

CVR ENERGY INC
Form 10-K
February 21, 2019
Table of Contents

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

Form 10-K
(Mark
One)

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

For the fiscal year ended December 31, 2018

OR

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

For the transition period from _____ to _____.

Commission file number: 001-33492

CVR Energy, Inc.
(Exact name of registrant as specified in its charter)
Delaware
(State or Other Jurisdiction of
Incorporation or Organization)

61-1512186
(I.R.S. Employer
Identification No.)

2277 Plaza Drive, Suite 500, Sugar Land, Texas 77479
(Address of principal executive offices) (Zip Code)
281-207-3200
(Registrant's Telephone Number, including Area Code)

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

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, \$0.01 par value per share	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 No

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

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past

90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for

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such shorter period that the registrant was required to submit such files). Yes No

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.

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

Large accelerated filer Accelerated filer

Non-accelerated filer Smaller reporting company

Emerging growth company

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

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

At June 29, 2018, the aggregate market value of the voting common stock held by non-affiliates of the registrant was approximately \$578 million based upon the closing price of its common stock on the New York Stock Exchange Composite tape. As of February 19, 2019, there were 100,530,599 shares of the registrant's common stock outstanding. Documents Incorporated By Reference

Portions of the registrant's Proxy Statement to be filed pursuant to Regulation 14A pertaining to the 2019 Annual Meeting of Stockholders are incorporated by reference into Part III hereof. The Company intends to file such Proxy Statement no later than 120 days after the end of the fiscal year covered by this Form 10-K.

TABLE OF CONTENTS
 CVR Energy
 Annual Report on Form 10-K

PART I		PART III	
<u>Item 1. Business</u>	<u>7</u>	<u>Item 10. Directors, Executive Officers and Corporate Governance</u>	<u>115</u>
<u>Item 1A. Risk Factors</u>	<u>22</u>	<u>Item 11. Executive Compensation</u>	<u>115</u>
<u>Item 1B. Unresolved Staff Comments</u>	<u>42</u>	<u>Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters</u>	<u>115</u>
<u>Item 2. Properties</u>	<u>42</u>	<u>Item 13. Certain Relationships and Related Transactions, and Director Independence</u>	<u>115</u>
<u>Item 3. Legal Proceedings</u>	<u>42</u>	<u>Item 14. Principal Accounting Fees and Services</u>	<u>115</u>
<u>Item 4. Mine Safety Disclosures</u>	<u>43</u>		
PART II		PART IV	
<u>Item 5. Market For Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities</u>	<u>44</u>	<u>Item 15. Exhibits, Financial Statement Schedules</u>	<u>116</u>
<u>Item 6. Selected Financial Data</u>	<u>45</u>	<u>Item 16. Form 10-K Summary</u>	<u>123</u>
<u>Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations</u>	<u>46</u>		
<u>Item 7A. Quantitative and Qualitative Disclosures About Market Risk</u>	<u>72</u>		
<u>Item 8. Financial Statements and Supplementary Data</u>	<u>73</u>		
<u>Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure</u>	<u>114</u>		
<u>Item 9A. Controls and Procedures</u>	<u>114</u>		
<u>Item 9B. Other Information</u>	<u>114</u>		

December 31, 2018 | 1

Table of Contents

GLOSSARY OF SELECTED TERMS

The following are definitions of certain terms used in this Annual Report on Form 10-K for the year ended December 31, 2018 (this “Report”).

2-1-1 crack spread — The approximate gross margin resulting from processing two barrels of crude oil to produce one barrel of gasoline and one barrel of distillate. The 2-1-1 crack spread is expressed in dollars per barrel and is a proxy for the per barrel margin that a sweet crude oil refinery would earn assuming it produced and sold the benchmark production of gasoline and distillate.

Ammonia — Ammonia is a direct application fertilizer and is primarily used as a building block for other nitrogen products for industrial applications and finished fertilizer products.

Blendstocks — Various compounds that are combined with gasoline or diesel from the crude oil refining process to make finished gasoline and diesel fuel; these may include natural gas liquids, ethanol, or reformat, among others.

bpd — Abbreviation for barrels per day.

bpcd — Abbreviation for barrels per calendar day, which refers to the total number of barrels processed in a refinery within a year, divided by the total number of days in the year (365 or 366 days), thus reflecting all operational and logistical limitations.

Bulk sales — Volume sales through third-party pipelines, in contrast to tanker truck quantity rack sales.

Capacity — Capacity is defined as the throughput a process unit is capable of sustaining, either on a calendar or stream day basis. The throughput may be expressed in terms of maximum sustainable, nameplate or economic capacity. The maximum sustainable or nameplate capacities may not be the most economical. The economic capacity is the throughput that generally provides the greatest economic benefit based on considerations such as crude oil and other feedstock costs, product values, regulatory compliance costs and downstream unit constraints.

Catalyst — A substance that alters, accelerates, or instigates chemical changes, but is neither produced, consumed nor altered in the process.

Corn belt — The primary corn producing region of the United States, which includes Illinois, Indiana, Iowa, Minnesota, Missouri, Nebraska, Ohio and Wisconsin.

Crack spread — A simplified calculation that measures the difference between the price for light products and crude oil.

Distillates — Primarily diesel fuel, kerosene and jet fuel.

Ethanol — A clear, colorless, flammable oxygenated hydrocarbon. Ethanol is typically produced chemically from ethylene, or biologically from fermentation of various sugars from carbohydrates found in agricultural crops and cellulosic residues from crops or wood. It is used in the United States as a gasoline octane enhancer and oxygenate.

Farm belt — Refers to the states of Illinois, Indiana, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, Texas and Wisconsin.

FCCU — Refers to the fluid catalytic cracking unit.

Feedstocks — Petroleum products, such as crude oil or fluid catalytic cracking unit or FCCU gasoline, that are processed and blended into refined products, such as gasoline, diesel fuel and jet fuel during the refining process.

GHG — Greenhouse gas.

Group 3 — A geographic subset of the PADD II region comprising refineries in the midcontinent portion of the United States, specifically Oklahoma, Kansas, Missouri, Nebraska, Iowa, Minnesota, North Dakota and South Dakota.

December 31, 2018 | 2

Table of Contents

Heavy crude oil — A relatively inexpensive crude oil characterized by high relative density and viscosity. Heavy crude oils require greater levels of processing to produce high value products such as gasoline and diesel fuel.

Light crude oil — A relatively expensive crude oil characterized by low relative density and viscosity. Light crude oils require lower levels of processing to produce high value products such as gasoline and diesel fuel.

Liquid volume yield — A calculation of the total liquid volumes produced divided by total throughput.

Mbpd — Thousand barrels per day.

MMBtu — One million British thermal units, or Btu: a measure of energy. One Btu of heat is required to raise the temperature of one pound of water one degree Fahrenheit.

MMcf — One million standard cubic feet, a customary gas measurement.

Natural gas liquids — Natural gas liquids, often referred to as NGLs, are blendstocks used in the manufacture of refined fuels, as well as products of the refining process. Common NGLs used include propane, isobutane, normal butane and natural gasoline.

Petroleum coke (pet coke) — A coal-like substance that is produced during the refining process.

Product pricing at gate — Product pricing at gate represents net sales less freight revenue divided by product sales volume in tons. Product pricing at gate is also referred to as netback.

Rack sales — Sales which are made at terminals into third-party tanker trucks or railcars.

Refined products — Petroleum products, such as gasoline, diesel fuel and jet fuel, that are produced by a refinery.

RFS —Renewable Fuel Standard of the EPA.

RINs— Renewable fuel credits, known as renewable identification numbers.

SEC — Securities and Exchange Commission.

Sour crude oil — A crude oil that is relatively high in sulfur content, requiring additional processing to remove the sulfur. Sour crude oil is typically less expensive than sweet crude oil.

Spot market — A market in which commodities are bought and sold for cash and delivered immediately.

Sweet crude oil — A crude oil that is relatively low in sulfur content, requiring less processing to remove the sulfur. Sweet crude oil is typically more expensive than sour crude oil.

Throughput — The quantity of crude oil and other feedstocks processed at a refinery measured in barrels per day.

Turnaround — A periodically required standard procedure to inspect, refurbish, repair and maintain the refinery or nitrogen fertilizer plant assets. This process involves the shutdown and inspection of major processing units and occurs every four to five years for the refineries and every two to three years for the nitrogen fertilizer plant. A

turnaround will typically extend the operating life of a facility and return performance to desired operating levels.

Utilization — Measurement of the annual production of UAN and Ammonia expressed as a percentage of each facilities nameplate production capacity.

WCS —Western Canadian Select crude oil, a medium to heavy, sour crude oil, characterized by an American Petroleum Institute gravity (“API gravity”) of between 20 and 22 degrees and a sulfur content of approximately 3.3 weight percent.

December 31, 2018 | 3

Table of Contents

WTI — West Texas Intermediate crude oil, a light, sweet crude oil, characterized by an API gravity between 39 and 41 degrees and a sulfur content of approximately 0.4 weight percent that is used as a benchmark for other crude oils.

WTS — West Texas Sour crude oil, a relatively light, sour crude oil characterized by an API gravity of between 30 and 32 degrees and a sulfur content of approximately 2.0 weight percent.

Yield — The percentage of refined products that is produced from crude oil and other feedstocks.

December 31, 2018 | 4

Table of Contents

Important Information Regarding Forward Looking Statements

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the “Securities Act”), and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), including, but not limited to, those under Item 1. Business, Item 1A. Risk Factors and Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations. These forward-looking statements are subject to a number of risks and uncertainties, many of which are beyond our control. All operations, financial position, estimated revenues and losses, projected costs, prospects, plans and objectives of management are forward-looking statements. When used in this Annual Report on Form 10-K the words “could,” “believe,” “anticipate,” “intend,” “estimate,” “expect,” “may,” “continue,” “predict,” “potential,” “project,” and similar terms are intended to identify forward-looking statements. Although we believe our assumptions concerning future events are reasonable, a number of risks, uncertainties and other factors could cause actual results and trends to differ materially from those projected or forward-looking.

Forward-looking statements may include statements about, but not limited to, the following:

- volatile margins in the refining industry and exposure to the risks associated with volatile crude oil prices;
- the availability of adequate cash and other sources of liquidity for the capital needs of our businesses;
- the ability to forecast future financial condition or results of operations and future revenues and expenses of our businesses;
- the effects of transactions involving forward and derivative instruments;
- disruption of the petroleum business' ability to obtain an adequate supply of crude oil;
- changes in laws, regulations and policies with respect to the export of crude oil or other hydrocarbons;
- interruption of the pipelines supplying feedstock and in the distribution of the petroleum business' products;
- competition in the petroleum and nitrogen fertilizer businesses;
- capital expenditures and potential liabilities arising from environmental laws and regulations;
- changes in ours or CVR Refining's or CVR Partners' credit profile;
- the cyclical nature of the nitrogen fertilizer business;
 - the seasonal nature of the petroleum business;
- the supply and price levels of essential raw materials of our businesses;
- the risk of a material decline in production at our refineries and nitrogen fertilizer plants;
- potential operating hazards from accidents, fire, severe weather, tornadoes, floods or other natural disasters;
- the risk associated with governmental policies affecting the agricultural industry;
- the volatile nature of ammonia, potential liability for accidents involving ammonia that cause interruption to the nitrogen fertilizer business, severe damage to property and/or injury to the environment and human health and potential increased costs relating to the transport of ammonia;
- the dependence of the nitrogen fertilizer business on a few third-party suppliers, including providers of transportation services and equipment;
- the reliance on pet coke that we purchase from CVR Refining and third party suppliers for the nitrogen fertilizer business;
- new regulations concerning the transportation of hazardous chemicals, risks of terrorism, and the security of chemical manufacturing facilities and other matters beyond our control;
- the risk of security breaches;
 - the petroleum business' and the nitrogen fertilizer business' dependence on significant customers and the creditworthiness and performance by counterparties;
- the potential loss of the nitrogen fertilizer business' transportation cost advantage over its competitors;
-

the potential inability to successfully implement our business strategies, including the completion of significant capital programs;

- our ability to continue to license the technology used in the petroleum business and nitrogen fertilizer business operations;
- our petroleum business' ability to purchase RINs on a timely and cost effective basis;
- our petroleum business' continued ability to secure environmental and other governmental permits necessary for the operation of its business;
- existing and proposed laws, rulings and regulations, including but not limited to those relating to climate change, alternative energy or fuel sources, and existing and future regulations related to the end-use and application of fertilizers;
- refinery and nitrogen fertilizer facilities' operating hazards and interruptions, including unscheduled maintenance or downtime, and the availability of adequate insurance coverage;
- instability and volatility in the capital and credit markets; and

December 31, 2018 | 5

Table of Contents

our ability to recover under our insurance policies for damages or losses in full or at all.

