3	1	—	87
General and administrative expenses (excluding depreciation and amortization expense reflected below)	—	—	—	865	865
Depreciation and amortization expense	—	—	—	47	47
Operating income by segment	$ 1,862	$ 709	$ 473	$ (914)	$ 2,130
Total expenditures for long-lived assets (b)	$ 1,374	$ 1,049	$ 18	$ 17	$ 2,458

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

	Refining	Renewable Diesel	Ethanol	Corporate and Eliminations	Total
Year ended December 31, 2020					
Revenues:					
Revenues from external customers	$ 60,840	$ 1,055	$ 3,017	$ —	$ 64,912
Intersegment revenues	8	212	226	(446)	—
Total revenues	60,848	1,267	3,243	(446)	64,912
Cost of sales:					
Cost of materials and other (a)	56,093	500	2,784	(444)	58,933
LCM inventory valuation adjustment	(19)	—	—	—	(19)
Operating expenses (excluding depreciation and amortization expense reflected below)	3,944	85	406	—	4,435
Depreciation and amortization expense	2,138	44	121	—	2,303
Total cost of sales	62,156	629	3,311	(444)	65,652
Other operating expenses	34	—	1	—	35
General and administrative expenses (excluding depreciation and amortization expense reflected below)	—	—	—	756	756
Depreciation and amortization expense	—	—	—	48	48
Operating income (loss) by segment	$ (1,342)	$ 638	$ (69)	$ (806)	$ (1,579)
Total expenditures for long-lived assets (b)	$ 1,838	$ 548	$ 23	$ 27	$ 2,436
Year ended December 31, 2019					
Revenues:					
Revenues from external customers	$ 103,746	$ 970	$ 3,606	$ 2	$ 108,324
Intersegment revenues	18	247	231	(496)	—
Total revenues	103,764	1,217	3,837	(494)	108,324
Cost of sales:					
Cost of materials and other (a)	93,371	360	3,239	(494)	96,476
Operating expenses (excluding depreciation and amortization expense reflected below)	4,289	75	504	—	4,868
Depreciation and amortization expense	2,062	50	90	—	2,202
Total cost of sales	99,722	485	3,833	(494)	103,546
Other operating expenses	20	—	1	—	21
General and administrative expenses (excluding depreciation and amortization expense reflected below)	—	—	—	868	868
Depreciation and amortization expense	—	—	—	53	53
Operating income by segment	$ 4,022	$ 732	$ 3	$ (921)	$ 3,836
Total expenditures for long-lived assets (b)	$ 2,581	$ 160	$ 47	$ 58	$ 2,846

(a) Cost of materials and other for our Renewable Diesel segment is net of blender's tax credit on qualified fuel mixtures of $371 million, $288 million, and $431 million for the years ended December 31, 2021, 2020, and 2019, respectively. Of the amount recognized in 2019, $156 million related to volumes blended during 2018, given that the legislation that retroactively reinstated the credit was passed and signed into law in December 2019.

(b) Total expenditures for long-lived assets includes amounts related to capital expenditures; deferred turnaround and catalyst costs; and property, plant, and equipment for acquisitions.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following table provides a disaggregation of revenues from external customers for our principal products by reportable segment (in millions):

	Year Ended December 31,		
	2021	2020	2019
Refining:			
Gasolines and blendstocks	$ 49,534	$ 26,278	$ 42,798
Distillates	45,939	28,234	51,942
Other product revenues	11,474	6,328	9,006
Total refining revenues	106,947	60,840	103,746
Renewable Diesel:			
Renewable diesel	1,874	1,055	970
Ethanol:			
Ethanol	4,122	2,353	2,889
Distillers grains	1,034	664	717
Total ethanol revenues	5,156	3,017	3,606
Corporate – other revenues	—	—	2
Revenues	$ 113,977	$ 64,912	$ 108,324

Revenues by geographic area are shown in the following table (in millions). The geographic area is based on location of customer and no customer accounted for 10 percent or more of our revenues.

	Year Ended December 31,		
	2021	2020	2019
U.S.	$ 82,940	$ 45,174	$ 77,173
Canada	6,597	4,294	7,915
U.K. and Ireland	13,307	9,268	13,584
Other countries	11,133	6,176	9,652
Revenues	$ 113,977	$ 64,912	$ 108,324

Long-lived assets include property, plant, and equipment and certain long-lived assets included in “deferred charges and other assets, net.” Long-lived assets by geographic area consisted of the following (in millions):

	December 31,	
	2021	2020
U.S.	$ 28,518	$ 28,184
Canada	1,855	1,877
U.K. and Ireland	1,528	1,353
Mexico and Peru	859	738
Total long-lived assets	$ 32,760	$ 32,152

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Total assets by reportable segment were as follows (in millions):

	December 31,	
	2021	2020
Refining	$ 47,365	$ 42,939
Renewable Diesel	3,437	1,659
Ethanol	1,812	1,728
Corporate and eliminations	5,274	5,448
Total assets	$ 57,888	$ 51,774

As of December 31, 2021 and 2020, our investments in nonconsolidated joint ventures accounted for under the equity method were $734 million and $972 million, respectively, all of which related to the Refining segment and are reflected in "deferred charges and other assets, net" as presented in Note 8.

