VALERO ENERGY CORP/TX
Form 10-K
February 23, 2017
FORM 10-K
UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
(Mark One)
þ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2016
OR
o 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 1-13175
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 (Address of principal executive offices)	78249 (Zip Code)
Registrant's telephone number, including area code: (210) 345-2000	

Securities registered pursuant to Section 12(b) of the Act: Common stock, $0.01 par value per share listed on the 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 þ No o
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 o No þ
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 þ No o
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted 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 and post such files). Yes þ No o

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. þ

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

Large accelerated filer þ Accelerated filer o Non-accelerated filer o Smaller reporting company o

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

The aggregate market value of the voting and non-voting common stock held by non-affiliates was approximately $23.6 billion based on the last sales price quoted as of June 30, 2016 on the New York Stock Exchange, the last business day of the registrant's most recently completed second fiscal quarter.

As of January 31, 2017, 451,049,519 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 May 3, 2017, at which directors will be elected. Portions of the 2017 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 2017 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 2017 Proxy Statement
10.	Directors, Executive Officers and Corporate Governance	Information Regarding the Board of Directors, Independent Directors, Audit Committee, Proposal No. 1 Election of Directors, Information Concerning Nominees and Other Directors, Identification of Executive Officers, Section 16(a) Beneficial Ownership Reporting Compliance, and Governance Documents and Codes of Ethics
11.	Executive Compensation	Compensation Committee, Compensation Discussion and Analysis, Director Compensation, Executive Compensation, 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 Independent Directors
14.	Principal Accountant Fees and Services	KPMG LLP Fees and Audit Committee Pre-Approval Policy

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, to one or more of our consolidated subsidiaries, or to all 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 23 of this report under the heading: “CAUTIONARY STATEMENT FOR THE PURPOSE OF SAFE HARBOR PROVISIONS OF THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995.”

PART I

ITEMS 1. and 2. BUSINESS AND PROPERTIES

OVERVIEW

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 on August 1, 1997. Our common stock trades on the New York Stock Exchange (NYSE) under the symbol “VLO.” On January 31, 2017, we had 9,996 employees.

We own 15 petroleum refineries located in the United States (U.S.), Canada, and the United Kingdom (U.K.) with a combined throughput capacity of approximately 3.1 million barrels per day. Our refineries produce conventional gasolines, premium gasolines, gasoline meeting the specifications of the California Air Resources Board (CARB), diesel, low-sulfur diesel, ultra-low-sulfur diesel, CARB diesel, other distillates, jet fuel, asphalt, petrochemicals, lubricants, and other refined petroleum products. We sell our refined petroleum products in both the wholesale rack and bulk markets, and approximately 7,400 outlets carry our brand names in the U.S., Canada, the U.K., and Ireland. Most of our logistics assets support our refining operations, and some of these assets are owned by Valero Energy Partners LP (VLP), a midstream master limited partnership majority owned by us. We also own 11 ethanol plants in the Mid-Continent region of the U.S. with a combined production capacity of approximately 1.4 billion gallons per year. We sell our ethanol in the wholesale bulk market, and some of our logistics assets support our ethanol operations.

AVAILABLE INFORMATION

Our website address is www.valero.com. Information on our website is not part of this report. Our annual reports on Form 10-K, quarterly reports on Form 10-Q, and current reports on Form 8-K, and any amendments to those reports, filed with (or furnished to) the U.S. Securities and Exchange Commission (SEC) are available on our website (under “Investors”) free of charge, soon after we file or furnish such material. In this same location, we also post our corporate governance guidelines, codes of ethics, and the charters of the committees of our board of directors. 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.

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SEGMENTS

As of December 31, 2016, we had two reportable segments — refining and ethanol. The refining segment includes our refining operations, the associated marketing activities, and logistics assets that support our refining operations. The ethanol segment includes our ethanol operations, the associated marketing activities, and logistics assets that support our ethanol operations. Financial information about our segments is presented in Note 16 of Notes to Consolidated Financial Statements and is incorporated herein by reference.

Effective January 1, 2017, we revised our reportable segments to align with certain changes in how our chief operating decision maker manages and allocates resources to our business and created a new reportable segment — VLP. The results of VLP, which are those of our majority-owned master limited partnership referred to by the same name, were transferred from the refining segment.

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VALERO'S OPERATIONS

REFINING

Refining Operations

As of December 31, 2016, our refining operations included 15 petroleum refineries in the U.S., Canada, and the U.K., with a combined total throughput capacity of approximately 3.1 million barrels per day (BPD). The following table presents the locations of these refineries and their approximate feedstock throughput capacities as of December 31, 2016.

Refinery	Location	Throughput Capacity (a) (BPD)
U.S. Gulf Coast:		
Port Arthur	Texas	395,000
Corpus Christi (b)	Texas	370,000
St. Charles	Louisiana	340,000
Texas City	Texas	260,000
Houston	Texas	235,000
Meraux	Louisiana	135,000
Three Rivers	Texas	100,000
		1,835,000
U.S. Mid-Continent:		
McKee	Texas	200,000
Memphis	Tennessee	195,000
Ardmore	Oklahoma	90,000
		485,000
North Atlantic:		
Pembroke	Wales, U.K.	270,000
Quebec City	Quebec, Canada	235,000
		505,000
U.S. West Coast:		
Benicia	California	170,000
Wilmington	California	135,000
		305,000
Total		3,130,000

(a) "Throughput capacity" represents estimated capacity for processing crude oil, inter-mediates, 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.

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Total Refining System

The following table presents the percentages of principal charges and yields (on a combined basis) for all of our refineries for the year ended December 31, 2016, during which period our total combined throughput volumes averaged approximately 2.9 million BPD.

Combined Total Refining System Charges and Yields	
Charges:	
sour crude oil	32%
sweet crude oil	42%
residual fuel oil	10%
other feedstocks	5 %
blendstocks	11%
Yields:	
gasolines and blendstocks	49%
distillates	37%
other products (primarily includes petrochemicals, gas oils, No. 6 fuel oil, petroleum coke, sulfur and asphalt)	14%

U.S. Gulf Coast

The following table presents the percentages of principal charges and yields (on a combined basis) for the eight refineries in the U.S. Gulf Coast region for the year ended December 31, 2016, during which period total throughput volumes averaged approximately 1.7 million BPD.

Combined U.S. Gulf Coast Region Charges and Yields	
Charges:	
sour crude oil	43%
sweet crude oil	23%
residual fuel oil	15%
other feedstocks	7 %
blendstocks	12%
Yields:	
gasolines and blendstocks	46%
distillates	38%
other products (primarily includes petrochemicals, gas oils, No. 6 fuel oil, petroleum coke, sulfur and asphalt)	16%

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 or barges.

Corpus Christi East and West Refineries. Our Corpus Christi East and West Refineries are located on the Texas Gulf Coast along 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 or barge via deepwater docking facilities along 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

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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 or barge across docks and third-party pipelines.

St. Charles Refinery. Our St. Charles Refinery is located approximately 25 miles west of New Orleans along 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 can be shipped over these docks or through our Parkway pipeline or the Bengal pipeline, which ultimately provide access to the Plantation or Colonial pipeline networks.

Texas City Refinery. Our Texas City Refinery is located southeast of Houston on the Texas City 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 along the Texas City Ship Channel. The refinery uses ships and barges, as well as the Colonial, Explorer, and other pipelines for distribution of its products.

Houston Refinery. Our Houston Refinery is located on the Houston Ship Channel. It processes a mix of crude and intermediate oils into gasoline, jet fuel, and diesel. In 2016, we completed construction of and placed into service a new 90,000 BPD crude distillation unit. The refinery receives its feedstocks by tankers or barges at deepwater docking facilities along the Houston Ship Channel and by various interconnecting pipelines. 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.

Meraux Refinery. Our Meraux Refinery is located approximately 15 miles southeast of New Orleans along 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 can be shipped from the refinery’s dock or 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.

Three Rivers Refinery. Our Three Rivers Refinery is located in South Texas between Corpus Christi and San Antonio. It processes sweet and sour crude oils into gasoline, distillates, and aromatics. The refinery has access to crude oil from sources outside the U.S. delivered to the Texas Gulf Coast at Corpus Christi, as well as crude oil from local sources through third-party pipelines and trucks. The refinery distributes its refined petroleum products primarily through third-party pipelines.

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U.S. Mid-Continent

The following table presents the percentages of principal charges and yields (on a combined basis) for the three refineries in the U.S. Mid-Continent region for the year ended December 31, 2016, during which period total throughput volumes averaged approximately 452,000 BPD.

Combined U.S. Mid-Continent Region Charges and Yields	
Charges:	
sour crude oil	2 %
sweet crude oil	90%
blendstocks	8 %
Yields:	
gasolines and blendstocks	55%
distillates	35%
other products (primarily includes petrochemicals, gas oils, No. 6 fuel oil, and asphalt)	10%

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. The refinery distributes its products primarily via third-party pipelines to markets in Texas, New Mexico, Arizona, Colorado, and Oklahoma.

Memphis Refinery. Our Memphis Refinery is located in Tennessee along the Mississippi River. It processes primarily sweet crude oils. Most of its production is gasoline, diesel, and jet fuels. Crude oil is supplied to the refinery via the Capline pipeline and can also be received, along with other feedstocks, via barge. Most of the refinery's products are distributed via truck rack and barges.

Ardmore Refinery. Our Ardmore Refinery is located in Oklahoma, approximately 100 miles south of Oklahoma City. It processes medium sour and sweet crude oils into gasoline, diesel, and asphalt. The refinery receives local crude oil and feedstock supply via third-party pipelines. Refined petroleum products are transported to market via rail, trucks, and the Magellan pipeline system.

North Atlantic

The following table presents the percentages of principal charges and yields (on a combined basis) for the two refineries in the North Atlantic region for the year ended December 31, 2016, during which period total throughput volumes averaged approximately 483,000 BPD.

Combined North Atlantic Region Charges and Yields	
Charges:	
sour crude oil	4 %
sweet crude oil	82%
residual fuel oil	6 %
blendstocks	8 %
Yields:	
gasolines and blendstocks	46%
distillates	42%
other products (primarily includes petrochemicals, gas oils, and No. 6 fuel oil)	12%

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Pembroke Refinery. Our Pembroke Refinery is located in the County of Pembrokeshire in southwest Wales, U.K. 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 the majority of its products by ship and barge via deepwater docking facilities along the Milford Haven Waterway, with its remaining products being delivered by our Mainline pipeline system and by trucks.

Quebec City Refinery. Our Quebec City Refinery is located in Lévis, Canada (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 or by pipeline or ship 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.S. West Coast

The following table presents the percentages of principal charges and yields (on a combined basis) for the two refineries in the U.S. West Coast region for the year ended December 31, 2016, during which period total throughput volumes averaged approximately 267,000 BPD.

Combined U.S. West Coast Region Charges and Yields	
Charges:	
sour crude oil	69%
sweet crude oil	4 %
other feedstocks	12%
blendstocks	15%
Yields:	
gasolines and blendstocks	61%
distillates	23%
other products (primarily includes gas oil, No. 6 fuel oil, petroleum coke, sulfur and asphalt)	16%

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 CARBOB gasoline, 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, California. 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 can 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.

Feedstock Supply

Approximately 55 percent of our crude oil feedstock requirements are purchased through term contracts while the remaining requirements are generally purchased on the spot market. Our term supply agreements include arrangements to purchase feedstocks at market-related prices 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

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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 interconnect with common-carrier pipeline systems, allowing us to sell products in the U.S., Canada, the U.K., and other countries.

Wholesale Rack Sales

We sell branded and unbranded gasoline and distillate production, 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., and Ireland.

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 approximately 5,700 branded sites in the U.S., approximately 900 branded sites in the U.K. and Ireland, and approximately 800 branded sites in Canada. These sites are independently owned and are supplied by us under multi-year contracts. For branded sites, products are sold under the Valero®, Beacon®, Diamond Shamrock®, and Shamrock® brands in the U.S., the Texaco® brand in the U.K. and Ireland, and the Ultramar® brand in Canada.

Bulk Sales

We sell a significant portion of our gasoline and distillate production, 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 and traders as well as certain bulk end-users such as railroads, airlines, and utilities. Our bulk sales are transported primarily by pipeline, barges, and tankers to major tank farms and trading hubs.

We also enter into refined petroleum product exchange and purchase agreements. These agreements help minimize transportation costs, optimize refinery utilization, balance refined petroleum product availability, broaden geographic distribution, and provide access to markets not connected to our refined-product pipeline systems. Exchange agreements provide for the delivery of refined petroleum products by us to unaffiliated companies at our and third-parties' terminals in exchange for delivery of a similar amount of refined petroleum products to us by these unaffiliated companies at specified locations. Purchase agreements involve our purchase of refined petroleum products from third parties with delivery occurring at specified locations.

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. In addition, through subsidiaries, we own the 2.0 percent general partner interest and the majority of the limited partner interest in VLP. VLP's common units, representing limited partner interests, are traded on the NYSE under the symbol "VLP." Its assets support the operations of our Ardmore, Corpus Christi, Houston, McKee, Memphis, Meraux, Port Arthur, St. Charles, and Three Rivers Refineries. VLP is discussed more fully in Note 11 of Notes to Consolidated Financial Statements.

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ETHANOL

We own 11 ethanol plants with a combined ethanol production capacity of about 1.4 billion gallons per year. Our ethanol plants are dry mill facilities[1] that process corn to produce ethanol, distillers grains, and corn oil.[2] We source our corn supply from local farmers and commercial elevators. Our facilities receive corn primarily by rail and truck. We publish on our website a corn bid for local farmers and cooperative dealers to use to facilitate corn supply transactions.

We sell our ethanol primarily to refiners and gasoline blenders under term and spot contracts in bulk markets such as New York, Chicago, the U.S. Gulf Coast, Florida, and the U.S. West Coast. We ship our dry distillers grains (DDGs) by truck or rail primarily to animal feed customers in the U.S. and Mexico. We also sell modified distillers grains locally at our plant sites, and corn oil by truck or rail. We distribute our ethanol through logistics assets, which include railcars owned by us.

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

State	City	Ethanol Production Capacity	Production of DDGs	Corn Processed
Indiana	Linden	130	385,000	46
	Mount Vernon	100	320,000	37
Iowa	Albert City	130	385,000	46
	Charles City	135	400,000	48
	Fort Dodge	135	400,000	48
	Hartley	135	400,000	48
Minnesota	Welcome	135	400,000	48
Nebraska	Albion	130	385,000	46
Ohio	Bloomingburg	130	385,000	46
South Dakota	Aurora	135	400,000	48
Wisconsin	Jefferson	105	335,000	39
Total		1,400	4,195,000	500

The combined production of denatured ethanol from our plants averaged 3.8 million gallons per day during the year ended December 31, 2016.

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1 Ethanol is commercially produced using either the wet mill or dry mill process. Wet milling involves separating the grain kernel into its component parts (germ, fiber, protein, and starch) prior to fermentation. In the dry mill process, the entire grain kernel is ground into flour. The starch in the flour is converted to ethanol during the fermentation process, creating carbon dioxide and distillers grains.

2 During fermentation, nearly all of the starch in the grain is converted into ethanol and carbon dioxide, while the remaining nutrients (proteins, fats, minerals, and vitamins) are concentrated to yield corn oil, modified distillers grains, or, after further drying, dried distillers grains. Distillers grains generally are an economical partial replacement for corn and soybeans in feeds for cattle, swine, and poultry. Corn oil is produced as fuel grade and feed grade (not for human consumption), and is sold primarily as a feedstock for biodiesel or renewable diesel production with a smaller percentage sold into animal feed markets.

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ENVIRONMENTAL MATTERS

We incorporate by reference into this Item the environmental disclosures contained in the following sections of this report:

- Item 1A, “Risk Factors”—Compliance with and changes in environmental laws, including proposed climate change laws and regulations, could adversely affect our performance;
- Item 1A, “Risk Factors”—Compliance with the U.S. Environmental Protection Agency Renewable Fuel Standard could adversely affect our performance;
- Item 1A, “Risk Factors”—We may incur additional costs as a result of our use of rail cars for the transportation of crude oil and the products that we manufacture;
- Item 3, “Legal Proceedings” under the caption “Environmental Enforcement Matters,” and;
- Item 8, “Financial Statements and Supplementary Data” in Note 7 of Notes to Consolidated Financial Statements and Note 9 of Notes to Consolidated Financial Statements under the caption “Environmental Matters.”

Capital Expenditures Attributable to Compliance with Environmental Regulations. In 2016, our capital expenditures attributable to compliance with environmental regulations were $58 million, and they are currently estimated to be $169 million for 2017 and $289 million for 2018. The estimates for 2017 and 2018 do not include amounts related to capital investments at our facilities that management has deemed to be strategic investments. These amounts could materially change as a result of governmental and regulatory actions.

PROPERTIES

Our principal properties are described above under the caption “Valero’s Operations,” and that information is incorporated herein by reference. We believe that our properties and facilities are generally adequate for our operations and that our facilities are maintained in a good state of repair. As of December 31, 2016, we were the lessee under a number of cancelable and noncancelable leases for certain properties. Our leases are discussed more fully in Notes 8 and 9 of Notes to Consolidated Financial Statements. Financial information about our properties is presented in Note 5 of Notes to Consolidated Financial Statements and is incorporated herein by reference.

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 petroleum products are integral to our wholesale rack marketing operations.

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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, operating results, and/or financial condition, as well as adversely affect the value of an investment in our common stock.

Our financial results are affected by volatile refining margins, which are dependent upon factors beyond our control, including the price of crude oil and the market price at which we can sell refined petroleum products.

Our financial results are primarily affected by the relationship, or margin, between refined petroleum product prices and the prices for crude oil and other feedstocks. Historically, refining margins have been volatile, and we believe they will continue to be volatile in the future. Our cost to acquire feedstocks and the price at which we can ultimately sell refined petroleum products depend upon several factors beyond our control, including regional and global supply of and demand for crude oil, gasoline, diesel, and other feedstocks and refined petroleum 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 refined petroleum 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.

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 refining and marketing margins are uncertain. We do not produce crude oil and must purchase all of the crude oil we refine. We may purchase our crude oil and other refinery feedstocks long before we refine them and sell the refined petroleum products. Price level changes during the period between purchasing feedstocks and selling the refined petroleum products from these feedstocks could have a significant effect on our financial results. A decline in market prices may negatively impact the carrying value of our inventories.

Economic turmoil 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 refined petroleum products, which could cause our revenues and margins to decline and limit our future growth prospects.

Refining margins are also significantly impacted by additional refinery conversion capacity through the expansion of existing refineries or the construction of new refineries. Worldwide refining capacity expansions may result in refining production capability 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, and they could decline in the future, which would have a negative impact on our results of operations.

Compliance with and changes in environmental laws, including proposed climate change laws and regulations, could adversely affect our performance.

The principal environmental risks associated with our operations are emissions into the air and releases into the soil, surface water, or groundwater. Our operations are subject to extensive environmental laws and regulations, including those relating to the discharge of materials into the environment, waste management,

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pollution prevention measures, greenhouse gas (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 facilities as well as at formerly owned properties or third-party sites where we have taken wastes for disposal or where our wastes have migrated. 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 or otherwise sanctioned.

Because environmental laws and regulations are becoming more stringent and new environmental laws and regulations are continuously being enacted or proposed, such as those relating to GHG emissions and climate change, the level of expenditures required for environmental matters could increase in the future. Current and future legislative action and regulatory initiatives could result in changes to operating permits, material changes in operations, increased capital expenditures and operating costs, increased costs of the goods 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 (e.g., HF alkylation), or install pollution control equipment that could materially and adversely affect our business, financial condition, results of operations, and liquidity.

For example, the U.S. Environmental Protection Agency (EPA) has, in recent years, adopted final rules making more stringent the National Ambient Air Quality Standards (NAAQS) for ozone, sulfur dioxide, and nitrogen dioxide. Emerging rules and permitting requirements implementing these revised standards may require us to install more stringent controls at our facilities, which may result in increased capital expenditures. Governmental regulations regarding GHG emissions and low carbon fuel standards could result in increased compliance costs, additional operating restrictions or permitting delays for our business, and an increase in the cost of, and reduction in demand for, the products we produce, which could have a material adverse effect on our financial position, results of operations, and liquidity.

In addition, in 2015, the U.S., Canada, and the U.K. participated in the United Nations Conference on Climate Change, which led to the creation of the Paris Agreement. The Paris Agreement, which was signed by the U.S. in April 2016, requires countries to review and “represent a progression” in their intended nationally determined contributions (which set GHG emission reduction goals) every five years beginning in 2020. While the current administration is considering withdrawal from the Paris Agreement, there are no guarantees that it will not be implemented. Restrictions on emissions of methane or carbon dioxide that have been or may be imposed in various U.S. states or at the U.S. federal level or in other countries could adversely affect the oil and gas industry.

Finally, some scientists have concluded that increasing concentrations of GHG emissions in the Earth’s atmosphere may produce climate changes that have significant physical effects, such as increased frequency and severity of storms, droughts, and floods and other climatic events. If any such effects were to occur, it is uncertain if they would have an adverse effect on our financial condition and operations.

Compliance with the U.S. Environmental Protection Agency Renewable Fuel Standard could adversely affect our performance.

The U.S. EPA has implemented a Renewable Fuel Standard (RFS) pursuant to the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007. The RFS program sets annual quotas for the quantity of renewable fuels (such as ethanol) that must be blended into transportation fuels consumed in the United States. A Renewable Identification Number (RIN) is assigned to each gallon of renewable fuel produced in or imported into the U.S. As a producer of petroleum-based transportation fuels, we are obligated to blend renewable fuels into the products we produce at a rate that is at least commensurate to the U.S. EPA’s quota

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and, to the extent we do not, we must purchase RINs in the open market to satisfy our obligation under the RFS program.

We are exposed to the volatility in the market price of RINs. We cannot predict the future prices of RINs. RINs prices are dependent upon a variety of factors, including U.S. EPA regulations, the availability of RINs for purchase, the price at which RINs can be purchased, and levels of transportation fuels produced, all of which can vary significantly from quarter to quarter. If sufficient RINs are unavailable for purchase or if we have to pay a significantly higher price for RINs, or if we are otherwise unable to meet the U.S. EPA's RFS mandates, our results of operations and cash flows could be adversely affected.

Disruption of our ability to obtain crude oil could adversely affect our operations.

A significant portion of our feedstock requirements is satisfied through supplies originating in the Middle East, Africa, 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 crude oil supply, we believe that adequate alternative supplies of crude oil would be available, but it is possible that we would be unable to find alternative sources of supply. If we are unable to obtain adequate crude oil volumes or are able to obtain such volumes only at unfavorable prices, our results of operations could be materially adversely affected, including reduced sales volumes of refined petroleum products or reduced margins as a result of higher crude oil costs.

In addition, the U.S. government can prevent or restrict us from doing business in or with other countries. These restrictions, and those of other governments, could limit our ability to gain access to business opportunities in various countries. Actions by both the U.S. and other countries have affected our operations in the past and will continue to do so in the future.

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

We generally use the services of third parties to transport feedstocks to our facilities 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, or railroads to transport feedstocks or products is disrupted because of weather events, accidents, derailment, collision, fire, explosion, governmental regulations, or third-party actions, it could have a material adverse effect on our financial position, results of operations, and liquidity.

We may incur additional costs as a result of our use of rail cars for the transportation of crude oil and the products that we manufacture.

We currently use rail cars for the transportation of some feedstocks to certain of our facilities and for the transportation of some of the products we manufacture to their markets. We own and lease rail cars for our operations. Rail transportation is subject to a variety of federal, state, and local regulations. New laws and regulations and changes in existing laws and regulations are continuously being enacted or proposed that could result in increased expenditures for compliance. For example, in May 2014, the U.S. Department of Transportation (DOT) issued an order requiring rail carriers to provide certain notifications to state agencies along routes used by trains over a certain length carrying crude oil. In addition, in November 2014, the U.S. DOT issued a final rule regarding safety training standards under the Rail Safety Improvement Act of 2008. The rule required each railroad or contractor to develop and submit a training program to perform regular oversight and annual written reviews. In May 2015, the Pipeline and Hazardous Materials Safety Administration (PHMSA) and the Federal Railroad Administration (FRA) issued new final rules for enhanced

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tank car standards and operational controls for high-hazard flammable trains. In August 2016, PHMSA and FRA adopted a final rule expanding the requirements and mandating additional controls for enhanced tank cars. Although we do not believe recently adopted rules will have a material impact on our financial position, results of operations, and liquidity, further changes in law, regulations or industry standards could require us to incur additional costs to the extent they are applicable to us.

Competitors that produce their own supply of 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 sites for our refined petroleum products. We do not produce any of our crude oil feedstocks and, following the separation of our retail business, 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 retail sites. Such competitors are at times able to offset losses from refining operations with profits from producing or retailing operations, and 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 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.

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 partners.

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 ratings agencies were to downgrade our long-term rating, particularly below investment grade, our borrowing costs would 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 financial position, 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.

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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 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 financial position, results of operations, and liquidity.

A significant interruption in one or more of our refineries could adversely affect our business.

Our refineries are our principal operating assets. As a result, our operations could be subject to significant interruption if one or more of our refineries were to experience a major accident or mechanical failure, be damaged by severe weather or other natural or man-made disaster, such as an act of terrorism, or otherwise be forced to shut down. If any refinery were to experience an interruption in operations, earnings from the refinery could be materially adversely affected (to the extent not recoverable through insurance) because of lost production and repair costs. Significant interruptions in our refining system could also lead to increased volatility in prices for crude oil feedstocks and refined petroleum products, and could increase instability in the financial and insurance markets, making it more difficult for us to access capital and to obtain insurance coverage that we consider adequate.

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, which could result in a loss of sensitive business information, systems interruption, or the disruption of our business operations. There can be no assurance that our infrastructure protection technologies and disaster recovery plans can prevent a technology systems breach or systems failure, which could have a material adverse effect on our financial position or results of operations.

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

Workers at some of our refineries are covered by collective bargaining agreements. 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 could have an adverse effect on our financial condition or results of operations. In addition, future federal or state 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 by one or more insurers to honor its coverage commitments for an insured event could materially and adversely affect our financial position, 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 desire at reasonable rates. As a result of market conditions, premiums and deductibles for certain of our 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

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exclusions. If we were to incur a significant liability for which we were not fully insured, it could have a material adverse effect on our financial position, 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 make no assurances that we will be able to obtain the full amount of our insurance coverage for insured events.

Large capital projects can take many years to complete, and market conditions could deteriorate over time, negatively impacting project returns.

We may engage in capital projects based on the forecasted project economics and level of return on the capital to be employed in the project. Large-scale projects take many years to complete, and market conditions can change from our forecast. As a result, we may be unable to fully realize our expected returns, which could negatively impact our financial condition, results of operations, and cash flows.

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), 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 authority. Subsequent changes to our tax liabilities as a result of these audits may subject us to interest and penalties.

We may incur losses and incur 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 it is applicable to us.

One of our subsidiaries acts as the general partner of a publicly traded master limited partnership, VLP, which may involve a greater exposure to legal liability than our historic business operations.

One of our subsidiaries acts as the general partner of VLP, a publicly traded master limited partnership. Our control of the general partner of VLP may increase the possibility of claims of breach of fiduciary duties, including claims of conflicts of interest, related to VLP. Liability resulting from such claims could have a material adverse effect on our financial position, results of operations, and liquidity.

If our spin-off of CST (the “Spin-off”), or certain internal transactions undertaken in anticipation of the Spin-off, were determined to be taxable for U.S. federal income tax purposes, then we and certain of our stockholders could be subject to significant tax liability.