All forward-looking statements contained in this Report only speak as of the date of this Report. We undertake no obligation to publicly update or revise any forward-looking statements to reflect events or circumstances that occur after the date of this Report, or to reflect the occurrence of unanticipated events, except to the extent required by law.

December 31, 2018 | 6

Table of Contents

PART I

Part 1 should be read in conjunction with Management's Discussion and Analysis in Item 7 and our consolidated financial statements and related notes thereto in Item 8.

Item 1. Business

Overview

CVR Energy is a diversified holding company formed in September 2006. The Company is primarily engaged in the petroleum refining and marketing business through its interest in CVR Refining and the nitrogen fertilizer manufacturing business through its interest in CVR Partners. CVR Refining is an independent petroleum refiner and marketer of high value transportation fuels. CVR Partners produces and markets nitrogen fertilizers in the form of UAN and ammonia. As used in this Annual Report on Form 10-K, the terms "CVR Energy," the "Company," "we," "us" or "our" may refer to CVR Energy, Inc., one or more of its consolidated subsidiaries or all of them taken as a whole. The words "we," "us" or "our" generally include CVR Refining, LP ("CVR Refining" or "CVRR") or CVR Partners, LP ("CVR Partners" or the "Nitrogen Fertilizer Partnership"), the Company's publicly traded limited partnership, and their respective subsidiaries, as consolidated subsidiaries of the Company with certain exceptions where there are transactions or obligations between and among CVR Refining, CVR Partners and CVR Energy, including their subsidiaries.

As of December 31, 2018, we owned the general partner and approximately 81% and 34% respectively, of the outstanding common units representing limited partner interests in each of CVR Refining and CVR Partners. Our common stock is listed on the New York Stock Exchange ("NYSE") under the symbol "CVI," and CVR Partners' common units are listed on the NYSE under the symbol "UAN." As of December 31, 2018, Icahn Enterprises L.P. and its affiliates owned approximately 71% of our outstanding common stock.

On January 17, 2019, the general partner of CVR Refining assigned to the Company its right to purchase all of the issued and outstanding CVR Refining common units not already owned by CVR Refining's general partner or its affiliates. On January 29, 2019, the Company purchased all remaining CVR Refining common units not already owned by the Company or its affiliates (the "Public Unit Purchase"). In conjunction with the Public Unit Purchase, the Company purchased all CVR Refining common units owned by IEP and its subsidiary, American Entertainment Properties Corporation ("AEP") (the "Affiliate Unit Purchase," and together with the Public Unit Purchase, the "CVRR Unit Purchase"). As a result of the CVRR Unit Purchase, the Refining Partnership's common units were delisted effective January 29, 2019 and its reporting obligations under Sections 13(a) and 15(d) of the Exchange Act were suspended as of February 8, 2019. Refer to Item 8, Note 1 ("Organization and Nature of Business") for further discussion of the CVRR Unit Purchase.

We operate under two business segments: petroleum (the petroleum and related businesses operated by CVR Refining) and nitrogen fertilizer (the nitrogen fertilizer businesses operated by CVR Partners). Throughout the remainder of this document, our business segments are referred to as "Petroleum Segment" and "Nitrogen Fertilizer Segment," respectively. Refer to Item 1, "Petroleum" and Item 1, "Nitrogen Fertilizer" for further details on our business segments.

Our History

The following graphic depicts the Company's history and key events that have occurred since the Company's formation.

December 31, 2018 | 7

Table of Contents

Petroleum

Our Petroleum Segment is comprised of the assets and operations of CVR Refining, including two refineries located in Coffeyville, Kansas and Wynnewood, Oklahoma and supporting logistics assets in the region.

Facilities

Coffeyville Refinery - We own a complex full coking medium-sour crude oil refinery in southeast Kansas, approximately 100 miles from Cushing, Oklahoma (“Cushing”) with a name plate crude oil capacity of 132,000 bpd (the “Coffeyville Refinery”). The major operations of the Coffeyville Refinery include fractionation, catalytic cracking, hydrotreating, reforming, coking, isomerization, alkylation, sulfur recovery and propane and butane recovery operating units. The Coffeyville Refinery benefits from significant refining unit redundancies, which include two crude oil distillation and vacuum towers, three sulfur recovery units and four hydrotreating units. These redundancies allow the Coffeyville Refinery to continue to receive and process crude oil even if one tower requires maintenance without having to shut down the entire refinery. In addition, the Coffeyville Refinery has a redundant supply of hydrogen pursuant to its feedstock and shared services agreement with a subsidiary of CVR Partners.

Wynnewood Refinery - We own a complex crude oil refinery in Wynnewood, Oklahoma approximately 65 miles south of Oklahoma City, Oklahoma and approximately 130 miles from Cushing with a name plate crude oil capacity of 74,500 bpd capable of processing 20,000 bpd of light sour crude oil (the “Wynnewood Refinery” and together with the Coffeyville Refinery, the “Refineries”). The major operations of the Wynnewood Refinery include fractionation, hydrotreating, hydrocracking, reforming, solvent deasphalting, alkylation, sulfur recovery and propane and butane recovery operating units. Similar to the Coffeyville Refinery, the Wynnewood Refinery benefits from unit redundancies, including two crude oil distillation and vacuum towers and four hydrotreating units.

Throughput by Refinery (1)

(in bpd)	Year Ended December 31, 2018		
	Coffeyville	Wynnewood	Total
Total crude throughput	124,489	74,669	199,158
All other feedstock and blendstock	8,369	5,068	13,437
Total throughput	132,858	79,737	212,595

(in bpd)	Year Ended December 31, 2017		
	Coffeyville	Wynnewood	Total
Total crude throughput	131,569	73,180	204,749
All other feedstock and blendstock	9,921	3,511	13,432
Total throughput	141,490	76,691	218,181

Table of Contents

Production by Refinery (1)

	Year Ended December 31, 2018		
(in bpd)	Coffeyville	Wynnewood	Total
Gasoline	67,091	40,291	107,382
Diesel fuels	56,307	33,442	89,749
Other refined products	10,927	4,066	14,993
Total production	134,325	77,799	212,124

	Year Ended December 31, 2017		
(in bpd)	Coffeyville	Wynnewood	Total
Gasoline	72,778	38,311	111,089
Diesel fuels	59,593	30,816	90,409
Other refined products	11,335	5,483	16,818
Total production	143,706	74,610	218,316

During the three months ended December 31, 2018, management revised its internal and external approach to (1) calculating refinery throughput and production data to include ethanol and biodiesel consumed at the refineries. Refer to Item 7, Results of Operations, Petroleum, for further discussion of this change.

Table of Contents

Supply

The “Jayhawk” third-party crude oil pipeline, depicted in the graphic above and to the left, is in the process of being disconnected from CVR Refining’s pipeline network and will no longer be utilized going forward. This is not expected to have a significant impact on operations or the financial performance of CVR Refining.

The Coffeyville Refinery has the capability to process blends of a variety of crude oil ranging from heavy sour to light sweet crude oil. Currently, the Coffeyville Refinery crude oil slate consists of a blend of mid-continent domestic grades and various Canadian medium and heavy sours and other similarly sourced crudes. Other blendstocks include normal butane, natural gasoline, alkylation feeds, naphtha, gas oil and vacuum tower bottoms. The Wynnewood Refinery has the capability to process blends of a variety of crude oil ranging from medium sour to light sweet crude oil. Isobutane, gasoline components, and normal butane blendstocks are also typically used.

December 31, 2018 | 10

Table of Contents

In addition to the use of third-party pipelines, we have an extensive gathering system consisting of logistics assets that are owned, leased or part of a joint venture operation. These assets include the following:

Pipeline Segment	As of December 31, 2018	
	Length (miles)	Capacity (bpd)
Joint Ventures:		
Midway (1)	100	120,000
Velocity (1) (2)	26	80,000
Owned Pipelines:		
Valley to Hooser 6"	46	9,600
Valley to Hooser 8"	20	9,600
Hooser to Broomer 8"	43	22,800
Broome to East Tank Farm 12" (3)	19	52,000
Broome to East Tank Farm 16" (3)	18	120,000
East Tank Farm to Refinery 16" (3)	2	160,000
Shidler to Hooser 4"	23	6,500
Plainville to Phillipsburg 6"	36	6,000
Plainville to Natoma 6"	10	6,500
Cushing to Payson 10" (Red River)	30	22,000
Payson to Ellis Jct 8" (Red River)	73	22,000
Leased Pipelines:		
Humboldt to Broome 8"	62	7,000
Kelley to Barnsdall 8"	31	3,600
Barnsdall to Caney 8"	36	3,600

(1) CVR Refining participates in the ownership of these pipelines through equity method investments. Refer to Item 8, Note 4 ("Equity Method Investments") for further discussion of these investments.

(2) Velocity refers to the pipeline owned by our joint venture with Velocity Pipeline Partners, LLC ("VPP"), which was acquired by Enable Midstream Partners, LP. The capacity of the Enable line is being expanded to 115,000 bpd with an estimated completion date of February 2019.

(3) In support of our Coffeyville Refinery, we own and operate a tank storage facility in close proximity to the Coffeyville Refinery (the "East Tank Farm").

For the acquisition of crude oil within close proximity of the Refineries, we operate a fleet of approximately 140 trucks and have contracts with third-party trucking fleets to acquire and deliver crude oil to our pipeline system or directly to the Refineries for consumption or resale. For the year ended December 31, 2018, the gathering system, which includes the pipelines outlined above and our trucking operations, supplied approximately 40% and 89% of the Coffeyville and Wynnewood refineries' crude oil demand, respectively. Regionally-sourced crude oils delivered to the Refineries usually have a transportation cost advantage compared to other domestic or international crudes given the Refineries' proximity to the producing areas. However, sometimes slightly heavier and more sour crudes may offer good economics to the Refineries, including the higher cost of transportation. The regionally-sourced crude oils we purchase are light and sweet enough to allow the Refineries to blend higher percentages of lower cost crude oils, such as heavy Canadian sour, to optimize economics within operational constraints.

Crude oils sourced outside of our gathering system are delivered to Cushing by various third-party pipelines, including the Keystone and Spearhead pipelines where we can be subject to proration, and subsequently to the Broome Station facility via the Midway joint venture pipeline. Our current contracted capacity includes the Pony Express and White Cliffs pipelines, respectively. From the Broome Station facility, crude oil is delivered to the Coffeyville refinery via

the Refining Partnership's 170,000 bpd proprietary pipeline system. Crude oils are delivered to the Wynnewood Refinery through third-party and joint venture pipelines, and received into storage tanks at terminals located on or near the refinery.

We also own storage tanks with total storage capacity of 3.8 million barrels, including 1.5 million barrels of tank storage in Cushing. Additionally, we lease tank storage totaling 2.5 million barrels, including 2.3 million barrels at Cushing.

December 31, 2018 | 11

Table of Contents

The Coffeyville Refinery is connected to the mid-continent natural gas liquid commercial hub at Conway, Kansas by the inbound Enterprise Pipeline Blue Line. Natural gas liquid blendstocks such as butanes and natural gasoline are sourced and delivered directly into the refinery. In addition, Coffeyville Refinery's proximity to Conway provides access to the natural gas liquid and liquid petroleum gas fractionation and storage capabilities.