19. SUPPLEMENTAL CASH FLOW INFORMATION

In order to determine net cash provided by operating activities, net income (loss) is adjusted by, among other things, changes in current assets and current liabilities as follows (in millions):

	Year Ended December 31,		
	2021	2020	2019
Decrease (increase) in current assets:			
Receivables, net	$ (4,382)	$ 2,773	$ (1,041)
Inventories	(253)	1,007	(385)
Prepaid expenses and other	(22)	101	—
Increase (decrease) in current liabilities:			
Accounts payable	6,301	(4,068)	1,534
Accrued expenses	253	48	(27)
Taxes other than income taxes payable	104	37	60
Income taxes payable	224	(243)	153
Changes in current assets and current liabilities	$ 2,225	$ (345)	$ 294

Changes in current assets and current liabilities for the year ended December 31, 2021 were primarily due to the following:

- The increase in receivables was primarily due to an increase in refined petroleum product prices in December 2021 compared to December 2020 combined with an increase in refined petroleum product sales volumes, partially offset by a decrease in income taxes receivable primarily associated with the receipt of a $962 million refund related to our U.S. federal income tax return for 2020; and

- The increase in accounts payable was primarily due to an increase in crude oil and other feedstock prices in December 2021 compared to December 2020 combined with an increase in crude oil and other feedstock volumes purchased.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Changes in current assets and current liabilities for the year ended December 31, 2020 were primarily due to the following:

- The decrease in receivables was due to (i) a decrease of $3.3 billion as a result of a decrease in sales volumes combined with a decrease in the prices of our products in December 2020 compared to December 2019 and (ii) the collection of $449 million for a blender's tax credit receivable attributable to volumes blended during 2019 and 2018, partially offset by an increase in income taxes receivable of $1.0 billion primarily due to the recognition of a current income tax benefit;

- The decrease in inventories was primarily due to a reduction of higher-cost inventory volumes in our Refining segment in December 2020 compared to December 2019; and

- The decrease in accounts payable was due to a decrease in crude oil and other feedstock volumes purchased combined with a decrease in crude oil and other feedstock prices in December 2020 compared to December 2019.

Changes in current assets and current liabilities for the year ended December 31, 2019 were primarily due to the following:

- The increase in receivables was due to (i) an increase in the prices of our products and sales volumes in December 2019 compared to December 2018 and (ii) a receivable of $449 million for the blender's tax credit attributable to volumes blended during 2019 and 2018, partially offset by an income tax refund of $348 million, including interest, associated with the settlement of the combined audit related to our U.S. federal income tax returns for 2010 and 2011;

- The increase in inventories was due to an increase in inventory unit prices and higher inventory levels in December 2019 compared to December 2018;

- The increase in accounts payable was due to an increase in crude oil and other feedstock prices in December 2019 compared to December 2018 combined with an increase in crude oil and other feedstock volumes purchased and the timing of payments of invoices; and

- The increase in income taxes payable was primarily due to higher pre-tax income in the fourth quarter of 2019.

Cash flows related to interest and income taxes were as follows (in millions):

	Year Ended December 31,		
	2021	2020	2019
Interest paid in excess of amount capitalized, including interest on finance leases	$ 598	$ 526	$ 452
Income taxes paid (refunded), net (see Note 16)	(842)	203	(116)

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Supplemental cash flow information related to our operating and finance leases was as follows (in millions):

	Year Ended December 31,					
	2021		2020		2019	
	Operating Leases	Finance Leases	Operating Leases	Finance Leases	Operating Leases	Finance Leases
Cash paid for amounts included in the measurement of lease liabilities:						
Operating cash flows	$ 397	$ 72	$ 444	$ 97	$ 441	$ 50
Investing cash flows	1	—	1	—	1	—
Financing cash flows	—	135	—	80	—	40
Changes in lease balances resulting from new and modified leases (a)	451	378	263	950	1,756	239

(a) Noncash activity for the year ended December 31, 2020 primarily included approximately $800 million for a finance lease ROU asset and related liability recognized in connection with the terminaling agreement with MVP described in Note 6. Noncash activity for the year ended December 31, 2019 included $1.3 billion for operating lease ROU assets and related liabilities recorded on January 1, 2019 upon adoption of FASB Accounting Standards Codification Topic 842, "Leases," (Topic 842).

There were no significant noncash investing and financing activities during the years ended December 31, 2021 and 2020, except as noted in the table above.

Prior to our adoption of Topic 842 in 2019, we were considered the accounting owner of the MVP Terminal during its construction due to our membership interest in MVP and because we determined that the terminaling agreement was a capital lease. Accordingly, as of December 31, 2018, we had recorded an asset of $539 million in property, plant, and equipment representing 100 percent of the construction costs incurred by MVP, as well as capitalized interest incurred by us, and a long-term liability of $292 million payable to Magellan.

On January 1, 2019, as a result of our adoption of Topic 842, we derecognized the asset and liability related to MVP discussed above and recorded our equity investment in MVP of $247 million, which is included in "deferred charges and other assets, net." These amounts were noncash investing and financing activities for the year ended December 31, 2019.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

20. FAIR VALUE MEASUREMENTS

General

GAAP requires or permits certain assets and liabilities to be measured at fair value on a recurring or nonrecurring basis in our balance sheets, and those assets and liabilities are presented below under "*Recurring Fair Value Measurements*" and "*Nonrecurring Fair Value Measurements*." Assets and liabilities measured at fair value on a recurring basis, such as derivative financial instruments, are measured at fair value at the end of each reporting period. Assets and liabilities measured at fair value on a nonrecurring basis, such as the impairment of property, plant and equipment, are measured at fair value in particular circumstances.