We received a private letter ruling from the Internal Revenue Service (IRS) substantially to the effect that, for U.S. federal income tax purposes, the Spin-off, except for cash received in lieu of fractional shares, qualified as tax-free under sections 355 and 361 of the U.S. Internal Revenue Code of 1986, as amended (Code), and that certain internal transactions undertaken in anticipation of the Spin-off qualified for favorable treatment. The IRS did not rule, however, on whether the Spin-off satisfied certain requirements necessary to obtain tax-free treatment under section 355 of the Code. Instead, the private letter ruling was based on representations by us that those requirements were satisfied, and any inaccuracy in those representations could invalidate the private letter ruling. In connection with the private letter ruling, we also obtained an

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opinion from a nationally recognized accounting firm, substantially to the effect that, for U.S. federal income tax purposes, the Spin-off qualified under sections 355 and 361 of the Code. The opinion relied on, among other things, the continuing validity of the private letter ruling and various assumptions and representations as to factual matters made by CST and us which, if inaccurate or incomplete in any material respect, would jeopardize the conclusions reached by such counsel in its opinion. The opinion is not binding on the IRS or the courts, and there can be no assurance that the IRS or the courts would not challenge the conclusions stated in the opinion or that any such challenge would not prevail. Furthermore, notwithstanding the private letter ruling, the IRS could determine on audit that the Spin-off or the internal transactions undertaken in anticipation of the Spin-off should be treated as taxable transactions if it determines that any of the facts, assumptions, representations, or undertakings we or CST have made or provided to the IRS are incorrect or incomplete, or that the Spin-off or the internal transactions should be taxable for other reasons, including as a result of a significant change in stock or asset ownership after the Spin-off.

If the Spin-off ultimately were determined to be taxable, each holder of our common stock who received shares of CST common stock in the Spin-off generally would be treated as receiving a spin-off of property in an amount equal to the fair market value of the shares of CST common stock received by such holder. Any such spin-off would be a dividend to the extent of our current earnings and profits as of the end of 2013, and any accumulated earnings and profits. Any amount that exceeded our relevant earnings and profits would be treated first as a non-taxable return of capital to the extent of such holder's tax basis in our shares of common stock with any remaining amount generally being taxed as a capital gain. In addition, we would recognize gain in an amount equal to the excess of the fair market value of shares of CST common stock distributed to our holders on the Spin-off date over our tax basis in such shares of CST common stock. Moreover, we could incur significant U.S. federal income tax liabilities if it ultimately were determined that certain internal transactions undertaken in anticipation of the Spin-off were taxable.

Under the terms of the tax matters agreement we entered into with CST in connection with the Spin-off, we generally are responsible for any taxes imposed on us and our subsidiaries in the event that the Spin-off and/or certain related internal transactions were to fail to qualify for tax-free treatment. However, if the Spin-off and/or such internal transactions were to fail to qualify for tax-free treatment because of actions or failures to act by CST or its subsidiaries, CST would be responsible for all such taxes. If we were to become liable for taxes under the tax matters agreement, that liability could have a material adverse effect on us.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 3. LEGAL PROCEEDINGS

LITIGATION

We incorporate by reference into this Item our disclosures made in Part II, Item 8 of this report included in Note 9 of Notes to Consolidated Financial Statements under the caption "Litigation Matters."

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 position, results of operations, or liquidity. We are reporting these proceedings to comply with SEC regulations, which require us to disclose certain information about proceedings arising under federal, state,

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or local provisions regulating the discharge of materials into the environment or protecting the environment if we reasonably believe that such proceedings will result in monetary sanctions of $100,000 or more.

U.S. EPA. In our quarterly report for the quarter ended March 31, 2016, we reported that certain of our refineries had received one or more letters or demands from the Department of Justice on behalf of the U.S. EPA concerning proposed stipulated penalties under an existing consent decree. Some of these penalty amounts are in excess of $100,000 but are still being evaluated. We continue to work with the U.S. EPA to resolve these matters.

U.S. EPA (Ardmore Refinery). In our quarterly report for the quarter ended June 30, 2016, we reported that we had received a penalty demand in the amount of $730,820 from the U.S. EPA for alleged reporting violations at our Ardmore Refinery. We continue to work with the U.S. EPA to resolve this matter.

U.S. EPA (Meraux Refinery). In November 2016, we received from the U.S. EPA Region 6 a draft Consent Agreement and Final Order related to a previous Risk Management Plan inspection at our Meraux Refinery, which included proposed penalties of $182,000. We are working with the U.S. EPA to resolve this matter.

People of the State of Illinois, ex rel. v. The Premcor Refining Group Inc., et al., Third Judicial Circuit Court, Madison County (Case No. 03-CH-00459, filed May 29, 2003) (Hartford Refinery and terminal). The Illinois EPA (ILEPA) has issued several Notices of Violation (NOVs) alleging violations of air and waste regulations at Premcor's Hartford, Illinois terminal and closed refinery. We continue to negotiate the terms of a consent order for corrective action with the ILEPA.

Bay Area Air Quality Management District (BAAQMD) (Benicia Refinery). We currently have multiple outstanding Violation Notices (VNs) issued by the BAAQMD from 2013 to present. These VNs are for various alleged air regulation and air permit violations at our Benicia Refinery and asphalt plant. In the fourth quarter of 2016, we entered into an agreement with BAAQMD to resolve various VNs and continue to work with the BAAQMD to resolve the remaining VNs.

South Coast Air Quality Management District (SCAQMD) (Wilmington Refinery). We currently have multiple NOVs issued by the SCAQMD. These NOVs are for alleged reporting violations and excess emissions at our Wilmington Refinery. We continue to work with the SCAQMD to resolve these NOVs.

San Francisco Regional Water Quality Control Board (RWQCB) (Benicia Refinery). In our quarterly report for the quarter ended September 30, 2016, we reported that the RWQCB had issued a Notice of Administrative Civil Liability to our Benicia Refinery for alleged violations of the Refinery's National Pollutant Discharge Elimination System permit, along with a proposed penalty of $197,500. We have resolved this matter with the RWQCB.

Texas Commission on Environmental Quality (TCEQ) (McKee Refinery). In our quarterly report for the quarter ended June 30, 2016, we reported that we had received a proposed Agreed Order in the amount of $121,314 from the TCEQ as an administrative penalty for alleged excess emissions at our McKee Refinery. We continue to work with the TCEQ to resolve this matter.

Environment Canada (EC) (Quebec Refinery). In our quarterly report for the quarter ended September 30, 2016, we reported that we were involved in a legal proceeding initiated by the EC alleging breaches of certain conditions at our Quebec Refinery of a directive issued under the Canadian Fisheries Act. We continue to work with the EC to resolve this matter, which we believe will result in penalties in excess of $100,000.

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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 symbol "VLO."

As of January 31, 2017, there were 5,751 holders of record of our common stock.

The following table shows the high and low sales prices of and dividends declared on our common stock for each quarter of 2016 and 2015.

	Sales Prices of the Common Stock		Dividends Per Common Share
Quarter Ended	High	Low	
2016:			
December 31	$69.85	$52.51	$ 0.60
September 30	58.08	46.88	0.60
June 30	64.06	49.91	0.60
March 31	72.49	52.55	0.60
2015:			
December 31	73.88	58.98	0.50
September 30	71.50	51.68	0.40
June 30	64.28	56.09	0.40
March 31	64.49	43.45	0.40

On January 26, 2017, our board of directors declared a quarterly cash dividend of $0.70 per common share payable March 7, 2017 to holders of record at the close of business on February 15, 2017.

Dividends are considered quarterly by the board of directors, 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 at the rates we have paid historically, or at all, in the future.

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The following table discloses purchases of shares of our common stock made by us or on our behalf during the fourth quarter of 2016.

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 2016	433,272	$ 52.69	50,337	382,935	$2.7 billion
November 2016	667,644	$ 62.25	248,349	419,295	$2.6 billion
December 2016	1,559,569	$ 66.09	688	1,558,881	$2.5 billion
Total	2,660,485	$ 62.95	299,374	2,361,111	$2.5 billion

(a) The shares reported in this column represent purchases settled in the fourth quarter of 2016 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 July 13, 2015, we announced that our board of directors authorized our purchase of up to $2.5 billion of our outstanding common stock. This authorization has no expiration date. As of December 31, 2016, the approximate dollar value of shares that may yet be purchased under the 2015 authorization is $40 million. On September 21, 2016, we announced that our board of directors authorized our purchase of up to an additional $2.5 billion of our outstanding common stock with no expiration date. As of December 31, 2016, no purchases have been made under the 2016 authorization.

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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 Valero's 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[1] on an investment in our common stock against the cumulative total return of the S&P 500 Composite Index and an index of peer companies (that we selected) for the five-year period commencing December 31, 2011 and ending December 31, 2016. Our peer group comprises the following 11 companies: Alon USA Energy, Inc.; BP plc; CVR Energy, Inc.; Delek US Holdings, Inc.; HollyFrontier Corporation; Marathon Petroleum Corporation; PBF Energy Inc.; Phillips 66; Royal Dutch Shell plc; Tesoro Corporation; and Western Refining, Inc.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN[1]
Among Valero Energy Corporation, the S&P 500 Index,
and Peer Group

	As of December 31,					
	2011	2012	2013	2014	2015	2016
Valero Common Stock	$100.00	$166.17	$274.19	$274.85	$403.46	$406.63
S&P 500	100.00	116.00	153.58	174.60	177.01	198.18
Peer Group	100.00	109.23	132.93	122.45	110.45	130.66

[1] Assumes that an investment in Valero common stock and each index was $100 on December 31, 2011. "Cumulative total return" is based on share price appreciation plus reinvestment of dividends from December 31, 2011 through December 31, 2016.

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ITEM 6. SELECTED FINANCIAL DATA

The selected financial data for the five-year period ended December 31, 2016 was derived from our audited financial statements. The following table should be read together with Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and with the historical financial statements and accompanying notes included in Item 8, “Financial Statements and Supplementary Data.”

The following summaries are in millions of dollars, except for per share amounts:

	Year Ended December 31,				
	2016 (a)	2015 (b)	2014	2013 (c)	2012
Operating revenues	$75,659	$87,804	$130,844	$138,074	$138,393
Income from continuing operations	2,417	4,101	3,775	2,722	3,114
Earnings per common share from continuing operations – assuming dilution	4.94	7.99	6.97	4.96	5.61
Dividends per common share	2.40	1.70	1.05	0.85	0.65
Total assets (d)	46,173	44,227	45,355	46,957	44,163
Debt and capital lease obligations, less current portion (d)	7,886	7,208	5,747	6,224	6,423

(a) Includes a noncash lower of cost or market inventory valuation reserve adjustment that resulted in a net benefit to our results of operations of $747 million as described in Note 4 of Notes to Consolidated Financial Statements.

(b) Includes a noncash lower of cost or market inventory valuation adjustment that resulted in a net charge to our results of operations of $790 million.

(c) Includes the operations of our retail business prior to its separation from us on May 1, 2013.

(d) Amounts reported as of December 31, 2015, 2014, 2013, and 2012 have been reclassified to reflect the retrospective adoption of certain amendments to the Accounting Standards Codification as of January 1, 2016 as described in Note 1 of Notes to Consolidated Financial Statements.

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

The following review of our results of operations and financial condition should be read in conjunction with Item 1A, "Risk Factors," and Item 8, "Financial Statements and Supplementary Data," included in this report.

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 the heading "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," "estimate," "project," "projection," "predict," "budget," "forecast," "goal," "guidance," "
"should," "may," and similar expressions.

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

- future refining margins, including gasoline and distillate margins;
- future ethanol margins;
- expectations regarding feedstock costs, including crude oil differentials, and operating expenses;
- anticipated levels of crude oil and refined petroleum product inventories;
- our anticipated level of capital investments, including deferred costs for refinery turnarounds and catalyst, capital expenditures for environmental and other purposes, and joint venture investments, and the effect of those capital investments on our results of operations;
- anticipated trends in the supply of and demand for crude oil and other feedstocks and refined petroleum products in the regions where we operate, as well as globally;
- expectations regarding environmental, tax, and other regulatory initiatives; and
- the effect of general economic and other conditions on refining and ethanol industry fundamentals.

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

- acts of terrorism aimed at either our facilities or other facilities that could impair our ability to produce or transport refined petroleum products or receive feedstocks;
- political and economic conditions in nations that produce crude oil or consume refined petroleum products;
- demand for, and supplies of, refined petroleum products such as gasoline, diesel, jet fuel, petrochemicals, and ethanol;
- demand for, and supplies of, crude oil and other feedstocks;
- the ability of the members of the Organization of Petroleum Exporting Countries to agree on and to maintain crude oil price and production controls;
- the level of consumer demand, including seasonal fluctuations;
- refinery overcapacity or undercapacity;

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- our ability to successfully integrate any acquired businesses into our operations;
- the actions taken by competitors, including both pricing and adjustments to refining capacity in response to market conditions;
- the level of competitors' imports into markets that we supply;
- accidents, unscheduled shutdowns, or other catastrophes affecting our refineries, machinery, pipelines, equipment, and information systems, or those of our suppliers or customers;
- changes in the cost or availability of transportation for feedstocks and refined petroleum products;
- the price, availability, and acceptance of alternative fuels and alternative-fuel vehicles;
- the levels of government subsidies for alternative fuels;
- the volatility in the market price of biofuel credits (primarily RINs needed to comply with the RFS) and GHG emission credits needed to comply with the requirements of various GHG emission 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 irregular weather, which can unforeseeably affect the price or availability of natural gas, crude oil, grain and other feedstocks, and refined petroleum products 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, including tax and environmental regulations, such as those implemented under the California Global Warming Solutions Act (also known as AB 32), Quebec's Regulation respecting the cap-and-trade system for greenhouse gas emission allowances (the Quebec cap-and-trade system), and the U.S. EPA's regulation of GHGs, which may adversely affect our business or operations;
- changes in the credit ratings assigned to our debt securities and trade credit;
- changes in currency exchange rates, including the value of the Canadian dollar, the pound sterling, and the euro relative to the U.S. dollar;
- 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 suggested in any forward-looking statements. We do not intend to update these statements unless we are required by the 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. 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.

This report includes references to financial measures that are not defined under U.S. generally accepted accounting principles (GAAP). These non-GAAP financial measures include adjusted net income attributable to Valero stockholders, gross margin, and adjusted operating income. We have included these non-GAAP financial measures to help facilitate the comparison of operating results between periods. See the accompanying financial tables in "RESULTS OF OPERATIONS" for a reconciliation of these non-GAAP

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financial measures to the most directly comparable U.S. GAAP financial measures. In note (d) to the accompanying tables, we disclose the reasons why we believe our use of the non-GAAP financial measures provides useful information.

OVERVIEW AND OUTLOOK

Overview

For the year ended December 31, 2016, we reported net income attributable to Valero stockholders from continuing operations of $2.3 billion and adjusted net income attributable to Valero stockholders from continuing operations of $1.7 billion. For the year ended December 31, 2015, we reported net income attributable to Valero stockholders from continuing operations of $4.0 billion and adjusted net income attributable to Valero stockholders from continuing operations of $4.6 billion. The decrease in net income attributable to Valero stockholders from continuing operations of $1.7 billion and the decrease in adjusted net income attributable to Valero stockholders from continuing operations of $2.9 billion are outlined in the following table (in millions).

	Year Ended December 31,		
	2016	2015	Change
Net income attributable to Valero Energy Corporation stockholders from continuing operations	$2,289	$3,990	$(1,701)
Adjusted net income attributable to Valero Energy Corporation stockholders from continuing operations[1]	1,724	4,614	(2,890)

The decrease in both net income and adjusted net income attributable to Valero stockholders from continuing operations was due to lower operating income in 2016 compared to 2015 (net of the resulting decrease of $1.1 billion in income tax expense between the years). Operating income decreased by $2.8 billion, while adjusted operating income decreased by $4.3 billion, as outlined by segment in the following table (in millions).

	Year Ended December 31,		
	2016	2015	Change
Operating income (loss) by segment:			
Refining	$3,995	$6,973	$(2,978)
Ethanol	340	142	198
Corporate	(763)	(757)	(6)
Total	$3,572	$6,358	$(2,786)
Adjusted operating income (loss) by segment[1]:			
Refining	$3,354	$7,713	$(4,359)
Ethanol	290	192	98
Corporate	(763)	(757)	(6)
Total	$2,881	$7,148	$(4,267)

(1) Net income and operating income have been adjusted for certain items that we believe are not indicative of our core operating performance and that may obscure our underlying business results and trends. Each of these adjustments is reflected in the tables on pages 28 and 29. Adjusted amounts are non-GAAP measurements.

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The $2.8 billion decrease in operating income was impacted by the net effect of noncash adjustments for a lower of cost or market inventory valuation adjustment and an asset impairment loss. We have excluded such effects from adjusted operating income because we believe that these adjustments are not indicative of our core operating performance and may obscure the underlying business results and trends. The resulting $4.3 billion decrease in adjusted operating income is primarily due to the following:

- Refining segment - The $4.4 billion decrease in adjusted operating income was primarily due to lower margins on refined petroleum products and lower discounts on light sweet crude oils and sour crude oils relative to Brent crude oil, which also negatively impacted our refining margins. This is more fully described on pages 37 and 38.
- Ethanol segment - The $98 million increase in adjusted operating income was primarily due to higher ethanol margins that resulted from lower corn prices combined with lower operating expenses, partially offset by lower margins on other co-products. This is more fully described on page 38.

Additional details and analysis of the changes in the operating income and adjusted operating income of our business segments and other components of net income and adjusted net income attributable to Valero stockholders from continuing operations, including a reconciliation of non-GAAP financial measures used in this Overview to their most comparable measures reported under U.S. GAAP, are provided below under “RESULTS OF OPERATIONS” beginning on page 27.

Outlook

For the year ended December 31, 2016, margins were unfavorable compared to 2015, and thus far in the first quarter of 2017 margins have been mixed. Below are several factors that have impacted or may impact our results of operations during the first quarter of 2017:

- Refining and ethanol product margins are expected to remain near current levels.
- Crude oil discounts are expected to remain weak due to lower demand resulting from industry-wide refinery maintenance.

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RESULTS OF OPERATIONS

The following tables highlight our results of operations, our operating performance, and market prices that directly impact our operations. In addition, these tables include financial measures that are not defined under U.S. GAAP and represent non-GAAP financial measures. These non-GAAP financial measures are reconciled to their most comparable U.S. GAAP financial measures and include adjusted net income attributed to Valero stockholders, adjusted net income from continuing operations attributable to Valero stockholders, adjusted operating income, and gross margin. In note (d) to these tables, we disclose the reasons why we believe our use of non-GAAP financial measures provides useful information. The narrative following these tables provides an analysis of our results of operations.

2016 Compared to 2015
Financial Highlights
(millions of dollars, except share and per share amounts)

	Year Ended December 31,		
	2016	2015	Change
Operating revenues	$75,659	$87,804	$(12,145)
Costs and expenses:			
Cost of sales (excluding the lower of cost or market inventory valuation adjustment)	65,962	73,861	(7,899)
Lower of cost or market inventory valuation adjustment (a)	(747)	790	(1,537)
Operating expenses:			
Refining	3,792	3,795	(3)
Ethanol	415	448	(33)
General and administrative expenses	715	710	5
Depreciation and amortization expense:			
Refining	1,780	1,745	35
Ethanol	66	50	16
Corporate	48	47	1
Asset impairment loss (b)	56	—	56
Total costs and expenses	72,087	81,446	(9,359)
Operating income	3,572	6,358	(2,786)
Other income, net	56	46	10
Interest and debt expense, net of capitalized interest	(446)	(433)	(13)
Income before income tax expense	3,182	5,971	(2,789)
Income tax expense (b) (c)	765	1,870	(1,105)
Net income	2,417	4,101	(1,684)
Less: Net income attributable to noncontrolling interests	128	111	17
Net income attributable to Valero Energy Corporation stockholders	$2,289	$3,990	$(1,701)
Earnings per common share – assuming dilution	$4.94	$7.99	$(3.05)
Weighted-average common shares outstanding – assuming dilution (in millions)	464	500	(36)

See note references on pages 50 through 52.

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Reconciliation of Non-GAAP Measures to Most Comparable Measures Reported under U.S. GAAP (d)
(millions of dollars)

	Year Ended December 31,	
	2016	2015
Reconciliation of net income attributable to Valero Energy Corporation stockholders to adjusted net income attributable to Valero Energy Corporation stockholders		
Net income attributable to Valero Energy Corporation stockholders	$ 2,289	$ 3,990
Exclude adjustments:		
Lower of cost or market inventory valuation adjustment (a)	747	(790)
Income tax (expense) benefit related to the lower of cost or market inventory valuation adjustment	(168)	166
Lower of cost or market inventory valuation adjustment, net of taxes	579	(624)
Asset impairment loss (b)	(56)	—
Income tax benefit on Aruba Disposition (b)	42	—
Total adjustments	565	(624)
Adjusted net income attributable to Valero Energy Corporation stockholders	$ 1,724	$ 4,614

See note references on pages 50 through 52.

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Reconciliation of Non-GAAP Measures to Most Comparable Measures
Reported under U.S. GAAP (d)
(millions of dollars)

	Year Ended December 31,	
	2016	2015
Reconciliation of operating income to gross margin and reconciliation of operating income to adjusted operating income by segment		
Refining segment		
Operating income	$3,995	$6,973
Add back:		
Lower of cost or market inventory valuation adjustment (a)	(697)	740
Operating expenses	3,792	3,795
Depreciation and amortization expense	1,780	1,745
Asset impairment loss (b)	56	—
Gross margin	$8,926	$13,253
Operating income	$3,995	$6,973
Exclude adjustments:		
Lower of cost or market inventory valuation adjustment (a)	697	(740)
Asset impairment loss (b)	(56)	—
Adjusted operating income	$3,354	$7,713
Ethanol segment		
Operating income	$340	$142
Add back:		
Lower of cost or market inventory valuation adjustment (a)	(50)	50
Operating expenses	415	448
Depreciation and amortization expense	66	50
Gross margin	$771	$690
Operating income	$340	$142
Exclude adjustment: Lower of cost or market inventory valuation adjustment (a)	50	(50)
Adjusted operating income	$290	$192

See note references on pages 50 through 52.

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Reconciliation of Non-GAAP Measures to Most Comparable Measures
Reported under U.S. GAAP (d)
(millions of dollars)

	Year Ended December 31,	
	2016	2015
Reconciliation of operating income to gross margin and reconciliation of operating income to adjusted operating income by refining segment region (f)		
U.S. Gulf Coast region		
Operating income	$1,959	$3,945
Add back:		
Lower of cost or market inventory valuation adjustment (a)	(37)	33
Operating expenses	2,163	2,113
Depreciation and amortization expense	1,070	1,036
Asset impairment loss (b)	56	—
Gross margin	$5,211	$7,127
Operating income	$1,959	$3,945
Exclude adjustments:		
Lower of cost or market inventory valuation adjustment (a)	37	(33)
Asset impairment loss (b)	(56)	—
Adjusted operating income	$1,978	$3,978
U.S. Mid-Continent region		
Operating income	$456	$1,425
Add back:		
Lower of cost or market inventory valuation adjustment (a)	(9)	9
Operating expenses	588	586
Depreciation and amortization expense	268	278
Gross margin	$1,303	$2,298
Operating income	$456	$1,425
Exclude adjustment: Lower of cost or market inventory valuation adjustment (a)	9	(9)
Adjusted operating income	$447	$1,434

See note references on pages 50 through 52.

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Reconciliation of Non-GAAP Measures to Most Comparable Measures
Reported under U.S. GAAP (d)
(millions of dollars)

	Year Ended December 31,	
	2016	2015
Reconciliation of operating income to gross margin and reconciliation of operating income to adjusted operating income by refining segment region (f) (continued)		
North Atlantic region		
Operating income	$1,355	$753
Add back:		
Lower of cost or market inventory valuation adjustment (a)	(646)	693
Operating expenses	501	521
Depreciation and amortization expense	195	211
Gross margin	$1,405	$2,178
Operating income	$1,355	$753
Exclude adjustment: Lower of cost or market inventory valuation adjustment (a)	646	(693)
Adjusted operating income	$709	$1,446
U.S. West Coast region		
Operating income	$225	$850
Add back:		
Lower of cost or market inventory valuation adjustment (a)	(5)	5
Operating expenses	540	575
Depreciation and amortization expense	247	220
Gross margin	$1,007	$1,650
Operating income	$225	$850
Exclude adjustment: Lower of cost or market inventory valuation adjustment (a)	5	(5)
Adjusted operating income	$220	$855

See note references on pages 50 through 52.

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Refining Segment Operating Highlights
(millions of dollars, except per barrel amounts)

	Year Ended December 31,		
	2016	2015	Change
Throughput volumes (thousand BPD)			
Feedstocks:			
Heavy sour crude oil	396	438	(42)
Medium/light sour crude oil	526	428	98
Sweet crude oil	1,193	1,208	(15)
Residuals	272	274	(2)
Other feedstocks	152	140	12
Total feedstocks	2,539	2,488	51
Blendstocks and other	316	311	5
Total throughput volumes	2,855	2,799	56
Yields (thousand BPD)			
Gasolines and blendstocks	1,404	1,364	40
Distillates	1,066	1,066	—
Other products (g)	421	408	13
Total yields	2,891	2,838	53
Refining segment operating statistics			
Gross margin (d)	$8,926	$13,253	$(4,327)
Adjusted operating income (d)	$3,354	$7,713	$(4,359)
Throughput volumes (thousand BPD)	2,855	2,799	56
Throughput margin per barrel (h)	$8.54	$12.97	$(4.43)
Operating costs per barrel:			
Operating expenses	3.63	3.71	(0.08)
Depreciation and amortization expense	1.70	1.71	(0.01)
Total operating costs per barrel	5.33	5.42	(0.09)
Adjusted operating income per barrel (i)	$3.21	$7.55	$(4.34)

See note references on pages 50 through 52.

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Ethanol Segment Operating Highlights
(millions of dollars, except per gallon amounts)

	Year Ended December 31,		
	2016	2015	Change
Ethanol segment operating statistics			
Gross margin (d)	$771	$690	$81
Adjusted operating income (d)	$290	$192	$98
Production volumes (thousand gallons per day)	3,842	3,827	15
Gross margin per gallon of production (h)	$0.55	$0.49	$0.06
Operating costs per gallon of production:			
Operating expenses	0.30	0.32	(0.02)
Depreciation and amortization expense	0.04	0.03	0.01
Total operating costs per gallon of production	0.34	0.35	(0.01)
Adjusted operating income per gallon of production (i)	$0.21	$0.14	$0.07

See note references on pages 50 through 52.

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Refining Segment Operating Highlights
(millions of dollars, except per barrel amounts)

	Year Ended December 31,		
	2016	2015	Change
Refining segment operating statistics by region (f)			
U.S. Gulf Coast region			
Gross margin (d)	$5,211	$7,127	$(1,916)
Adjusted operating income (d)	$1,978	$3,978	$(2,000)
Throughput volumes (thousand BPD)	1,653	1,592	61
Throughput margin per barrel (h)	$8.61	$12.27	$(3.66)
Operating costs per barrel:			
Operating expenses	3.57	3.64	(0.07)
Depreciation and amortization expense	1.77	1.78	(0.01)
Total operating costs per barrel	5.34	5.42	(0.08)
Adjusted operating income per barrel (i)	$3.27	$6.85	$(3.58)
U.S. Mid-Continent region			
Gross margin (d)	$1,303	$2,298	$(995)
Adjusted operating income (d)	$447	$1,434	$(987)
Throughput volumes (thousand BPD)	452	447	5
Throughput margin per barrel (h)	$7.89	$14.09	$(6.20)
Operating costs per barrel:			
Operating expenses	3.56	3.59	(0.03)
Depreciation and amortization expense	1.63	1.71	(0.08)
Total operating costs per barrel	5.19	5.30	(0.11)
Adjusted operating income per barrel (i)	$2.70	$8.79	$(6.09)

See note references on pages 50 through 52.