Through the crude oil and other feedstock supply operations outlined above, and the associated markets available to it, we are able to source and refine crude oils from different locations and of different compositions when it is economically advantageous to do so. To capture favorable market differentials (including transportation costs) and produce higher value products, our throughput has shifted toward more regional and lighter crude oils in 2018 compared to 2017, as illustrated in the tables below.

(in bpd)	Year Ended December 31, 2018							
	Coffeyville		Wynnewood		Total			
Regional Crudes	31,350	25 %	54,746	73 %	86,096	43 %		
WTI	66,952	54 %	2,354	3 %	69,306	35 %		
Midland WTI	15,893	13 %	10,332	14 %	26,225	13 %		
Condensate	4,992	4 %	7,237	10 %	12,229	6 %		
Heavy Canadian	5,302	4 %	—	— %	5,302	3 %		
Total crude throughput	124,489	100 %	74,669	100 %	199,158	100 %		

(in bpd)	Year Ended December 31, 2017							
	Coffeyville		Wynnewood		Total			
Regional Crudes	34,805	26 %	27,750	38 %	62,555	31 %		
WTI	84,460	64 %	15,251	21 %	99,711	49 %		
Midland WTI	—	— %	29,045	40 %	29,045	14 %		
Condensate	2,169	2 %	1,134	2 %	3,303	2 %		
Heavy Canadian	10,135	8 %	—	— %	10,135	5 %		
Total crude throughput	131,569	100 %	73,180	100 %	204,749	100 %		

Table of Contents

Marketing and Distribution

Our Coffeyville product marketing efforts are focused in the central mid-continent area through rack marketing, which is the supply of product through tanker trucks and railcars directly to customers located in close geographic proximity to the refinery and to customers at terminals on third-party refined products distribution systems; and bulk sales (sales into third-party pipelines) into the mid-continent markets and other destinations utilizing third-party product pipeline networks.

The Wynnewood Refinery ships its finished product via pipeline, railcar, and truck, focusing its efforts in Oklahoma, parts of Arkansas as well as eastern Missouri. The pipeline system is capable of multi-directional flow, providing access to Texas markets as well as adjoining states with pipeline connections. The Wynnewood Refinery also sells jet fuel to the U.S. Department of Defense via its segregated truck rack.

Customers

Customers for the Refineries' petroleum products primarily include retailers, railroads, and farm cooperatives and other refiners/marketers in Group 3 of the PADD II region because of their relative proximity to the Refineries and pipeline access. We typically sell bulk products to long-standing customers at spot market prices based on a Group 3 basis differential to prices quoted on the New York Mercantile Exchange ("NYMEX"), which are reported by industry market-related indices such as Platts and Oil Price Information Service ("OPIS").

Rack sales are at posted prices that are influenced by the competitive forces in the Group 3 market. In addition, the Coffeyville Refinery sells hydrogen and by-products of its refining operations, such as petroleum coke, to an affiliate, CVR Partners, pursuant to multi-year agreements. For the year ended December 31, 2018, only one customer accounted for 10% or more of the Refining Partnership's consolidated revenues.

December 31, 2018 | 13

Table of Contents

Competition

Our Petroleum Segment competes primarily on the basis of price, reliability of supply, availability of multiple grades of products and location. The principal competitive factors affecting its refining operations are cost of crude oil and other feedstocks, refinery complexity, refinery efficiency, refinery product mix and product distribution and transportation costs. The location of the Refineries provides us with a reliable supply of crude oil and a transportation cost advantage over our competitors. We primarily compete against five refineries in the mid-continent region. In addition to these refineries, we compete against trading companies, as well as other refineries located outside the region that are linked to the mid-continent market through an extensive product pipeline system. These competitors include refineries located near the Gulf Coast, the Great Lakes and the Texas panhandle region.

Seasonality

Our Petroleum Segment operations experience seasonal fluctuations as demand for gasoline products is generally higher during the summer months than during the winter months due to seasonal increases in highway traffic and road construction work. Demand for diesel fuel is higher during the planting and harvesting seasons. As a result, its results of operations for the first and fourth calendar quarters are generally lower compared to its results for the second and third calendar quarters. In addition, unseasonably cool weather in the summer months and/or unseasonably warm weather in the winter months in the markets in which we sell petroleum products can impact the demand for gasoline and diesel fuel.

Nitrogen Fertilizer

Our Nitrogen Fertilizer Segment is comprised of the assets and operations of CVR Partners, including two nitrogen fertilizer manufacturing facilities located in Coffeyville, Kansas and East Dubuque, Illinois.

Facilities

Coffeyville Fertilizer Facility - We own and operate a nitrogen fertilizer production facility in Coffeyville, Kansas that includes a gasifier complex having a capacity of 89 million standard cubic feet per day of hydrogen, a 1,300 ton-per-day capacity ammonia unit and a 3,000 ton-per-day capacity UAN unit (the "Coffeyville Fertilizer Facility"). The Coffeyville Fertilizer Facility is the only nitrogen fertilizer plant in North America that utilizes a pet coke gasification process to produce nitrogen fertilizer. The Coffeyville Fertilizer Facility's largest raw material expense used in the production of ammonia is pet coke, which it purchases from our Coffeyville Refinery and third parties. For the years ended December 31, 2018, 2017 and 2016, the Coffeyville Fertilizer Facility purchased approximately \$13 million, \$8 million and \$8 million, respectively, of pet coke, which equaled an average cost per ton of \$28, \$17 and \$15, respectively. For the years ended December 31, 2018, 2017 and 2016, we upgraded approximately 93%, 88% and 93%, respectively, of our ammonia production into UAN, a product that presently generates greater profit than ammonia and will continue to do so when the economics are favorable.

East Dubuque Fertilizer Facility - We own and operate a nitrogen fertilizer production facility in East Dubuque, Illinois that includes a 1,075 ton-per-day capacity ammonia unit and a 1,100 ton-per-day capacity UAN unit (the "East Dubuque Fertilizer Facility"). The East Dubuque Fertilizer Facility has the flexibility to vary its product mix enabling it upgrade a portion of ammonia production into varying amounts of UAN, nitric acid and liquid and granulated urea, depending on market demand, pricing and storage availability. The East Dubuque Fertilizer Facility has direct access to a barge dock on the Mississippi River as well as a nearby rail spur serviced by the Canadian National Railway Company. The East Dubuque Fertilizer Facility's largest raw material expense used in the production of ammonia is

natural gas, which it purchases from third parties. The East Dubuque Fertilizer Facility's natural gas process results in a higher percentage of variable costs as compared to the Coffeyville Fertilizer Facility. For the year ended December 31, 2018, and 2017 the East Dubuque Facility incurred approximately \$22 million and \$26 million for feedstock natural gas, respectively, which equaled an average cost of \$3.15 and \$3.26 per MMBtu, respectively.

Commodities

The nitrogen products we produce are globally traded commodities and are subject to price competition. The customers for its products make their purchasing decisions principally on the basis of delivered price and, to a lesser extent, on customer service and product quality. The selling prices of its products fluctuate in response to global market conditions and changes in supply and demand.

December 31, 2018 | 14

Table of Contents

Agriculture

The three primary forms of nitrogen fertilizer used in the United States of America are ammonia, urea and UAN. Unlike ammonia and urea, UAN can be applied throughout the growing season and can be applied in tandem with pesticides and herbicides, providing farmers with flexibility and cost savings. As a result of these factors, UAN typically commands a premium price to urea and ammonia, on a nitrogen equivalent basis.

Nutrients are depleted in soil over time and therefore must be replenished through fertilizer use. Nitrogen is the most quickly depleted nutrient and must be replenished every year, whereas phosphate and potassium can be retained in soil for up to three years. Plants require nitrogen in the largest amounts and it accounts for approximately 57% of primary fertilizer consumption on a nutrient ton basis, per the International Fertilizer Industry Association (“IFIA”).

Demand

Global demand for fertilizers is driven primarily by grain demand and prices, which, in turn, are driven by population growth, farmland per capita, dietary changes in the developing world and increased consumption of bio-fuels. According to the IFIA, from 1974 to 2016, global fertilizer demand grew 2% annually. Global fertilizer use, consisting of nitrogen, phosphate and potassium, is projected to increase by 34% between 2010 and 2030 to meet global food demand according to a study funded by the Food and Agricultural Organization of the United Nations. Currently, the developed world uses fertilizer more intensively than the developing world, but sustained economic growth in emerging markets is increasing food demand and fertilizer use. In addition, populations in developing countries are shifting to more protein-rich diets as their incomes increase, with such consumption requiring more grain for animal feed. As an example, China’s wheat and coarse grains production is estimated to have increased 32% between 2007 and 2018, but still failed to keep pace with increases in demand, prompting China to grow its wheat and coarse grain imports by more than 1,320% over the same period, according to the United States Department of Agriculture (“USDA”).

The United States is the world’s largest exporter of coarse grains, accounting for 33% of world exports and 29% of world production for the fiscal year ended September 30, 2018, according to the USDA. A substantial amount of nitrogen is consumed in production of these crops to increase yield. Based on Fertecon Limiteds (“Fertecon”) 2018 estimates, the United States is the world’s third largest consumer of nitrogen fertilizer and the world’s largest importer of nitrogen fertilizer. Fertecon is a reputable agency which provides market information and analysis on fertilizers and fertilizer raw materials for fertilizer and related industries, and international agencies. Fertecon estimates indicate that the United States represented 12% of total global nitrogen fertilizer consumption for 2018, with China and India as the top consumers representing 23% and 15% of total global nitrogen fertilizer consumption, respectively.

North American nitrogen fertilizer producers predominantly use natural gas as their primary feedstock. Over the last five years, U.S. oil and natural gas reserves have increased significantly due to, among other factors, advances in extracting shale oil and gas. More recently, global demand has slowed with production staying steady even as oil and gas prices have declined substantially over the past two years. As a result, North America has become a low-cost region for nitrogen fertilizer production.

Raw Material Supply

Coffeyville Fertilizer Facility - During the past five years, just under 70% (2018 - 59%) of the Coffeyville Fertilizer Facility’s pet coke requirements on average were supplied by our adjacent Coffeyville Refinery pursuant to a multi-year agreement. Historically, the Coffeyville Fertilizer Facility has obtained the remainder of its pet coke requirements through third parties, such as other mid-continent refineries or pet coke brokers at spot-prices. In 2018, we entered into a term deal with a third-party contracts typically priced at a discounted to the spot market. In 2018, a larger amount of third party purchases were made at spot prices due to less supply being available from the Coffeyville Refinery. Additionally, the Coffeyville Fertilizer Facility relies on a third-party air separation plant at its

location that provides contract volumes of oxygen, nitrogen, and compressed dry air to the Coffeyville Fertilizer Facility gasifiers.

East Dubuque Fertilizer Facility - The East Dubuque Fertilizer Facility uses natural gas to produce nitrogen fertilizer. We are typically able to purchase natural gas at competitive prices due to the plant's connection to the Northern Natural Gas interstate pipeline system, which is within one mile of the facility, and a third-party pipeline. The pipelines are connected to Nicor Inc.'s distribution system at the Chicago Citygate receipt point and at the Hampshire interconnect from which natural gas is transported to the East Dubuque Fertilizer Facility. As of December 31, 2018, we had commitments to purchase approximately 1.4 million MMBtus of natural gas supply for planned use in our East Dubuque Fertilizer Facility in January and February 2019 at a weighted average rate per MMBtu of approximately \$3.84, exclusive of transportation cost.

December 31, 2018 | 15

Table of Contents

Marketing and Distribution

Our Nitrogen Fertilizer Segment primarily markets UAN products to agricultural customers and ammonia products to agricultural and industrial customers. UAN and ammonia accounted for approximately 72% and 20%, respectively, of our Nitrogen Fertilizer Segment's net sales for the year ended December 31, 2018.

UAN and ammonia are primarily distributed by truck or by railcar. If delivered by truck, products are most commonly sold on a free-on-board ("FOB") shipping point basis, and freight is normally arranged by the customer. We operate a fleet of railcars for use in product delivery, and, if delivered by railcar, the products are most commonly sold on a FOB destination point basis and we typically arrange the freight.