GAAP also requires the disclosure of the fair values of financial instruments when an option to elect fair value accounting has been provided, but such election has not been made. A debt obligation is an example of such a financial instrument. The disclosure of the fair values of financial instruments not recognized at fair value in our balance sheet is presented below under "*Other Financial Instruments*."

GAAP provides a framework for measuring fair value and establishes a three-level fair value hierarchy that prioritizes inputs to valuation techniques based on the degree to which objective prices in external active markets are available to measure fair value. The following is a description of each of the levels of the fair value hierarchy.

- *Level 1* - Observable inputs, such as unadjusted quoted prices in active markets for identical assets or liabilities.
- *Level 2* - Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly. These include quoted prices for similar assets or liabilities in active markets and quoted prices for identical or similar assets or liabilities in markets that are not active.
- *Level 3* - Unobservable inputs for the asset or liability. Unobservable inputs reflect our own assumptions about what market participants would use to price the asset or liability. The inputs are developed based on the best information available in the circumstances, which might include occasional market quotes or sales of similar instruments or our own financial data such as internally developed pricing models, discounted cash flow methodologies, as well as instruments for which the fair value determination requires significant judgment.

VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Recurring Fair Value Measurements

The following tables present information (in millions) about our assets and liabilities recognized at their fair values in our balance sheets categorized according to the fair value hierarchy of the inputs utilized by us to determine the fair values as of December 31, 2021 and 2020.

We have elected to offset the fair value amounts recognized for multiple similar derivative contracts executed with the same counterparty, including any related cash collateral assets or obligations as shown below; however, fair value amounts by hierarchy level are presented in the following tables on a gross basis. We have no derivative contracts that are subject to master netting arrangements that are reflected gross on the balance sheet.

	December 31, 2021							
	Fair Value Hierarchy			Total Gross Fair Value	Effect of Counter-party Netting	Effect of Cash Collateral Netting	Net Carrying Value on Balance Sheet	Cash Collateral Paid or Received Not Offset
	Level 1	Level 2	Level 3					
Assets								
Commodity derivative contracts	$ 522	$ —	$ —	$ 522	$ (444)	$ (15)	$ 63	$ —
Physical purchase contracts	—	4	—	4	n/a	n/a	4	n/a
Foreign currency contracts	1	—	—	1	n/a	n/a	1	n/a
Investments of certain benefit plans	83	—	6	89	n/a	n/a	89	n/a
Total	$ 606	$ 4	$ 6	$ 616	$ (444)	$ (15)	$ 157	
Liabilities								
Commodity derivative contracts	$ 472	$ —	$ —	$ 472	$ (444)	$ (28)	$ —	$ (41)
Blending program obligations	—	57	—	57	n/a	n/a	57	n/a
Physical purchase contracts	—	5	—	5	n/a	n/a	5	n/a
Foreign currency contracts	10	—	—	10	n/a	n/a	10	n/a
Total	$ 482	$ 62	$ —	$ 544	$ (444)	$ (28)	$ 72	

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

	December 31, 2020							
	Fair Value Hierarchy			Total Gross Fair Value	Effect of Counter-party Netting	Effect of Cash Collateral Netting	Net Carrying Value on Balance Sheet	Cash Collateral Paid or Received Not Offset
	Level 1	Level 2	Level 3					
Assets								
Commodity derivative contracts	$ 403	$ —	$ —	$ 403	$ (373)	$ (18)	$ 12	$ —
Physical purchase contracts	—	13	—	13	n/a	n/a	13	n/a
Investments of certain benefit plans	74	—	8	82	n/a	n/a	82	n/a
Total	$ 477	$ 13	$ 8	$ 498	$ (373)	$ (18)	$ 107	
Liabilities								
Commodity derivative contracts	$ 405	$ —	$ —	$ 405	$ (373)	$ (32)	$ —	$ (44)
Blending program obligations	—	96	—	96	n/a	n/a	96	n/a
Foreign currency contracts	4	—	—	4	n/a	n/a	4	n/a
Total	$ 409	$ 96	$ —	$ 505	$ (373)	$ (32)	$ 100	

A description of our assets and liabilities recognized at fair value along with the valuation methods and inputs we used to develop their fair value measurements are as follows:

- Commodity derivative contracts consist primarily of exchange-traded futures, which are used to reduce the impact of price volatility on our results of operations and cash flows as discussed in Note 21. These contracts are measured at fair value using a market approach based on quoted prices from the commodity exchange and are categorized in Level 1 of the fair value hierarchy.

- Physical purchase contracts represent the fair value of fixed-price corn purchase contracts. The fair values of these purchase contracts are measured using a market approach based on quoted prices from the commodity exchange or an independent pricing service and are categorized in Level 2 of the fair value hierarchy.

- Foreign currency contracts consist of foreign currency exchange and purchase contracts and foreign currency swap agreements related to our foreign operations to manage our exposure to exchange rate fluctuations on transactions denominated in currencies other than the local (functional) currencies of our operations. These contracts are valued based on quoted foreign currency exchange rates and are categorized in Level 1 of the fair value hierarchy.

- Investments of certain benefit plans consist of investment securities held by trusts for the purpose of satisfying a portion of our obligations under certain U.S. nonqualified benefit plans. The plan assets categorized in Level 1 of the fair value hierarchy are measured at fair value using a market approach based on quoted prices from national securities exchanges. The plan assets categorized

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in Level 3 of the fair value hierarchy represent insurance contracts, the fair value of which is provided by the insurer.

- Blending program obligations represent our liability for the purchase of compliance credits needed to satisfy our blending obligations under the Renewable and Low-Carbon Fuel Blending Programs. The blending program obligations are categorized in Level 2 of the fair value hierarchy and are measured at fair value using a market approach based on quoted prices from an independent pricing service.