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Refining Segment Operating Highlights
(millions of dollars, except per barrel amounts)

	Year Ended December 31,		
	2016	2015	Change
Refining segment operating statistics by region (f) (continued)			
North Atlantic region			
Gross margin (d)	$1,405	$2,178	$(773)
Adjusted operating income (d)	$709	$1,446	$(737)
Throughput volumes (thousand BPD)	483	494	(11)
Throughput margin per barrel (h)	$7.95	$12.06	$(4.11)
Operating costs per barrel:			
Operating expenses	2.84	2.88	(0.04)
Depreciation and amortization expense	1.10	1.17	(0.07)
Total operating costs per barrel	3.94	4.05	(0.11)
Adjusted operating income per barrel (i)	$4.01	$8.01	$(4.00)
U.S. West Coast region			
Gross margin (d)	$1,007	$1,650	$(643)
Adjusted operating income (d)	$220	$855	$(635)
Throughput volumes (thousand BPD)	267	266	1
Throughput margin per barrel (h)	$10.30	$17.00	$(6.70)
Operating costs per barrel:			
Operating expenses	5.53	5.92	(0.39)
Depreciation and amortization expense	2.52	2.26	0.26
Total operating costs per barrel	8.05	8.18	(0.13)
Adjusted operating income per barrel (i)	$2.25	$8.82	$(6.57)

See note references on pages 50 through 52.

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Average Market Reference Prices and Differentials
(dollars per barrel, except as noted)

	Year Ended December 31,		
	2016	2015	Change
Feedstocks			
Brent crude oil	$45.02	$53.62	$(8.60)
Brent less West Texas Intermediate (WTI) crude oil	1.83	4.91	(3.08)
Brent less Alaska North Slope (ANS) crude oil	1.25	0.67	0.58
Brent less LLS crude oil (j)	0.15	1.26	(1.11)
Brent less Argus Sour Crude Index (ASCI) crude oil (k)	5.18	5.63	(0.45)
Brent less Maya crude oil	8.63	9.54	(0.91)
LLS crude oil (j)	44.87	52.36	(7.49)
LLS less ASCI crude oil (j) (k)	5.03	4.37	0.66
LLS less Maya crude oil (j)	8.48	8.28	0.20
WTI crude oil	43.19	48.71	(5.52)
Natural gas (dollars per million British thermal units (MMBtu))	2.46	2.58	(0.12)
Products			
U.S. Gulf Coast:			
CBOB gasoline less Brent	9.17	9.83	(0.66)
Ultra-low-sulfur diesel less Brent	10.21	12.64	(2.43)
Propylene less Brent	(6.68)	(5.94)	(0.74)
CBOB gasoline less LLS (j)	9.32	11.09	(1.77)
Ultra-low-sulfur diesel less LLS (j)	10.36	13.90	(3.54)
Propylene less LLS (j)	(6.53)	(4.68)	(1.85)
U.S. Mid-Continent:			
CBOB gasoline less WTI	11.82	17.59	(5.77)
Ultra-low-sulfur diesel less WTI	13.03	19.02	(5.99)
North Atlantic:			
CBOB gasoline less Brent	11.99	12.85	(0.86)
Ultra-low-sulfur diesel less Brent	11.57	16.05	(4.48)
U.S. West Coast:			
CARBOB 87 gasoline less ANS	17.04	25.56	(8.52)
CARB diesel less ANS	14.52	16.90	(2.38)
CARBOB 87 gasoline less WTI	17.62	29.80	(12.18)
CARB diesel less WTI	15.10	21.14	(6.04)
New York Harbor corn crush (dollars per gallon)	0.30	0.22	0.08

See note references on pages 50 through 52.

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General

Operating revenues decreased $12.1 billion (or 14 percent) and "cost of sales (excluding the lower of cost or market inventory valuation adjustment)" decreased $7.9 billion (or 11 percent) for 2016 compared to 2015 primarily due to a decrease in refined petroleum products prices and crude oil feedstock costs, respectively. Operating income decreased $2.8 billion for the year ended December 31, 2016 compared to the year ended December 31, 2015, primarily due to a decrease in refining segment operating income of $3.0 billion, partially offset by an increase in ethanol segment operating income of $198 million. Adjusted operating income decreased $4.3 billion for 2016 compared to 2015, primarily due to a decrease in refining segment adjusted operating income of $4.4 billion, partially offset by an increase in ethanol segment adjusted operating income of $98 million. The reasons for these changes in the operating results of our segments, as well as other items that affected our income, are discussed below.

Refining

Refining segment adjusted operating income decreased $4.4 billion for 2016 compared to 2015, primarily due to a $4.3 billion decrease in refining gross margin.

Refining gross margin decreased $4.3 billion (a $4.43 per barrel decrease) for 2016 compared to 2015, primarily due to the following:

- Decrease in gasoline margins - We experienced a decrease in gasoline margins throughout all of our regions in 2016 compared to 2015. For example, WTI-based benchmark reference margin for U.S. Mid-Continent CBOB gasoline was $11.82 per barrel in 2016 compared to $17.59 per barrel in 2015, representing an unfavorable decrease of $5.77 per barrel. Another example is the ANS-based reference margin for U.S. West Coast CARBOB 87 gasoline was $17.04 per barrel in 2016 compared to $25.56 per barrel in 2015, representing an unfavorable decrease of $8.52 per barrel. We estimate that the decrease in gasoline margins per barrel in 2016 compared to 2015 had an unfavorable impact to our refining margin of approximately $1.7 billion.

- Decrease in distillate margins - We experienced a decrease in distillate margins throughout all of our regions in 2016 compared to 2015. For example, the Brent-based benchmark reference margin for U.S. Gulf Coast ultra-low-sulfur diesel was $10.21 per barrel in 2016 compared to $12.64 per barrel in 2015, representing an unfavorable decrease of $2.43 per barrel. Another example is the WTI-based benchmark reference margin for U.S. Mid-Continent ultra-low-sulfur diesel that was $13.03 per barrel in 2016 compared to $19.02 per barrel in 2015, representing an unfavorable decrease of $5.99 per barrel. We estimate that the decrease in distillate margins per barrel in 2016 compared to 2015 had an unfavorable impact to our refining margin of approximately $1.6 billion.

- Lower discounts on light sweet crude oils and sour crude oils - The market prices for refined petroleum products generally track the price of Brent crude oil, which is a benchmark sweet crude oil, and we benefit when we process crude oils that are priced at a discount to Brent crude oil, such as WTI crude oil, in periods when pricing terms are favorable. During 2016, we benefited from processing WTI crude oil; however, that benefit declined compared to the benefit from processing WTI crude oil during 2015. For example, WTI crude oil processed in our U.S. Mid-Continent region sold at a discount of $1.83 per barrel to Brent crude oil in 2016 compared to a discount of $4.91 per barrel in 2015, representing an unfavorable decrease of $3.08 per barrel. Another example is Maya crude oil (a type of sour crude oil) that sold at a discount of $8.63 per barrel to Brent crude oil in 2016 compared to a discount of $9.54 per barrel in 2015, representing an unfavorable decrease of $0.91 per barrel. We estimate that the cost of light sweet crude oils and sour crude oils during 2016 had an unfavorable impact to our refining margin of approximately $900 million.

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- Higher costs of biofuel credits - As more fully described in Note 19 of Notes to Consolidated Financial Statements, we must purchase biofuel credits in order to meet our biofuel blending obligation under various government and regulatory compliance programs, and the cost of these credits (primarily RINs in the U.S.) increased by $309 million from $440 million in 2015 to $749 million in 2016. This increase was due to an increase in the market price of RINs caused by an expected shortage in the market of available RINs that worsened in November 2016 with the release of the U.S. EPA's final 2017 renewable fuel volume requirements.

- Higher throughput volumes - Refining throughput volumes increased by 56,000 BPD in 2016. We estimate that the increase in refining throughput volumes had a positive impact on our refining margin of approximately $175 million.

Ethanol

Ethanol segment adjusted operating income increased $98 million for 2016 compared to 2015, primarily due to an $81 million (or $0.06 per gallon) increase in gross margin and a $33 million decrease in operating expenses.

The increase in ethanol segment gross margin of $81 million was primarily due to the following:

- Lower corn prices - Corn prices were lower in 2016 compared to 2015 primarily due to higher yields from the current corn crop in the corn-producing regions of the U.S. Mid-Continent. For example, the Chicago Board of Trade (CBOT) corn price was $3.58 per bushel in 2016 compared to $3.77 per bushel in 2015. We estimate that the decrease in the price of corn that we processed during 2016 had a favorable impact to our ethanol margin of approximately $105 million.

- Higher ethanol prices - Ethanol prices were slightly higher in 2016 compared to 2015 primarily due to increased ethanol demand. Despite higher domestic production during 2016, inventory levels declined during the year primarily due to higher exports. For example, the CBOT ethanol price was $1.53 per gallon in 2016 compared to $1.50 per gallon in 2015. We estimate that the increase in the price of ethanol per gallon during 2016 had a favorable impact to our ethanol margin of approximately $24 million.

- Increased production volumes - Ethanol margin was favorably impacted by increased production volumes of 15,000 gallons per day in 2016 compared to 2015 primarily due to improved operating efficiencies and mechanical reliability. Our ethanol margin was also favorably impacted by higher co-product production volumes between the years. We estimate that the increase in ethanol and co-product production volumes had a favorable impact to our ethanol margin of approximately $22 million.

- Lower co-product prices - A decrease in export demand for corn-related co-products, primarily distillers grains, had an unfavorable effect on the prices we received. We estimate that the decrease in corn-related co-products prices had an unfavorable impact to our ethanol margin of approximately $70 million.

The $33 million decrease in operating expenses was primarily due to a $14 million decrease in energy costs related to lower natural gas prices ($2.46 per MMBtu in 2016 compared to $2.58 per MMBtu in 2015) and a $15 million decrease in chemical costs.

The increase of $16 million in depreciation and amortization expense was primarily due to a $10 million gain on the sale of certain plant assets in 2015 that was reflected in depreciation and amortization expense thereby reducing depreciation and amortization expense in that period.

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Other

Income tax expense decreased $1.1 billion from 2015 to 2016 primarily as a result of lower income before income tax expense. The effective tax rates of 24 percent in 2016 and 31 percent in 2015 are lower than the U.S. statutory rate of 35 percent because income from our international operations is taxed at statutory rates that are lower than in the U.S. The 2016 rate was lower than the 2015 rate due to (i) the reversal of the lower of cost or market inventory valuation reserve of $747 million, the majority of which impacted our international operations that are taxed at lower statutory tax rates, (ii) a benefit of $42 million associated with the transfer of ownership of the Aruba Refinery and Aruba Terminal to the GOA, and (iii) a benefit of $35 million resulting from the settlement of an income tax audit. The transfer of ownership of the Aruba Refinery and the Aruba Terminal to the GOA is more fully described in Note 2 of Notes to Consolidated Financial Statements.

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2015 Compared to 2014

Financial Highlights
(millions of dollars, except share and per share amounts)

	Year Ended December 31,		
	2015	2014	Change
Operating revenues	$87,804	$130,844	$(43,040)
Costs and expenses:			
Cost of sales (excluding the lower of cost or market inventory valuation adjustment) (e)	73,861	118,141	(44,280)
Lower of cost or market inventory valuation adjustment (a)	790	—	790
Operating expenses:			
Refining	3,795	3,900	(105)
Ethanol	448	487	(39)
General and administrative expenses	710	724	(14)
Depreciation and amortization expense:			
Refining	1,745	1,597	148
Ethanol	50	49	1
Corporate	47	44	3
Total costs and expenses	81,446	124,942	(43,496)
Operating income	6,358	5,902	456
Other income, net	46	47	(1)
Interest and debt expense, net of capitalized interest	(433)	(397)	(36)
Income from continuing operations before income tax expense	5,971	5,552	419
Income tax expense	1,870	1,777	93
Income from continuing operations	4,101	3,775	326
Loss from discontinued operations	—	(64)	64
Net income	4,101	3,711	390
Less: Net income attributable to noncontrolling interests	111	81	30
Net income attributable to Valero Energy Corporation stockholders	$3,990	$3,630	$360
Net income attributable to Valero Energy Corporation stockholders:			
Continuing operations	$3,990	$3,694	$296
Discontinued operations	—	(64)	64
Total	$3,990	$3,630	$360
Earnings per common share – assuming dilution:			
Continuing operations	$7.99	$6.97	$1.02
Discontinued operations	—	(0.12)	0.12
Total	$7.99	$6.85	$1.14
Weighted-average common shares outstanding – assuming dilution (in millions)	500	530	(30)

See note references on pages 50 through 52.

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Reconciliation of Non-GAAP Measures to Most Comparable Measures Reported under U.S. GAAP (d)
(millions of dollars)

	Year Ended December 31,	
	2015	2014
Reconciliation of net income from continuing operations attributable to Valero Energy Corporation stockholders to adjusted net income from continuing operations attributable to Valero Energy Corporation stockholders		
Net income from continuing operations attributable to Valero Energy Corporation stockholders	$3,990	$3,694
Exclude adjustments:		
Lower of cost or market inventory valuation adjustment (a)	(790)	—
Income tax benefit related to the lower of cost or market inventory valuation adjustment	166	—
Lower of cost or market inventory valuation adjustment, net of taxes	(624)	—
Last-in, first out (LIFO) gain (e)	—	233
Income tax expense related to the LIFO gain	—	(82)
LIFO gain, net of taxes	—	151
Total adjustments	(624)	151
Adjusted net income from continuing operations attributable to Valero Energy Corporation stockholders	$4,614	$3,543

See note references on pages 50 through 52.

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Reconciliation of Non-GAAP Measures to Most Comparable Measures
Reported under U.S. GAAP (d)
(millions of dollars)

	Year Ended December 31,	
	2015	2014
Reconciliation of operating income to gross margin and reconciliation of operating income to adjusted operating income by segment		
Refining segment		
Operating income	$6,973	$5,884
Add back:		
Lower of cost or market inventory valuation adjustment (a)	740	—
Operating expenses	3,795	3,900
Depreciation and amortization expense	1,745	1,597
Asset impairment loss (b)	—	—
Less LIFO gain (e)	—	(229)
Gross margin	$13,253	$11,152
Operating income	$6,973	$5,884
Exclude adjustments:		
Lower of cost or market inventory valuation adjustment (a)	(740)	—
LIFO gain (e)	—	229
Adjusted operating income	$7,713	$5,655
Ethanol segment		
Operating income	$142	$786
Add back:		
Lower of cost or market inventory valuation adjustment (a)	50	—
Operating expenses	448	487
Depreciation and amortization expense	50	49
Less LIFO gain (e)	—	(4)
Gross margin	$690	$1,318
Operating income	$142	$786
Exclude adjustments:		
Lower of cost or market inventory valuation adjustment (a)	(50)	—
LIFO gain (e)	—	4
Adjusted operating income	$192	$782
Adjusted operating income (loss) by segment		
Refining	$7,713	$5,655
Ethanol	192	782
Corporate segment	(757)	(768)
Total adjusted operating income	$7,148	$5,669

See note references on pages 50 through 52.

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Reconciliation of Non-GAAP Measures to Most Comparable Measures
Reported under U.S. GAAP (d)
(millions of dollars)

	Year Ended December 31,	
	2015	2014
Reconciliation of operating income to gross margin and reconciliation of operating income to adjusted operating income by refining segment region (f)		
U.S. Gulf Coast region		
Operating income	$3,945	$3,484
Add back:		
Lower of cost or market inventory valuation adjustment (a)	33	—
Operating expenses	2,113	2,134
Depreciation and amortization expense	1,036	937
Less LIFO gain (e)	—	(116)
Gross margin	$7,127	$6,439
Operating income	$3,945	$3,484
Exclude adjustments:		
Lower of cost or market inventory valuation adjustment (a)	(33)	—
LIFO gain (e)	—	116
Adjusted operating income	$3,978	$3,368
U.S. Mid-Continent region		
Operating income	$1,425	$1,358
Add back:		
Lower of cost or market inventory valuation adjustment (a)	9	—
Operating expenses	586	635
Depreciation and amortization expense	278	263
Less LIFO gain (e)	—	(35)
Gross margin	$2,298	$2,221
Operating income	$1,425	$1,358
Exclude adjustments:		
Lower of cost or market inventory valuation adjustment (a)	(9)	—
LIFO gain (e)	—	35
Adjusted operating income	$1,434	$1,323

See note references on pages 50 through 52.

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Reconciliation of Non-GAAP Measures to Most Comparable Measures
Reported under U.S. GAAP (d)
(millions of dollars)

	Year Ended December 31,	
	2015	2014
Reconciliation of operating income to gross margin and reconciliation of operating income to adjusted operating income by refining segment region (f) (continued)		
North Atlantic region		
Operating income	$753	$971
Add back:		
Lower of cost or market inventory valuation adjustment (a)	693	—
Operating expenses	521	567
Depreciation and amortization expense	211	193
Less LIFO gain (e)	—	(60)
Gross margin	$2,178	$1,671
Operating income	$753	$971
Exclude adjustments:		
Lower of cost or market inventory valuation adjustment (a)	(693)	—
LIFO gain (e)	—	60
Adjusted operating income	$1,446	$911
U.S. West Coast region		
Operating income	$850	$71
Add back:		
Lower of cost or market inventory valuation adjustment (a)	5	—
Operating expenses	575	564
Depreciation and amortization expense	220	204
Less LIFO gain (e)	—	(18)
Gross margin	$1,650	$821
Operating income	$850	$71
Exclude adjustments:		
Lower of cost or market inventory valuation adjustment (a)	(5)	—
LIFO gain (e)	—	18
Adjusted operating income	$855	$53

See note references on pages 50 through 52.

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Refining Segment Operating Highlights
(millions of dollars, except per barrel amounts)

	Year Ended December 31,		
	2015	2014	Change
Throughput volumes (thousand BPD)			
Feedstocks:			
Heavy sour crude oil	438	457	(19)
Medium/light sour crude oil	428	466	(38)
Sweet crude oil	1,208	1,149	59
Residuals	274	230	44
Other feedstocks	140	134	6
Total feedstocks	2,488	2,436	52
Blendstocks and other	311	329	(18)
Total throughput volumes	2,799	2,765	34
Yields (thousand BPD)			
Gasolines and blendstocks	1,364	1,329	35
Distillates	1,066	1,047	19
Other products (g)	408	423	(15)
Total yields	2,838	2,799	39
Refining segment operating statistics			
Gross margin (d)	$13,253	$11,152	$2,101
Adjusted operating income (d)	$7,713	$5,655	$2,058
Throughput volumes (thousand BPD)	2,799	2,765	34
Throughput margin per barrel (h)	$12.97	$11.05	$1.92
Operating costs per barrel:			
Operating expenses	3.71	3.87	(0.16)
Depreciation and amortization expense	1.71	1.58	0.13
Total operating costs per barrel	5.42	5.45	(0.03)
Adjusted operating income per barrel (i)	$7.55	$5.60	$1.95

See note references on pages 50 through 52.

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Ethanol Segment Operating Highlights
(millions of dollars, except per gallon amounts)

	Year Ended December 31,		
	2015	2014	Change
Ethanol segment operating statistics			
Gross margin (d)	$690	$1,318	$(628)
Adjusted operating income (d)	$192	$782	$(590)
Production volumes (thousand gallons per day)	3,827	3,422	405
Gross margin per gallon of production (h)	$0.49	$1.06	$(0.57)
Operating costs per gallon of production:			
Operating expenses	0.32	0.39	(0.07)
Depreciation and amortization expense	0.03	0.04	(0.01)
Total operating costs per gallon of production	0.35	0.43	(0.08)
Adjusted operating income per gallon of production (i)	$0.14	$0.63	$(0.49)

See note references on pages 50 through 52.

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Refining Segment Operating Highlights
(millions of dollars, except per barrel amounts)

	Year Ended December 31,		
	2015	2014	Change
Refining segment operating statistics by region (f)			
U.S. Gulf Coast region			
Gross margin (d)	$7,127	$6,439	$688
Adjusted operating income (d)	$3,978	$3,368	$610
Throughput volumes (thousand BPD)	1,592	1,600	(8)
Throughput margin per barrel (h)	$12.27	$11.03	$1.24
Operating costs per barrel:			
Operating expenses	3.64	3.66	(0.02)
Depreciation and amortization expense	1.78	1.60	0.18
Total operating costs per barrel	5.42	5.26	0.16
Adjusted operating income per barrel (i)	$6.85	$5.77	$1.08
U.S. Mid-Continent region			
Gross margin (d)	$2,298	$2,221	$77
Adjusted operating income (d)	$1,434	$1,323	$111
Throughput volumes (thousand BPD)	447	446	1
Throughput margin per barrel (h)	$14.09	$13.63	$0.46
Operating costs per barrel:			
Operating expenses	3.59	3.90	(0.31)
Depreciation and amortization expense	1.71	1.61	0.10
Total operating costs per barrel	5.30	5.51	(0.21)
Adjusted operating income per barrel (i)	$8.79	$8.12	$0.67

See note references on pages 50 through 52.

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Refining Segment Operating Highlights
(millions of dollars, except per barrel amounts)

	Year Ended December 31,		
	2015	2014	Change
Refining segment operating statistics by region (f) (continued)			
North Atlantic region			
Gross margin (d)	$2,178	$1,671	$507
Adjusted operating income (d)	$1,446	$911	$535
Throughput volumes (thousand BPD)	494	457	37
Throughput margin per barrel (h)	$12.06	$10.02	$2.04
Operating costs per barrel:			
Operating expenses	2.88	3.40	(0.52)
Depreciation and amortization expense	1.17	1.16	0.01
Total operating costs per barrel	4.05	4.56	(0.51)
Adjusted operating income per barrel (i)	$8.01	$5.46	$2.55
U.S. West Coast region			
Gross margin (d)	$1,650	$821	$829
Adjusted operating income (d)	$855	$53	$802
Throughput volumes (thousand BPD)	266	262	4
Throughput margin per barrel (h)	$17.00	$8.60	$8.40
Operating costs per barrel:			
Operating expenses	5.92	5.91	0.01
Depreciation and amortization expense	2.26	2.14	0.12
Total operating costs per barrel	8.18	8.05	0.13
Adjusted operating income per barrel (i)	$8.82	$0.55	$8.27

See note references on pages 50 through 52.

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Average Market Reference Prices and Differentials
(dollars per barrel, except as noted)

	Year Ended December 31,		
	2015	2014	Change
Feedstocks			
Brent crude oil	$53.62	$99.57	$(45.95)
Brent less WTI crude oil	4.91	6.40	(1.49)
Brent less ANS crude oil	0.67	1.73	(1.06)
Brent less LLS crude oil (j)	1.26	2.77	(1.51)
Brent less ASCI crude oil (k)	5.63	7.20	(1.57)
Brent less Maya crude oil	9.54	13.73	(4.19)
LLS crude oil (j)	52.36	96.80	(44.44)
LLS less ASCI crude oil (j) (k)	4.37	4.43	(0.06)
LLS less Maya crude oil (j)	8.28	10.96	(2.68)
WTI crude oil	48.71	93.17	(44.46)
Natural gas (dollars per MMBtu)	2.58	4.36	(1.78)
Products			
U.S. Gulf Coast:			
CBOB gasoline less Brent	9.83	3.54	6.29
Ultra-low-sulfur diesel less Brent	12.64	14.28	(1.64)
Propylene less Brent	(5.94)	5.57	(11.51)
CBOB gasoline less LLS (j)	11.09	6.31	4.78
Ultra-low-sulfur diesel less LLS (j)	13.90	17.05	(3.15)
Propylene less LLS (j)	(4.68)	8.34	(13.02)
U.S. Mid-Continent:			
CBOB gasoline less WTI	17.59	12.28	5.31
Ultra-low-sulfur diesel less WTI	19.02	24.05	(5.03)
North Atlantic:			
CBOB gasoline less Brent	12.85	9.07	3.78
Ultra-low-sulfur diesel less Brent	16.05	18.25	(2.20)
U.S. West Coast:			
CARBOB 87 gasoline less ANS	25.56	13.40	12.16
CARB diesel less ANS	16.90	19.14	(2.24)
CARBOB 87 gasoline less WTI	29.80	18.07	11.73
CARB diesel less WTI	21.14	23.81	(2.67)
New York Harbor corn crush (dollars per gallon)	0.22	0.85	(0.63)

See note references on pages 50 through 52.

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The following notes relate to references on pages 27 through 36 and pages 40 through 49.

(a) In accordance with U.S. GAAP, we are required to state our inventories at the lower of cost or market. When the market price of our inventory falls below cost, we record a lower of cost or market inventory valuation adjustment to write down the value to market. In subsequent periods, the value of our inventory is reassessed and a lower of cost or market inventory valuation adjustment is recorded to reflect the net change in the lower of cost or market inventory valuation reserve between periods. As of December 31, 2016, the market price of our inventory was above cost; therefore, we did not have a lower of cost or market inventory valuation reserve as of that date. During the year ended December 31, 2016, we recorded a change in our inventory valuation reserve that was established on December 31, 2015, resulting in a noncash benefit of $747 million, of which $697 million and $50 million were attributable to our refining segment and ethanol segment, respectively. The year ended December 31, 2015 includes a lower of cost or market inventory valuation adjustment that resulted in a noncash charge of $790 million, of which $740 million and $50 million were attributable to our refining segment and ethanol segment, respectively. The noncash benefit for the year ended December 31, 2016 differs from the noncash charge for the year ended December 31, 2015 due to the foreign currency effect of inventories held by our international operations. This adjustment is further discussed in Note 4 of Notes to Consolidated Financial Statements.

(b) Effective October 1, 2016, we (i) transferred ownership of all of our assets in Aruba, other than certain hydrocarbon inventories and working capital, to Refineria di Aruba N.V. (RDA), an entity wholly-owned by the GOA, (ii) settled our obligations under various agreements with the GOA, including agreements that required us to dismantle our leasehold improvements under certain conditions, and (iii) sold the working capital of our Aruba operations, including hydrocarbon inventories, to the GOA, CITGO Aruba Refining N.V. (CAR), and CITGO Petroleum Corporation (together with CAR and certain other affiliates, collectively, CITGO). We refer to this transaction as the “Aruba Disposition.”

In June 2016, we recognized an asset impairment loss of $56 million representing all of the remaining carrying value of the long-lived assets of our crude oil and refined petroleum products terminal and transshipment facility in Aruba (collectively, the Aruba Terminal). We recognized the impairment loss at that time because we concluded that it was more likely than not that we would ultimately transfer ownership of these assets to the GOA as a result of agreements entered into in June 2016 between the GOA and CITGO for the GOA’s lease of those assets to CITGO.

In September 2016 and in connection with the Aruba Disposition, our U.S. subsidiaries cancelled all outstanding debt obligations owed to them by our Aruba subsidiaries, which resulted in the recognition by us of an income tax benefit in the U.S. during the year ended December 31, 2016. We had no income tax effect in Aruba from the cancellation of debt or other effects of the Aruba Disposition because of net operating loss carryforwards associated with our operations in Aruba against which we had previously recorded a full valuation allowance. There was no other significant effect to our results of operations or cash flows from the Aruba Disposition during the year ended December 31, 2016.

(c) The variation in the customary relationship between income tax expense and income before income tax expense for the year ended December 31, 2016 is primarily due to the higher earnings from our international operations that are taxed at statutory rates that are lower than in the U.S. and the recognition of an income tax benefit in the U.S. in connection with the Aruba Disposition (see note (b) above).

(d) We use certain financial measures (as noted below) that are not defined under U.S. GAAP and are considered to be non-GAAP 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 U.S. 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 U.S. GAAP measures nor should they be considered in isolation or as a substitute for an analysis of our results of

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operations as reported under U.S. 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 the utility of these measures.

Non-GAAP measures are as follows:

Adjusted net income attributable to Valero Energy Corporation stockholders is defined as net income attributable to Valero Energy Corporation stockholders excluding the lower of cost or market inventory valuation adjustment, its related income tax effect, the asset impairment loss, and the income tax benefit on the Aruba Disposition.
Adjusted net income from continuing operations attributable to Valero Energy Corporation stockholders is defined as net income from continuing operations attributable to Valero Energy Corporation stockholders excluding the lower of cost or market inventory valuation adjustment, its related income tax effect, the LIFO gain, and its related income tax effect (see (e) below).
Gross margin is defined as operating income excluding the lower of cost or market inventory valuation adjustment, operating expenses, depreciation and amortization expense, asset impairment loss, and LIFO gain (see (e) below).
Adjusted operating income is defined as operating income excluding the lower of cost or market inventory valuation adjustment and the asset impairment loss. For the year ended December 31, 2014, adjusted operating income is further defined to exclude the LIFO gain (see (e) below).