Nitrogen fertilizer products leave the Coffeyville Fertilizer Facility either in railcars for destinations located principally on the Union Pacific or Burlington Northern Santa Fe railroads or in trucks for direct shipment to customers. The East Dubuque Fertilizer Facility primarily sells product to customers located within 200 miles of the facility. In most instances, customers take delivery of nitrogen products at the East Dubuque Fertilizer Facility and arrange to transport them to their final destinations by truck.

Customers

We sell UAN products to retailers and distributors. In addition, we sell ammonia to agricultural and industrial customers. Given the nature of the nitrogen fertilizer business, and consistent with industry practice, most of our contracts with customers are for a term of 12-month or less. Some of our industrial sales include long-term purchase contracts. For the year ended December 31, 2018, the top five customers in the aggregate represented 32% of the nitrogen fertilizer segment's net sales. The Nitrogen Fertilizer Segment's top customer accounted for approximately 14% of its net sales.

Competition

Our Nitrogen Fertilizer Segment has experienced and expects to continue to meet significant levels of competition from current and potential competitors, many of whom have significantly greater financial and other resources. Competition in the nitrogen fertilizer industry is dominated by price considerations. However, during the spring and fall application seasons, farming activities intensify and delivery capacity is a significant competitive factor. We seasonally adjust inventory to enhance manufacturing and distribution operations.

Our major competitors in the nitrogen fertilizer business include CF Industries Holdings, Inc., including its majority owned subsidiary Terra Nitrogen Company, L.P.; Koch Fertilizer Company, LLC; and Nutrien Ltd. (formerly known as Agrium, Inc. and Potash Corporation of Saskatchewan, Inc.). Domestic competition is intense due to customers' sophisticated buying tendencies and competitor strategies that focus on cost and service. We also encounter competition from producers of fertilizer products manufactured in foreign countries. In certain cases, foreign producers of fertilizer who export to the United States may be subsidized by their respective governments.

The decline of natural gas prices in recent periods has led to existing and new producers considering construction of new or expanding existing nitrogen fertilizer production facilities in the United States. The substantial majority of the incremental nitrogen fertilizer supply associated with the construction of confirmed new production facilities is expected to be online in 2018. Once the increased production comes on-stream, Blue, Johnson & Associates, Inc., a company management considers to provide reliable fertilizer industry forecasts, expects the United States will still require net imports into the United States to meet domestic demand for nitrogen fertilizers.

Seasonality

Because the Nitrogen Fertilizer Segment primarily sells agricultural commodity products, its business is exposed to seasonal fluctuations in demand for nitrogen fertilizer products in the agricultural industry. In addition, the demand for fertilizers is affected by the aggregate crop planting decisions and fertilizer application rate decisions of individual farmers who make planting decisions based largely on the prospective profitability of a harvest. The specific varieties and amounts of fertilizer they apply depend on factors like crop prices, farmers' current liquidity, soil conditions, weather patterns and the types of crops planted. The nitrogen fertilizer segment typically experiences higher net sales in the first half of the calendar year, which is referred to as the planting season, and its net sales tend to be lower during the second half of each calendar year, which is referred to as the fall season.

December 31, 2018 | 16

Table of Contents

Environmental Matters

Our petroleum and nitrogen fertilizer businesses are subject to extensive and frequently changing federal, state and local, environmental, health and safety laws and regulations governing the emission and release of hazardous substances into the environment, the treatment and discharge of waste water, the storage, handling, use and transportation of petroleum and nitrogen products, and the characteristics and composition of gasoline, diesel fuels, UAN and ammonia. These laws and regulations and the enforcement thereof impact the petroleum segment and operations and the nitrogen fertilizer segment and operations by imposing:

- restrictions on operations or the need to install enhanced or additional controls;
- liability for the investigation and remediation of contaminated soil and groundwater at current and former facilities and for off-site waste disposal locations; and,
- specifications for the products marketed by the petroleum segment and the nitrogen fertilizer segment, primarily gasoline, diesel fuel, UAN and ammonia.

Our operations require numerous permits, licenses and authorizations. Failure to comply with these permits or environmental laws and regulations could result in fines, penalties or other sanctions or a revocation of our permits. In addition, the laws and regulations to which we are subject are often evolving and many of them have become more stringent or have become subject to more stringent interpretation or enforcement by federal or state agencies. These laws and regulations could result in increased capital, operating and compliance costs.

The Federal Clean Air Act (“CAA”)

The CAA and its implementing regulations, as well as corresponding state laws and regulations governing air emissions, affect the petroleum segment and the nitrogen fertilizer segment both directly and indirectly. Direct impacts may occur through the CAA’s permitting requirements and/or emission control requirements relating to specific air pollutants, as well as the requirement to maintain a risk management program to help prevent accidental releases of certain regulated substances. The CAA affects the petroleum segment and the nitrogen fertilizer segment by extensively regulating the air emissions of sulfur dioxide (“SO₂”), volatile organic compounds, nitrogen oxides and other substances, including those emitted by mobile sources, which are direct or indirect users of our products. Some or all of the regulations promulgated pursuant to the CAA, or any future promulgations of regulations, may require the installation of controls or changes to the petroleum facilities and/or the nitrogen fertilizer facilities (collectively referred to as the “Facilities”) to maintain compliance. If new controls or changes to operations are needed, the costs could be material.

The regulation of air emissions under the CAA requires that we obtain various construction and operating permits and incur capital expenditures for the installation of certain air pollution control devices at our operations. Various regulations specific to our operations have been implemented, such as the National Emission Standard for Hazardous Air Pollutants, the New Source Performance Standards and the New Source Review.

The Federal Clean Water Act (“CWA”)

The CWA and its implementing regulations, as well as the corresponding state laws and regulations that govern the discharge of pollutants into the water, affect the petroleum segment and the nitrogen fertilizer segment. The CWA’s permitting requirements establish discharge limitations based on technology standards, water quality standards, and restrictions on the total maximum daily load of pollutants allowed to enter a particular water body based on its use. In addition, water resources are becoming and in the future may become scarcer, and many refiners, including us, are subject to use restrictions in the event of low availability conditions. Our Refineries have contracts in place to receive

water during certain water shortage conditions, but these conditions could change over time depending on the scarcity of water.

December 31, 2018 | 17

Table of Contents

Release Reporting

The release of hazardous substances or extremely hazardous substances into the environment is subject to release reporting requirements under federal and state environmental laws. Our Facilities periodically experience releases of hazardous and extremely hazardous substances from their equipment. Our Facilities periodically have excess emission events from flaring and other planned and unplanned start-up, shutdown and malfunction events. From time to time, the U.S. Environmental Protection Agency (“EPA”) has conducted inspections and issued information requests to us with respect to our compliance with reporting requirements under the Comprehensive Environmental Response, Compensation and Liability Act (“CERCLA”) and the Emergency Planning and Community Right-to-Know Act. If we fail to timely or properly report a release, or if a release violates the law or our permits, we could become the subject of a governmental enforcement action or third-party claims. Government enforcement or third-party claims relating to releases of hazardous or extremely hazardous substances could result in significant expenditures and liability.

Fuel Regulations

In April 2014, the EPA promulgated the Tier 3 Motor Vehicle Emission and Fuel Standards (“Tier 3”), which require that gasoline contain no more than ten parts per million of sulfur on an annual average basis. The Coffeyville Refinery was required to be in compliance with the more stringent emission standards as of January 2017 and the Wynnewood Refinery’s compliance deadline was December 2018. The Refineries are currently in compliance with the EPA’s Tier 3 Standards.

In 2007, the EPA promulgated the Mobile Source Air Toxic II (“MSAT II”) rule that required refiners to meet a reduced gasoline benzene content standard for gasoline by 2011, with an extended deadline for approved small refiners such as us. The Refineries are in compliance with the EPA’s MSAT II rule.

Renewable Fuel Standards

Pursuant to the Energy Policy Act of 2005 and Energy Independence and Security Act of 2007 (“EISA”), the EPA has promulgated the Renewable Fuel Standard (“RFS”). The RFS requires refiners to either blend “renewable fuels,” such as ethanol and biofuels, into their transportation fuels or purchase renewable fuel credits, known as RINs, in lieu of blending. Under the RFS, the volume of renewable fuels that refineries like Coffeyville and Wynnewood are obligated to blend into their finished transportation fuel is adjusted annually by the EPA based on fuel supply and other conditions to meet the statutory mandates that increase annually, but which may be waived by the EPA under certain conditions. The volume of renewable fuels required by EISA increased from 9 billion gallons in 2008 to 22 billion gallons in 2016 to 36 billion gallons in 2022. In addition to the total renewable fuel volume mandate, there are sub-mandates for advanced biofuels, cellulosic biofuel, and biomass-based diesel. Under the cellulosic waiver authority provided to the EPA by the Clean Air Act, if the EPA’s projected volume of cellulosic biofuel for a calendar year is less than its statutory mandate, the EPA must reduce the required volume of cellulosic biofuel accordingly and provide obligated parties the opportunity to purchase cellulosic waiver credits. EPA also has the discretion to reduce the total renewable fuel and advanced biofuel requirements by the same amount as it reduced the cellulosic biofuel volume. The petroleum segment (like many refiners) is not able to meet its annual renewable volume obligation through blending, so it has had to purchase RINs on the open market as well as obtain cellulosic waiver credits from the EPA, in order to comply with the RFS. The cost of purchasing RINs and cellulosic waiver credits fluctuates and can be significant. The price of RINs has been extremely volatile as the EPA’s proposed renewable fuel volume mandates approached and exceeded the “blend wall.” The blend wall refers to the point at which the amount of ethanol blended into the transportation fuel supply exceeds the demand for transportation fuel containing such levels of ethanol. The blend wall is generally considered to be reached when more than 10% ethanol by volume (“E10 gasoline”) is blended into transportation fuel.

In December 2018, the EPA published the final renewable fuel volumes for 2019, and the biomass-based diesel volume for 2020. As in past years, the volumes increased from the previous year, but are lower, with the exception of the volume for biomass-based diesel, than the volumes required by the Clean Air Act. EPA used its cellulosic waiver authority to lower the volumes.

Throughout 2018, various groups including the Renewable Fuels Association and Growth Energy brought cases in federal courts to challenge the EPA's implementation of the RFS program, including the EPA's decision to grant hardship relief to roughly 25 small refineries for the 2017 compliance year. In November 2018, a biofuel organization, Producers of Renewable United for Integrity Truth and Transparency, asked the D.C. Circuit to "freeze" the waiver program, but the court denied the biofuel organization's request. The EPA has not yet acted on any small refinery hardship petitions for the 2018 compliance year.

December 31, 2018 | 18

Table of Contents

Several RFS-related rulemakings are expected to occur in 2019. One relates to a lawsuit in the U.S. Court of Appeals for the District of Columbia Circuit (“D.C. Circuit”) in which several biofuels groups challenged EPA’s final renewable fuels volumes for 2014 through 2016. In July 2017, the D.C. Circuit vacated the EPA’s decision to reduce the 2016 volumes under its “inadequate domestic supply” waiver authority and remanded the rule to the EPA for further reconsideration. The EPA has not yet re-proposed the 2016 renewable volume obligations but might do so in a rulemaking in 2019, which could result in an increase in the volume mandates for 2016 to increase and, as a result, require Coffeyville and Wynnewood to purchase more RINs for 2016 compliance.

Another expected rulemaking involves the “reset” provision of the Clean Air Act. Under the reset provision, if the EPA waives the statutory volumes for any of the four fuel categories by at least 20% for two consecutive years or by at least 50% for a single year, then the EPA must modify the statutory volumes for all subsequent years for that fuel category. The reset has been triggered in previous years for both advanced biofuel and cellulosic biofuel and, most recently, the 2019 final rule triggered the reset provision for total renewable fuel. In October 2018, the EPA reported that it will begin a rulemaking in 2019 to reset the volumes for cellulosic biofuel, advanced biofuel, and total renewable fuel for compliance years 2020-2022. During the rulemaking, the EPA may either increase or decrease the volumes, in either case impacting Coffeyville’s and Wynnewood’s obligations under the RFS.