Nonrecurring Fair Value Measurements

There were no assets or liabilities that were measured at fair value on a nonrecurring basis as of December 31, 2021 and 2020.

Other Financial Instruments

Financial instruments that we recognize in our balance sheets at their carrying amounts are shown in the following table along with their associated fair values (in millions):

		December 31, 2021		December 31, 2020	
	Fair Value Hierarchy	Carrying Amount	Fair Value	Carrying Amount	Fair Value
Financial assets:					
Cash and cash equivalents	Level 1	$ 4,122	$ 4,122	$ 3,313	$ 3,313
Financial liabilities:					
Debt (excluding finance leases)	Level 2	11,950	13,668	13,013	15,103

21. PRICE RISK MANAGEMENT ACTIVITIES

We are exposed to market risks primarily related to the volatility in the price of commodities, foreign currency exchange rates, and the price of credits needed to comply with the Renewable and Low-Carbon Fuel Blending Programs. We enter into derivative instruments to manage some of these risks, including derivative instruments related to the various commodities we purchase or produce, and foreign currency exchange and purchase contracts, as described below under "*Risk Management Activities by Type of Risk.*" These derivative instruments are recorded as either assets or liabilities measured at their fair values (see Note 20), as summarized below under "*Fair Values of Derivative Instruments*." The effect of these derivative instruments on our income and other comprehensive income is summarized below under "*Effect of Derivative Instruments on Income and Other Comprehensive Income*."

Risk Management Activities by Type of Risk

Commodity Price Risk

We are exposed to market risks related to the volatility in the price of feedstocks (primarily crude oil, waste and renewable feedstocks, and corn), the products we produce, and natural gas used in our operations. To reduce the impact of price volatility on our results of operations and cash flows, we use commodity derivative instruments, such as futures and options. Our positions in commodity derivative instruments are monitored and managed on a daily basis by our risk control group to ensure compliance with our stated risk management policy that has been approved by our Board.

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We primarily use commodity derivative instruments as cash flow hedges and economic hedges. Our objectives for entering into each type of hedge is described below.

- *Cash flow hedges* – The objective of our cash flow hedges is to lock in the price of forecasted purchases and/or product sales at existing market prices that we deem favorable.

- *Economic hedges* – Our objectives for holding economic hedges are to (i) manage price volatility in certain feedstock and product inventories and (ii) lock in the price of forecasted purchases and/or product sales at existing market prices that we deem favorable.

As of December 31, 2021, we had the following outstanding commodity derivative instruments that were used as cash flow hedges and economic hedges, as well as commodity derivative instruments related to the physical purchase of corn at a fixed price. The information presents the notional volume of outstanding contracts by type of instrument and year of maturity (volumes in thousands of barrels, except corn contracts that are presented in thousands of bushels).

	Notional Contract Volumes by Year of Maturity
	2022
Derivatives designated as cash flow hedges:	
Refined petroleum products:	
Futures – long	525
Futures – short	3,385
Derivatives designated as economic hedges:	
Crude oil and refined petroleum products:	
Futures – long	50,234
Futures – short	51,001
Corn:	
Futures – long	46,850
Futures – short	89,765
Physical contracts – long	41,360

Foreign Currency Risk

We are exposed to exchange rate fluctuations on transactions related to our foreign operations that are denominated in currencies other than the local (functional) currencies of our operations. To manage our exposure to these exchange rate fluctuations, we often use foreign currency contracts. These contracts are not designated as hedging instruments for accounting purposes and therefore are classified as economic hedges. As of December 31, 2021, we had foreign currency contracts to purchase $707 million of U.S. dollars and $1.2 billion of U.S. dollar equivalent Canadian dollars. Of these commitments, $1.7 billion matured on or before February 15, 2022 and the remaining $200 million will mature by February 28, 2022.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Renewable and Low-Carbon Fuel Blending Programs Price Risk

We are exposed to market risk related to the volatility in the price of credits needed to comply with the Renewable and Low-Carbon Fuel Blending Programs. To manage this risk, we enter into contracts to purchase these credits. Some of these contracts are derivative instruments; however, we elect the normal purchase exception and do not record these contracts at their fair values. The Renewable and Low-Carbon Fuel Blending Programs require us to blend a certain volume of renewable and low-carbon fuels into the petroleum-based transportation fuels we produce in, or import into, the respective jurisdiction to be consumed therein based on annual quotas. To the degree we are unable to blend at the required quotas, we must purchase compliance credits (primarily RINs). For the years ended December 31, 2021, 2020, and 2019, the cost of meeting our credit obligations under the Renewable and Low-Carbon Fuel Blending Programs was $2.1 billion, $767 million, and $368 million, respectively, which are reflected in cost of materials and other. Of these costs, $145 million, $119 million, and $50 million, respectively, were recovered directly from our customers.

Fair Values of Derivative Instruments

The following tables provide information about the fair values of our derivative instruments as of December 31, 2021 and 2020 (in millions) and the line items in the balance sheets in which the fair values are reflected. See Note 20 for additional information related to the fair values of our derivative instruments.