(e) "Cost of sales (excluding the lower of cost or market inventory valuation adjustment)" for the year ended December 31, 2014 reflects a LIFO gain of $233 million, of which $229 million and $4 million were attributable to our refining segment and ethanol segment, respectively.

(f) The regions reflected herein contain the following refineries: the U.S. Gulf Coast region includes the Corpus Christi East, Corpus Christi West, Houston, Meraux, Port Arthur, St. Charles, Texas City, and Three Rivers Refineries; the U.S. Mid-Continent region includes the Ardmore, McKee, and Memphis Refineries; the North Atlantic region includes the Pembroke and Quebec City Refineries; and the U.S. West Coast region includes the Benicia and Wilmington Refineries.

(g) Other products primarily include petrochemicals, gas oils, No. 6 fuel oil, petroleum coke, sulfur, and asphalt.

(h) Throughput margin per barrel represents gross margin (as defined in (d) above) for our refining segment or refining regions divided by the respective throughput volumes. Gross margin per gallon of production represents gross margin (as defined in (d) above) for our ethanol segment divided by production volumes. Throughput and production volumes are calculated by multiplying throughput and production volumes per day (as provided in the accompanying tables) by the number of days in the applicable period.

(i) Adjusted operating income per barrel represents adjusted operating income (defined in (d) above) for our refining segment or refining regions divided by the respective throughput volumes. Adjusted operating income per gallon of production represents adjusted operating income (defined in (d) above) for our ethanol segment divided by production volumes. Throughput and production volumes are calculated by multiplying throughput and production volumes per day (as provided in the accompanying tables) by the number of days in the applicable period.

(j) Average market reference prices for LLS crude oil, along with price differentials between the price of LLS crude oil and other types of crude oils are reflected without adjusting for the impact of the futures pricing for the corresponding delivery month. Therefore, the prices reported reflect the prompt month pricing only, without an adjustment for futures pricing (known in the industry as the Calendar Month Average (CMA) "roll" adjustment). We previously had provided average market reference prices that included the CMA "roll" adjustment. Accordingly, the average market reference price and price differentials for LLS crude oil for the years ended December 31, 2015 and

2014 have been adjusted to conform to the current presentation.

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(k) Average market reference price differentials to Mars crude oil have been replaced by average market reference price differentials to ASCI crude oil. Mars crude oil is one of the three grades of sour crude oil used to create ASCI crude oil, and therefore, ASCI crude oil is a more comprehensive price marker for medium sour crude oil. Accordingly, the price differentials for ASCI crude oil for the years ended December 31, 2015 and 2014 are included to conform to the current presentation.

General

Operating revenues decreased $43.0 billion (or 33 percent) and "cost of sales (excluding the lower of cost or market inventory valuation adjustment)" decreased $44.3 billion (or 37 percent) for 2015 compared to 2014 primarily due to a decrease in refined petroleum product prices and crude oil feedstock costs, respectively. Despite the decrease in operating revenues, "cost of sales (excluding the lower of cost or market inventory valuation adjustment)" decreased to a greater extent resulting in an increase in operating income of $456 million in 2015, with refining segment operating income increasing by $1.1 billion and ethanol segment operating income decreasing by $644 million. Adjusted operating income increased $1.5 billion in 2015 compared to 2014, primarily due to an increase in refining segment adjusted operating income of $2.1 billion, partially offset by a decrease in ethanol segment adjusted operating income of $590 million. The reasons for these changes in the operating results of our segments, as well as other items that affected our income, are discussed below.

Refining

Refining segment adjusted operating income increased $2.1 billion for 2015 compared to 2014, primarily due to a $2.1 billion increase in refining gross margin and a $105 million decrease in operating expenses, partially offset by a $148 million increase in depreciation and amortization expense.

Refining gross margin increased $2.1 billion (a $1.92 per barrel increase) for 2015 compared to 2014, primarily due to the following:

- Increase in gasoline margins - We experienced an increase in gasoline margins throughout all our regions during 2015. For example, the Brent-based benchmark reference margin for U.S. Gulf Coast CBOB gasoline was $9.83 per barrel in 2015 compared to $3.54 per barrel in 2014, a favorable increase of $6.29 per barrel. Another example is the ANS-based reference margin for U.S. West Coast CARBOB gasoline that was $25.56 per barrel in 2015 compared to $13.40 per barrel in 2014, a favorable increase of $12.16 per barrel. We estimate that the increase in gasoline margins per barrel in 2015 compared to 2014 had a positive impact to our refining margin of approximately $2.9 billion.

- Increase in other refined petroleum products margins - We experienced an increase in the margins of other refined petroleum products such as petroleum coke, propane, sulfur, and lubes in 2015 compared to 2014. Margins for other refined petroleum products were higher during 2015 due to the lower cost of crude oils in 2015 compared to 2014. Because the market prices for our other refined petroleum products remain relatively stable, we benefit when the cost of crude oils that we process declines. For example, the benchmark price of Brent crude oil was $53.62 per barrel in 2015 compared to $99.57 per barrel in 2014. We estimate that the increase in margins for other refined petroleum products in 2015 compared to 2014 had a positive impact to our refining margin of approximately $1.6 billion.

- Lower discounts on light sweet and sour crude oils - Because the market prices for refined petroleum products generally track the price of Brent crude oil, which is a benchmark sweet crude oil, we benefit when we process crude oils that are priced at a discount to Brent crude oil. For 2015, the discount in the price of light sweet and sour crude oils compared to the price of Brent crude oil narrowed. Therefore, while we benefitted from processing crude oils priced at a discount to Brent crude oil, that benefit declined

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in 2015 compared to 2014. For example, we processed LLS crude oil (a type of light sweet crude oil) in our U.S. Gulf Coast region that sold at a discount of $1.26 per barrel to Brent crude oil in 2015 compared to $2.77 per barrel in 2014, representing an unfavorable decrease of $1.51 per barrel. Another example is Maya crude oil (a type of sour crude oil) that sold at a discount of $9.54 per barrel to Brent crude oil in 2015 compared to a discount of $13.73 per barrel in 2014, representing an unfavorable decrease of $4.19 per barrel. We estimate that the narrowing of the discounts for sweet crude oils and sour crude oils that we processed during 2015 had an unfavorable impact to our refining margin of approximately $260 million and $770 million, respectively.

- Lower benefit from processing other feedstocks - In addition to crude oil, we use other feedstocks and blendstocks in our refining processes, such as natural gas. When combined with steam, natural gas produces hydrogen that is used in our hydrotreater and hydrocracker processing units to produce refined petroleum products. Although natural gas costs declined from 2014 to 2015, the decline was not as significant as the decline in the cost of Brent crude oil; therefore, the benefit we normally derive by using natural gas as a feedstock declined. We estimate that the decline in the benefit we derived from processing other feedstocks had an unfavorable impact to our refining margin of approximately $980 million in 2015 compared to 2014.

- Decrease in distillate margins - We experienced a decrease in distillate margins throughout all our regions during 2015. For example, the WTI-based benchmark reference margin for U.S. Mid-Continent ultra-low-sulfur diesel (a type of distillate) was $19.02 per barrel in 2015 compared to $24.05 per barrel in 2014, an unfavorable decrease of $5.03 per barrel. Another example is the Brent-based benchmark reference margin for U.S. Gulf Coast ultra-low-sulfur diesel that was $12.64 per barrel in 2015 compared to $14.28 per barrel in 2014, an unfavorable decrease of $1.64 per barrel. We estimate that the decrease in distillate margins per barrel in 2015 compared to 2014 had an unfavorable impact to our refining margin of approximately $650 million.

- Higher throughput volumes - Refining throughput volumes increased by 34,000 BPD in 2015. We estimate that the increase in refining throughput volumes had a positive impact to our refining margin of approximately $160 million in 2015.

The decrease of $105 million in operating expenses was primarily due to a $196 million decrease in energy costs driven by lower natural gas prices ($2.58 per MMBtu in 2015 compared to $4.36 per MMBtu in 2014). This decrease in energy costs was partially offset by a $47 million increase in employee-related expenses primarily due to higher employee benefit costs and incentive compensation expenses, and a $26 million increase in costs associated with higher levels of maintenance activities in 2015.

The increase of $148 million in depreciation and amortization expense was primarily associated with the impact of new capital projects that began operating in 2015 and higher refinery turnaround and catalyst amortization.

Ethanol

Ethanol segment adjusted operating income decreased $590 million for 2015 compared to 2014, primarily due to a $628 million decrease in gross margin, partially offset by a $39 million decrease in operating expenses.

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The decrease in ethanol segment gross margin of $628 million was primarily due to the following:

- Lower ethanol prices - Ethanol prices were lower in 2015 primarily due to the decrease in crude oil and gasoline prices in 2015 compared to 2014. For example, the New York Harbor ethanol price was $1.59 per gallon in 2015 compared to $2.37 per gallon in 2014. We estimate that the decrease in the price of ethanol per gallon during 2015 had an unfavorable impact to our ethanol margin of approximately $800 million.

- Lower corn prices - Corn prices were lower in 2015 compared to 2014 due to a higher domestic corn yield realized during the 2014 fall harvest (most of which is processed in the following year). For example, the CBOT corn price was $3.77 per bushel in 2015 compared to $4.16 per bushel in 2014. We estimate that the decrease in the price of corn that we processed during 2015 had a favorable impact to our ethanol margin of approximately $160 million.

- Lower co-product prices - The decrease in corn prices in 2015 compared to 2014 had a negative effect on the prices we received for corn-related ethanol co-products, such as distillers grains and corn oil. We estimate that the decrease in co-product prices had an unfavorable impact to our ethanol margin of approximately $40 million.

- Increased production volumes - Ethanol margin was favorably impacted by increased production volumes of 405,000 gallons per day in 2015. Production volumes in 2014 were negatively impacted by weather-related rail disruptions. In addition, production volumes in 2015 were positively impacted by production volumes from our Mount Vernon plant, which began operations in August 2014. We estimate that the increase in production volumes had a favorable impact to our ethanol margin of approximately $50 million.

The $39 million decrease in operating expenses was primarily due to a $40 million decrease in energy costs related to lower natural gas prices ($2.58 per MMBtu in 2015 compared to $4.36 per MMBtu in 2014).

Other

“Interest and debt expense, net of capitalized interest” increased by $36 million in 2015. This increase was primarily due to the impact from $1.25 billion of debt issued by Valero and $200 million borrowed by VLP under its $750 million senior unsecured revolving credit facility agreement (the VLP Revolver) in 2015.

Income tax expense increased $93 million in 2015. This increase was lower than expected given the increase in income from continuing operations of $419 million and was primarily due to earnings from our international operations that are taxed at statutory tax rates that are lower than in the U.S. In addition, in 2015, the U.K. statutory rate was lowered and we favorably settled various U.S. income tax audits.

The loss from discontinued operations in 2014 includes expenses of $64 million primarily related to an asset retirement obligation associated with our decision in May 2014 to abandon the Aruba Refinery, as further described in Note 2 of Notes to Consolidated Financial Statements.

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LIQUIDITY AND CAPITAL RESOURCES

Cash Flows for the Year Ended December 31, 2016

Our operations generated $4.8 billion of cash in 2016, driven primarily by net income of $2.4 billion, net noncash charges to income of $1.4 billion, and a positive change in working capital of $976 million. Noncash charges include $1.9 billion of depreciation and amortization expense, $56 million for the asset impairment loss associated with our Aruba Terminal, and $230 million of deferred income tax expense, partially offset by a benefit of $747 million from a lower of cost or market inventory valuation adjustment. See “RESULTS OF OPERATIONS” for further discussion of our operations. The change in our working capital is further detailed in Note 17 of Notes to Consolidated Financial Statements. This source of cash mainly resulted from:

- an increase in accounts payable, offset by an increase in receivables, primarily as a result of higher commodity prices;
- a reduction of our inventories; and
- a reduction in income taxes receivable due to utilization in 2016 of our 2015 overpayment of taxes.

The $4.8 billion of cash generated by our operations, along with $2.2 billion in proceeds from the issuance of debt (including $1.25 billion of 3.4 percent Senior Notes due September 15, 2026, $500 million of 4.375 percent Senior Notes due December 15, 2026 issued by VLP, and borrowings under the VLP Revolver of $349 million as discussed in Note 8 of Notes to Consolidated Financial Statements), were used mainly to:

- fund $2.0 billion in capital investments,which include capital expenditures, deferred turnaround and catalyst costs, and equity-method joint venture investments;
- redeem our 6.125 percent Senior Notes for $778 million (or 103.70 percent of stated value) and our 7.2 percent Senior Notes for $213 million (or 106.27 percent of stated value);
- make payments on debt and capital lease obligations of $525 million, of which $494 million related to borrowings under the VLP Revolver, $9 million related to capital lease obligations, and $22 million related to other non-bank debt;
- pay off a long-term liability of $137 million owed to a joint venture partner for an owner-method joint venture investment;
- purchase common stock for treasury of $1.3 billion;
- pay common stock dividends of $1.1 billion;
- pay distributions of $65 million to noncontrolling interests; and
- increase available cash on hand by $702 million.

Cash Flows for the Year Ended December 31, 2015

Our operations generated $5.6 billion of cash in 2015, driven primarily by net income of $4.1 billion and net noncash charges to income of $2.8 billion. Noncash charges include $1.8 billion of depreciation and amortization expense, $790 million from a lower of cost or market inventory valuation adjustment, and $165 million of deferred income tax expense. See “RESULTS OF OPERATIONS” for further discussion of our operations. However, the change in our working capital during the year had a negative impact to cash generated by our operations of $1.3 billion as shown in Note 17 of Notes to Consolidated Financial Statements. This use of cash mainly resulted from:

- a decrease in accounts payable, net of a decrease in receivables, primarily as a result of a decrease in commodity prices from December 2014 to December 2015;
- an increase in income taxes receivable and a decrease in income taxes payable due to tax payments associated with the settlement of several IRS audits and an overpayment of taxes in 2015. This overpayment resulted from a change in the U.S. Federal tax laws late in the year that reinstated the bonus depreciation deduction, which lowered our current income tax expense; and

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- an increase in inventories, mainly due to the build in inventory volumes in 2015 as we purchased crude oil at prices we deemed favorable during the fourth quarter of 2015.

The $5.6 billion of cash generated by our operations in 2015, along with (i) $1.45 billion in proceeds from the issuance of debt and (ii) net proceeds of $189 million from VLP's public offering of 4,250,000 common units as discussed in Note 10 of Notes to Consolidated Financial Statements, were used mainly to:

- fund $2.4 billion in capital investments, which include capital expenditures, deferred turnaround and catalyst costs, and equity-method joint venture investments;
- make payments on debt and capital lease obligations of $513 million, of which $400 million related to our 4.5 percent Senior Notes, $75 million related to our 8.75 percent debentures, $25 million related to the VLP Revolver, $10 million related to capital lease obligations, and $3 million related to other non-bank debt;
- purchase common stock for treasury of $2.8 billion;
- pay common stock dividends of $848 million; and
- increase available cash on hand by $425 million.

Cash Flows for the Year Ended December 31, 2014

Our operations generated $4.2 billion of cash in 2014, driven primarily by net income of $3.7 billion and $2.2 billion of noncash charges to income. Noncash charges include $1.7 billion of depreciation and amortization expense, $63 million of asset retirement and other expenses associated with our Aruba Refinery, and $445 million of deferred income tax expense. See "RESULTS OF OPERATIONS" for further discussion of our operations. However, the change in our working capital during the year had a negative impact to cash generated by our operations of $1.8 billion as shown in Note 17 of Notes to Consolidated Financial Statements. This use of cash mainly resulted from:

- a decrease in accounts receivable, which was offset by a decrease in accounts payable, primarily as a result of a decrease in commodity prices from December 2013 to December 2014;
- a decrease in income taxes payable resulting from income tax payments exceeding income tax liabilities incurred in 2014 due to the payment of liabilities associated with prior period earnings; and
- an increase in inventories mainly due to the build in inventory volumes from 2013 to 2014 as we purchased crude oil at prices we deemed favorable during the fourth quarter of 2014.

The $4.2 billion of cash generated by our operations in 2014, along with $603 million from available cash on hand, were used mainly to:

- fund $2.8 billion in capital investments, which include capital expenditures, deferred turnaround and catalyst costs, and equity-method joint venture investments;
- make payments on debt and capital lease obligations of $204 million, of which $200 million related to our 4.75 percent Senior Notes, and $4 million related to capital lease obligations;
- purchase common stock for treasury of $1.3 billion; and
- pay common stock dividends of $554 million.

Capital Investments

We define capital investments as capital expenditures for additions to and improvements of our refining and ethanol segment assets (including turnaround and catalyst costs) and investments in joint ventures.

Our operations, especially those of our refining segment, are highly capital intensive. Each of our refineries comprises a large base of property assets, consisting of a series of interconnected, highly integrated and interdependent crude oil processing facilities and supporting logistical infrastructure (Units), and these Units are improved continuously. The cost of improvements, which consist of the addition of new Units and

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betterments of existing Units, can be significant. We have historically acquired our refineries at amounts significantly below their replacement costs, whereas our improvements are made at full replacement value. As such, the costs for improving our refinery assets increase over time and are significant in relation to the amounts we paid to acquire our refineries. We plan for these improvements by developing a multi-year capital program that is updated and revised based on changing internal and external factors.

We make improvements to our refineries in order to maintain and enhance their operating reliability, to meet environmental obligations with respect to reducing emissions and removing prohibited elements from the products we produce, or to enhance their profitability. Reliability and environmental improvements generally do not increase the throughput capacities of our refineries. Improvements that enhance refinery profitability may increase throughput capacity, but many of these improvements allow our refineries to process different types of crude oil and to refine crude oil into products with higher market values. Therefore, many of our improvements do not increase throughput capacity significantly.

We hold equity-method investments in joint ventures and we invest in these joint ventures or enter into new joint venture arrangements to enhance our operations. In December 2015, we exercised our option to purchase a 50 percent interest in Diamond Pipeline LLC (Diamond Pipeline), which was formed by Plains All American Pipeline, L.P. (Plains) to construct and operate a 440-mile, 20-inch crude oil pipeline expected to provide capacity of up to 200,000 BPD of domestic sweet crude oil from the Plains Cushing, Oklahoma terminal to our Memphis Refinery, with the ability to connect into the Capline Pipeline. The pipeline is expected to be completed in 2017 for an estimated $925 million. We have contributed $138 million in Diamond Pipeline and expect to continue making contributions as the construction progresses.

For 2017, we expect to incur approximately $2.7 billion for capital investments, including capital expenditures, deferred turnaround and catalyst costs, and equity-method joint venture investments. This consists of approximately $1.6 billion for stay-in-business capital and $1.1 billion for growth strategies, including our continued investment in Diamond Pipeline. This capital investment estimate excludes potential strategic acquisitions. We continuously evaluate our capital budget and make changes as conditions warrant.

Contractual Obligations

Our contractual obligations as of December 31, 2016 are summarized below (in millions).

	Payments Due by Period						
	2017	2018	2019	2020	2021	Thereafter	Total
Debt and capital lease obligations (a)	$122	$21	$771	$898	$17	$ 6,281	$8,110
Operating lease obligations	479	321	221	162	106	362	1,651
Purchase obligations	21,750	3,517	1,986	1,446	1,116	5,483	35,298
Other long-term liabilities	—	125	88	85	80	1,366	1,744
Total	$22,351	$3,984	$3,066	$2,591	$1,319	$ 13,492	$46,803

(a) Debt obligations exclude amounts related to unamortized discounts and debt issuance costs. Capital lease obligations include related interest expense. These items are further described in Note 8 of Notes to Consolidated Financial Statements.

In October 2016, we entered into agreements to lease storage tanks located at three of our refineries. The leases commenced in January 2017. The lease agreements will be accounted for as capital leases and we expect to recognize capital lease assets and related obligations of approximately $490 million. These capital

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lease agreements have initial terms of 10 years each and each agreement has successive 10-year automatic renewal terms.

Debt and Capital Lease Obligations

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 2016, we amended our agreement to decrease the facility from $1.4 billion to $1.3 billion and extended the maturity date to July 2017. As of December 31, 2016, the amount of eligible receivables sold was $100 million. All amounts outstanding under this facility are reflected as debt.

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 would increase. All of our ratings on our senior unsecured debt are at or above investment grade level as follows:

	Rating	
Rating Agency	Valero	VLP
Moody’s Investors Service	Baa2 (stable outlook)	Baa3 (stable outlook)
Standard & Poor’s Ratings Services	BBB (stable outlook)	BBB- (stable outlook)
Fitch Ratings	BBB (stable outlook)	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 and may be revised or withdrawn at any time by the rating agency. 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.

Operating Lease Obligations

Our operating lease obligations include leases for land, office facilities and equipment, transportation equipment, time charters for ocean-going tankers and coastal vessels, dock facilities, and various facilities and equipment used in the storage, transportation, production, and sale of refinery feedstocks, refined petroleum products, and corn inventories. Operating lease obligations include all operating leases that have initial or remaining noncancelable terms in excess of one year, and are not reduced by minimum rentals to be received by us under subleases.

Purchase Obligations

A purchase obligation is an enforceable and legally binding agreement to purchase goods or services that specifies significant terms, including (i) fixed or minimum quantities to be purchased, (ii) fixed, minimum, or variable price provisions, and (iii) the approximate timing of the transaction. We have various purchase obligations including industrial gas and chemical supply arrangements (such as hydrogen supply arrangements), crude oil and other feedstock supply arrangements, and various throughput and terminalling agreements. We enter into these contracts to ensure an adequate supply of utilities and feedstock and adequate storage capacity to operate our refineries. 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. The purchase obligation amounts shown in the table above include both short- and long-term obligations and are based on (a) fixed

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or minimum quantities to be purchased and (b) fixed or estimated prices to be paid based on current market conditions.

Other Long-term Liabilities

Our other long-term liabilities are described in Note 7 of Notes to Consolidated Financial Statements. For purposes of reflecting amounts for other long-term liabilities in the table above, we made our best estimate of expected payments for each type of liability based on information available as of December 31, 2016.

Summary of Credit Facilities

As of December 31, 2016, we had outstanding borrowings, letters of credit issued, and availability under our credit facilities as follows (in millions):

			December 31, 2016		
	Facility Amount	Maturity Date	Outstanding Borrowings	Letters of Credit Issued	Availability
Committed facilities:					
Valero Revolver	$ 3,000	November 2020	$ —	$ 53	$ 2,947
VLP Revolver	$ 750	November 2020	$ 30	$ —	$ 720
Canadian Revolver	C$25	November 2017	C$—	C$10	C$ 15
Accounts receivable sales facility	$ 1,300	July 2017	$ 100	$ —	$ 1,200
Letter of credit facilities	$ 225	June 2017 and November 2017	$ —	$ —	$ 225
Uncommitted facilities:					
Letter of credit facilities	$ 670	N/A	$ —	$ 202	$ 468

Letters of credit issued as of December 31, 2016 expire in 2017 through 2018.

Off-Balance Sheet Arrangements

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 Programs

On September 21, 2016, our board of directors authorized our purchase of up to an additional $2.5 billion of our outstanding common stock (the 2016 program) with no expiration date. This authorization was in addition to the remaining amount available under a $2.5 billion program authorized on July 13, 2015 (the 2015 program). As of December 31, 2016, we had approximately $2.5 billion remaining available under the 2015 program and the 2016 program, but we have no obligation to make purchases under these programs.

Pension Plan Funding

We plan to contribute approximately $28 million to our pension plans and $19 million to our other postretirement benefit plans during 2017.

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 gasolines and distillates. Because environmental laws and

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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 as previously discussed above in “OUTLOOK.” In addition, any major upgrades in any of our operating facilities could require material additional expenditures to comply with environmental laws and regulations. See Notes 7 and 9 of Notes to Consolidated Financial Statements for a further discussion of our environmental matters.

Tax Matters

During 2016, we settled the audit related to our U.S. federal income tax returns for 2008 and 2009. The IRS has ongoing tax audits related to our U.S. federal income tax returns from 2010 through 2014, and we have received Revenue Agent Reports (RARs) in connection with the 2010 and 2011 audit. We are contesting certain tax positions and assertions included in the RARs and continue to make progress in resolving certain of these matters with the IRS. We believe that the ultimate settlement of these audits will not be material to our financial position, results of operations, or liquidity.

Cash Held by Our International Subsidiaries

We operate in countries outside the U.S. through subsidiaries incorporated in these countries, and the earnings of these subsidiaries are taxed by the countries in which they are incorporated. We intend to reinvest these earnings indefinitely in our international operations even though we are not restricted from repatriating such earnings to the U.S. in the form of cash dividends. Should we decide to repatriate such earnings, we would incur and pay taxes on the amounts repatriated. In addition, such repatriation could cause us to record deferred tax expense that could significantly impact our results of operations, as further discussed in Note 14 of Notes to Consolidated Financial Statements. We believe, however, that a substantial portion of our international cash can be returned to the U.S. without significant tax consequences through means other than a repatriation of earnings. As of December 31, 2016, $2.2 billion of our cash and temporary cash investments was held by our international subsidiaries.

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. 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.

Sources of Liquidity

We believe that we have sufficient funds from operations and, to the extent necessary, from borrowings under our credit facilities, to fund our ongoing operating requirements. We expect that, to the extent necessary, we can raise additional funds from time to time 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.

NEW ACCOUNTING PRONOUNCEMENTS

As discussed in Note 1 of Notes to Consolidated Financial Statements, certain new financial accounting pronouncements will become effective for our financial statements in the future. The adoption of these pronouncements is not expected to have a material effect on our financial statements, except as otherwise disclosed.

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CRITICAL ACCOUNTING POLICIES INVOLVING CRITICAL ACCOUNTING ESTIMATES

The preparation of financial statements in accordance with U.S. 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.

Lower of Cost or Market Inventory Valuation

Inventories are carried at the lower of cost or market. Cost is principally determined under the LIFO method using the dollar-value LIFO approach. Market value is determined based on the net realizable value of the inventories.

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 our refinery and ethanol feedstocks are converted into refined petroleum products, which requires us to make estimates regarding the refined petroleum products expected to be produced from those feedstocks and the conversion costs required to convert those feedstocks into refined petroleum products. We also estimate the usual and customary transportation costs required to move the inventory from our refineries and ethanol 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 cost, we record a lower of cost or market inventory valuation adjustment to reflect our inventories at market value.

The lower of cost or market inventory valuation adjustments for the years ended December 31, 2016 and 2015 are discussed in Note 4 of Notes to Consolidated Financial Statements.

Property, Plant, and Equipment

Depreciation of property assets used in our refining segment 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. 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 improvements impact the useful life of the group. The estimated useful lives of our composite groups range primarily from 25 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 refineries in accordance with engineering specifications, design standards, and practices 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. It should be noted, however, that factors such as competition, regulation, or environmental matters could cause us to change our estimates, thus impacting depreciation expense in the future.

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Impairment of Assets

Long-lived assets and equity method investments are tested for recoverability whenever events or changes in circumstances indicate that the carrying amount of the asset may not be recoverable. An impairment loss should be recognized if the carrying amount of the asset exceeds its fair value.

In order to test for recoverability, we must make estimates of projected cash flows related to the asset being evaluated, which include, but are not limited to, assumptions about the use or disposition of the asset, its estimated remaining life, and future expenditures necessary to maintain its existing service potential. In order to determine fair value, management must make certain estimates and assumptions including, among other things, an assessment of market conditions, projected cash flows, investment rates, interest/equity rates, and growth rates, that could significantly impact the fair value of the asset being tested for impairment. Our impairment evaluations are based on assumptions that we deem to be reasonable.

Environmental Matters

Our operations are subject to extensive environmental regulations by governmental authorities relating primarily to the discharge of materials into the environment, waste management, and pollution prevention measures. Future legislative action and regulatory initiatives, as discussed in Note 9 of Notes to Consolidated Financial Statements could result in changes to required operating permits, additional remedial actions, or increased capital expenditures and operating costs that cannot be assessed with certainty at this time.