Greenhouse Gas Emissions (“GHG”)

The EPA regulates GHG emissions under the Clean Air Act. In October 2009, the EPA finalized a rule requiring certain large emitters of GHGs to inventory and report their GHG emissions to the EPA. In accordance with the rule, our facilities monitor and report our GHG emissions to the EPA. In May 2010, the EPA finalized the “Greenhouse Gas Tailoring Rule,” which established GHG emissions thresholds that determine when stationary sources, such as the Refineries and the nitrogen fertilizer facilities, must obtain permits under Prevention of Significant Deterioration (“PSD”) and Title V programs of the federal Clean Air Act. Under the rule, facilities already subject to the PSD and Title V programs that increase their emissions of GHGs by a significant amount are required to undergo PSD review and to evaluate and implement air pollution control technology, known as “best available control technology,” to reduce GHG emissions.

In December 2010, the EPA reached a settlement agreement with numerous parties under which it agreed to promulgate New Source Performance Standards (“NSPS”) to regulate GHG emissions from petroleum refineries and electric utilities by November 2012. In September 2014, the EPA indicated that the petroleum refining sector risk rule, proposed in June 2014 to address air toxics and volatile organic compounds from refineries, may make it unnecessary for the EPA to regulate GHG emissions from petroleum refineries at this time. The final rule, which was published in the Federal Register on December 1, 2015, addresses air toxics and volatile organic compounds and places additional emission control requirements and work practice standards on FCCUs, storage tanks, flares, coking units and other equipment at petroleum refineries. Therefore, we do not currently expect that the EPA will be issuing regulations on GHG from petroleum refineries at this time but that it may do so in the future.

In October 2015, EPA promulgated NSPS for carbon dioxide emissions from electric utilities. However, since the change in administration in 2017, EPA has shifted its regulatory approach of GHG emissions. In December 2018, EPA proposed amendments to the 2015 NSPS that, among other things, would replace the determination of the best system of emission reduction (“BSER”) with a less costly and burdensome BSER determination for new coal-fired units. Also, in 2018, EPA proposed the Affordable Clean Energy (“ACE”) Rule to replace the 2015 Clean Power Plan, which represented the Obama administration’s signature policy to regulate GHGs. The proposed ACE rule would establish emission guidelines for states to address GHGs from existing coal-fired power plants and update the BSER for those plants.

EPA's approach to regulating GHG emissions may change again under future administrations. Therefore, the impact on our Facilities due to future GHG regulation is unknown.

Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA") and the Emergency Planning and Community Right-to-Know Act ("EPCRA")

The release of hazardous substances or extremely hazardous substances into the environment is subject to release reporting requirements under federal and state environmental laws. Our Facilities periodically experience releases of hazardous and extremely hazardous substances from their equipment. Our Facilities periodically have excess emission events from flaring and other planned and unplanned start-up, shutdown and malfunction events. From time to time, EPA has conducted inspections and issued information requests to us with respect to our compliance with reporting requirements under the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA") and the Emergency Planning and Community Right-

December 31, 2018 | 19

Table of Contents

to-Know Act. If we fail to timely or properly report a release, or if a release violates the law or our permits, we could become the subject of a governmental enforcement action or third-party claims.

Resource Conservation and Recovery Act (“RCRA”)

Our facilities are subject to the RCRA requirements for the generation, transportation, treatment, storage and disposal of solid and hazardous wastes. When feasible, RCRA-regulated materials are recycled instead of being disposed of on-site or off-site. RCRA establishes standards for the management of solid and hazardous wastes. Besides governing current waste disposal practices, RCRA also addresses the environmental effects of certain past waste disposal practices, the recycling of wastes and the regulation of underground storage tanks containing regulated substances. Refer to Part II, Item 8, Note 10 (“Commitments and Contingencies”), “Environmental, Health and Safety (“EHS”) Matters” for further discussion of “RCRA Compliance Matters.”

Waste Management - There are two closed hazardous waste units at the Coffeyville Refinery and fourteen other solid waste management units in the process of being closed pending state agency approval. There is one closed hazardous waste unit and one active hazardous waste storage tank at the Wynnewood Refinery. In addition, one closed, interim status, hazardous waste land farm located at the now-closed Phillipsburg terminal is under long-term post closure care.

Impacts of Past Manufacturing - In March 2004, two of our subsidiaries entered into a Consent Decree (“2004 Consent Decree”) with the EPA and the Kansas Department of Health and Environment (the “KDHE”) which required us to assume two RCRA corrective action orders issued to Farmland, the prior owner of the Coffeyville refinery. We are also subject to a 1994 EPA administrative order related to investigation of possible past releases of hazardous materials to the environment at the Coffeyville Refinery. In accordance with the order, we have conducted the required investigation and interim remediation projects and documented existing soil and groundwater conditions. In June 2017, the Coffeyville Refinery submitted an amended RCRA post-closure permit application to KDHE to complete closure of former hazardous waste management units at the Coffeyville Refinery and to perform corrective action at the site. The now-closed Phillipsburg terminal is subject to a 1996 EPA administrative order related to investigation of releases of hazardous materials to the environment at the Phillipsburg terminal, which operated as a refinery until 1991. The Phillipsburg terminal investigation is complete and corrective measures to be implemented to address the EPA’s Statement of Basis and Final Remedy Decision issued in July 2018 are being evaluated. The Wynnewood Refinery operates under a RCRA permit. A RCRA facility investigation has been completed in accordance with the terms of the permit. Based on the facility investigation and other available information, WRC has entered into a consent order with the Oklahoma Department of Environmental Quality (“ODEQ”) requiring further investigations of groundwater conditions and enhancements of existing remediation systems. We have completed the groundwater investigation at the Wynnewood Refinery and ODEQ has approved our ongoing corrective actions.

Financial Assurance - We are required, under the 2004 Consent Decree, to establish financial assurance to secure the current projected clean-up costs of \$6 million for the Coffeyville Refinery and \$6 million for the now-closed Phillipsburg terminal in the event we fail to fulfill our clean-up obligations. In accordance with the 2004 Consent Decree, as modified by a 2010 agreement between CRRM, CRT, the EPA and the KDHE, this financial assurance is currently provided by a bond in the amount of \$3 million for clean-up obligations at the Phillipsburg terminal and a letter of credit in the amount of \$0.3 million for estimated costs to close regulated hazardous waste management units at the Coffeyville Refinery. Additional self-funded financial assurance of approximately \$6 million and \$3 million is required to meet our RCRA financial assistance obligations for the Coffeyville Refinery and Phillipsburg terminal, respectively. The \$3 million bond amount is reduced each year based on actual expenditures for corrective actions and the letter of credit and the self-funded mechanisms are re-evaluated and adjusted on an annual basis. Current RCRA financial assurance requirements for the Wynnewood Refinery total \$0.2 million for hazardous waste storage tank closure and post-closure monitoring of a closed storm water retention pond.

Environmental Remediation

As is the case with all companies engaged in similar industries, we face potential exposure from future claims and lawsuits involving environmental matters, including soil and water contamination, personal injury or property damage allegedly caused by crude oil or hazardous substances that we manufactured, handled, used, stored, transported, spilled, disposed of or released. There is no assurance that we will not become involved in future proceedings related to the release of hazardous or extremely hazardous substances or crude oil for which we have potential liability or that, if we were held responsible for damages in any existing or future proceedings, such costs would be covered by insurance or would not be material.

December 31, 2018 | 20

Table of Contents

Environmental Insurance

We are covered by a site pollution legal liability insurance policy. The policy includes business interruption coverage. The policy insures any location owned, leased or rented or operated by the Company, including the Refineries and the nitrogen fertilizer facilities. The policy insures certain pollution conditions at or migrating from a covered location, certain waste transportation and disposal activities and business interruption.

In addition to the site pollution legal liability insurance policy, we maintain umbrella and excess casualty insurance policies which include sudden and accidental pollution coverage. This insurance provides coverage due to named perils for claims involving pollutants where the discharge is sudden and accidental and first commences at a specific day and time during the policy period.

The site pollution legal liability policy and the pollution coverage provided in the casualty insurance policies are subject to retentions and deductibles and contain discovery requirements, reporting requirements, exclusions, definitions, conditions and limitations that could apply to a particular pollution claim, and there can be no assurance such claim will be adequately insured for all potential damages.

Health, Safety and Security Matters

We are subject to a number of federal and state laws and regulations related to safety, including the Occupational Safety and Health Act (“OSHA”) and comparable state statutes, the purpose of which are to protect the health and safety of workers. We also are subject to Process Safety Management regulations, which are designed to prevent or minimize the consequences of catastrophic releases of toxic, reactive, flammable or explosive chemicals.

We operate a comprehensive safety, health and security program, with participation by employees at all levels of the organization. We have developed comprehensive safety programs aimed at preventing OSHA recordable incidents. Despite our efforts to achieve excellence in our safety and health performance, there can be no assurances that there will not be accidents resulting in injuries or even fatalities. We routinely audit our programs and consider improvements in our management systems.

Refer to Part II, Item 8, Note 10 (“Commitments and Contingencies”), “Wynnewood Refinery Incident” of this Report for further discussion of OSHA.

Employees

As of December 31, 2018, the Company had approximately 1,450 employees including those employed by CVR Refining, CVR Partners, and the Company and its other subsidiaries corporate support functions. Our Petroleum Segment had approximately 950 employees at December 31, 2018 across both of its facilities and its logistics operations, including approximately 520 employees covered by collective bargaining agreements that expire on various dates ranging from March 2019 to June 2021. Our Nitrogen Fertilizer Segment had approximately 290 employees at December 31, 2018 across both of its facilities, including approximately 100 employees covered by collective bargaining agreements that expire in October 2019.

Available Information

Our website address is www.cvrenergy.com. Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and all amendments to those reports, filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), are available free of charge through our website under “Investor Relations,” as soon as reasonably practicable after the electronic filing or furnishing of these reports is made with the Securities and Exchange Commission (the “SEC”) at www.sec.gov. In addition, our Corporate Governance Guidelines, Codes of Ethics and Business Conduct and Charters of the Audit Committee, the Nominating and Corporate Governance Committee and the Compensation Committee of the Board of Directors are available on our website. These guidelines, policies and charters are also available in print without charge to any stockholder requesting them. We do not intend for information contained in our website to be part of this Report.

December 31, 2018 | 21

Table of Contents

Item 1A. Risk Factors

The following risks should be considered together with the other information contained in this Report and all of the information set forth in our filings with the SEC. If any of the following risks or uncertainties develops into actual events, our business, financial condition or results of operations could be materially adversely affected. References to CVR Energy, the Company, “we”, “us”, and “our” may refer to consolidated subsidiaries of CVR Energy, including CVR Refining or CVR Partners, as the context may require.

Risks Related to Our Entire Business

Our petroleum and nitrogen fertilizer businesses are, and commodity prices are, cyclical and highly volatile, which could have a material adverse effect on our results of operations, financial condition and cash flows.

Our petroleum segment’s financial results are primarily affected by margin between refined 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 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 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 on refining and marketing margins, which are uncertain. We do not produce crude oil and must purchase all of the crude oil we refine long before we refine them and sell the refined 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.

Our petroleum segment profitability is also impacted by the ability to purchase crude oil at a discount to benchmark crude oils, such as WTI, as we do not produce any crude oil and must purchase all of the crude oil we refine. Crude oil differentials can fluctuate significantly based upon overall economic and crude oil market conditions. Adverse changes in crude oil differentials can adversely impact refining margins, earnings and cash flows. In addition, the petroleum segment’s purchases of crude oil, although based on WTI prices, have historically been at a discount to WTI because of the proximity of the refineries to the sources, existing logistics infrastructure and quality differences. Any change in the sources of crude oil, infrastructure or logistical improvements or quality differences could result in a reduction of the petroleum segment’s historical discount to WTI and may result in a reduction of the petroleum segment’s cost advantage.

Our nitrogen fertilizer business is exposed to fluctuations in nitrogen fertilizer demand in the agricultural industry. These fluctuations historically have had and could in the future have significant effects on prices across all nitrogen fertilizer products and, in turn, our results of operations, financial condition and cash flows.