As indicated in Note 20, we net fair value amounts recognized for multiple similar derivative contracts executed with the same counterparty under master netting arrangements, including cash collateral assets and obligations. The following table, however, is presented on a gross asset and gross liability basis, which results in the reflection of certain assets in liability accounts and certain liabilities in asset accounts:

		December 31, 2021		December 31, 2020	
	Balance Sheet Location	Asset Derivatives	Liability Derivatives	Asset Derivatives	Liability Derivatives
Derivatives designated as hedging instruments:					
Commodity contracts	Receivables, net	$ 3	$ 26	$ 4	$ 17
Derivatives not designated as hedging instruments:					
Commodity contracts	Receivables, net	$ 519	$ 446	$ 399	$ 388
Physical purchase contracts	Inventories	4	5	13	—
Foreign currency contracts	Receivables, net	1	—	—	—
Foreign currency contracts	Accrued expenses	—	10	—	4
Total		$ 524	$ 461	$ 412	$ 392

Market Risk

Our price risk management activities involve the receipt or payment of fixed price commitments into the future. These transactions give rise to market risk, which is the risk that future changes in market conditions may make an instrument less valuable. We closely monitor and manage our exposure to market risk on a daily basis in accordance with policies approved by our Board. Market risks are

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monitored by our risk control group to ensure compliance with our stated risk management policy. We do not require any collateral or other security to support derivative instruments into which we enter. We also do not have any derivative instruments that require us to maintain a minimum investment-grade credit rating.

Effect of Derivative Instruments on Income and Other Comprehensive Income

The following table provides information about the gain (loss) recognized in income and other comprehensive income due to fair value adjustments of our cash flow hedges (in millions):

Derivatives in Cash Flow Hedging Relationships	Location of Gain (Loss) Recognized in Income on Derivatives	Year Ended December 31, 2021	2020	2019
Commodity contracts:				
Gain (loss) recognized in other comprehensive income (loss) on derivatives	n/a	$ (44)	$ 38	$ (6)
Gain (loss) reclassified from accumulated other comprehensive loss into income	Revenues	(46)	34	2

For cash flow hedges, no component of any derivative instrument's gains or losses was excluded from the assessment of hedge effectiveness for the years ended December 31, 2021, 2020, and 2019. For the years ended December 31, 2021, 2020, and 2019, cash flow hedges primarily related to forward sales of renewable diesel. The estimated deferred after-tax loss that is expected to be reclassified into revenues over the next 12 months as a result of the hedged transactions that are forecasted to occur as of December 31, 2021 was immaterial. For the years ended December 31, 2021, 2020, and 2019, there were no amounts reclassified from accumulated other comprehensive loss into income as a result of the discontinuance of cash flow hedge accounting. The changes in accumulated other comprehensive loss by component, net of tax, for the years ended December 31, 2021, 2020, and 2019 are described in Note 12.

The following table provides information about the gain (loss) recognized in income on our derivative instruments with respect to our economic hedges and our foreign currency hedges and the line items in the statements of income in which such gains (losses) are reflected (in millions):

Derivatives Not Designated as Hedging Instruments	Location of Gain (Loss) Recognized in Income on Derivatives	Year Ended December 31, 2021	2020	2019
Commodity contracts	Revenues	$ 28	$ —	$ 5
Commodity contracts	Cost of materials and other	(86)	99	(68)
Commodity contracts	Operating expenses (excluding depreciation and amortization expense)	54	2	—
Foreign currency contracts	Cost of materials and other	9	27	(21)
Foreign currency contracts	Other income, net	44	(13)	75

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ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

Our management has evaluated, with the participation of our principal executive officer and principal financial officer, the effectiveness of our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934) as of the end of the period covered by this report, and has concluded that our disclosure controls and procedures were effective as of December 31, 2021.

Internal Control over Financial Reporting

(a) Management's Report on Internal Control over Financial Reporting.

The management report on our internal control over financial reporting required by this item appears in "ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA" on page 66 of this report, and is incorporated by reference into this item.

(b) Attestation Report of the Independent Registered Public Accounting Firm.

KPMG LLP's report on our internal control over financial reporting appears in "ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA" beginning on page 69 of this report, and is incorporated by reference into this item.

(c) Changes in Internal Control over Financial Reporting.

There has been no change in our internal control over financial reporting that occurred during our last fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

None.

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not applicable.

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PART III

ITEMS 10-14.

The information required by ITEMS 10 through 14 of Form 10-K is incorporated by reference into these items to the definitive proxy statement for our 2022 annual meeting of stockholders. We expect to file the proxy statement with the SEC on or before March 31, 2022. No other information other than what is required to satisfy ITEMS 10 through 14 of Form 10-K is incorporated by reference into these items from such proxy statement. See the cross-reference sheet on page "i."

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) 1. Financial Statements. The following are included in "ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA" of this Form 10-K:

	Page
Management's report on internal control over financial reporting	66
Reports of independent registered public accounting firm Auditor name: KPMG LLP; Auditor Firm ID: 185; Auditor location: San Antonio, Texas	67
Consolidated balance sheets as of December 31, 2021 and 2020	71
Consolidated statements of income for the years ended December 31, 2021, 2020, and 2019	72
Consolidated statements of comprehensive income for the years ended December 31, 2021, 2020, and 2019	73
Consolidated statements of equity for the years ended December 31, 2021, 2020, and 2019	74
Consolidated statements of cash flows for the years ended December 31, 2021, 2020, and 2019	75
Notes to consolidated financial statements	76

2. Financial Statement Schedules and Other Financial Information. No financial statement schedules are submitted because either they are inapplicable or because the required information is included in the consolidated financial statements or notes thereto.