Accruals for environmental liabilities are based on best estimates of probable undiscounted future costs over a 20-year time period using currently available technology and applying current regulations, as well as our own internal environmental policies. However, environmental liabilities are difficult to assess and estimate due to uncertainties related to the magnitude of possible remediation, the timing of such remediation, and the determination of our obligation in proportion to other parties. Such estimates are subject to change due to many factors, including the identification of new sites requiring remediation, changes in environmental laws and regulations and their interpretation, additional information related to the extent and nature of remediation efforts, and potential improvements in remediation technologies.

The amount of our accruals for environmental matters as of December 31, 2016 and 2015 are included in Note 7 of Notes to Consolidated Financial Statements.

Pension and Other Postretirement Benefit Obligations

We have significant pension and other postretirement benefit liabilities and costs that are developed from actuarial valuations. Inherent in these valuations are key assumptions including discount rates, expected return on plan assets, future compensation increases, and health care cost trend rates. These assumptions are disclosed and described in Note 12 of Notes to Consolidated Financial Statements. Changes in these assumptions are primarily influenced by factors outside of our control. For example, the discount rate assumption represents a yield curve comprised of various long-term bonds that have an average rating of double-A when averaging all available ratings by the recognized rating agencies, while the expected return on plan assets is based on a compounded return calculated assuming an asset allocation that is representative of the asset mix in our pension plans. To determine the expected return on plan assets, we utilized a forward-looking model of asset returns. The historical geometric average return over the 10 years prior to December 31, 2016 was 5.50 percent. The actual return on assets for the years ended December 31, 2016, 2015, and 2014 was 7.77 percent, 1.46 percent, and 7.33 percent, respectively. These assumptions can have a significant effect on the amounts reported in our financial statements. For example, a 0.25 percent decrease in the assumptions related to the discount rate or expected return on plan assets or a 0.25 percent increase in the assumptions related to the health care cost trend rate or rate of compensation increase would have the

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following effects on the projected benefit obligation as of December 31, 2016 and net periodic benefit cost for the year ending December 31, 2017 (in millions):

	Pension Benefits	Other Postretirement Benefits
Increase in projected benefit obligation resulting from:		
Discount rate decrease	$ 106	$ 9
Compensation rate increase	12	n/a
Health care cost trend rate increase	n/a	1
Increase in expense resulting from:		
Discount rate decrease	9	1
Expected return on plan assets decrease	5	n/a
Compensation rate increase	3	n/a
Health care cost trend rate increase	n/a	—

Beginning in 2016, our net periodic benefit cost is determined using the spot-rate approach. Under this approach, our net periodic benefit cost is impacted by the spot rates of the corporate bond yield curve used to calculate our liability discount rate. If the yield curve were to flatten entirely and our liability discount rate remained unchanged, our net periodic benefit cost would increase by $18 million for pension benefits and $2 million for other postretirement benefits in 2017.

See Note 12 of Notes to Consolidated Financial Statements for a further discussion of our pension and other postretirement benefit obligations.

Tax Matters

We record tax liabilities based on our assessment of existing tax laws and regulations. A contingent loss related to an indirect tax (excise/duty, sales/use, gross receipts, and/or value-added tax) claim is recorded if the loss is both probable and estimable. The recording of our tax liabilities requires significant judgments and estimates. Actual tax liabilities can vary from our estimates for a variety of reasons, including different interpretations of tax laws and regulations and different assessments of the amount of tax due. In addition, in determining our income tax provision, we must assess the likelihood that our deferred tax assets, primarily consisting of net operating loss and tax credit carryforwards, will be recovered through future taxable income. Judgment is required in estimating the amount of a valuation allowance, if any, that should be recorded against those deferred income tax assets. If our actual results of operations differ from such estimates or our estimates of future taxable income change, the valuation allowance may need to be revised. See Note 14 of Notes to Consolidated Financial Statements for a further discussion of our tax liabilities.

Legal Matters

A variety of claims have been made against us in various lawsuits. We record a liability related to a loss contingency attributable to such legal matters if we determine that it is probable that a loss has been incurred and that the loss is reasonably estimable. The recording of such liabilities requires judgments and estimates, the results of which can vary significantly from actual litigation results due to differing interpretations of relevant law and differing opinions regarding the degree of potential liability and the assessment of reasonable damages.

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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 crude oil, refined petroleum products (primarily gasoline and distillate), grain (primarily corn), soybean oil, 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 swaps, 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 feedstock and refined petroleum product purchases, refined petroleum product sales, natural gas purchases, and corn purchases to lock in the price of those forecasted transactions at existing market prices that we deem favorable.

We use the futures markets for the available liquidity, which provides greater flexibility in transacting our price risk activities. We use swaps primarily to manage our price exposure. We also enter into certain commodity derivative instruments for trading purposes to take advantage of existing market conditions related to future results of operations and cash flows.

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 of directors.

The following sensitivity analysis includes all positions at the end of the reporting period with which we have market risk (in millions):

	Derivative Instruments Held For Non-Trading Purposes	Trading Purposes
December 31, 2016:		
Gain (loss) in fair value resulting from:		
10% increase in underlying commodity prices	$61	$(22)
10% decrease in underlying commodity prices	(61)	11
December 31, 2015:		
Gain (loss) in fair value resulting from:		
10% increase in underlying commodity prices	(45)	—
10% decrease in underlying commodity prices	45	5

See Note 19 of Notes to Consolidated Financial Statements for notional volumes associated with these derivative contracts as of December 31, 2016.

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COMPLIANCE PROGRAM PRICE RISK

We are exposed to market risk related to the volatility in the price of biofuel credits and GHG emission credits needed to comply with various governmental and regulatory programs. To manage these risks, we enter into contracts to purchase these credits when prices are deemed favorable. Some of these contracts are derivative instruments; however, we elect the normal purchase exception and do not record these contracts at their fair values. As of December 31, 2016, there was an immaterial amount of gain or loss in the fair value of derivative instruments that would result from a 10 percent increase or decrease in the underlying price of the contracts. See Note 19 of Notes to Consolidated Financial Statements for a discussion about these compliance 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.

	December 31, 2016 Expected Maturity Dates							
	2017	2018	2019	2020	2021	There-after	Total (a)	Fair Value
Fixed rate	$—	$—	$750	$850	$—	$6,224	$7,824	$8,701
Average interest rate	— %	— %	9.4 %	6.1 %	— %	5.6 %	6.0 %	
Floating rate (b)	$105	$5	$5	$35	$5	$26	$181	$181
Average interest rate	1.4 %	3.4%	3.4 %	2.5 %	3.4%	3.4 %	2.1 %	

	December 31, 2015 Expected Maturity Dates							
	2016	2017	2018	2019	2020	There-after	Total (a)	Fair Value
Fixed rate	$—	$950	$ —	$750	$850	$4,474	$7,024	$7,467
Average interest rate	— %	6.4 %	—%	9.4 %	6.1 %	6.3 %	6.6 %	
Floating rate (b)	$117	$—	$ —	$—	$175	$—	$292	$292
Average interest rate	1.7 %	— %	—%	— %	1.5 %	— %	1.6 %	

(a) Excludes unamortized discounts and debt issuance costs.
(b) As of December 31, 2016, we had an interest rate swap associated with $51 million of our floating rate debt, resulting in an effective interest rate of 3.85 percent. The fair value of the swap was immaterial. We had no interest rate derivative instruments outstanding as of December 31, 2015.

FOREIGN CURRENCY RISK

As of December 31, 2016, we had commitments to purchase $374 million of U.S. dollars. Our market risk was minimal on these contracts, as all of them matured on or before February 1, 2017.

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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, 2016. 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, 2016, 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 68 of this report.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Stockholders
Valero Energy Corporation:

We have audited the accompanying consolidated balance sheets of Valero Energy Corporation and subsidiaries as of December 31, 2016 and 2015, and 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, 2016. 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 conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States) (the PCAOB). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Valero Energy Corporation and subsidiaries as of December 31, 2016 and 2015, and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 2016, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the PCAOB, Valero Energy Corporation's internal control over financial reporting as of December 31, 2016, 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 23, 2017 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

/s/ KPMG LLP

San Antonio, Texas
February 23, 2017

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Stockholders
Valero Energy Corporation:

We have audited Valero Energy Corporation's internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). 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 conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States) (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 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.

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.

In our opinion, Valero Energy Corporation maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control – Integrated Framework (2013) issued by COSO.

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We also have audited, in accordance with the standards of the PCAOB, the consolidated balance sheets of Valero Energy Corporation and subsidiaries as of December 31, 2016 and 2015, and 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, 2016, and our report dated February 23, 2017 expressed an unqualified opinion on those consolidated financial statements.

/s/ KPMG LLP

San Antonio, Texas
February 23, 2017

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

	December 31,	
	2016	2015
ASSETS		
Current assets:		
Cash and temporary cash investments	$4,816	$4,114
Receivables, net	5,901	4,464
Inventories	5,709	5,898
Income taxes receivable	58	218
Prepaid expenses and other	316	204
Total current assets	16,800	14,898
Property, plant, and equipment, at cost	37,733	36,907
Accumulated depreciation	(11,261)	(10,204)
Property, plant, and equipment, net	26,472	26,703
Deferred charges and other assets, net	2,901	2,626
Total assets	$46,173	$44,227
LIABILITIES AND EQUITY		
Current liabilities:		
Current portion of debt and capital lease obligations	$115	$127
Accounts payable	6,357	4,907
Accrued expenses	694	554
Taxes other than income taxes	1,084	1,069
Income taxes payable	78	337
Total current liabilities	8,328	6,994
Debt and capital lease obligations, less current portion	7,886	7,208
Deferred income taxes	7,361	7,060
Other long-term liabilities	1,744	1,611
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	7,088	7,064
Treasury stock, at cost; 222,000,024 and 200,462,208 common shares	(12,027)	(10,799)
Retained earnings	26,366	25,188
Accumulated other comprehensive loss	(1,410)	(933)
Total Valero Energy Corporation stockholders' equity	20,024	20,527
Noncontrolling interests	830	827
Total equity	20,854	21,354
Total liabilities and equity	$46,173	$44,227

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,		
	2016	2015	2014
Operating revenues (a)	$75,659	$87,804	$130,844
Costs and expenses:			
Cost of sales (excluding the lower of cost or market inventory valuation adjustment)	65,962	73,861	118,141
Lower of cost or market inventory valuation adjustment	(747)	790	—
Operating expenses	4,207	4,243	4,387
General and administrative expenses	715	710	724
Depreciation and amortization expense	1,894	1,842	1,690
Asset impairment loss	56	—	—
Total costs and expenses	72,087	81,446	124,942
Operating income	3,572	6,358	5,902
Other income, net	56	46	47
Interest and debt expense, net of capitalized interest	(446)	(433)	(397)
Income from continuing operations before income tax expense	3,182	5,971	5,552
Income tax expense	765	1,870	1,777
Income from continuing operations	2,417	4,101	3,775
Loss from discontinued operations	—	—	(64)
Net income	2,417	4,101	3,711
Less: Net income attributable to noncontrolling interests	128	111	81
Net income attributable to Valero Energy Corporation stockholders	$2,289	$3,990	$3,630
Net income attributable to Valero Energy Corporation stockholders:			
Continuing operations	$2,289	$3,990	$3,694
Discontinued operations	—	—	(64)
Total	$2,289	$3,990	$3,630
Earnings per common share:			
Continuing operations	$4.94	$8.00	$7.00
Discontinued operations	—	—	(0.12)
Total	$4.94	$8.00	$6.88
Weighted-average common shares outstanding (in millions)	461	497	526
Earnings per common share – assuming dilution:			
Continuing operations	$4.94	$7.99	$6.97
Discontinued operations	—	—	(0.12)
Total	$4.94	$7.99	$6.85
Weighted-average common shares outstanding – assuming dilution (in millions)	464	500	530
Dividends per common share	$2.40	$1.70	$1.05

Supplemental information:

(a) Includes excise taxes on sales by certain of our international operations	$5,493	$5,980	$5,901

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,		
	2016	2015	2014
Net income	$2,417	$4,101	$3,711
Other comprehensive loss:			
Foreign currency translation adjustment	(415)	(606)	(407)
Net gain (loss) on pension and other postretirement benefits	(98)	57	(475)
Net gain on derivative instruments designated and qualifying as cash flow hedges	—	—	1
Other comprehensive loss before income tax expense (benefit)	(513)	(549)	(881)
Income tax expense (benefit) related to items of other comprehensive loss	(37)	17	(164)
Other comprehensive loss	(476)	(566)	(717)
Comprehensive income	1,941	3,535	2,994
Less: Comprehensive income attributable to noncontrolling interests	129	111	81
Comprehensive income attributable to Valero Energy Corporation stockholders	$1,812	$3,424	$2,913

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 Income (Loss)	Total	Non-controlling Interests	Total Equity
Balance as of December 31, 2013	$7	$7,187	$(7,054)	$18,970	$ 350	$19,460	$ 486	$19,946
Net income	—	—	—	3,630	—	3,630	81	3,711
Dividends on common stock	—	—	—	(554)	—	(554)	—	(554)
Stock-based compensation expense	—	60	—	—	—	60	—	60
Tax deduction in excess of stock-based compensation expense	—	47	—	—	—	47	—	47
Transactions in connection with stock-based compensation plans:								
Stock issuances	—	(178)	225	—	—	47	—	47
Stock purchases	—	—	(128)	—	—	(128)	—	(128)
Stock purchases under purchase program	—	—	(1,168)	—	—	(1,168)	—	(1,168)
Contributions from noncontrolling interests	—	—	—	—	—	—	12	12
Distributions to noncontrolling interests	—	—	—	—	—	—	(12)	(12)
Other comprehensive loss	—	—	—	—	(717)	(717)	—	(717)
Balance as of December 31, 2014	7	7,116	(8,125)	22,046	(367)	20,677	567	21,244
Net income	—	—	—	3,990	—	3,990	111	4,101
Dividends on common stock	—	—	—	(848)	—	(848)	—	(848)
Stock-based compensation expense	—	59	—	—	—	59	—	59
Tax deduction in excess of stock-based compensation expense	—	44	—	—	—	44	—	44
Transactions in connection with stock-based compensation plans:								
Stock issuances	—	(155)	189	—	—	34	—	34
Stock purchases	—	—	(196)	—	—	(196)	—	(196)
Stock purchases under purchase program	—	—	(2,667)	—	—	(2,667)	—	(2,667)
Issuance of Valero Energy Partners LP common units	—	—	—	—	—	—	189	189
Contributions from noncontrolling interests	—	—	—	—	—	—	5	5
Distributions to noncontrolling interests	—	—	—	—	—	—	(45)	(45)
Other comprehensive loss	—	—	—	—	(566)	(566)	—	(566)
Balance as of December 31, 2015	7	7,064	(10,799)	25,188	(933)	20,527	827	21,354
Net income	—	—	—	2,289	—	2,289	128	2,417
Dividends on common stock	—	—	—	(1,111)	—	(1,111)	—	(1,111)

Stock-based compensation expense	—	68	—	—	—	68	—	68
Transactions in connection with stock-based compensation plans:								
Stock issuances	—	(89)	95	—	—	6	—	6
Stock purchases	—	—	(61)	—	—	(61)	—	(61)
Stock purchases under purchase program	—	—	(1,262)	—	—	(1,262)	—	(1,262)
Distributions to noncontrolling interests	—	—	—	—	—	—	(65)	(65)
Other	—	45	—	—	—	45	(61)	(16)
Other comprehensive income (loss)	—	—	—	—	(477)	(477)	1	(476)
Balance as of December 31, 2016	$7	$7,088	$(12,027)	$26,366	$(1,410)	$20,024	$830	$20,854

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,		
	2016	2015	2014
Cash flows from operating activities:			
Net income	$2,417	$4,101	$3,711
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization expense	1,894	1,842	1,690
Lower of cost or market inventory valuation adjustment	(747)	790	—
Asset impairment loss	56	—	—
Aruba Refinery asset retirement expense and other	—	—	63
Deferred income tax expense	230	165	445
Changes in current assets and current liabilities	976	(1,306)	(1,810)
Changes in deferred charges and credits and other operating activities, net	(6)	19	142
Net cash provided by operating activities	4,820	5,611	4,241
Cash flows from investing activities:			
Capital expenditures	(1,278)	(1,618)	(2,153)
Deferred turnaround and catalyst costs	(718)	(673)	(649)
Investments in joint ventures	(4)	(141)	(14)
Other investing activities, net	(6)	(55)	(28)
Net cash used in investing activities	(2,006)	(2,487)	(2,844)
Cash flows from financing activities:			
Proceeds from debt issuances or borrowings	2,153	1,446	28
Repayments of debt and capital lease obligations	(1,475)	(513)	(204)
Proceeds from the exercise of stock options	6	34	47
Purchase of common stock for treasury	(1,336)	(2,838)	(1,296)
Common stock dividends	(1,111)	(848)	(554)
Proceeds from issuance of Valero Energy Partners LP common units	—	189	—
Contributions from noncontrolling interests	—	5	12
Distributions to noncontrolling interests (public unitholders) of Valero Energy Partners LP	(30)	(20)	(12)
Distributions to other noncontrolling interests	(35)	(25)	—
Other financing activities, net	(184)	25	49
Net cash used in financing activities	(2,012)	(2,545)	(1,930)
Effect of foreign exchange rate changes on cash	(100)	(154)	(70)
Net increase (decrease) in cash and temporary cash investments	702	425	(603)
Cash and temporary cash investments at beginning of year	4,114	3,689	4,292
Cash and temporary cash investments at end of year	$4,816	$4,114	$3,689

See Notes to Consolidated Financial Statements.

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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

Description of Business

As used in this report, the terms "Valero," "we," "us," or "our" may refer to Valero Energy Corporation, one or more of its consolidated subsidiaries, or all of them taken as a whole. We are an independent petroleum refiner and ethanol producer. We own 15 petroleum refineries located in the United States (U.S.), Canada, and the United Kingdom (U.K.) with a combined throughput capacity of approximately 3.1 million barrels per day as of December 31, 2016. We sell our refined petroleum products in both the wholesale rack and bulk markets, and approximately 7,400 outlets carry the Valero®, Diamond Shamrock®, Shamrock®, Ultramar®, Beacon®, and Texaco® brand names in the U.S., Canada, the U.K., and Ireland. Most of our logistics assets support our refining operations, and some of these assets are owned by Valero Energy Partners LP (VLP). See Note 11 for further discussion about VLP. We also own 11 ethanol plants in the Mid-Continent region of the U.S. with a combined production capacity of approximately 1.4 billion gallons per year as of December 31, 2016. We sell our ethanol in the wholesale bulk market, and some of our logistics assets support our ethanol operations. We operated under two reportable segments, refining and ethanol. See Note 16 for additional information about our segments.

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 Securities and Exchange Commission.

Reclassifications

Certain amounts reported as of December 31, 2015 have been reclassified to conform to the 2016 presentation, including the retrospective adoption of certain amendments to the Accounting Standards Codification (ASC) effective January 1, 2016. The adoption of Accounting Standards Update (ASU) No. 2015-15, "Interest–Imputation of Interest (Subtopic 835-30)," resulted in the reclassification of certain debt issuance costs from "deferred charges and other assets, net" to "debt and capital lease obligations, less current portion." The adoption of ASU 2015-17, "Income Taxes (Topic 740)" resulted in the reclassification of current deferred income tax assets and current deferred income tax liabilities to noncurrent deferred income tax liabilities. The following table presents our previously reported balance sheet line items retrospectively adjusted for the adoption of these pronouncements (in millions):

	December 31, 2015		
	Previously Reported	Reclassifications	Currently Reported
Assets			
Current deferred income taxes	$74	$ (74)	$ —
Deferred charges and other assets, net	2,668	(42)	2,626
Liabilities			
Current deferred income taxes	366	(366)	—
Debt and capital lease obligations, less current portion	7,250	(42)	7,208
Deferred income taxes	6,768	292	7,060

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Significant Accounting Policies

Principles of Consolidation

These financial statements include the accounts of Valero, our subsidiaries, and the accounts of partnerships and joint ventures that we control through an ownership interest greater than 50 percent or through a controlling financial interest with respect to our variable interest entities (VIEs). Our VIEs are described in Note 11. The ownership interests held by others is recorded as noncontrolling interests. Intercompany balances 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 U.S. 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.

Cash and Temporary Cash Investments

Our temporary cash investments are highly liquid, low-risk debt instruments that have a maturity of three months or less when acquired.

Receivables

Trade receivables are carried at original invoice amount. We maintain an allowance for doubtful accounts, which is adjusted based on management's assessment of our customers' historical collection experience, known credit risks, and industry and economic conditions.

Inventories

Inventories are carried at the lower of cost or market. The cost of refinery feedstocks purchased for processing, refined petroleum products, and grain and ethanol inventories are 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. The cost of feedstocks and products purchased for resale and the cost of materials and supplies are determined principally under the weighted-average cost method. Market value is determined based on the net realizable value of the inventories. We compare the market value of inventories to their cost on an aggregate basis, excluding materials and supplies. If the aggregate market value is less than cost, we record a lower of cost or market inventory valuation adjustment to reflect our inventories at market value.

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, especially those of our refining segment, are highly capital intensive. Each of our refineries comprises a large base of property assets, consisting of a series of interconnected, highly integrated and interdependent crude oil processing facilities and supporting logistical infrastructure (Units), and these Units

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are continuously improved. Improvements consist of the addition of new Units and betterments of existing Units. We plan for these improvements by developing a multi-year capital program that is updated and revised based on changing internal and external factors.

Depreciation of property assets used in our refining segment 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. 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 improvements impact the useful life of the group. The estimated useful lives of our composite groups range primarily from 25 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 refineries in accordance with engineering specifications, design standards, and practices 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. It should be noted, however, that factors such as competition, regulation, or environmental matters could cause us to change our estimates, thus impacting depreciation expense in the future.

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 in income. However, a gain or loss is recognized in income for a major property asset that is retired, replaced, or sold and 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 property assets used in our ethanol segment is recorded on a straight-line basis over the estimated useful lives of the related assets. 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. Assets acquired under capital leases are amortized on a straight-line basis over (i) the lease term if transfer of ownership does not occur at the end of the lease term or (ii) the estimated useful life of the asset if transfer of ownership does occur at the end of the lease term.

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 and ethanol plants and which 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, which are deferred when incurred and amortized on a straight-line basis over the estimated useful life of the specific catalyst;

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

- income taxes receivable;
- investments in joint ventures accounted for under the equity method; and
- intangible assets.

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 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.

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 currently in income, and is based on the difference between the estimated current fair value of the investment and its carrying amount.

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.

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 asset retirement obligations with respect to certain of our refinery assets due to various legal obligations to clean and/or dispose of various component parts of each refinery 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 our refinery assets and continue making improvements to those assets based on technological advances. As a result, we believe that our refineries have indeterminate lives for purposes of estimating asset retirement obligations because dates or ranges of dates upon which we would retire refinery assets cannot reasonably be estimated at this time. When a date or range of dates can reasonably be estimated for the retirement of any component part of a refinery, we estimate the cost of performing the retirement activities and record a liability for the fair value of that cost using established present value techniques.

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Foreign Currency Translation
The functional currency of each of our international operations is generally the respective local currency, which includes the Canadian dollar, the pound sterling, and the euro. Balance sheet accounts are translated into U.S. dollars using exchange rates in effect as of the balance sheet date. Revenue and expense accounts are translated using the weighted-average exchange rates during the year presented. Foreign currency translation adjustments are recorded as a component of accumulated other comprehensive income.

Revenue Recognition
Revenues for products sold by our refining and ethanol segments are recorded upon delivery and transfer of title to the products to our customers and when payment has either been received or collection is reasonably assured.

We present excise taxes on sales by certain of our international operations on a gross basis in revenues. The amount of such taxes is provided in supplemental information in a footnote on the statements of income. All other excise taxes are presented on a net basis.

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, as a result, revenues and cost of sales are not recognized in connection with these arrangements. 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 our own refineries. These refined petroleum product exchanges are accounted for as exchanges of non-monetary assets, and no revenues are recorded on these transactions.

Product Shipping and Handling Costs
Costs incurred for shipping and handling of products are included in cost of sales.

Environmental Compliance Program Costs
We purchase credits in the open market to meet our obligations under various environmental compliance programs. We purchase biofuel credits (primarily Renewable Identification Numbers (RINs) in the U.S.) to comply with government regulations that require us to blend a certain percentage of biofuels into the products we produce. To the degree that we are unable to blend biofuels at the required percentage, we must purchase biofuel credits to meet our obligation. We purchase greenhouse gas (GHG) emission credits to comply with government regulations concerning various GHG emission programs, including cap-and-trade systems. These programs are further described in Note 19 under “Environmental Compliance Program Price Risk.”

The costs of purchased biofuel credits and GHG emission credits are charged to cost of sales as such credits are needed to satisfy our obligation. To the extent we have not purchased enough credits to satisfy our obligation as of the balance sheet date, we charge cost of sales for such deficiency based on the market price of the credits as of the balance sheet date, and we record a liability for our obligation to purchase those credits. See Note 18 for disclosure of our fair value liability.

Stock-Based Compensation
Compensation expense for our share-based compensation plans is based on the fair value of the awards granted and is recognized in income on a straight-line basis over the shorter of (a) the requisite service period

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of each award or (b) 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.

We have elected to classify any interest expense and penalties related to the underpayment of income taxes in income tax 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 share-based payment awards, including shares of restricted stock granted under certain of our stock-based compensation plans, are included in the computation of basic earnings per share using the two-class method. Earnings per common share – assuming dilution reflects the potential dilution arising from our outstanding stock options and nonvested shares granted to employees in connection with our stock-based compensation plans. 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 temporary cash investments, receivables, payables, debt, capital 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 18.

Derivatives and Hedging

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

Accounting Pronouncements Not Yet Adopted

In May 2014, the Financial Accounting Standards Board (FASB) issued ASU No. 2014-09, “Revenue from Contracts with Customers (Topic 606),” to clarify the principles for recognizing revenue. The ASU is effective for annual reporting periods beginning after December 15, 2017, including interim reporting periods within those annual periods. We recently completed our evaluation of the provisions of this ASU and concluded that our adoption of the ASU will not materially change the amount or timing of revenues recognized by us, nor will it materially affect our financial position. The majority of our revenues are generated from the sale

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of refined petroleum products and ethanol. These revenues are largely based on the current spot (market) prices of the products sold, which represents consideration specifically allocable to the products being sold on a given day, and we recognize those revenues upon delivery and transfer of title to the products to our customers. The time at which delivery and transfer of title occurs is the point when our control of the products is transferred to our customers and when our performance obligation to our customers is fulfilled. We will adopt this ASU effective January 1, 2018, and we expect to use the modified retrospective method of adoption as permitted by the ASU. Under that method, the cumulative effect of initially applying the standard is recognized as an adjustment to the opening balance of retained earnings, and revenues reported in the periods prior to the date of adoption are not changed. During 2017, we will develop our revenue disclosures and enhance our accounting systems.

In July 2015, the FASB issued ASU No. 2015-11, “Inventory (Topic 330),” to simplify the measurement of inventory measured using the first-in, first-out or average cost methods. The provisions of this ASU require the inventory to be measured at the lower of cost and net realizable value rather than the lower of cost or market. Net realizable value is defined as the estimated selling prices in the ordinary course of business, less reasonably predicable costs of completion, disposal, and transportation. The provisions of this ASU are to be applied prospectively and are effective for annual reporting periods beginning after December 15, 2016, and interim reporting periods within those annual periods, with early adoption permitted. The adoption of this ASU effective January 1, 2017 will not affect our financial position or results of operations since the majority of our inventory is stated at LIFO.