Nitrogen fertilizer products are commodities, the price of which can be highly volatile. The prices of nitrogen fertilizer products depend on a number of factors, including general economic conditions, cyclical trends in end-user markets, supply and demand imbalances, governmental policies and weather conditions, which have a greater relevance because of the seasonal nature of fertilizer application. If seasonal demand exceeds the projections on which we base

our production levels, customers may acquire nitrogen fertilizer products from competitors, and our profitability may be negatively impacted. If seasonal demand is less than expected, we may be left with excess inventory that will have to be stored or liquidated.

Demand for nitrogen fertilizer products is dependent on demand for crop nutrients by the global agricultural industry. The international market for nitrogen fertilizers is influenced by such factors as the relative value of the U.S. dollar and its impact upon the cost of importing nitrogen fertilizers, foreign agricultural policies, the existence of, or changes in, import or foreign currency exchange barriers in certain foreign markets, changes in the hard currency demands of certain countries and other regulatory policies of foreign governments, as well as the laws and policies of the United States affecting foreign trade and investment. Nitrogen-based fertilizers remain solidly in demand, driven by a growing world population, changes in dietary habits and an expanded use of corn for the production of ethanol. Supply is affected by available capacity and operating rates, raw material costs, government policies and global trade. A decrease in nitrogen fertilizer prices would have a material adverse effect on our nitrogen fertilizer business and cash flow, including CVR Partners' ability to make distributions.

December 31, 2018 | 22

Table of Contents

Additionally, volatile prices for natural gas and electricity affect both segments' manufacturing and operating costs. Natural gas and electricity prices have been, and will continue to be, affected by supply and demand for fuel and utility services in both local and regional markets.

Petroleum and nitrogen fertilizer products are global commodities, and our businesses face intense competition from other refining and marketing companies and nitrogen fertilizer producers, which may have more resources and scale.

The refining industry is highly competitive with respect to both crude oil and other 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. The petroleum segment is not engaged in the petroleum exploration and production business and therefore it does not produce any of its crude oil feedstocks. 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.

The refining industry is highly competitive with respect to both crude oil and other feedstock supply and refined product markets. Our petroleum business may be unable to compete effectively with competitors within and outside of the industry, which could result in reduced profitability. We compete with numerous other companies for available supplies of crude oil and other feedstocks and for outlets for refined products. We do not have a retail business and therefore are dependent upon others for outlets for our refined products. We do not have arrangements exceeding more than a twelve-month period for much of our petroleum output. Many of our competitors obtain significant portions of their crude oil and other feedstocks from company-owned production and have extensive retail outlets. Competitors that have their own production or extensive retail outlets with brand-name recognition 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.

A number of the petroleum segment's competitors are integrated, multinational companies and also have materially greater financial and other resources. These competitors may have a greater ability to bear the economic risks inherent in all aspects of the refining industry. An expansion or upgrade of our competitors' facilities, price volatility, international political and economic developments and other factors are likely to continue to play an important role in refining industry economics and may add additional competitive pressure on our petroleum business. Because of the diversity, integration of operations, larger capitalization, larger and more complex refineries and greater resources of multinational oil companies, these companies may be better able to withstand volatile market conditions relating to crude oil and refined product pricing, to compete on the basis of price and to obtain crude oil in times of shortage.

In addition, our petroleum business competes with other industries that provide alternative means to satisfy the energy and fuel requirements of its industrial, commercial and individual customers. There are presently significant governmental incentives and consumer pressures to increase the use of alternative fuels in the United States. The more successful these alternatives become as a result of governmental incentives or regulations, technological advances, consumer demand, improved pricing or otherwise, the greater the negative impact on pricing and demand for our products and profitability.

Our nitrogen fertilizer business is subject to intense price competition from both U.S. and foreign sources, including competitors operating in the Middle East, the Asia-Pacific region, the Caribbean, Russia and the Ukraine. Fertilizers

are global commodities, with little or no product differentiation, and customers make their purchasing decisions principally on the basis of delivered price and availability of the product. Increased global supply or decreases in transportation costs for foreign sources of fertilizer may put downward pressure on fertilizer prices. Furthermore, in recent years the price of nitrogen fertilizer in the United States has been substantially driven by pricing in the global fertilizer market. We compete with a number of U.S. producers and producers in other countries, including state-owned and government-subsidized entities. Some competitors have greater total resources and are less dependent on earnings from fertilizer sales, which make them less vulnerable to industry downturns and better positioned to pursue new expansion and development opportunities. Additionally, our competitors utilizing different corporate structures may be better able to withstand lower cash flows than we can as a limited partnership. Our competitive position could suffer to the extent we are unable to expand resources either through investments in new or existing operations or through acquisitions, joint ventures or partnerships. An inability to compete successfully could result in a loss of customers, which could adversely affect our sales, profitability and cash flows and, therefore, have a material adverse effect on our results of operations, financial condition and cash flows.

December 31, 2018 | 23

Table of Contents

Our businesses are geographically concentrated and are therefore subject to regional economic downturns and seasonal variations, which may affect our production levels, transportation costs and inventory and working capital levels.

Our Refineries are both located in the southern portion of Group 3 of the PADD II region, and we primarily market refined products in a relatively limited geographic area. As a result, our petroleum business is more susceptible to regional economic conditions than the operations of more geographically diversified competitors, and any unforeseen events or circumstances that affect its operating area could also materially adversely affect its revenues and cash flows. These factors include, among other things, changes in the economy, weather conditions, demographics and population, increased supply of refined products from competitors and reductions in the supply of crude oil. In addition, if we deliver refined products to customers outside of the region, we may incur considerably higher transportation costs, resulting in lower refining margins, if any.

Our nitrogen fertilizer segment's sales to agricultural customers are concentrated in the Great Plains and Midwest states, and nitrogen fertilizer demand is seasonal. Our quarterly results may vary significantly from one year to the next due largely to weather-related shifts in planting schedules and purchase patterns. Farmers tend to apply nitrogen fertilizer during two short application periods, one in the spring and the other in the fall. In contrast, we along with other nitrogen fertilizer producers generally produce products throughout the year. As a result, we and our customers generally build inventories during the low demand periods of the year to ensure timely product availability during peak sales seasons. Variations in the proportion of product sold through prepaid sales contracts and variations in the terms of such contracts can increase the seasonal volatility of our cash flows and cause changes in the patterns of seasonal volatility from year-to-year. Additionally, the accumulation of inventory to be available for seasonal sales creates significant seasonal working capital and storage capacity requirements. The degree of seasonality can change significantly from year to year due to conditions in the agricultural industry and other factors. As a consequence of this seasonality, distributions of available cash, if any, may be volatile and may vary quarterly and annually.

Both the petroleum and nitrogen fertilizer businesses depend on significant customers, and the loss of several significant customers may have a material adverse impact on our results of operations, financial condition and cash flows.

The petroleum and nitrogen fertilizer businesses both have a significant concentration of customers. The five largest customers of our petroleum business represented 38% of its petroleum net sales for the year ended December 31, 2018. The five largest customers of the nitrogen fertilizer business also represented approximately 32% of its net sales for the year ended December 31, 2018. The top petroleum customer accounts for approximately 15% of petroleum net sales and the top nitrogen fertilizer customer accounts for approximately 14% of nitrogen fertilizer net sales for this same period. Given the nature of our businesses, and consistent with industry practice, we do not have long-term minimum purchase contracts with our customers. The loss of several of these significant customers, or a significant reduction in purchase volume by several of them, could have a material adverse effect on our results of operations, financial condition and cash flows.

Compliance with and changes in environmental laws and regulations, including those related to climate change, could require us to make substantial capital expenditures and adversely affect our performance.

Our operations are subject to extensive federal, state and local environmental laws and regulations relating to the protection of the environment, including those governing the emission or discharge of pollutants into the environment, product use and specifications and the generation, treatment, storage, transportation, disposal and remediation of solid and hazardous wastes.

For example, the U.S. Environmental Protection Agency (“EPA”) has promulgated and implements a Renewable Fuel Standard (“RFS”) pursuant to the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007. Under the RFS program, a Renewable Identification Number (“RIN”) is assigned to each gallon of renewable fuel produced in or imported into the U.S. The RFS program sets annual mandates for the volume of renewable fuels (such as ethanol and biodiesel) that must be blended into a refiner’s transportation fuels. If a refiner of petroleum-based transportation fuels is unable to meet its renewable fuel mandate through blending, it must purchase RINs in the open market to meet its obligations under the RFS program. Our petroleum business is exposed to the volatility in the market price of RINs, which can be extreme.

December 31, 2018 | 24

Table of Contents

Violations of applicable environmental laws and regulations or of the conditions of permits issued thereunder can result in substantial penalties, injunctive orders compelling installation of additional controls, civil and criminal sanctions, operating restrictions, injunctive relief, permit revocations and/or facility shutdowns, which may have a material adverse effect on our ability to operate our facilities and accordingly our financial performance. Capital expenditures and operating costs for current and future environmental compliance may be substantial and could have a material adverse effect on our segments' results of operations, financial condition and profitability.

In addition, new environmental laws and regulations, new interpretations of existing laws and regulations, increased governmental enforcement of laws and regulations or other developments could require us to make additional unforeseen expenditures. These laws and regulations are generally expected to impose increasingly stringent, and costly requirements over time. Various legislative and regulatory measures to address climate change and GHG emissions (including carbon dioxide, methane and nitrous oxides) are in various phases of discussion or implementation, and could affect our operations. They include proposed and enacted federal regulation and state actions to develop statewide, regional or nationwide programs designed to control and reduce GHG emissions from fixed sources, such as our refineries and fertilizer plants. Many states and regions have implemented, or are in the process of implementing, measures to reduce emissions of GHGs, but other than Kansas, we do not currently operate in states that have their own GHG reduction programs. In 2007, a group of Midwestern states, including Kansas (where the Coffeyville Refinery and Coffeyville Fertilizer Facility are located), formed the Midwestern Greenhouse Gas Reduction Accord, which calls for the development of a cap-and-trade system to control GHG emissions and for the inventory of such emissions. However, the individual states that have signed on to the accord must adopt laws or regulations that implement the trading scheme before it becomes effective. To date, Kansas has taken no meaningful action to implement the accord, and it is unclear whether Kansas intends to do so in the future.

Although it is not possible to predict the requirements of any GHG legislation that may be enacted, any laws or regulations that have been or may be adopted to restrict or reduce GHG emissions will likely require us to incur increased operating and capital costs and/or increased taxes on GHG emissions, and result in reduced demand for our fertilizer products. If we are unable to maintain sales of our products at a price that reflects such increased costs, there could be a material adverse effect on our business, financial condition and results of operations. Further, any increase in the prices of our products resulting from such increased costs could have a material adverse effect on our operations, financial condition and cash flows.

In addition, climate change legislation and regulations may result in increased costs not only for us but also users of our fertilizer products, thereby potentially decreasing demand for our products. Further, changes in environmental laws and regulations or their interpretation relating to the end-use and application of fertilizers could cause changes in demand for our products or limit our ability market and sell products to end users. From time to time, various state legislatures have proposed bans or other limitations on fertilizer products. Decreased demand for our products may have a material adverse effect on our results of operations, financial condition and cash flows.

Our facilities face significant risks due to physical damage hazards, environmental liability risk exposure, and unplanned or emergency partial or total plant shutdowns resulting in business interruptions. We could incur potentially significant costs to the extent there are unforeseen events which cause property damage and a material decline in production which are not fully insured. The commercial insurance industry engaged in underwriting energy industry risk is specialized and there is finite capacity; therefore, the industry may limit or curtail coverage, may modify the coverage provided or may substantially increase premiums in the future.