3. Exhibits. Filed as part of this Form 10-K are the following exhibits:

Index to Exhibits

++2.01 — Agreement and Plan of Merger, dated as of October 18, 2018, by and among Valero Energy Corporation; Forest Merger Sub, LLC; Valero Energy Partners LP; and Valero Energy Partners GP LLC–incorporated by reference to Exhibit 2.1 to Valero's current report on Form 8-K dated and filed October 18, 2018 (SEC File No. 001-13175).

3.01 — Amended and Restated Certificate of Incorporation of Valero Energy Corporation, formerly known as Valero Refining and Marketing Company–incorporated by reference to Exhibit 3.1 to Valero's Registration Statement on Form S-1 (SEC File No. 333-27013) filed May 13, 1997.

3.02 — Certificate of Amendment (July 31, 1997) to Restated Certificate of Incorporation of Valero Energy Corporation–incorporated by reference to Exhibit 3.02 to Valero's annual report on Form 10-K for the year ended December 31, 2003 (SEC File No. 001-13175).

3.03 — Certificate of Merger of Ultramar Diamond Shamrock Corporation with and into Valero Energy Corporation dated December 31, 2001–incorporated by reference to Exhibit 3.03 to Valero's annual report on Form 10-K for the year ended December 31, 2003 (SEC File No. 001-13175).

3.04 — Amendment (effective December 31, 2001) to Restated Certificate of Incorporation of Valero Energy Corporation–incorporated by reference to Exhibit 3.1 to Valero's current report on Form 8-K dated December 31, 2001, and filed January 11, 2002 (SEC File No. 001-13175).

3.05 — Second Certificate of Amendment (effective September 17, 2004) to Restated Certificate of Incorporation of Valero Energy Corporation–incorporated by reference to Exhibit 3.04 to Valero's quarterly report on Form 10-Q for the quarter ended September 30, 2004 (SEC File No. 001-13175).

3.06 — Certificate of Merger of Premcor Inc. with and into Valero Energy Corporation effective September 1, 2005–incorporated by reference to Exhibit 2.01 to Valero's quarterly report on Form 10-Q for the quarter ended September 30, 2005 (SEC File No. 001-13175).

3.07 — Third Certificate of Amendment (effective December 2, 2005) to Restated Certificate of Incorporation of Valero Energy Corporation–incorporated by reference to Exhibit 3.07 to Valero's annual report on Form 10-K for the year ended December 31, 2005 (SEC File No. 001-13175).

3.08 — Fourth Certificate of Amendment (effective May 24, 2011) to Restated Certificate of Incorporation of Valero Energy Corporation–incorporated by reference to Exhibit 4.8 to Valero's current report on Form 8-K dated and filed May 24, 2011 (SEC File No. 001-13175).

3.09 — Fifth Certificate of Amendment (effective May 13, 2016) to Restated Certificate of Incorporation of Valero Energy Corporation–incorporated by reference to Exhibit 3.02 to Valero's current report on Form 8-K dated May 12, 2016, and filed May 18, 2016 (SEC File No. 001-13175).

3.10 — Amended and Restated Bylaws of Valero Energy Corporation–incorporated by reference to Exhibit 3.01 to Valero's current report on Form 8-K dated September 20, 2017 and filed September 21, 2017 (SEC File No. 001-13175).

4.01 — Indenture dated as of December 12, 1997 between Valero Energy Corporation and The Bank of New York–incorporated by reference to Exhibit 3.4 to Valero's Registration Statement on Form S-3 (SEC File No. 333-56599) filed June 11, 1998.

4.02 — Indenture (Senior Indenture) dated as of June 18, 2004 between Valero Energy Corporation and Bank of New York–incorporated by reference to Exhibit 4.7 to Valero's Registration Statement on Form S-3 (SEC File No. 333-116668) filed June 21, 2004.

4.03 — Form of Indenture related to subordinated debt securities–incorporated by reference to Exhibit 4.8 to Valero's Registration Statement on Form S-3 (SEC File No. 333-116668) filed June 21, 2004.

4.04 — Indenture dated as of March 10, 2015 between Valero Energy Corporation and U.S. Bank National Association, as trustee-incorporated by reference to Exhibit 4.1 to Valero's Registration Statement on Form S-3 (SEC File No. 333-202635) filed March 10, 2015.

4.05 — Indenture, dated as of November 30, 2016, between Valero Energy Partners LP, as issuer, and U.S. Bank National Association, as trustee–incorporated by reference to Exhibit 4.1 to Valero Energy Partners LP's Post-Effective Amendment No. 1 to Registration Statement on Form S-3 (Registration File No. 333-208052) filed November 30, 2016.

4.06 — First Supplemental Indenture (with Parent Guarantee), dated as of January 10, 2019, among Valero Energy Partners LP, as issuer; Valero Energy Corporation, as parent guarantor; and U.S. Bank National Association, as trustee–incorporated by reference to Exhibit 4.2 to Valero's current report on Form 8-K dated and filed January 10, 2019 (SEC File No. 001-13175).

4.07 — Specimen Certificate of Common Stock–incorporated by reference to Exhibit 4.1 to Valero's Registration Statement on Form S-3 (SEC File No. 333-116668) filed June 21, 2004.

4.08 — Description of Valero Energy Corporation common stock, $0.01 par value–incorporated by reference to Exhibit 4.09 to Valero's annual report on Form 10-K for the year ended December 31, 2019 (SEC File No. 001-13175).

+10.01 — Valero Energy Corporation Annual Bonus Plan, amended and restated as of February 28, 2018–incorporated by reference to Exhibit 10.01 to Valero's annual report on Form 10-K for the year ended December 31, 2017 (SEC File No. 001-13175).