In January 2016, the FASB issued ASU No. 2016-01, “Financial Instruments–Overall (Subtopic 825-10),” to enhance the reporting model for financial instruments regarding certain aspects of recognition, measurement, presentation, and disclosure. These provisions are effective for annual reporting periods beginning after December 15, 2017, and interim reporting periods within those annual periods. This ASU is to be applied using a cumulative-effect adjustment to the balance sheet as of the beginning of the fiscal year of adoption. The adoption of this ASU effective January 1, 2018 will not affect our financial position or results of operations, but will result in revised disclosures.

In February 2016, the FASB issued a new accounting standard under ASU No. 2016-02, “Leases (Topic 842),” to increase the transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet and disclosing key information about leasing arrangements. The new standard is effective for annual reporting periods beginning after December 15, 2018, and interim reporting periods within those annual periods, with early adoption permitted. We anticipate adopting the new standard on January 1, 2019. We recently completed our evaluation of the provisions of this standard, and a multi-disciplined implementation team has gained an understanding of the standard’s accounting and disclosure provisions. This team is developing enhanced contracting and lease evaluation processes and information systems to support such processes, as well as new and enhanced accounting systems to account for our leases and support the required disclosures. We continue to evaluate the effect that adopting this standard will have on our financial statements and related disclosures.

In October 2016, the FASB issued ASU No. 2016-16, “Income Taxes (Topic 740),” to improve the accounting for the income tax consequences of intra-entity transfers of assets other than inventory. The provisions of this ASU require an entity to recognize the income tax consequences of intra-entity transfers of assets other than inventory immediately when the transfer occurs. These provisions are effective for annual reporting

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periods beginning after December 15, 2017, and interim reporting periods within those annual periods, with early adoption permitted. The provisions should be applied on a modified retrospective basis with a cumulative-effect adjustment to the opening balance of retained earnings as of the beginning of the period of adoption to recognize the income tax consequences of intra-entity transfers of assets that occurred before the adoption date. We adopted this ASU effective January 1, 2017 and it did not materially affect our financial position or results of operations; however, certain deferred charges associated with intra-entity transfers of assets other than inventory will be reported in our balance sheet primarily as a reduction to our deferred income tax liabilities.

In October 2016, the FASB issued ASU No. 2016-17, “Consolidation (Topic 810),” to provide guidance on how a reporting entity that is a single decision maker of a VIE should treat indirect interests in the entity held through related parties that are under common control with the reporting entity when determining whether it is the primary beneficiary. The provisions of this ASU are effective for annual reporting periods beginning after December 15, 2016, and interim reporting periods within those annual periods, with early adoption permitted. The provisions should be applied on a retrospective basis to all relevant prior periods beginning with the fiscal year in which the VIE guidance was adopted with a cumulative-effect adjustment directly to retained earnings as of the beginning of the period of adoption. The adoption of this ASU effective January 1, 2017 will not affect our financial position or results of operations.

In January 2017, the FASB issued ASU No. 2017-01, “Business Combinations (Topic 805),” to assist entities with evaluating whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. The provisions of this ASU provide a more robust framework to use in determining when a set of assets and activities is a business by clarifying the requirements related to inputs, processes, and outputs. These provisions are to be applied prospectively and are effective for annual reporting periods beginning after December 15, 2017, and interim reporting periods within those annual periods. Due to its application to future acquisitions and disposals, the adoption of this ASU effective January 1, 2018 will not have any immediate effect on our financial position or results of operations.

2. ARUBA DISPOSITION

Effective October 1, 2016, we (i) transferred ownership of all of our assets in Aruba, other than certain hydrocarbon inventories and working capital, to Refineria di Aruba N.V., an entity wholly-owned by the Government of Aruba (GOA), (ii) settled our obligations under various agreements with the GOA, including agreements that required us to dismantle our leasehold improvements under certain conditions, and (iii) sold the working capital of our Aruba operations, including hydrocarbon inventories, to the GOA, CITGO Aruba Refining N.V. (CAR), and CITGO Petroleum Corporation (together with CAR and certain other affiliates, collectively, CITGO). We refer to this transaction as the “Aruba Disposition.” The agreements associated with the Aruba Disposition were finalized in September 2016, including approval of such agreements by the Aruba Parliament. We no longer own any assets or have any operations in Aruba.

The following narrative describes the events that occurred prior to or in connection with the Aruba Disposition.

- In May 2014, we abandoned our Aruba Refinery, except for the associated crude oil and refined petroleum products terminal assets that we continued to operate. As a result, the refinery’s results

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of operations have been presented in this report as discontinued operations for the year ended December 31, 2014.

The Aruba Refinery resided on land leased from the GOA and our agreements with the GOA required us to dismantle our leasehold improvements under certain conditions. Because of our May 2014 decision to abandon the refining assets, we believed the GOA would require us to dismantle those assets. As a result, we recognized an asset retirement obligation of $59 million, which was charged to expense during the second quarter of 2014 and was reflected in discontinued operations. We had not recognized an asset retirement obligation previously due to our belief that we would not be required to dismantle the assets as long as we intended to operate them. During the second quarter of 2014, we also recognized liabilities of $4 million relating to obligations under certain contracts, including a liability for the remaining lease payments for the land on which the refining assets reside. The Aruba Refinery had no operating revenues and a $64 million loss before income taxes for the year ended December 31, 2014. There was no tax benefit recognized for the loss from discontinued operations for the year ended December 31, 2014 as we did not expect to realize this tax benefit.

In June 2016, we recognized an asset impairment loss of $56 million representing all of the remaining carrying value of our long-lived assets in Aruba. These assets were primarily related to our crude oil and refined petroleum products terminal and transshipment facility in Aruba (collectively, the Aruba Terminal), which were included in our refining segment. We recognized the impairment loss at that time because we concluded that it was more likely than not that we would ultimately transfer ownership of these assets to the GOA as a result of agreements entered into in June 2016 between the GOA and CITGO providing for, among other things, the GOA's lease of those assets to CITGO. (See Note 18 for disclosure related to the method to determine fair value.) We had previously written off all of the carrying value of the long-lived assets of the refining operations (the Aruba Refinery) and recognized an asset retirement obligation upon the suspension of operations of those assets in 2012. Therefore, there was no other significant effect to our results of operations from the Aruba Disposition during the year ended December 31, 2016, except with respect to income taxes, which are discussed below. In addition, the net cash impact to us upon effectiveness of the Aruba Disposition on October 1, 2016, was not significant.

In September 2016 and in connection with the Aruba Disposition, our U.S. subsidiaries were unable to collect outstanding debt obligations owed to them by our Aruba subsidiaries, which resulted in the recognition by us of an income tax benefit in the U.S. of $42 million during the year ended December 31, 2016. We had no income tax effect in Aruba from the cancellation of debt or other effects of the Aruba Disposition because of net operating loss carryforwards associated with our operations in Aruba against which we had previously recorded a full valuation allowance.

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3. RECEIVABLES

Receivables consisted of the following (in millions):

	December 31,	
	2016	2015
Accounts receivable	$5,687	$4,105
Commodity derivative and foreign currency contract receivables	129	147
Other receivables	117	247
	5,933	4,499
Allowance for doubtful accounts	(32)	(35)
Receivables, net	$5,901	$4,464

There were no significant changes in our allowance for doubtful accounts during the years ended December 31, 2016, 2015, and 2014.

4. INVENTORIES

Inventories consisted of the following (in millions):

	December 31,	
	2016	2015
Refinery feedstocks	$2,068	$2,404
Refined petroleum products and blendstocks	3,153	3,774
Ethanol feedstocks and products	238	242
Materials and supplies	250	244
Inventories, before lower of cost or market inventory valuation reserve	5,709	6,664
Lower of cost or market inventory valuation reserve	—	(766)
Inventories	$5,709	$5,898

Inventories are valued at the lower of cost or market. As of December 31, 2015, we had a valuation reserve of $766 million in order to state our inventories at market. As of December 31, 2016, we reevaluated our inventories and determined that our cost was lower than market. As a result, we recorded a change in our lower of cost or market inventory valuation reserve that resulted in a net benefit to our results of operations of $747 million for the year ended December 31, 2016. The income statement change for the years ended December 31, 2016 and 2015 differs from the change in the balance sheet reserve due to the foreign currency effect of inventories held by our international operations.

During the year ended December 31, 2016, we had a liquidation of LIFO inventory layers that increased cost of sales by $120 million. As of December 31, 2016, the replacement cost (market value) of LIFO

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inventories exceeded their LIFO carrying amounts by $1.9 billion. As of December 31, 2016 and 2015, our non-LIFO inventories accounted for $641 million and $668 million, respectively, of our total inventories.

5. PROPERTY, PLANT, AND EQUIPMENT

Major classes of property, plant, and equipment, which include capital lease assets, consisted of the following (in millions):

	December 31,	
	2016	2015
Land	$400	$400
Crude oil processing facilities	29,754	28,688
Transportation and terminaling facilities	3,692	3,642
Grain processing equipment	855	792
Administrative buildings	838	789
Other	1,464	1,423
Construction in progress	730	1,173
Property, plant, and equipment, at cost	37,733	36,907
Accumulated depreciation	(11,261)	(10,204)
Property, plant, and equipment, net	$26,472	$26,703

We have various assets under capital leases that primarily support our refining operations totaling $118 million and $134 million as of December 31, 2016 and 2015, respectively. Accumulated amortization on assets under capital leases was $45 million and $50 million as of December 31, 2016 and 2015, respectively.

Depreciation expense for the years ended December 31, 2016, 2015, and 2014 was $1.3 billion, $1.3 billion, and $1.2 billion, respectively.

6. DEFERRED CHARGES AND OTHER ASSETS

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

	December 31,	
	2016	2015
Deferred turnaround and catalyst costs, net	$1,614	$1,484
Income taxes receivable	447	266
Investments in joint ventures	201	201
Intangible assets, net	148	156
Other	491	519
Deferred charges and other assets, net	$2,901	$2,626

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Amortization expense for the deferred charges and other assets shown above was $575 million, $542 million, and $489 million for the years ended December 31, 2016, 2015, and 2014, respectively.

7. 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,			
	2016	2015	2016	2015
Defined benefit plan liabilities (see Note 12)	$32	$40	$742	$719
Wage and other employee-related liabilities	225	292	103	100
Uncertain income tax position liabilities (see Note 14)	—	—	465	148
Environmental liabilities	29	27	223	231
Environmental credit obligations (see Note 18)	214	8	—	—
Accrued interest expense	104	96	—	—
Other accrued liabilities	90	91	211	413
Accrued expenses and other long-term liabilities	$694	$554	$1,744	$1,611

During the years ended December 31, 2016, 2015, and 2014, there were no significant changes in our environmental liabilities.

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8. DEBT AND CAPITAL LEASE OBLIGATIONS

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

	Final Maturity	December 31, 2016	2015
Bank credit facilities:			
Valero Revolver	2020	$—	$—
VLP Revolver	2020	30	175
Canadian Revolver	2017	—	—
Accounts receivable sales facility	2017	100	100
Non-bank debt:			
Valero Senior Notes			
6.625%	2037	1,500	1,500
3.4%	2026	1,250	—
6.125%	2020	850	850
9.375%	2019	750	750
7.5%	2032	750	750
4.9%	2045	650	650
3.65%	2025	600	600
10.5%	2039	250	250
8.75%	2030	200	200
7.45%	2097	100	100
6.75%	2037	24	24
7.2%	2017	—	200
6.125%	2017	—	750
VLP Senior Notes, 4.375%	2026	500	—
Gulf Opportunity Zone Revenue Bonds, Series 2010, 4.0%	2040	300	300
Debenture, 7.65%	2026	100	100
Other debt	2023	51	17
Net unamortized debt issuance costs and other		(79)	(66)
Total debt		7,926	7,250
Capital lease obligations		75	85
Total debt and capital lease obligations		8,001	7,335
Less current portion		(115)	(127)
Debt and capital lease obligations, less current portion		$7,886	$7,208

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Bank Credit Facilities

Valero Revolver

We have a $3 billion revolving credit facility (the Valero Revolver) with a group of financial institution lenders that matures in November 2020. We have the option to increase the aggregate commitments under the Valero Revolver to $4.5 billion and we may request two additional one-year extensions, subject to certain conditions. The Valero Revolver also provides for the issuance of letters of credit of up to $2.0 billion.

Outstanding borrowings under the Valero Revolver bear interest, at our option, at either (a) 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 (b) 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.

We had no borrowings or repayments under the Valero Revolver during the years ended December 31, 2016, 2015, and 2014.

VLP Revolver

VLP has a $750 million senior unsecured revolving credit facility agreement (the VLP Revolver) with a group of lenders that matures in November 2020. The VLP Revolver is available only to the operations of VLP, and creditors of VLP do not have recourse against Valero. VLP has the option to increase the aggregate commitments under the VLP Revolver to $1.0 billion and we may request two additional one-year extensions, subject to certain conditions. VLP may terminate the VLP Revolver with notice to the lenders of at least three business days prior to termination. The VLP Revolver also provides for the issuance of letters of credit of up to $100 million. As a result of VLP obtaining an investment grade rating with respect to its issuance of senior notes in December 2016, VLP’s directly owned subsidiary, Valero Partners Operating Co. LLC, was released of its guarantee under the VLP Revolver.

Outstanding borrowings under the VLP Revolver bear interest, at VLP’s option, at either (a) the adjusted LIBO rate (as defined in the VLP Revolver) for the applicable interest period in effect from time to time plus the applicable margin or (b) the alternate base rate (as defined in the VLP Revolver) plus the applicable margin. As of December 31, 2016, the variable rate was 2.3125 percent. The VLP Revolver requires payments for customary fees, including commitment fees, letter of credit participation fees, and administrative agent fees. The VLP Revolver contains certain restrictive covenants, including a ratio of total debt to EBITDA (as defined in the VLP Revolver) for the prior four fiscal quarters of not greater than 5.0 to 1.0 as of the last day of each fiscal quarter, and limitations on VLP’s ability to pay distributions to its unitholders.

During the year ended December 31, 2016, VLP borrowed $139 million and $210 million under the VLP Revolver in connection with VLP’s acquisition from us of the McKee Terminal Services Business in April 2016 and the Meraux and Three Rivers Terminal Services Business in September 2016, respectively, and repaid $494 million on the VLP Revolver in December 2016. During the year ended December 31, 2015, VLP borrowed $200 million under the VLP Revolver in connection with VLP’s acquisition from us of the Houston and St. Charles Terminal Services Business and repaid $25 million on the VLP Revolver. During the year ended December 31, 2014, VLP had no borrowings or repayments under the VLP Revolver.

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Canadian Revolver
In November 2016, one of our Canadian subsidiaries amended its committed revolving credit facility (the Canadian Revolver) to reduce the borrowing capacity from C$50 million to C$25 million under which it may borrow and obtain letters of credit and to extend the maturity date from November 2016 to November 2017.

We had no borrowings or repayments under the Canadian Revolver during the years ended December 31, 2016, 2015, and 2014.

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 2016, we amended our agreement to decrease the facility from $1.4 billion to $1.3 billion and extended the maturity date to July 2017. Proceeds from the sale of receivables under this facility are reflected as debt. 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, 2016 and 2015, $2.0 billion and $1.3 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 on the statements of cash flows. During the years ended December 31, 2016, 2015, and 2014, we had no proceeds from or repayments under the accounts receivable sales facility.

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Summary of Credit Facilities
We had outstanding borrowings, letters of credit issued, and availability under our revolving credit facilities as follows (in millions):

			December 31, 2016		
	Facility Amount	Maturity Date	Outstanding Borrowings	Letters of Credit Issued	Availability
Committed facilities:					
Valero Revolver	$ 3,000	November 2020	$ —	$ 53	$ 2,947
VLP Revolver	$ 750	November 2020	$ 30	$ —	$ 720
Canadian Revolver	C$25	November 2017	C$—	C$10	C$ 15
Accounts receivable sales facility	$ 1,300	July 2017	$ 100	$ —	$ 1,200
Letter of credit facilities	$ 225	June 2017 and November 2017	$ —	$ —	$ 225
Uncommitted facilities:					
Letter of credit facilities	$ 670	N/A	$ —	$ 202	$ 468

In July 2016, we amended one of our committed letter of credit facilities to extend the maturity date from June 2016 to June 2017. In November 2016, the remaining committed letter of credit facility was amended to reduce the borrowing capacity from $150 million to $100 million and to extend the maturity date from November 2016 to November 2017.

We also have various other uncommitted short-term bank credit facilities for which we are charged letter of credit issuance fees. These uncommitted credit facilities have no commitment fees or compensating balance requirements.

Non-Bank Debt
During the year ended December 31, 2016, the following activity occurred:

- We issued $1.25 billion of 3.4 percent Senior Notes due September 15, 2026. Proceeds from this debt issuance totaled $1.246 billion. We also incurred $10 million of debt issuance costs.
- We redeemed our 6.125 percent Senior Notes with a maturity date of June 15, 2017 for $778 million, or 103.70 percent of stated value.
- We redeemed our 7.2 percent Senior Notes with a maturity date of October 15, 2017 for $213 million, or 106.27 percent of stated value.
- VLP issued $500 million of 4.375 percent Senior Notes due December 15, 2026. Proceeds from this debt issuance totaled $500 million. Debt issuance costs totaled $4 million.

During the year ended December 31, 2015, the following activity occurred:

- We issued $600 million of 3.65 percent Senior Notes due March 15, 2025 and $650 million of 4.9 percent Senior Notes due March 15, 2045. Proceeds from these debt issuances totaled $1.246 billion. We also incurred $12 million of debt issuance costs.
- We made scheduled debt repayments of $400 million related to our 4.5 percent Senior Notes and $75 million related to our 8.75 percent debentures.

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During the year ended December 31, 2014, we made a scheduled debt repayment of $200 million related to our 4.75 percent Senior Notes.

Other Debt
In June 2016, one of our consolidated joint ventures entered into a C$72 million senior secured credit facility. This non-revolving credit facility bears interest at a fixed rate (as defined by the lender) plus the applicable margin and matures in June 2023. During the year ended December 31, 2016, borrowings under this facility totaled C$72 million and debt repayments totaled C$4 million. As of December 31, 2016, the effective interest rate of this facility was 3.85 percent.

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

	Year Ended December 31,		
	2016	2015	2014
Interest and debt expense incurred	$511	$504	$467
Less capitalized interest	65	71	70
Interest and debt expense, net of capitalized interest	$446	$433	$397

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 and future minimum rentals on capital lease obligations as of December 31, 2016 were as follows (in millions):

	Debt	Capital Lease Obligations
2017	$105	$ 17
2018	5	16
2019	755	16
2020	885	13
2021	5	12
Thereafter	6,250	31
Net unamortized debt issuance costs and other	(79)	—
Less interest expense	—	(30)
Total	$7,926	$ 75

In October 2016, we entered into agreements to lease storage tanks located at three of our refineries. The leases commenced in January 2017. The lease agreements will be accounted for as capital leases and we expect to recognize capital lease assets and related obligations of approximately $490 million. These capital

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

lease agreements have initial terms of 10 years each and each agreement has successive 10-year automatic renewal terms.

9. COMMITMENTS AND CONTINGENCIES

Operating Leases

We have long-term operating lease commitments for land, office facilities and equipment, transportation equipment, time charters for ocean-going tankers and coastal vessels, dock facilities, and various facilities and equipment used in the storage, transportation, production, and sale of refinery feedstock, refined petroleum product and corn inventories.

Certain leases for processing equipment and feedstock and refined petroleum product storage facilities provide for various contingent payments based on, among other things, throughput volumes in excess of a base amount. Certain leases for vessels contain renewal options and escalation clauses, which vary by charter, and provisions for the payment of chartering fees, which either vary based on usage or provide for payments, in addition to established minimums, that are contingent on usage. In most cases, we expect that in the normal course of business, our leases will be renewed or replaced by other leases.

As of December 31, 2016, our future minimum rentals for leases having initial or remaining noncancelable lease terms in excess of one year were as follows (in millions):

2017	$479
2018	321
2019	221
2020	162
2021	106
Thereafter	362
Total minimum rental payments	$1,651
Minimum rentals to be received under subleases	$26

Rental expense was as follows (in millions):

	Year Ended December 31,		
	2016	2015	2014
Minimum rental expense	$739	$732	$618
Contingent rental expense	70	105	43
Total rental expense	809	837	661
Less sublease rental income	(31)	(46)	(28)
Net rental expense	$778	$791	$633

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Purchase Obligations
We have various purchase obligations under certain industrial gas and chemical supply arrangements (such as hydrogen supply arrangements), crude oil and other feedstock supply arrangements, and various throughput and terminalling agreements. We enter into these contracts to ensure an adequate supply of utilities and feedstock and adequate storage capacity to operate our refineries. 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 are associated with suppliers' financing arrangements. These purchase obligations are not reflected as liabilities.

Environmental Matters
We are involved, together with several other companies, in an environmental cleanup in the Village of Hartford, Illinois (the Village) and during 2015, one of these companies assumed the ongoing remediation in the Village pursuant to a federal court order. We had previously conducted an initial response in the Village, along with other companies, pursuant to an administrative order issued by the U.S. Environmental Protection Agency (EPA). The parties involved in the initial response may have further claims among themselves for costs already incurred. We also continue to be engaged in site assessment and interim measures at the adjacent shutdown refinery site, which we acquired as part of an acquisition in 2005, and we are in litigation with other potentially responsible parties and the Illinois EPA relating to the remediation of the site. In each of these matters, we have various defenses, limitations, and potential rights for contribution from the other responsible parties. We have recorded a liability for our expected contribution obligations. However, because of the unpredictable nature of these cleanups, the methodology for allocation of liabilities, and the State of Illinois' failure to directly sue third parties responsible for historic contamination at the site, it is reasonably possible that we could incur a loss in a range of $0 to $200 million in excess of the amount of our accrual to ultimately resolve these matters. Factors underlying this estimated range are expected to change from time to time, and actual results may vary significantly from this estimate.

Litigation Matters
We are party to claims and legal proceedings arising in the ordinary course of business. We have not recorded a loss contingency liability with respect to some of these matters because we have determined that it is remote that a loss has been incurred. For other matters, we have recorded a loss contingency liability where we have determined that it is probable that a loss has been incurred and that the loss is reasonably estimable. These loss contingency liabilities are not material to our financial position. We re-evaluate and update our loss contingency liabilities as matters progress over time, and we believe that any changes to the recorded liabilities will not be material to our financial position, results of operations, or liquidity.

Self-Insurance
We are self-insured for certain medical and dental, workers' compensation, automobile liability, general liability, and property 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.

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10. 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, 2013	673	(138)
Transactions in connection with stock-based compensation plans:		
Stock issuances	—	4
Stock purchases	—	(2)
Stock purchases under purchase program	—	(23)
Balance as of December 31, 2014	673	(159)
Transactions in connection with stock-based compensation plans:		
Stock issuances	—	4
Stock purchases	—	(3)
Stock purchases under purchase program	—	(42)
Balance as of December 31, 2015	673	(200)
Transactions in connection with stock-based compensation plans:		
Stock issuances	—	2
Stock purchases	—	(1)
Stock purchases under purchase program	—	(23)
Balance as of December 31, 2016	673	(222)

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, 2016 or 2015.

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

On February 28, 2008, our board of directors approved a $3 billion common stock purchase program with no expiration date, and we completed that program during 2015. On July 13, 2015, our board of directors authorized us to purchase an additional $2.5 billion of our outstanding common stock (the 2015 program) with no expiration date. On September 21, 2016, our board of directors authorized our purchase of up to an additional $2.5 billion (the 2016 program) with no expiration date. During the years ended December 31, 2016, 2015, and 2014, we purchased $1.3 billion, $2.7 billion, and $1.2 billion, respectively, of our common stock under our programs. As of December 31, 2016, we have approvals under the 2015 program and the 2016 program to purchase approximately $2.5 billion of our common stock.

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Common Stock Dividends
On January 26, 2017, our board of directors declared a quarterly cash dividend of $0.70 per common share payable March 7, 2017 to holders of record at the close of business on February 15, 2017.

Valero Energy Partners LP Units
Effective November 24, 2015, VLP completed a public offering of 4,250,000 common units at a price of $46.25 per unit and received net proceeds from the offering of $189 million after deducting the underwriting discount and other offering costs.

Income Tax Effects Related to Components of Other Comprehensive Loss
The tax effects allocated to each component of other comprehensive loss were as follows (in millions):

	Before-Tax Amount	Tax Expense (Benefit)	Net Amount
Year Ended December 31, 2016:			
Foreign currency translation adjustment	$ (415)	$ —	$ (415)
Pension and other postretirement benefits:			
Gain (loss) arising during the year related to:			
Net actuarial loss	(110)	(34)	(76)
Miscellaneous gain	—	(8)	8
Amounts reclassified into income related to:			
Net actuarial loss	48	18	30
Prior service credit	(36)	(13)	(23)
Net loss on pension and other postretirement benefits	(98)	(37)	(61)
Other comprehensive loss	$ (513)	$ (37)	$ (476)
Year Ended December 31, 2015:			
Foreign currency translation adjustment	$(606)	$—	$(606)
Pension and other postretirement benefits:			
Gain (loss) arising during the year related to:			
Net actuarial gain	50	15	35
Prior service cost	(22)	(8)	(14)
Amounts reclassified into income related to:			
Net actuarial loss	62	22	40
Prior service credit	(40)	(14)	(26)
Curtailment and settlement	7	2	5
Net gain on pension and other postretirement benefits	57	17	40
Other comprehensive loss	$(549)	$17	$(566)

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

	Before-Tax Amount	Tax Expense (Benefit)	Net Amount
Year Ended December 31, 2014:			
Foreign currency translation adjustment	$ (407)	$ —	$ (407)
Pension and other postretirement benefits:			
Loss arising during the year related to:			
Net actuarial loss	(471)	(162)	(309)
Prior service cost	(1)	(1)	—
Amounts reclassified into income related to:			
Net actuarial loss	34	12	22
Prior service credit	(40)	(14)	(26)
Curtailment and settlement	3	—	3
Net loss on pension and other postretirement benefits	(475)	(165)	(310)
Derivative instruments designated and qualifying as cash flow hedges:			
Net loss arising during the year	(1)	—	(1)
Net loss reclassified into income	2	1	1
Net gain on cash flow hedges	1	1	—
Other comprehensive loss	$ (881)	$ (164)	$ (717)

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Accumulated Other Comprehensive Income (Loss)
Changes in accumulated other comprehensive income (loss) by component, net of tax, were as follows (in millions):

	Foreign Currency Translation Adjustment	Defined Benefit Plan Items	Gains and (Losses) on Cash Flow Hedges	Total
Balance as of December 31, 2013	$ 408	$ (58)	$ —	$ 350
Other comprehensive loss before reclassifications	(407)	(309)	(1)	(717)
Amounts reclassified from accumulated other comprehensive income (loss)	—	(1)	1	—
Net other comprehensive loss	(407)	(310)	—	(717)
Balance as of December 31, 2014	1	(368)	—	(367)
Other comprehensive income (loss) before reclassifications	(606)	21	—	(585)
Amounts reclassified from accumulated other comprehensive income (loss)	—	19	—	19
Net other comprehensive income (loss)	(606)	40	—	(566)
Balance as of December 31, 2015	(605)	(328)	—	(933)
Other comprehensive loss before reclassifications	(416)	(68)	—	(484)
Amounts reclassified from accumulated other comprehensive loss	—	7	—	7
Net other comprehensive loss	(416)	(61)	—	(477)
Balance as of December 31, 2016	$ (1,021)	$ (389)	$ —	$ (1,410)

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

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

Details about Accumulated Other Comprehensive Loss Components	Year Ended December 31, 2016	2015	2014	Affected Line Item in the Statement of Income
Amortization of items related to defined benefit pension plans:				
Net actuarial loss	$(48)	$(62)	$(34)	(a)
Prior service credit	36	40	40	(a)
Curtailment and settlement	—	(7)	(3)	(a)
	(12)	(29)	3	Total before tax
	5	10	(2)	Tax (expense) benefit
	$(7)	$(19)	$1	Net of tax
Losses on cash flow hedges:				
Commodity contracts	$—	$—	$(2)	Cost of sales
	—	—	(2)	Total before tax
	—	—	1	Tax benefit
	$—	$—	$(1)	Net of tax
Total reclassifications for the year	$(7)	$(19)	$—	Net of tax

(a) These accumulated other comprehensive loss components are included in the computation of net periodic benefit cost, as further discussed in Note 12. Net periodic benefit cost is reflected in operating expenses and general and administrative expenses.