If any of our facilities, logistics assets, or key suppliers sustains a catastrophic loss and operations are shutdown or significantly impaired, it would have a material adverse impact on our operations, financial condition and cash flows. In addition, the risk exposures we have at the Coffeyville, Kansas plant complex are greater due to production

facilities for petroleum and nitrogen fertilizer, distribution and storage being in relatively close proximity and potentially exposed to damage from one incident, such as resulting damages from the perils of explosion, windstorm, fire or flood. Operations at either or both of the plants could be curtailed, limited or completely shut down for an extended period of time as the result of one or more unforeseen events and circumstances, which may not be within our control, including:

- major unplanned maintenance requirements;
- catastrophic events caused by mechanical breakdown, electrical injury, pressure vessel rupture, explosion, contamination, fire, or natural disasters, including floods, windstorms and other similar events;
- labor supply shortages or labor difficulties that result in a work stoppage or slowdown;
- cessation or suspension of a plant or specific operations dictated by environmental authorities; and
- an event or incident involving a large clean-up, decontamination or the imposition of laws and ordinances regulating the cost and schedule of demolition or reconstruction, which can cause significant delays in restoring property to its pre-loss condition.

December 31, 2018 | 25

Table of Contents

We have sustained losses over the past ten-year period at our facilities, which are illustrative of the types of risks and hazards that exist. These losses or events resulted in costs assumed by us that were not fully insured due to policy retentions or applicable exclusions. We are insured under casualty, environmental, property and business interruption insurance policies. The property and business interruption policies insure real and personal property, including property located at our plants. There is potential for a common occurrence to impact both our Coffeyville Refinery and Coffeyville Fertilizer Facility in which case the insurance limits and applicable sub-limits would apply to all damages combined. These policies are subject to limits, sub-limits, retention (financial and time-based) and deductibles. The application of these and other policy conditions could materially impact insurance recoveries and potentially cause us to assume losses which could impair earnings.

There is finite capacity in the commercial insurance industry engaged in underwriting energy industry risk, and there are risks associated with the commercial insurance industry reducing capacity, changing the scope of insurance coverage offered, and substantially increasing premiums resulting from highly adverse loss experience or other financial circumstances. Factors that impact insurance cost and availability include, but are not limited to: industry wide losses, natural disasters, specific losses incurred by us and low or inadequate investment returns earned by the insurance industry. If the supply of commercial insurance is curtailed due to highly adverse financial results, we may not be able to continue our present limits of insurance coverage or obtain sufficient insurance capacity to adequately insure our risks for property damage or business interruption.

We could incur significant costs in cleaning up contamination at our refineries, terminals, fertilizer plants and off-site locations.

Our businesses handle petroleum and hazardous substances which may result in accidental spills, discharges or other releases of petroleum or hazardous substances into the environment. Past or future spills related to any of our current or former operations, including refineries, pipelines, product terminals, and fertilizer plants, or transportation of products or hazardous substances from those facilities, may give rise to liability (including strict liability, or liability without fault, and potential cleanup responsibility) to governmental entities or private parties under federal, state or local environmental laws, as well as under common law. For example, we could be held strictly liable under CERCLA, and similar state statutes for past or future spills without regard to fault or whether our actions were in compliance with the law at the time of the spills. Pursuant to CERCLA and similar state statutes, we could be held liable for contamination associated with facilities we currently own or operate (whether such contamination occurred prior to or during our ownership), facilities we formerly owned or operated and facilities to which we transported or arranged for the transportation of wastes or byproducts containing hazardous substances for treatment, storage, or disposal.

The potential penalties and cleanup costs for past or future releases or spills, liability to third parties for damage to their property or exposure to hazardous substances, or the need to address newly discovered information or conditions that may require response actions could be significant and could have a material adverse effect on our results of operations, financial condition and cash flows. In addition, we may incur liability for alleged personal injury or property damage due to exposure to chemicals or other hazardous substances located at or released from our facilities. We may also face liability for personal injury, property damage, natural resource damage or for cleanup costs for the alleged migration of contamination or other hazardous substances from our facilities to adjacent and other nearby properties.

Four of our facilities, including the Coffeyville Refinery, the now-closed Phillipsburg terminal (which operated as a refinery until 1991), the Wynnewood Refinery and the Coffeyville Fertilizer Facility, have known environmental contamination. We have assumed the previous owner's responsibilities under certain administrative orders under

RCRA related to contamination at or that originated from the Coffeyville Refinery and the Phillipsburg terminal. If significant unknown contamination is identified at or migrating from any of our facilities, the associated liability could have a material adverse effect on our results of operations, financial condition and cash flows and may not be covered by insurance.

We may incur future liability relating to the off-site disposal of hazardous waste from our facilities. Companies that dispose of, or arrange for the treatment, transportation or disposal of, hazardous substances at off-site locations may be held jointly and severally liable for the costs of investigation and remediation of contamination at those off-site locations, regardless of fault. We could become involved in litigation or other proceedings involving off-site waste disposal and the damages or costs in any such proceedings could be material.

December 31, 2018 | 26

Table of Contents

New regulations concerning the transportation, storage and handling of hazardous chemicals, risks of terrorism and the security of refineries and chemical manufacturing facilities could result in higher operating costs.

The costs of complying with future regulations relating to the transportation, storage and handling of hazardous chemicals and security associated with the refining and nitrogen fertilizer facilities may have a material adverse effect on our results of operations, financial condition and cash flows. Targets such as refining and chemical manufacturing facilities may be at greater risk of future terrorist attacks than other targets in the United States. As a result, the petroleum and chemical industries have responded to the issues that arose due to the terrorist attacks on September 11, 2001 by starting new initiatives relating to the security of petroleum and chemical industry facilities and the transportation of hazardous chemicals in the United States. Future terrorist attacks could lead to even stronger, more costly initiatives that could result in a material adverse effect on our results of operations, financial condition and cash flows.

We may be unable to obtain or renew permits necessary for our operations, which could inhibit our ability to do business.

Our businesses hold numerous environmental and other governmental permits and approvals authorizing operations at our facilities. Future expansion of our operations is predicated upon securing the necessary environmental or other permits or approvals. A decision by a government agency to deny or delay issuing a new or renewed material permit or approval, or to revoke or substantially modify an existing permit or approval, could have a material adverse effect on our ability to continue operations and on our financial condition, results of operations and cash flows.

We are subject to strict laws and regulations regarding employee and process safety, and failure to comply with these laws and regulations could have a material adverse effect on our results of operations, financial condition and profitability.

We are subject to the requirements of OSHA and comparable state statutes that regulate the protection of the health and safety of workers, and the proper design, operation and maintenance of our equipment. In addition, OSHA and certain environmental regulations require that we maintain information about hazardous materials used or produced in our operations and that we provide this information to employees and state and local governmental authorities. Failure to comply with these requirements, including general industry standards, record keeping requirements and monitoring and control of occupational exposure to regulated substances, may result in significant fines or compliance costs, which could have a material adverse effect on our results of operations, financial condition and cash flows.

A significant portion of our workforce is unionized, and we are subject to the risk of labor disputes and adverse employee relations, which may disrupt our business and increase our costs.

As of December 31, 2018, approximately 55% and 34% of our petroleum and nitrogen fertilizer employees, respectively, were represented by labor unions under collective bargaining agreements. We may not be able to renegotiate our collective bargaining agreements when they expire on satisfactory terms or at all. A failure to do so may increase our costs. In addition, our existing labor agreements may not prevent a strike or work stoppage at any of our facilities in the future, and any work stoppage could negatively affect our results of operations, financial condition and cash flows.

We are subject to cybersecurity risks and other cyber incidents resulting in disruption.

Threats to information technology systems associated with cybersecurity risks and cyber incidents or attacks continue to grow. We depend on information technology systems. In addition, we collect, process, and retain sensitive and

confidential customer information in the normal course of business. Despite the security measures we have in place and any additional measures we may implement in the future, our facilities and systems, and those of our third-party service providers, could be vulnerable to security breaches, computer viruses, lost or misplaced data, programming errors, human errors, acts of vandalism or other events. Any disruption of our systems or security breach or event resulting in the misappropriation, loss or other unauthorized disclosure of confidential information, whether by us directly or our third-party service providers, could damage our reputation, expose us to the risks of litigation and liability, disrupt our business or otherwise affect our results of operations. In addition, new laws and regulations governing data privacy and the unauthorized disclosure of confidential information pose increasingly complex compliance challenges and potentially elevate our costs. Any failure by us to comply with these laws and regulations, including as a result of a security or privacy breach, could result in significant penalties and liabilities for us. Additionally, if we acquire a company that has violated or is not in compliance with applicable data protection laws, we may incur significant liabilities and penalties as a result.

December 31, 2018 | 27

Table of Contents

Deliberate, malicious acts, including terrorism, could damage our facilities, disrupt our operations or injure employees, contractors, customers or the public and result in liability to us.

Intentional acts of destruction could hinder our sales or production and disrupt our supply chain. Our facilities could be damaged or destroyed, reducing our operational production capacity and requiring us to repair or replace our facilities at substantial cost. Employees, contractors and the public could suffer substantial physical injury for which we could be liable. Governmental authorities may impose security or other requirements that could make our operations more difficult or costly. The consequences of any such actions could adversely affect our operating results, financial condition and cash flows.

The acquisition and expansion strategy of our businesses involves significant risks.

From time to time, we may consider pursuing acquisitions and expansion projects to continue to grow and increase profitability. However, we may not be able to consummate such acquisitions or expansions, due to intense competition for suitable acquisition targets, the potential unavailability of financial resources necessary to consummate acquisitions and expansions, difficulties in identifying suitable acquisition targets and expansion projects or in completing any transactions identified on sufficiently favorable terms and the failure to obtain requisite regulatory or other governmental approvals. In addition, any future acquisitions and expansions may entail significant transaction costs and risks associated with entry into new markets and lines of business, including but not limited to new regulatory obligations and risks.

Even when acquisitions are completed, integration of acquired entities can involve significant difficulties, such as

- Unforeseen difficulties in the integration of the acquired operations and disruption of the ongoing operations of our business;
- Failure to achieve cost savings or other financial or operating objectives contributing to the accretive nature of an acquisition;
- Strain on the operational and managerial controls and procedures and the need to modify systems or to add management resources;
- Difficulties in the integration and retention of customers or personnel and the integration and effective deployment of operations or technologies;
- Assumption of unknown material liabilities or regulatory non-compliance issues;
- Amortization of acquired assets, which would reduce future reported earnings;
- Possible adverse short-term effects on our cash flows or operating results; and
- Diversion of management's attention from the ongoing operations of our business.

In addition, in connection with any potential acquisition or expansion project specific to CVR Partners (our nitrogen fertilizer segment), we will need to consider whether a business we intend to acquire or expansion project we intend to pursue could affect CVR Partners' tax treatment as a partnership for federal income tax purposes. If CVR Partners is otherwise unable to conclude that the activities of the business being acquired or the expansion project would not affect its treatment as a partnership for federal income tax purposes, it may elect to seek a ruling from the Internal Revenue Service ("IRS"). Seeking such a ruling could be costly or, in the case of competitive acquisitions, place the business in a competitive disadvantage compared to other potential acquirers who do not seek such a ruling. If CVR Partners is otherwise unable to conclude that an activity would not affect its treatment as a partnership for federal income tax purposes, and are unable or unwilling to obtain an IRS ruling, we may choose to acquire such business or develop such expansion project in a corporate subsidiary of CVR Partners, which would subject the income related to such activity to entity-level taxation, which would reduce the amount of cash available for distribution to CVR Partners' common unitholders and could likely cause a substantial reduction in the value of its common units.

Failure to manage these acquisition and expansion growth risks could have a material adverse effect on our results of operations, financial condition and cash flows. Our joint ventures involve similar risks. There can be no assurance that we will be able to consummate any acquisitions or expansions, successfully integrate acquired entities, or generate positive cash flow at any acquired company or expansion project.

December 31, 2018 | 28

Table of Contents

Risks Related to the Petroleum Segment

If our petroleum business is required to obtain its crude oil supply without the benefit of a crude oil supply agreement, its exposure to the risks associated with volatile crude oil prices may increase and its liquidity may be reduced.

Our petroleum business obtains substantially all of its crude oil supply for the Coffeyville Refinery, other than the crude oil it gathers, through the Vitol Agreement. The Vitol Agreement also includes the provision of crude oil intermediation services to the Wynnewood Refinery. The agreement, which currently extends through December 31, 2019, minimizes the amount of in-transit inventory and mitigates crude oil pricing risk by ensuring pricing takes place close to the time the crude oil is refined and the yielded products are sold. If we were required to obtain our crude oil supply without the benefit of a supply intermediation agreement, our petroleum business' exposure to crude oil pricing risk may increase, despite any hedging activity in which it may engage, and its liquidity could be negatively impacted due to increased inventory, potential need to post letters of credit and negative impacts of market volatility. There is no assurance that we will be able to renew or extend the Vitol Agreement beyond December 31, 2019.