+10.02 — Valero Energy Corporation 2011 Omnibus Stock Incentive Plan, amended and restated February 25, 2016–incorporated by reference to Exhibit 10.04 to Valero's annual report on Form 10-K for the year ended December 31, 2015 (SEC File No. 001-13175).

+10.03 — Valero Energy Corporation 2020 Omnibus Stock Incentive Plan–incorporated by reference to Appendix A to Valero's Definitive Proxy Statement on Schedule 14A, filed March 19, 2020 (SEC File No. 001-13175).

*+10.04 — Amendment No. 1 to the Valero Energy Corporation 2020 Omnibus Stock Incentive Plan effective October 1, 2021.

+10.05 — Valero Energy Corporation Deferred Compensation Plan, amended and restated as of January 1, 2008–incorporated by reference to Exhibit 10.04 to Valero's annual report on Form 10-K for the year ended December 31, 2008 (SEC File No. 001-13175).

+10.06 — Valero Energy Corporation Amended and Restated Supplemental Executive Retirement Plan, amended and restated as of November 10, 2008–incorporated by reference to Exhibit 10.08 to Valero's annual report on Form 10-K for the year ended December 31, 2008 (SEC File No. 001-13175).

+10.07 — Valero Energy Corporation Excess Pension Plan, as amended and restated effective December 31, 2011–incorporated by reference to Exhibit 10.10 to Valero's annual report on Form 10-K for the year ended December 31, 2011 (SEC File No. 001-13175).

+10.08 — Form of Change of Control Severance Agreement (Tier I) between Valero Energy Corporation and executive officer–incorporated by reference to Exhibit 10.15 to Valero's annual report on Form 10-K for the year ended December 31, 2011 (SEC File No. 001-13175).

+10.09 — Form of Amendment (dated January 7, 2013) to Change of Control Severance Agreements (to eliminate excise tax gross-up benefit)–incorporated by reference to Exhibit 10.17 to Valero's annual report on Form 10-K for the year ended December 31, 2012 (SEC File No. 001-13175).

+10.10 — Form of Change of Control Severance Agreement (Tier II-A) between Valero Energy Corporation and executive officer–incorporated by reference to Exhibit 10.02 to Valero's current report on Form 8-K dated November 2, 2016, and filed November 7, 2016 (SEC File No. 001-13175).

+10.11 — Schedule of Tier II-A Change of Control Agreements–incorporated by reference to Exhibit 10.10 to Valero's annual report on Form 10-K for the year ended December 31, 2020 (SEC File No. 001-13175).

+10.12 — Form of Amendment (dated January 17, 2017) to Change of Control Severance Agreements, amending Section 9 thereof–incorporated by reference to Exhibit 10.01 to Valero's current report on Form 8-K dated and filed January 17, 2017 (SEC File No. 001-13175).

+10.13 — Form of Performance Share Agreement (2019 and prior outstanding grants)–incorporated by reference to Exhibit 10.13 to Valero's annual report on Form 10-K for the year ended December 31, 2019 (SEC File No. 001-13175).

+10.14 — Form of Performance Share Agreement (2020 grant–first tranche)–incorporated by reference to Exhibit 10.13 to Valero's annual report on Form 10-K for the year ended December 31, 2020 (SEC File No. 001-13175).

+10.15 — Form of Stock Option Agreement–incorporated by reference to Exhibit 10.21 to Valero's annual report on Form 10-K for the year ended December 31, 2011 (SEC File No. 001-13175).

+10.16 — Form of Performance Stock Option Agreement–incorporated by reference to Exhibit 10.21 to Valero's annual report on Form 10-K for the year ended December 31, 2012 (SEC File No. 001-13175).

+10.17 — Form of Restricted Stock Agreement (2019 and prior outstanding grants)–incorporated by reference to Exhibit 10.25 to Valero's annual report on Form 10-K for the year ended December 31, 2012 (SEC File No. 001-13175).

+10.18 — Form of Restricted Stock Agreement (2020 and 2021 grants)–incorporated by reference to Exhibit 10.17 to Valero's annual report on Form 10-K for the year ended December 31, 2020 (SEC File No. 001-13175).