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VALERO ENERGY CORPORATION
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11. VARIABLE INTEREST ENTITIES

Overview
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 (a) the power to direct the activities of the VIE that most significantly impact the VIE's economic performance and (b) 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 VIEs, 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 our VIEs:

- VLP is a publicly traded master limited partnership whose common limited partner units are traded on the New York Stock Exchange under "VLP." We formed VLP in July 2013 to own, operate, develop, and acquire crude oil and refined petroleum products pipelines, terminals, and other transportation and logistics assets. VLP's assets include crude oil and refined petroleum products pipeline and terminal systems in the U.S. Gulf Coast and U.S. Mid-Continent regions that are integral to the operations of ten of our refineries. As of December 31, 2016, we owned a 66.4 percent limited partner interest and a 2.0 percent general partner interest in VLP, and public unitholders owned a 31.6 percent limited partner interest. See "Valero Energy Partners LP" below for additional information regarding VLP's equity offering.

VLP was determined to be a VIE because the public limited partners of VLP (i.e., parties other than entities under common control with the general partner) lack the power to direct the activities of VLP that most significantly impact its economic performance because they do not have substantive kick-out rights over the general partner or substantive participating rights in VLP. Furthermore, we determined that we are the primary beneficiary of VLP because (a) we are the single decision maker and because our general partner interest provides us with the sole power to direct the activities that most significantly impact VLP's economic performance and (b) our 66.4 percent limited partner interest and 2.0 percent general partner interest provide us with significant economic rights and obligations. All of VLP's revenues are derived from us; therefore, there is limited risk to us associated with VLP's operations.

- Diamond Green Diesel Holdings LLC (DGD) is a joint venture with Darling Green Energy LLC, a subsidiary of Darling Ingredients Inc., that was formed to construct and operate a biodiesel plant that processes animal fats, used cooking oils, and other vegetable oils into renewable green diesel. The plant is located next to our St. Charles Refinery and began operations in June 2013. Our significant agreements with DGD include an operations agreement that outlines our responsibilities as operator of the plant, a debt agreement whereby we financed approximately 60 percent of the construction costs of the plant, and a marketing agreement.

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) and, in the event of certain conditions, the debt agreement provides us (as lender) with certain power

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to direct the activities that most significantly impact DGD's economic performance. Because the operations agreement and the debt agreement convey such power to us and are separate from our ownership rights, DGD was determined to be 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.

- We also have financial interests in other entities in which we hold a 50 percent ownership interest, which is a significant variable interest. These entities were determined to be VIEs because the entities' contractual arrangements transfer the power 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 (a) 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 (b) our 50 percent ownership interests provide us with significant economic rights and obligations. The financial position, results of operations, and cash flows of these VIEs are not material to us.

The VIEs' assets can only be used to settle their own obligations and the VIEs' creditors have no recourse to our assets. We do not provide financial guarantees to our VIEs. Although we have provided credit facilities to 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 our consolidated VIEs' performance, net of intercompany eliminations, to the extent of our ownership interest in each VIE.

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

	December 31, 2016			
	VLP	DGD	Other	Total
Assets				
Cash and temporary cash investments	$71	$167	$ 15	$253
Other current assets	3	87	—	90
Property, plant, and equipment, net	865	355	133	1,353
Liabilities				
Current liabilities	$15	$17	$ 7	$39
Debt and capital lease obligations, less current portion	525	—	46	571

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	December 31, 2015			
	VLP	DGD	Other	Total
Assets				
Cash and temporary cash investments	$81	$ 44	$ 7	$132
Other current assets	—	211	—	211
Property, plant, and equipment, net	747	356	140	1,243
Liabilities				
Current liabilities	$13	$ 12	$ 18	$43
Debt and capital lease obligations, less current portion	175	—	—	175

12. 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 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 minimum funding standard. We typically do not fund or fully fund U.S. nonqualified and certain international 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.

In February 2013, benefits under our primary pension plan changed from a final average pay formula to a cash balance formula with staged effective dates that commenced either on July 1, 2013 or January 1, 2015 depending on the age and service of the affected employees. All final average pay benefits were frozen as of December 31, 2014, with all future benefits to be earned under the new cash balance formula.

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 other postretirement benefits under our plans as determined by the terms of the relevant acquisition agreement.

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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 were as follows (in millions):

	Pension Plans		Other Postretirement Benefit Plans	
	December 31,		December 31,	
	2016	2015	2016	2015
Changes in benefit obligation:				
Benefit obligation as of beginning of year	$2,365	$2,450	$336	$361
Service cost	111	109	7	8
Interest cost	84	98	12	14
Participant contributions	—	—	8	8
Plan amendments	—	22	—	—
Benefits paid	(130)	(169)	(27)	(27)
Actuarial (gain) loss	171	(138)	(35)	(26)
Other	(34)	(7)	1	(2)
Benefit obligation as of end of year	$2,567	$2,365	$302	$336
Changes in plan assets[(a)]:				
Fair value of plan assets as of beginning of year	$1,947	$1,978	$—	$—
Actual return on plan assets	165	19	—	—
Valero contributions	141	126	18	18
Participant contributions	—	—	8	8
Benefits paid	(130)	(169)	(27)	(27)
Other	(26)	(7)	1	1
Fair value of plan assets as of end of year	$2,097	$1,947	$—	$—
Reconciliation of funded status[(a)]:				
Fair value of plan assets as of end of year	$2,097	$1,947	$—	$—
Less benefit obligation as of end of year	2,567	2,365	302	336
Funded status as of end of year	$(470)	$(418)	$(302)	$(336)
Accumulated benefit obligation	$2,419	$2,240	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 18 for the assets associated with certain U.S. nonqualified pension plans.

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Amounts recognized in our balance sheet for our pension and other postretirement benefits plans as of December 31, 2016 and 2015 include (in millions):

	Pension Plans		Other Postretirement Benefit Plans	
	2016	2015	2016	2015
Deferred charges and other assets, net	$2	$5	$—	$—
Accrued expenses	(13)	(20)	(19)	(20)
Other long-term liabilities	(459)	(403)	(283)	(316)
	$(470)	$(418)	$(302)	$(336)

The accumulated benefit obligations for certain of our pension plans exceed the fair values of the assets of those plans. For those plans, the table below presents the total projected benefit obligation, accumulated benefit obligation, and fair value of the plan assets (in millions).

	December 31,	
	2016	2015
Projected benefit obligation	$2,322	$2,169
Accumulated benefit obligation	2,210	2,070
Fair value of plan assets	1,870	1,747

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
2017	$ 144	$ 19
2018	151	20
2019	205	20
2020	175	20
2021	172	20
2022-2026	985	99

We plan to contribute approximately $28 million to our pension plans and $19 million to our other postretirement benefit plans during 2017.

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VALERO ENERGY CORPORATION
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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,		
	2016	2015	2014	2016	2015	2014
Components of net periodic benefit cost:						
Service cost	$111	$109	$120	$7	$8	$7
Interest cost	84	98	91	12	14	15
Expected return on plan assets	(139)	(133)	(133)	—	—	—
Amortization of:						
Net actuarial (gain) loss	49	62	35	(1)	—	(1)
Prior service credit	(20)	(22)	(22)	(16)	(18)	(18)
Special charges (credits)	(7)	7	3	—	—	—
Net periodic benefit cost	$78	$121	$94	$2	$4	$3

Amortization of prior service credit shown in the above 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 above 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.

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,		
	2016	2015	2014	2016	2015	2014
Net gain (loss) arising during the year:						
Net actuarial gain (loss)	$(145)	$24	$(434)	$35	$26	$(37)
Prior service cost	—	(22)	(1)	—	—	—
Net (gain) loss reclassified into income:						
Net actuarial (gain) loss	49	62	35	(1)	—	(1)
Prior service credit	(20)	(22)	(22)	(16)	(18)	(18)
Curtailment and settlement loss	—	7	3	—	—	—
Total changes in other comprehensive income (loss)	$(116)	$49	$(419)	$18	$8	$(56)

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The pre-tax amounts in accumulated other comprehensive (income) loss as of December 31, 2016 and 2015 that have not yet been recognized as components of net periodic benefit cost were as follows (in millions):

	Pension Plans		Other Postretirement Benefit Plans	
	2016	2015	2016	2015
Net actuarial (gain) loss	$878	$783	$(66)	$(31)
Prior service credit	(145)	(166)	(58)	(75)
Total	$733	$617	$(124)	$(106)

The following pre-tax amounts included in accumulated other comprehensive (income) loss as of December 31, 2016 are expected to be recognized as components of net periodic benefit cost during the year ending December 31, 2017 (in millions):

	Pension Plans	Other Postretirement Benefit Plans
Amortization of net actuarial (gain) loss	$ 53	$ (3)
Amortization of prior service credit	(20)	(16)
Total	$ 33	$ (19)

The weighted-average assumptions used to determine the benefit obligations as of December 31, 2016 and 2015 were as follows:

	Pension Plans		Other Postretirement Benefit Plans	
	2016	2015	2016	2015
Discount rate	4.08%	4.45%	4.26%	4.53%
Rate of compensation increase	3.81%	3.79%	n/a	n/a

The discount rate assumption used to determine the benefit obligations as of December 31, 2016 and 2015 for the majority of our pension plans and other postretirement benefit plans was based on the Aon Hewitt AA Only Above Median yield curve and considered the timing of the projected cash outflows under our plans. This curve was designed by Aon Hewitt to provide a means for plan sponsors to value the liabilities of their pension plans or postretirement benefit plans. It is a hypothetical double-A yield curve represented by a series of annualized individual discount rates with maturities from one-half year to 99 years. Each bond issue underlying the curve is required to have an average rating of double-A when averaging all available ratings by Moody’s Investor Services, Standard and Poor’s Ratings Service, and Fitch Ratings. Only the bonds representing the 50 percent highest yielding issuances among those with average ratings of double-A are included in this yield curve.

We based our December 31, 2016, 2015, and 2014 discount rate assumption on the Aon Hewitt AA Only Above Median yield curve because we believe it is representative of the types of bonds we would use to

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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 for the years ended December 31, 2016, 2015, and 2014 were as follows:

	Pension Plans			Other Postretirement Benefit Plans		
	2016	2015	2014	2016	2015	2014
Discount rate	4.45%	4.10%	4.92%	4.53%	4.13%	4.88%
Expected long-term rate of return on plan assets	7.28%	7.29%	7.61%	n/a	n/a	n/a
Rate of compensation increase	3.79%	3.78%	3.81%	n/a	n/a	n/a

The assumed health care cost trend rates as of December 31, 2016 and 2015 were as follows:

	2016	2015
Health care cost trend rate assumed for the next year	7.28 %	7.29 %
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

Assumed health care cost trend rates impact the amounts reported for retiree health care plans. A one percentage-point increase or decrease in assumed health care cost trend rates would have an immaterial effect on the total of service and interest cost components and on the accumulated postretirement benefit obligation on our postretirement benefits.

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The tables below present the fair values of the assets of our pension plans (in millions) as of December 31, 2016 and 2015 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 quotations 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. As previously noted, we do not fund or fully fund U.S. nonqualified and certain international pension plans that are not subject to funding requirements, and we do not fund our other postretirement benefit plans.

	Fair Value Measurements Using			Total as of December 31, 2016
	Level 1	Level 2	Level 3	
Equity securities:				
U.S. companies[a]	$562	$ —	$ —	$ 562
International companies	164	—	—	164
Preferred stock	3	—	—	3
Mutual funds:				
International growth	90	—	—	90
Index funds[b]	230	—	—	230
Corporate debt instruments	—	280	—	280
Government securities:				
U.S. Treasury securities	52	—	—	52
Other government securities	—	158	—	158
Common collective trusts	—	434	—	434
Private funds	—	76	—	76
Insurance contract	—	18	—	18
Interest and dividends receivable	5	—	—	5
Cash and cash equivalents	56	16	—	72
Securities transactions payable, net	(47)	—	—	(47)
Total pension assets	$1,115	$ 982	$ —	$ 2,097

See notes on page 108.

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VALERO ENERGY CORPORATION
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	Fair Value Measurements Using			Total as of December 31, 2015
	Level 1	Level 2	Level 3	
Equity securities:				
U.S. companies[a]	$503	$ —	$ —	$503
International companies	158	—	—	158
Preferred stock	2	—	—	2
Mutual funds:				
International growth	89	—	—	89
Index funds[b]	202	—	—	202
Corporate debt instruments	—	279	—	279
Government securities:				
U.S. Treasury securities	57	—	—	57
Other government securities	—	141	—	141
Common collective trusts	—	375	—	375
Private funds	—	65	—	65
Insurance contract	—	19	—	19
Interest and dividends receivable	5	—	—	5
Cash and cash equivalents	49	43	—	92
Securities transactions payable, net	(40)	—	—	(40)
Total pension assets	$1,025	$ 922	$ —	$1,947

(a) Equity securities are held in a wide range of industrial sectors, including consumer goods, information technology, healthcare, industrials, and financial services.

(b) This class includes primarily investments in approximately 50 percent equities and 50 percent bonds as of December 31, 2016. As of December 31, 2015, the class included primarily investments in approximately 60 percent equities and 40 percent bonds.

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 stocks 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, 2016, the target allocations for plan assets under our primary pension plan are 70 percent equity securities and 30 percent fixed income investments.

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.

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VALERO ENERGY CORPORATION
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The underlying assumptions regarding expected rates of return for each asset class reflect Aon Hewitt'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 $67 million, $65 million, and $61 million for the years ended December 31, 2016, 2015, and 2014, respectively.

13. STOCK-BASED COMPENSATION

Overview
Under our 2011 Omnibus Stock Incentive Plan (the OSIP), various stock and stock-based awards may be granted to employees and non-employee directors. Awards available under the OSIP include options to purchase shares of common stock, performance awards that vest upon the achievement of an objective performance goal, stock appreciation rights, restricted stock that vests over a period determined by our compensation committee, and dividend equivalent rights (DERs). The OSIP was approved by our stockholders on April 28, 2011 and re-approved by our stockholders on May 12, 2016. As of December 31, 2016, 10,581,274 shares of our common stock remained available to be awarded under the OSIP.

We also maintain other stock-based compensation plans under which previously granted equity awards remain outstanding. No additional grants may be awarded under these plans.

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

	Year Ended December 31,		
	2016	2015	2014
Stock-based compensation expense:			
Restricted stock	$52	$ 47	$ 43
Performance awards	15	11	15
Stock options	1	1	2
Total stock-based compensation expense	$68	$ 59	$ 60
Tax benefit recognized on stock-based compensation expense	$24	$ 21	$ 21
Tax benefit realized for tax deductions resulting from exercises and vestings	33	66	64
Effect of tax deductions in excess of recognized stock-based compensation expense [(a)]	22	44	47

(a) Effective January 1, 2016, the effect of tax deductions in excess of recognized stock-based compensation expense is reported as an operating cash flow. These amounts were previously reported as financing cash flows.

Each of our significant stock-based compensation arrangements is discussed below.

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Restricted Stock

Restricted stock is granted to employees and non-employee directors. Restricted stock granted to employees 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. Restricted stock granted to our non-employee directors vests in equal annual installments over a period of three years beginning one year after the date of grant. The fair value of each restricted stock per share is equal to the market price of our common stock. A summary of the status of our restricted stock awards is presented in the table below.

	Number of Shares	Weighted-Average Grant-Date Fair Value Per Share
Nonvested shares as of January 1, 2016	1,551,440	$ 57.15
Granted	1,004,935	59.00
Vested	(978,845)	53.40
Forfeited	(10,580)	57.37
Nonvested shares as of December 31, 2016	1,566,950	60.68

As of December 31, 2016, there was $61 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 (in millions, except per share data):

	Year Ended December 31,		
	2016	2015	2014
Weighted-average grant-date fair value per share of restricted stock granted	$59.00	$70.07	$49.40
Fair value of restricted stock vested	46	69	60

Performance Awards

Performance awards are issued to certain of our key employees and represent rights to receive shares of our common stock upon the achievement by us of an objective performance measure. The objective performance measure is our total shareholder return, which is ranked among the total shareholder returns of a defined peer group of companies. Our ranking determines the rate at which the performance awards convert into our common shares. Conversion rates can range from zero to 200 percent.

Performance awards vest in equal one-third increments (tranches) on an annual basis. Our compensation committee establishes the peer group of companies for each tranche of awards at the beginning of the one-year vesting period for that tranche. Therefore, performance awards are not considered to be granted for accounting purposes until our compensation committee establishes the peer group of companies for each tranche of awards. The fair value of each tranche of awards is determined at the grant date principally using a Monte Carlo simulation model.

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A summary of the status of our performance awards is presented below.

	Nonvested Awards	Weighted-Average Grant-Date Fair Value Per Share
Awards outstanding as of January 1, 2016	408,425	$ 66.23
Granted	170,327	88.79
Vested	(225,126)	47.71
Forfeited	(15,237)	91.88
Awards outstanding as of December 31, 2016	338,389	88.75

As of December 31, 2016, there was $15 million of unrecognized compensation cost related to outstanding unvested performance awards, which will be recognized during 2017.

Performance awards converted during the year ended December 31, 2016 were as follows:

	Vested Awards Converted	Actual Conversion Rate	Number of Shares Issued
2012 awards	96,844	200%	193,688
2013 awards	78,411	200%	156,822
2014 awards	49,871	200%	99,742
Total	225,126		450,252

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14. INCOME TAXES

Income Statement Components

Income from continuing operations before income tax expense was as follows (in millions):

	Year Ended December 31,		
	2016	2015	2014
U.S. operations	$1,733	$5,327	$4,677
International operations	1,449	644	875
Income from continuing operations before income tax expense	$3,182	$5,971	$5,552

Statutory income tax rates applicable to the countries in which we operate were as follows:

	Year Ended December 31,		
	2016	2015	2014
U.S.	35%	35%	35%
Canada	15%	15%	15%
U.K.	20%	20%	21%
Ireland	13%	13%	13%
Aruba[(a)]	7 %	7 %	7 %

[(a)] Statutory income tax rate applicable through the date of the Aruba Disposition as described in Note 2.

The following is a reconciliation of income tax expense computed by applying statutory income tax rates as reflected in the table above to actual income tax expense related to continuing operations (in millions):

	Year Ended December 31, 2016		
	U.S.	International	Total
Income tax expense at statutory rates	$606	$ 256	$862
U.S. state and Canadian provincial tax expense, net of federal income tax effect	5	31	36
Permanent differences:			
Manufacturing deduction	(22)	—	(22)
Other	(3)	(10)	(13)
Change in tax law	—	(7)	(7)
Tax effects of income associated with noncontrolling interests	(44)	—	(44)
Other, net	(37)	(10)	(47)
Income tax expense	$505	$ 260	$765

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

	Year Ended December 31, 2015		
	U.S.	International	Total
Income tax expense at statutory rates	$1,864	$ 92	$1,956
U.S. state and Canadian provincial tax expense, net of federal income tax effect	45	73	118
Permanent differences:			
Manufacturing deduction	(102)	—	(102)
Other	(18)	(5)	(23)
Change in tax law	—	(17)	(17)
Tax effects of income associated with noncontrolling interests	(39)	—	(39)
Other, net	(25)	2	(23)
Income tax expense	$1,725	$ 145	$1,870

	Year Ended December 31, 2014		
	U.S.	International	Total
Income tax expense at statutory rates	$1,637	$ 145	$1,782
U.S. state and Canadian provincial tax expense, net of federal income tax effect	62	71	133
Permanent differences:			
Manufacturing deduction	(74)	—	(74)
Other	(16)	1	(15)
Tax effects of income associated with noncontrolling interests	(28)	—	(28)
Other, net	(22)	1	(21)
Income tax expense	$1,559	$ 218	$1,777

There was no income tax expense or benefit related to discontinued operations for the year ended December 31, 2014.

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Components of income tax expense related to continuing operations were as follows (in millions):

	Year Ended December 31, 2016		
	U.S.	International	Total
Current:			
Country	$294	$ 194	$488
U.S. state / Canadian provincial	12	35	47
Total current	306	229	535
Deferred:			
Country	203	35	238
U.S. state / Canadian provincial	(4)	(4)	(8)
Total deferred	199	31	230
Income tax expense	$505	$ 260	$765

	Year Ended December 31, 2015		
	U.S.	International	Total
Current:			
Country	$1,513	$ 64	$1,577
U.S. state / Canadian provincial	85	43	128
Total current	1,598	107	1,705
Deferred:			
Country	143	8	151
U.S. state / Canadian provincial	(16)	30	14
Total deferred	127	38	165
Income tax expense	$1,725	$ 145	$1,870

	Year Ended December 31, 2014		
	U.S.	International	Total
Current:			
Country	$1,196	$ 53	$1,249
U.S. state / Canadian provincial	59	24	83
Total current	1,255	77	1,332
Deferred:			
Country	268	94	362
U.S. state / Canadian provincial	36	47	83
Total deferred	304	141	445
Income tax expense	$1,559	$ 218	$1,777

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Income Taxes Paid

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

	Year Ended December 31,		
	2016	2015	2014
Income taxes paid, net:			
U.S.	$241	$2,092	$1,455
International	203	1	169
Total	$444	$2,093	$1,624

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,	
	2016	2015
Deferred income tax assets:		
Tax credit carryforwards	$65	$33
Net operating losses (NOLs)	374	423
Inventories	93	72
Compensation and employee benefit liabilities	344	331
Environmental liabilities	69	80
Other	100	139
Total deferred income tax assets	1,045	1,078
Less: Valuation allowance	(374)	(435)
Net deferred income tax assets	671	643
Deferred income tax liabilities:		
Property, plant, and equipment	6,900	6,725
Deferred turnaround costs	450	394
Inventories	356	287
Investments	253	226
Other	73	71
Total deferred income tax liabilities	8,032	7,703
Net deferred income tax liabilities	$7,361	$7,060

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We had the following income tax credit and loss carryforwards as of December 31, 2016 (in millions):

	Amount	Expiration
U.S. state income tax credits	$ 71	2017 through 2026
U.S. state income tax credits	2	Unlimited
U.S. state NOLs (gross amount)	9,018	2017 through 2036
U.S. alternative minimum tax credit	18	Unlimited

We have recorded a valuation allowance as of December 31, 2016 and 2015 due to uncertainties related to our ability to utilize some of our deferred income tax assets, primarily consisting of certain U.S. state income tax credits and NOLs, before they expire. The valuation allowance is based on our estimates of taxable income in the various jurisdictions in which we operate and the period over which deferred income tax assets will be recoverable. During 2016, the valuation allowance decreased by $61 million, primarily due to the write off of NOLs in Aruba, offset by increases in State NOLs. The realization of net deferred income tax assets recorded as of December 31, 2016 is primarily dependent upon our ability to generate future taxable income in certain U.S. states.
Deferred income taxes have not been provided on the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and the respective tax bases of our international subsidiaries based on the determination that such differences are essentially permanent in duration in that the earnings of these subsidiaries are expected to be indefinitely reinvested in the international operations. As of December 31, 2016, the cumulative undistributed earnings of these subsidiaries were approximately $3.9 billion. If those earnings were not considered indefinitely reinvested, deferred income taxes would have been recorded after consideration of U.S. foreign tax credits. It is not practicable to estimate the amount of additional tax that might be payable on those earnings, if distributed. As of December 31, 2016, $2.2 billion of our cash and temporary cash investments was held by our international subsidiaries.

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Unrecognized Tax Benefits

The following is a reconciliation of the change in unrecognized tax benefits, excluding related penalties, interest (net of the U.S. federal and state income tax effects), and the U.S. federal income tax effect of state unrecognized tax benefits (in millions):

	Year Ended December 31,		
	2016	2015	2014
Balance as of beginning of year	$964	$989	$950
Additions based on tax positions related to the current year	36	36	35
Additions for tax positions related to prior years	11	83	118
Reductions for tax positions related to prior years	(46)	(82)	(67)
Reductions for tax positions related to the lapse of applicable statute of limitations	(3)	(3)	(1)
Settlements	(237)	(59)	(46)
Reclassification of uncertain tax receivable to long-term receivable from IRS	211	—	—
Balance as of end of year	$936	$964	$989

As of December 31, 2016, the balance in unrecognized tax benefits included $433 million of tax refunds that we intend to claim by amending various of our income tax returns for 2008 through 2016. We intend to propose that incentive payments received from the U.S. federal government for blending biofuels into refined petroleum products be excluded from taxable income during these periods. However, due to the complexity of this matter and uncertainties with respect to the interpretation of the Internal Revenue Code, we concluded that the refund claims included in the table below cannot be recognized in our financial statements. As a result, these amounts are not included in our uncertain tax position liabilities as of December 31, 2016, 2015, and 2014 even though they are reflected in the table above.

The following is a reconciliation of unrecognized tax benefits reflected in the table above to our uncertain tax position liabilities that are presented in our balance sheets (in million).

	December 31,	
	2016	2015
Unrecognized tax benefits	$936	$964
Tax refund claim not presented in our balance sheets	(433)	(570)
Other	(5)	25
Uncertain tax position liabilities presented in our balance sheets	$498	$419

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Amounts recognized in our balance sheets for uncertain tax positions include (in millions):

	December 31,	
	2016	2015
Deferred charges and other assets, net	$—	$195
Income taxes payable	(7)	(438)
Other long-term liabilities	(465)	(148)
Deferred tax liabilities	(26)	(28)
Uncertain tax position liabilities presented in our balance sheets	$(498)	$(419)

As of December 31, 2016 and 2015, there were $756 million and $757 million, respectively, of unrecognized tax benefits that if recognized would affect our annual effective tax rate.

Penalties and interest during the years ended December 31, 2016, 2015, and 2014 were immaterial. Accrued penalties and interest totaled $70 million and $117 million as of December 31, 2016 and 2015, respectively, excluding the U.S. federal and state income tax effects related to interest.

During the next 12 months, it is reasonably possible that tax audit resolutions could reduce unrecognized tax benefits, excluding interest, by approximately $4 million, either because the tax positions are sustained on audit or because we agree to their disallowance. We do not expect these reductions to have a significant impact on our financial statements because such reductions would not significantly affect our annual effective tax rate.

U.S. Tax Returns Under Audit

Federal

As of December 31, 2016, our tax years for 2010 through 2014 were under audit by the Internal Revenue Service (IRS). The IRS has proposed adjustments to our taxable income for certain open years. We are currently contesting the proposed adjustments with the Office of Appeals of the IRS for certain open years and do not expect that the ultimate disposition of these adjustments will result in a material change to our financial position, results of operations, or liquidity. We are continuing to work with the IRS to resolve these matters and we believe that they will be resolved for amounts consistent with recorded amounts of unrecognized tax benefits associated with these matters. During the year ended December 31, 2016, we settled the audit with the IRS related to our 2008 and 2009 tax years.

State

As of December 31, 2016, our tax years for 2004 through 2007 and 2011 through 2013 were under audit by the state of California for certain tax issues. We do not expect the ultimate disposition of these issues will result in a material change to our financial position, results of operations, or liquidity. We believe these matters will be resolved for amounts consistent with our recorded amounts of unrecognized tax benefits associated with these matters.