+10.19	—	Long-Term Incentive Agreement dated as of December 18, 2019, between Valero Energy Corporation and R. Lane Riggs–incorporated by reference to Exhibit 10.17 to Valero's annual report on Form 10-K for the year ended December 31, 2019 (SEC File No. 001-13175).
+10.20	—	Letter Agreement, dated June 18, 2020, between Valero Energy Corporation and Donna M. Titzman–incorporated by reference to Exhibit 10.1 to Valero's current report on Form 8-K dated June 18, 2020, and filed June 22, 2020 (SEC File No. 001-13175).
+10.21	—	Form of Stock Unit Award Agreement for Non-Employee Directors (standard)-incorporated by reference to Exhibit 10.01 to Valero's current report on Form 8-K dated April 30, 2019, and filed May 1, 2019 (SEC File No. 001-13175).
+10.22	—	Form of Stock Unit Award Agreement for Non-Employee Directors (with one-year hold provision)-incorporated by reference to Exhibit 10.02 to Valero's current report on Form 8-K dated April 30, 2019, and filed May 1, 2019 (SEC File No. 001-13175).
10.23	—	Fourth Amended and Restated Revolving Credit Agreement, dated as of March 19, 2019, among Valero Energy Corporation, as Borrower; JPMorgan Chase Bank, N.A., as Administrative Agent; and the lenders named therein–incorporated by reference to Exhibit 10.1 to Valero's current report on Form 8-K dated March 19, 2019, and filed March 19, 2019 (SEC File No. 001-13175).
+10.24	—	Form of Amended and Restated Performance Share Agreement (2020 grant–second and third tranches)–incorporated by reference to Exhibit 10.01 to Valero's quarterly report on Form 10-Q for the quarter ended March 31, 2021 (SEC File No. 001-13175).
+10.25	—	Form of Performance Share Agreement (2021 grant and current)–incorporated by reference to Exhibit 10.02 to Valero's quarterly report on Form 10-Q for the quarter ended March 31, 2021 (SEC File No. 001-13175).
*+10.26	—	Form of Restricted Stock Agreement (current).
14.01	—	Code of Ethics for Senior Financial Officers–incorporated by reference to Exhibit 14.01 to Valero's annual report on Form 10-K for the year ended December 31, 2003 (SEC File No. 001-13175).
14.02	—	Valero Energy Corporation Code of Business Conduct and Ethics–incorporated by reference to Exhibit 14.1 to Valero's current report on Form 8-K dated January 26, 2021, and filed January 29, 2021 (SEC File No. 001-13175).
*21.01	—	Valero Energy Corporation subsidiaries.
22.01	—	Subsidiary Issuer of Guaranteed Securities–incorporated by reference to Exhibit 22.01 to Valero's annual report on Form 10-K for the year ended December 31, 2020 (SEC File No. 001-13175).
*23.01	—	Consent of KPMG LLP dated February 22, 2022.
*24.01	—	Power of Attorney dated February 22, 2022 (on the signature page of this Form 10-K).
*31.01	—	Rule 13a-14(a) Certification (under Section 302 of the Sarbanes-Oxley Act of 2002) of principal executive officer.
*31.02	—	Rule 13a-14(a) Certification (under Section 302 of the Sarbanes-Oxley Act of 2002) of principal financial officer.
**32.01	—	Section 1350 Certifications (under Section 906 of the Sarbanes-Oxley Act of 2002).
99.01	—	Audit Committee Pre-Approval Policy–incorporated by reference to Exhibit 99.01 to Valero's annual report on Form 10-K for the year ended December 31, 2020 (SEC File No. 001-13175).
***101.INS	—	Inline XBRL Instance Document–the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
***101.SCH	—	Inline XBRL Taxonomy Extension Schema Document.
***101.CAL	—	Inline XBRL Taxonomy Extension Calculation Linkbase Document.
***101.DEF	—	Inline XBRL Taxonomy Extension Definition Linkbase Document.
***101.LAB	—	Inline XBRL Taxonomy Extension Label Linkbase Document.

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***101.PRE — Inline XBRL Taxonomy Extension Presentation Linkbase Document.

***104 — Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).

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* Filed herewith.

** Furnished herewith.

*** Submitted electronically herewith.

\+ Identifies management contracts or compensatory plans or arrangements required to be filed as an exhibit hereto.

++ Certain schedules have been omitted pursuant to Item 601(b)(2) of Regulation S-K. The registrant agrees to furnish supplementally a copy of any such omitted schedule to the SEC upon request.

Pursuant to paragraph 601(b)(4)(iii)(A) of Regulation S-K, the registrant has omitted from the foregoing listing of exhibits, and hereby agrees to furnish to the SEC upon its request, copies of certain instruments, each relating to debt not exceeding 10 percent of the total assets of the registrant and its subsidiaries on a consolidated basis.

ITEM 16. FORM 10-K SUMMARY

None.

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SIGNATURE

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

VALERO ENERGY CORPORATION
(Registrant)

By: /s/ Joseph W. Gorder
(Joseph W. Gorder)
Chairman of the Board
and Chief Executive Officer

Date: February 22, 2022

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POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints Joseph W. Gorder, Jason W. Fraser, and Richard J. Walsh, or any of them, each with power to act without the other, his true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to sign any or all subsequent amendments and supplements to this annual report on Form 10-K, and to file the same, or cause to be filed the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto each said attorney-in-fact and agent full power to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby qualifying and confirming all that said attorney-in-fact and agent or his substitute or substitutes may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Joseph W. Gorder (Joseph W. Gorder)	Chairman of the Board and Chief Executive Officer (Principal Executive Officer)	February 22, 2022
/s/ Jason W. Fraser (Jason W. Fraser)	Executive Vice President and Chief Financial Officer (Principal Financial and Accounting Officer)	February 22, 2022
/s/ Fred M. Diaz (Fred M. Diaz)	Director	February 22, 2022
/s/ H. Paulett Eberhart (H. Paulett Eberhart)	Director	February 22, 2022
/s/ Kimberly S. Greene (Kimberly S. Greene)	Director	February 22, 2022
/s/ Deborah P. Majoras (Deborah P. Majoras)	Director	February 22, 2022
/s/ Eric D. Mullins (Eric D. Mullins)	Director	February 22, 2022
/s/ Donald L. Nickles (Donald L. Nickles)	Director	February 22, 2022
/s/ Philip J. Pfeiffer (Philip J. Pfeiffer)	Director	February 22, 2022
/s/ Robert A. Profusek (Robert A. Profusek)	Director	February 22, 2022
/s/ Stephen M. Waters (Stephen M. Waters)	Director	February 22, 2022
/s/ Randall J. Weisenburger (Randall J. Weisenburger)	Director	February 22, 2022
/s/ Rayford Wilkins, Jr. (Rayford Wilkins, Jr.)	Director	February 22, 2022