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15. EARNINGS PER COMMON SHARE

Earnings per common share from continuing operations were computed as follows (dollars and shares in millions, except per share amounts):

	Year Ended December 31,					
	2016		2015		2014	
	Participating Securities	Common Stock	Participating Securities	Common Stock	Participating Securities	Common Stock
Earnings per common share from continuing operations:						
Net income attributable to Valero stockholders from continuing operations		$ 2,289		$ 3,990		$ 3,694
Less dividends paid:						
Common stock		1,108		845		552
Participating securities		3		3		2
Undistributed earnings		$ 1,178		$ 3,142		$ 3,140
Weighted-average common shares outstanding	1	461	2	497	2	526
Earnings per common share from continuing operations:						
Distributed earnings	$2.40	$ 2.40	$1.70	$ 1.70	$1.05	$ 1.05
Undistributed earnings	2.54	2.54	6.30	6.30	5.95	5.95
Total earnings per common share from continuing operations	$4.94	$ 4.94	$8.00	$ 8.00	$7.00	$ 7.00
Earnings per common share from continuing operations – assuming dilution:						
Net income attributable to Valero stockholders from continuing operations		$ 2,289		$ 3,990		$ 3,694
Weighted-average common shares outstanding		461		497		526
Common equivalent shares:						
Stock options		2		2		2
Performance awards and nonvested restricted stock		1		1		2
Weighted-average common shares outstanding – assuming dilution		464		500		530
Earnings per common share from continuing operations –		$ 4.94		$ 7.99		$ 6.97

assuming dilution

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16. SEGMENT INFORMATION

As of December 31, 2016, we had two reportable segments — refining and ethanol. The refining segment includes our refining operations, the associated marketing activities, and logistics assets that support our refining operations. The ethanol segment includes our ethanol operations, the associated marketing activities, and logistics assets that support our ethanol operations. Activities that are not included in any of the reportable segments are included in the corporate category.

Our reportable segments are strategic business units that offer different products and services. They are managed separately as each business requires unique technology and marketing strategies. Performance is evaluated based on operating income. Intersegment sales are generally derived from transactions made at prevailing market rates.

The following table reflects activity related to continuing operations (in millions):

	Refining	Ethanol	Corporate and Eliminations	Total
Year ended December 31, 2016:				
Operating revenues from external customers	$71,968	$3,691	$ —	$75,659
Intersegment revenues	—	210	(210)	—
Total segment revenues	$71,968	$3,901	$ (210)	$75,659
Lower of cost or market inventory valuation adjustment	$(697)	$(50)	$ —	$(747)
Depreciation and amortization expense	1,780	66	48	1,894
Asset impairment loss	56	—	—	56
Operating income (loss)	3,995	340	(763)	3,572
Total expenditures for long-lived assets	1,890	68	38	1,996
Year ended December 31, 2015:				
Operating revenues from external customers	$84,521	$3,283	$ —	$87,804
Intersegment revenues	—	151	(151)	—
Total segment revenues	$84,521	$3,434	$ (151)	$87,804
Lower of cost or market inventory valuation adjustment	$740	$50	$ —	$790
Depreciation and amortization expense	1,745	50	47	1,842
Operating income (loss)	6,973	142	(757)	6,358
Total expenditures for long-lived assets	2,254	67	29	2,350

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	Refining	Ethanol	Corporate and Eliminations	Total
Year ended December 31, 2014:				
Operating revenues from external customers	$126,004	$4,840	$ —	$130,844
Intersegment revenues	—	100	(100)	—
Total segment revenues	$126,004	$4,940	$ (100)	$130,844
Depreciation and amortization expense	$1,597	$49	$ 44	$1,690
Operating income (loss)	5,884	786	(768)	5,902
Total expenditures for long-lived assets	2,730	42	30	2,802

Our principal products include conventional and California Air Resources Board gasolines, RBOB (reformulated gasoline blendstock for oxygenate blending), gasoline blendstocks, ultra-low-sulfur diesel, middle distillates, and jet fuel. Other product revenues primarily include petrochemicals, gas oils, No. 6 fuel oil, petroleum coke, sulfur, and asphalt. Operating revenues from external customers for our principal products were as follows (in millions):

	Year Ended December 31,		
	2016	2015	2014
Refining:			
Gasolines and blendstocks	$33,450	$38,983	$56,846
Distillates	32,576	38,093	57,521
Other product revenues	5,942	7,445	11,637
Total refining revenues	71,968	84,521	126,004
Ethanol:			
Ethanol	3,105	2,628	4,192
Distillers grains	586	655	648
Total ethanol revenues	3,691	3,283	4,840
Total revenues from external customers	$75,659	$87,804	$130,844

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

	Year Ended December 31,		
	2016	2015	2014
U.S.	$51,479	$60,319	$91,499
Canada	6,115	6,841	10,410
U.K. and Ireland	10,797	11,232	14,182
Other countries	7,268	9,412	14,753
Total operating revenues	$75,659	$87,804	$130,844

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

	December 31,	
	2016	2015
U.S.	$25,359	$25,210
Canada	1,816	1,824
U.K.	947	1,131
Aruba	—	57
Ireland	20	20
Total long-lived assets	$28,142	$28,242

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

	December 31,	
	2016	2015
Refining	$39,034	$38,068
Ethanol	1,316	1,016
Corporate	5,823	5,143
Total assets	$46,173	$44,227

Effective January 1, 2017, we revised our reportable segments to align with certain changes in how our chief operating decision maker manages and allocates resources to our business and created a new reportable segment — VLP. The results of VLP, which are those of our majority-owned master limited partnership referred to by the same name, were transferred from the refining segment.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

17. SUPPLEMENTAL CASH FLOW INFORMATION

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

	Year Ended December 31,		
	2016	2015	2014
Decrease (increase) in current assets:			
Receivables, net	$(1,531)	$1,294	$2,753
Inventories	771	(222)	(1,014)
Income taxes receivable	156	(104)	(23)
Prepaid expenses and other	(109)	(45)	(32)
Increase (decrease) in current liabilities:			
Accounts payable	1,556	(1,787)	(3,149)
Accrued expenses	117	(40)	38
Taxes other than income taxes	82	(74)	(64)
Income taxes payable	(66)	(328)	(319)
Changes in current assets and current liabilities	$976	$(1,306)	$(1,810)

There were no significant noncash investing or financing activities for the year ended December 31, 2016.

Noncash investing and financing activities for the year ended December 31, 2015 included the recognition of a capital lease asset and related obligation associated with an agreement for storage tanks near one of our refineries and an accrual for the purchase of 347,438 shares of our common stock, which was settled in early January 2016.

There were no significant noncash investing or financing activities for the year ended December 31, 2014.

Cash flows reflected as “other financing activities, net” for the year ended December 31, 2016 included the payment of a long-term liability of $137 million owed to a joint venture partner associated with an owner-method joint venture investment.

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

	Year Ended December 31,		
	2016	2015	2014
Interest paid in excess of amount capitalized	$427	$416	$392
Income taxes paid, net	444	2,093	1,624

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

18. FAIR VALUE MEASUREMENTS

General
U.S. 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.

U.S. 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.”

U.S. 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. 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.

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Recurring Fair Value Measurements
The tables below 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, 2016 and 2015.

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 tables below 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, 2016							
	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	$874	$38	$ —	$912	$ (875)	$ —	$ 37	$ —
Foreign currency contracts	3	—	—	3	n/a	n/a	3	n/a
Investments of certain benefit plans	58	—	11	69	n/a	n/a	69	n/a
Total	$935	$38	$ 11	$984	$ (875)	$ —	$ 109	
Liabilities:								
Commodity derivative contracts	$872	$23	$ —	$895	$ (875)	$ (20)	$ —	$ (88)
Environmental credit obligations	—	188	—	188	n/a	n/a	188	n/a
Physical purchase contracts	—	5	—	5	n/a	n/a	5	n/a
Total	$872	$216	$ —	$1,088	$ (875)	$ (20)	$ 193	

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

	December 31, 2015							
	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	$649	$ 33	$ —	$ 682	$ (557)	$ (12)	$ 113	$ —
Foreign currency contracts	3	—	—	3	n/a	n/a	3	n/a
Investments of certain benefit plans	64	—	11	75	n/a	n/a	75	n/a
Total	$716	$ 33	$ 11	$ 760	$ (557)	$ (12)	$ 191	
Liabilities:								
Commodity derivative contracts	$522	$ 35	$ —	$ 557	$ (557)	$ —	$ —	$ (31)
Environmental credit obligations	—	2	—	2	n/a	n/a	2	n/a
Physical purchase contracts	—	6	—	6	n/a	n/a	6	n/a
Total	$522	$ 43	$ —	$ 565	$ (557)	$ —	$ 8	

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 and swaps, and as disclosed in Note 19, some of these contracts are designated as hedging instruments. These contracts are measured at fair value using the market approach. Exchange-traded futures are valued based on quoted prices from the exchange and are categorized in Level 1 of the fair value hierarchy. Swaps are priced using third-party broker quotes, industry pricing services, and exchange-traded curves, with appropriate consideration of counterparty credit risk, but because they have contractual terms that are not identical to exchange-traded futures instruments with a comparable market price, these financial instruments are categorized in Level 2 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.

- 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 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 assets categorized in Level 3 of the fair value hierarchy represent insurance contracts, the fair value of

which is provided by the insurer.

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- Foreign currency contracts consist of foreign currency exchange and purchase contracts entered into for our international operations to manage our exposure to exchange rate fluctuations on transactions denominated in currencies other than the local (functional) currencies of those operations. These contracts are valued based on quoted prices from the exchange and are categorized in Level 1 of the fair value hierarchy.

- Environmental credit obligations represent our liability for the purchase of (i) biofuel credits (primarily RINs in the U.S.) needed to satisfy our obligation to blend biofuels into the products we produce and (ii) emission credits under the California Global Warming Solutions Act (the California cap-and-trade system, also known as AB 32) and Quebec's Regulation respecting the cap-and-trade system for greenhouse gas emission allowances (the Quebec cap-and-trade system), (collectively, the cap-and-trade systems). To the degree we are unable to blend biofuels (such as ethanol and biodiesel) at percentages required under the biofuel programs, we must purchase biofuel credits to comply with these programs. Under the cap-and-trade systems, we must purchase emission credits to comply with these systems. These programs are further described in Note 19 under "Environmental Compliance Program Price Risk." The liability for environmental credits is based on our deficit for such credits as of the balance sheet date, if any, after considering any credits acquired or under contract, and is equal to the product of the credits deficit and the market price of these credits as of the balance sheet date. The environmental credit obligations are categorized in Level 2 of the fair value hierarchy and are measured at fair value using the market approach based on quoted prices from an independent pricing service.

There were no transfers between levels for assets and liabilities held as of December 31, 2016 and 2015 that were measured at fair value on a recurring basis.

There was no activity during the years ended December 31, 2016, 2015, and 2014 related to the fair value amounts categorized in Level 3 as of December 31, 2016, 2015, and 2014.

Nonrecurring Fair Value Measurements
As discussed in Note 2, we concluded that the Aruba Terminal was impaired as of June 30, 2016, which resulted in an asset impairment loss of $56 million that was recorded in June 2016. The fair value of the Aruba Terminal was determined using an income approach and was classified in Level 3. We employed a probability-weighted approach to possible future cash flow scenarios, including transferring ownership of the business to the GOA or continuing to operate.

There were no assets or liabilities that were measured at fair value on a nonrecurring basis as of December 31, 2016 and 2015.

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

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

	December 31, 2016		December 31, 2015	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
Financial assets:				
Cash and temporary cash investments	$4,816	$4,816	$4,114	$4,114
Financial liabilities:				
Debt (excluding capital leases)	7,926	8,882	7,250	7,759

The methods and significant assumptions used to estimate the fair value of these financial instruments are as follows:

- The fair value of cash and temporary cash investments approximates the carrying value due to the low level of credit risk of these assets combined with their short maturities and market interest rates (Level 1).

- The fair value of debt is determined primarily using the market approach based on quoted prices provided by third-party brokers and vendor pricing services (Level 2).

19. PRICE RISK MANAGEMENT ACTIVITIES

We are exposed to market risks primarily related to the volatility in the price of commodities, and foreign currency exchange rates, and the price of credits needed to comply with various government and regulatory 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 18), as summarized below under “Fair Values of Derivative Instruments,” with changes in fair value recognized currently in income. The effect of these derivative instruments on our 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 crude oil, refined petroleum products (primarily gasoline and distillate), grain (primarily corn), soybean oil, 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, swaps, and options. We use the futures markets for the available liquidity, which provides greater flexibility in transacting our hedging and trading operations. We use swaps primarily to manage our price exposure. 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 of directors.

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

To manage commodity price risk, we use economic hedges, which are not designated as fair value or cash flow hedges, and we use fair value and cash flow hedges from time to time. We also enter into certain commodity derivative instruments for trading purposes. Our objectives for entering into hedges or trading derivatives are described below.

- Economic Hedges – Economic hedges represent commodity derivative instruments that are used to manage price volatility in certain (i) feedstock and refined petroleum product inventories, (ii) fixed-price purchase contracts, and (iii) forecasted feedstock, refined petroleum product or natural gas purchases and refined petroleum product sales. The objectives of our economic hedges are to hedge price volatility in certain feedstock and refined petroleum product inventories and to lock in the price of forecasted feedstock, refined petroleum product, or natural gas purchases or refined petroleum product sales at existing market prices that we deem favorable. Economic hedges are not designated as fair value or cash flow hedges for accounting purposes, usually due to the difficulty of establishing the required documentation at the date the derivative instrument is entered into for them to qualify as hedging instruments for accounting purposes.

As of December 31, 2016, we had the following outstanding commodity derivative instruments that were used as 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 represent thousands of barrels, except those identified as corn contracts that are presented in thousands of bushels and soybean oil contracts that are presented in thousands of pounds).

	Notional Contract Volumes by Year of Maturity	
Derivative Instrument	2017	2018
Crude oil and refined petroleum products:		
Swaps – long	6,372	—
Swaps – short	6,144	—
Futures – long	109,372	—
Futures – short	99,125	—
Corn:		
Futures – long	15,285	—
Futures – short	38,325	540
Physical contracts – long	18,994	543
Soybean oil:		
Futures – long	88,859	—
Futures – short	147,598	—

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

- Trading Derivatives – Our objective for entering into commodity derivative instruments for trading purposes is to take advantage of existing market conditions for crude oil and refined petroleum products.

As of December 31, 2016, we had the following outstanding commodity derivative instruments that were entered into for trading purposes. The information presents the notional volume of outstanding contracts by type of instrument and year of maturity (volumes represent thousands of barrels, except those identified as natural gas contracts that are presented in billions of British thermal units and corn contracts that are presented in thousands of bushels).

Derivative Instrument	Notional Contract Volumes by Year of Maturity 2017
Crude oil and refined petroleum products:	
Swaps – long	4,801
Swaps – short	4,801
Futures – long	22,577
Futures – short	24,429
Options – long	139,340
Options – short	140,690
Natural gas:	
Futures – long	750
Futures – short	250
Corn:	
Futures – long	1,000
Futures – short	1,000

We had no commodity derivative contracts outstanding as of December 31, 2016 and 2015 that were designated as fair value or cash flow hedges.

Foreign Currency Risk
We are exposed to exchange rate fluctuations on transactions entered into by our international operations that are denominated in currencies other than the local (functional) currencies of these operations. To manage our exposure to these exchange rate fluctuations, we use foreign currency exchange and purchase contracts. These contracts are not designated as hedging instruments for accounting purposes and therefore are classified as economic hedges. As of December 31, 2016, we had forward contracts to purchase $374 million of U.S. dollars. These commitments matured on or before February 1, 2017.

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Environmental Compliance Program Price Risk

We are exposed to market risk related to the volatility in the price of credits needed to comply with various governmental and regulatory environmental compliance programs. To manage this risk, we enter into contracts to purchase these credits when prices are deemed favorable. Some of these contracts are derivative instruments; however, we elect the normal purchase exception and do not record these contracts at their fair values. Certain of these programs require us to blend biofuels into the products we produce, and we are subject to such programs in most of the countries in which we operate. These countries set annual quotas for the percentage of biofuels that must be blended into the motor fuels consumed in these countries. As a producer of motor fuels from petroleum, we are obligated to blend biofuels into the products we produce at a rate that is at least equal to the applicable quota. To the degree we are unable to blend at the applicable rate, we must purchase biofuel credits (primarily RINs in the U.S.). We are exposed to the volatility in the market price of these credits, and we manage that risk by purchasing biofuel credits when prices are deemed favorable. For the years ended December 31, 2016, 2015, and 2014, the cost of meeting our obligations under these compliance programs was $749 million, $440 million, and $372 million, respectively. These amounts are reflected in cost of sales.

Effective January 1, 2015, we became subject to additional requirements under GHG emission programs, including the cap-and-trade systems, as discussed in Note 18. Under these cap-and-trade systems, we purchase various GHG emission credits available on the open market. Therefore, we are exposed to the volatility in the market price of these credits. The cost to implement certain provisions of the cap-and-trade systems are significant; however, we recovered the majority of these costs from our customers for the years ended December 31, 2016 and 2015 and expect to continue to recover the majority of these costs in the future. For the years ended December 31, 2016, 2015, and 2014, the net cost of meeting our obligations under these compliance programs was immaterial.

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Fair Values of Derivative Instruments
The following tables provide information about the fair values of our derivative instruments as of December 31, 2016 and 2015 (in millions) and the line items in the balance sheets in which the fair values are reflected. See Note 18 for additional information related to the fair values of our derivative instruments.

As indicated in Note 18, 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 tables below, however, are 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.

	Balance Sheet Location	December 31, 2016	
		Asset Derivatives	Liability Derivatives
Derivatives not designated as hedging instruments			
Commodity contracts:			
Futures	Receivables, net	$ 874	$ 872
Swaps	Receivables, net	32	21
Options	Receivables, net	6	2
Physical purchase contracts	Inventories	—	5
Foreign currency contracts	Receivables, net	3	—
Total		$ 915	$ 900

	Balance Sheet Location	December 31, 2015	
		Asset Derivatives	Liability Derivatives
Derivatives not designated as hedging instruments			
Commodity contracts:			
Futures	Receivables, net	$ 648	$ 522
Swaps	Receivables, net	30	33
Options	Receivables, net	4	2
Physical purchase contracts	Inventories	—	6
Foreign currency contracts	Receivables, net	3	—
Total		$ 685	$ 563

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 of directors. Market risks are monitored by our risk control group to ensure compliance with our stated risk management policy. We do not require any

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

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 tables provide information about the gain or loss recognized in income on our derivative instruments and the line items in the financial statements in which such gains and losses are reflected (in millions). There were no gains or losses recognized in income or other comprehensive income related to fair value hedges and cash flow hedges for the years ended December 31, 2016 and 2015 and amounts recognized for the year ended December 31, 2014 were immaterial.

Derivatives Designated as Economic Hedges and Other Derivative Instruments	Location of Gain (Loss) Recognized in Income on Derivatives	Year Ended December 31,		
		2016	2015	2014
Commodity contracts	Cost of sales	$(132)	$377	$693
Foreign currency contracts	Cost of sales	16	49	40

Trading Derivatives	Location of Gain Recognized in Income on Derivatives	Year Ended December 31,		
		2016	2015	2014
Commodity contracts	Cost of sales	$46	$ 45	$ 38

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VALERO ENERGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

20. QUARTERLY FINANCIAL DATA (Unaudited)

The following table summarizes quarterly financial data for the years ended December 31, 2016 and 2015 (in millions, except per share amounts).

	2016 Quarter Ended			
	March 31 (a)	June 30 (b)	September 30	December 31
Operating revenues	$15,714	$19,584	$ 19,649	$ 20,712
Operating income	829	1,231	892	620
Net income	513	843	645	416
Net income attributable to Valero Energy Corporation stockholders	495	814	613	367
Earnings per common share	1.05	1.74	1.33	0.81
Earnings per common share – assuming dilution	1.05	1.73	1.33	0.81

	2015 Quarter Ended			
	March 31	June 30	September 30	December 31 (c)
Operating revenues	$21,330	$25,118	$ 22,579	$ 18,777
Operating income	1,495	2,078	2,139	646
Net income	968	1,365	1,373	395
Net income attributable to Valero Energy Corporation stockholders	964	1,351	1,377	298
Earnings per common share	1.87	2.67	2.79	0.62
Earnings per common share – assuming dilution	1.87	2.66	2.79	0.62

(a) Operating income for the quarter ended March 31, 2016 reflects a favorable noncash lower of cost or market inventory valuation adjustment of $293 million as described in Note 4.

(b) Operating income for the quarter ended June 30, 2016 reflects a favorable noncash lower of cost or market inventory valuation adjustment of $454 million as described in Note 4 and an asset impairment loss of $56 million related to the Aruba Disposition as described in Note 2.

(c) Operating income for the quarter ended December 31, 2015 reflects an unfavorable noncash lower of cost or market inventory valuation adjustment of $790 million as described in Note 4.

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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, 2016.
Internal Control over Financial Reporting.
(a) Management's Report on Internal Control over Financial Reporting.
The management report on Valero's internal control over financial reporting required by Item 9A appears in Item 8 on page 66 of this report, and is incorporated herein by reference.
(b) Attestation Report of the Independent Registered Public Accounting Firm.
KPMG LLP's report on Valero's internal control over financial reporting appears in Item 8 beginning on page 68 of this report, and is incorporated herein by reference.
(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.

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PART III

ITEMS 10-14.
The information required by Items 10 through 14 of Form 10-K is incorporated herein by reference to the definitive proxy statement for our 2017 annual meeting of stockholders. We will file the proxy statement with the SEC on or before March 31, 2017.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES
(a) 1. Financial Statements. The following consolidated financial statements of Valero Energy Corporation and its subsidiaries are included in Part II, Item 8 of this Form 10-K:

	Page
Management's report on internal control over financial reporting	66
Reports of independent registered public accounting firm	67
Consolidated balance sheets as of December 31, 2016 and 2015	70
Consolidated statements of income for the years ended December 31, 2016, 2015, and 2014	71
Consolidated statements of comprehensive income for the years ended December 31, 2016, 2015, and 2014	72
Consolidated statements of equity for the years ended December 31, 2016, 2015, and 2014	73
Consolidated statements of cash flows for the years ended December 31, 2016, 2015, and 2014	74
Notes to consolidated financial statements	75

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:

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. 1-13175).

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. 1-13175).

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. 1-13175).

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. 1-13175).

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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. 1-13175).
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. 1-13175).
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. 1-13175).
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. 1-13175).
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 21, 2016 and filed September 27, 2016 (SEC File No. 1-13175).
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	First Supplemental Indenture dated as of June 28, 2000 between Valero Energy Corporation and The Bank of New York (including Form of 7 3/4% Senior Deferrable Note due 2005)–incorporated by reference to Exhibit 4.6 to Valero's Current Report on Form 8-K dated June 28, 2000, and filed June 30, 2000 (SEC File No. 1-13175).
4.03	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.
4.04	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.
4.05	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.
+10.01	Valero Energy Corporation Annual Bonus Plan, amended and restated as of July 29, 2009–incorporated by reference to Exhibit 10.01 to Valero's Current Report on Form 8-K dated July 29, 2009, and filed August 4, 2009 (SEC File No. 1-13175).
+10.02	Valero Energy Corporation Annual Incentive Plan for Named Executive Officers–incorporated by reference to Exhibit 10.01 to Valero's Current Report on Form 8-K dated February 22, 2012, and filed February 27, 2012 (SEC File No. 1-13175).
+10.03	Valero Energy Corporation 2005 Omnibus Stock Incentive Plan, amended and restated as of October 1, 2005–incorporated by reference to Exhibit 10.02 to Valero's Annual Report on Form 10-K for the year ended

	December 31, 2009 (SEC File No. 1-13175).
+10.04	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. 1-13175).
+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. 1-13175).
*+10.06	Form of Elective Deferral Agreement pursuant to the Valero Energy Corporation Deferred Compensation Plan.
*+10.07	Form of Investment Election Form pursuant to the Valero Energy Corporation Deferred Compensation Plan.
*+10.08	Form of Distribution Election Form pursuant to the Valero Energy Corporation Deferred Compensation Plan.

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+10.09	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. 1-13175).
+10.10	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. 1-13175).
+10.11	Form of Indemnity Agreement between Valero Energy Corporation (formerly known as Valero Refining and Marketing Company) and certain officers and directors–incorporated by reference to Exhibit 10.8 to Valero's Registration Statement on Form S-1 (SEC File No. 333-27013) filed May 13, 1997.
+10.12	Schedule of Indemnity Agreements–incorporated by reference to Exhibit 10.12 to Valero's Annual Report on Form 10-K for the year ended December 31, 2015 (SEC File No. 1-13175).
+10.13	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. 1-13175).
+10.14	Schedule of Tier I Change of Control Severance Agreements–incorporated by reference to Exhibit 10.14 to Valero's Annual Report on Form 10-K for the year ended December 31, 2015 (SEC File No. 1-13175).
+10.15	Form of Change of Control Severance Agreement (Tier II) between Valero Energy Corporation and executive officer–incorporated by reference to Exhibit 10.16 to Valero's Annual Report on Form 10-K for the year ended December 31, 2013 (SEC File No. 1-13175).
+10.16	Schedule of Tier II Change of Control Severance Agreements–incorporated by reference to Exhibit 10.16 to Valero's Annual Report on Form 10-K for the year ended December 31, 2015 (SEC File No. 1-13175).
+10.17	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. 1-13175).
+10.18	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. 1-13175).
*+10.19	Schedule of Tier II-A Change of Control Severance Agreements.
+10.20	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. 1-13175).
+10.21	Form of Performance Share Award Agreement pursuant to the Valero Energy Corporation 2011 Omnibus Stock Incentive Plan–incorporated by reference to Exhibit 10.19 to Valero's Annual Report on Form 10-K for the year ended December 31, 2013 (SEC File No. 1-13175).
+10.22	Form of Performance Share Award Agreement (with Dividend Equivalent Award) pursuant to the Valero Energy Corporation 2011 Omnibus Stock Incentive Plan–incorporated by reference to Exhibit 10.20 to

Valero's Annual Report on Form 10-K for the year ended December 31, 2014 (SEC File No. 1-13175).

+10.23 Form of Stock Option Agreement pursuant to the Valero Energy Corporation 2011 Omnibus Stock Incentive Plan–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. 1-13175).

+10.24 Form of Performance Stock Option Agreement pursuant to the Valero Energy Corporation 2011 Omnibus Stock Incentive Plan–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. 1-13175).

+10.25 Form of Restricted Stock Agreement pursuant to the Valero Energy Corporation 2011 Omnibus Stock Incentive Plan–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. 1-13175).

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10.26	$3,000,000,000 5-Year Third Amended and Restated Revolving Credit Agreement, dated as of November 12, 2015, 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 November 12, 2015, and filed November 13, 2015 (SEC File No. 1-13175).
*12.01	Statements of Computations of Ratios of Earnings to Fixed Charges.
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. 1-13175).
*21.01	Valero Energy Corporation subsidiaries.
*23.01	Consent of KPMG LLP dated February 23, 2017.
*24.01	Power of Attorney dated February 23, 2017 (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, 2014 (SEC File No. 1-13175).
***101	Interactive Data Files

* Filed herewith.
** Furnished herewith.
*** Submitted electronically herewith.
+Identifies management contracts or compensatory plans or arrangements required to be filed as an exhibit hereto.
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.

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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, President,
and Chief Executive Officer

Date: February 23, 2017

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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, Michael S. Ciskowski, and Jay D. Browning, 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, President, and Chief Executive Officer (Principal Executive Officer)	February 23, 2017
/s/ Michael S. Ciskowski (Michael S. Ciskowski)	Executive Vice President and Chief Financial Officer (Principal Financial and Accounting Officer)	February 23, 2017
/s/ H. Paulett Eberhart (H. Paulett Eberhart)	Director	February 23, 2017
/s/ Kimberly S. Greene (Kimberly S. Greene)	Director	February 23, 2017
/s/ Deborah P. Majoras (Deborah P. Majoras)	Director	February 23, 2017
/s/ Donald L. Nickles (Donald L. Nickles)	Director	February 23, 2017
/s/ Philip J. Pfeiffer (Philip J. Pfeiffer)	Director	February 23, 2017
/s/ Robert A. Profusek (Robert A. Profusek)	Director	February 23, 2017
/s/ Susan Kaufman Purcell (Susan Kaufman Purcell)	Director	February 23, 2017
/s/ Stephen M. Waters (Stephen M. Waters)	Director	February 23, 2017
/s/ Randall J. Weisenburger (Randall J. Weisenburger)	Director	February 23, 2017

/s/ Rayford Wilkins, Jr. (Rayford Wilkins, Jr.)	Director	February 23, 2017