Disruption of the petroleum segment's ability to obtain an adequate supply of crude oil could reduce its liquidity and increase its costs.

In addition to the crude oil gathered and purchased primarily in Kansas, Oklahoma, and Texas, our petroleum business also purchases domestic and international crude oil under the Vitol Agreement. In 2018, the Coffeyville Refinery purchased approximately 75,000 to 80,000 bpd of such crude oil, while the Wynnewood Refinery purchased approximately 5,000 to 10,000 bpd of such crude oil. The Wynnewood Refinery has historically acquired most of its crude oil from our gathering operations in Oklahoma and Texas, with smaller amounts purchased from other regions. In 2018, the Coffeyville Refinery obtained approximately 6% of its non-gathered crude oil from Canada. The actual amount of Canadian crude oil we purchase is dependent on market conditions and will vary from year to year. Disruption of production for any reason could have a material impact on the petroleum segment. In the event that one or more of its traditional suppliers becomes unavailable, we may be unable to obtain an adequate supply of crude oil, or we may only be able to obtain crude oil at unfavorable prices. As a result, we may experience a reduction in liquidity and our results of operations could be materially adversely affected.

If our access to the pipelines on which the petroleum segment relies for the supply of its crude oil and the distribution of its products is interrupted, its inventory and costs may increase and it may be unable to efficiently distribute its products.

If one of the pipelines on which either of the Refineries relies for supply of crude oil becomes inoperative, the petroleum segment would be required to obtain crude oil through alternative pipelines or from additional tanker trucks, which could increase its costs and result in lower production levels and profitability. Similarly, if a major refined fuels pipeline becomes inoperative, we would be required to keep refined fuels in inventory or supply refined fuels to its customers through an alternative pipeline or by additional tanker trucks, which could increase the petroleum segment's costs and result in a decline in profitability.

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

We are exposed to the volatility in the market price of RINs, which can be extreme. We cannot predict the future prices of RINs. RIN prices are dependent upon a variety of factors, including EPA regulations, the availability of RINs for purchase, and levels of transportation fuels produced, the mix of the petroleum business' petroleum products, as well as the fuel blending performed at the Refineries and downstream terminals, all of which can vary significantly

from period to period. However, the costs to obtain the necessary number of RINs and waiver credits could be material, if the price for RINs continues to increase. Additionally, because the petroleum business does not produce renewable fuels, increasing the volume of renewable fuels that must be blended into its products displaces an increasing volume of the Refineries' product pool, potentially resulting in lower earnings and materially adversely affecting the petroleum business' cash flows. If the demand for the petroleum business' transportation fuel decreases as a result of the use of increasing volumes of renewable fuels, increased fuel economy as a result of new EPA fuel economy standards, or other factors, the impact on its business could be material. If sufficient RINs are unavailable for purchase, if the petroleum business has to pay a significantly higher price for RINs or if the petroleum business is otherwise unable to meet the EPA's RFS mandates, our business, financial condition and results of operations could be materially adversely affected. For the years ended December 31, 2018, 2017 and 2016, we recognized expense totaling \$60 million, \$249 million and \$206 million, respectively, to comply with RFS. Based upon recent market prices of RINs and current estimates related to the other variable factors, our estimated cost to comply with RFS is \$80 to \$90 million for 2019.

December 31, 2018 | 29

Table of Contents

Changes in the petroleum business' credit profile may affect its relationship with its suppliers, which could have a material adverse effect on our liquidity and ability to operate the Refineries at full capacity.

Changes in the petroleum business' credit profile may affect the way crude oil suppliers view our ability to make payments and may induce them to shorten the payment terms for purchases or require it to post security prior to payment. Given the large dollar amounts and volume of our crude oil and other feedstock purchases, a burdensome change in payment terms may have a material adverse effect on liquidity and our ability to make payments to suppliers. This, in turn, could cause us to be unable to operate the Refineries at full capacity. A failure to operate at full capacity could adversely affect our profitability and cash flows.

The petroleum business' commodity derivative contracts may limit potential gains, exacerbate potential losses and involve other risks.

We may enter into commodity derivatives contracts to mitigate crack spread risk with respect to a portion of expected refined products production. However, hedging arrangements, if we are able to procure them, may fail to fully achieve this objective for a variety of reasons, including its failure to have adequate hedging contracts, if any, in effect at any particular time and the failure of hedging arrangements to produce the anticipated results. Moreover, such transactions may limit our ability to benefit from favorable changes in margins. In addition, our hedging activities may expose us to the risk of financial loss in certain circumstances, including instances in which:

- the volumes of its actual use of crude oil or production of the applicable refined products is less than the volumes subject to the hedging arrangement;
- accidents, interruptions in transportation, inclement weather or other events cause unscheduled shutdowns or otherwise adversely affect a refinery or suppliers or customers;
- the counterparties to its futures contracts fail to perform under the contracts; or
- a sudden, unexpected event materially impacts the commodity or crack spread subject to the hedging arrangement.

As a result, the effectiveness of our risk mitigation strategy could have a material adverse impact on our financial results and cash flows.

The Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Dodd-Frank Act") is comprehensive financial reform legislation that, among other things, establishes comprehensive federal oversight and regulation of over-the-counter derivatives and many of the entities that participate in that market. While some of the rules and regulations under Dodd-Frank Act have been finalized, others have not. As a result, the final form and timing of the implementation of the new regulatory regime affecting commodity derivatives remains uncertain. If we reduces our use of derivatives as a result of the Dodd-Frank Act and any new rules and regulations, our results of operations may become more volatile and cash flows may be less predictable, which could adversely affect our ability to satisfy its debt obligations or plan for and fund capital expenditures. Increased volatility may make us less attractive to certain types of investors. Finally, the Dodd-Frank Act was intended, in part, to reduce the volatility of oil and natural gas prices. If the Dodd-Frank Act and any new regulations result in lower commodity prices, our petroleum business' revenues could be adversely affected. Any of these consequences could adversely affect our financial condition and results of operations and therefore could have an adverse effect on our ability to satisfy debt obligations.

Additionally, since we do not apply hedge accounting to its commodity derivative contracts, gains and losses are charged to its earnings based on the increase or decrease in the market value of derivative positions. Such gains and losses are reflected in its income statement in periods that differ from when the underlying hedged items (i.e., gross margins) are reflected in our income statement. Such derivative gains or losses in earnings may produce significant period-to-period earnings volatility that is not necessarily reflective of our petroleum business' operational

performance.

We must make substantial capital expenditures on the Refineries and other facilities to maintain their reliability and efficiency. If we are unable to complete capital projects at their expected costs and/or in a timely manner, or if the market conditions assumed in project economics deteriorate, our financial condition, results of operations or cash flows could be adversely affected.

Our Refineries have been in operation for many years. Equipment, even if properly maintained, may require significant capital expenditures and expenses to keep operating at optimum efficiency. These refineries generally require facility turnaround every four to five years. Delays or cost increases related to the engineering, procurement and construction of new facilities, or improvements and repairs to existing facilities and equipment, could have a material adverse effect on our financial condition, results of operations or cash flows. Such delays or cost increases may arise as a result of unpredictable factors in the marketplace, many of which are beyond our control, including:

December 31, 2018 | 30

Table of Contents

denial or delay in obtaining regulatory approvals and/or permits;
unplanned increases in the cost of equipment, materials or labor;
disruptions in transportation of equipment and materials;
severe adverse weather conditions, natural disasters or other events (such as equipment malfunctions, explosions, fires or spills) affecting our facilities, or those of vendors and suppliers;
shortages of sufficiently skilled labor, or labor disagreements resulting in unplanned work stoppages;
market-related increases in a project's debt or equity financing costs; and/or
non-performance or force majeure by, or disputes with, the petroleum segment's vendors, suppliers, contractors or sub-contractors.

Any one or more of these occurrences noted above could have a significant impact on our petroleum business. If we are unable to make up for the delays or to recover the related costs, or if market conditions change, we could materially and adversely affect our financial position, results of operations or cash flows.

More stringent trucking regulations may increase our petroleum business' costs and negatively impact results of operations.

In connection with the trucking operations conducted by our crude gathering division, our petroleum business operates as a motor carrier and therefore is subject to regulation by federal and various state agencies. These regulatory authorities exercise broad powers, governing activities such as the authorization to engage in motor carrier operations and regulatory safety, and hazardous materials labeling, placarding and marking. There are additional regulations specifically relating to the trucking industry, including testing and specification of equipment and product handling requirements. The trucking industry is subject to possible regulatory and legislative changes that may affect the economics of the industry by requiring changes in operating practices or by changing the demand for common or contract carrier services or the cost of providing truckload services. Some of these possible changes include increasingly stringent fuel-economy environmental regulations, changes in the hours of service regulations that govern the amount of time a driver may drive in any specific period, onboard black box recorder or electronic logging devices or limits on vehicle weight and size.

To a large degree, intrastate motor carrier operations are subject to state safety regulations that mirror federal regulations. Such matters as weight and dimension of equipment are also subject to federal and state regulations. Furthermore, from time to time, various legislative proposals are introduced, such as proposals to increase federal, state or local taxes, including taxes on motor fuels, which may increase our costs or adversely impact the recruitment of drivers. We cannot predict whether, or in what form, any increase in such taxes will be enacted or the extent to which they will apply to our petroleum business and its operations.

Risks Related to the Nitrogen Fertilizer Segment

Any decline in U.S. agricultural production or limitations on the use of nitrogen fertilizer for agricultural purposes could have a material adverse effect on the sales of nitrogen fertilizer, and on our results of operations, financial condition and cash flows.

Conditions in the U.S. agricultural industry significantly impact our operating results. The U.S. agricultural industry can be affected by a number of factors, including weather patterns and field conditions, current and projected grain inventories and prices, domestic and international population changes, demand for U.S. agricultural products and U.S. and foreign policies regarding trade in agricultural products. For example, a major factor underlying the solid level of

demand for nitrogen-based fertilizer products we produce is the use of corn for the production of ethanol in the U.S. Changes in governmental incentives for ethanol production could affect future ethanol demand and production.

State and federal governmental policies, including farm and biofuel subsidies and commodity support programs, as well as the prices of fertilizer products, may also directly or indirectly influence the number of acres planted, the mix of crops planted and the use of fertilizers for particular agricultural applications. Developments in crop technology, such as nitrogen fixation (the conversion of atmospheric nitrogen into compounds that plants can assimilate), could also reduce the use of chemical fertilizers and adversely affect the demand for nitrogen fertilizer. In addition, from time to time various state legislatures have considered limitations on the use and application of chemical fertilizers due to concerns about the impact of these products on the environment. Unfavorable state and federal governmental policies could negatively affect nitrogen fertilizer prices and therefore have a material adverse effect on our results of operations, financial condition and cash flows.

December 31, 2018 | 31

Table of Contents

Ethanol production in the United States is highly dependent upon a myriad of federal statutes and regulations, and is made significantly more competitive by various federal and state incentives and mandated usage of renewable fuels pursuant to EPA's RFS. To date, the RFS has been satisfied primarily with corn-based fuel ethanol blended into gasoline. However, a number of factors, including the continuing "food versus fuel" debate and studies showing that expanded ethanol usage may increase the level of greenhouse gases in the environment as well as be unsuitable for small engine use, have resulted in calls to reduce subsidies for ethanol, allow increased ethanol imports and to repeal or waive (in whole or in part) the current RFS. Changes within the RFS program also could affect future ethanol demand and production. Further, while most ethanol is currently produced from corn and other raw grains, such as milo or sorghum, the RFS requires that a portion of the overall RFS renewable fuel mandate comes from advanced biofuels, including cellulose-based biomass, such as agricultural waste, forest residue, and municipal solid waste. In addition, there is a continuing trend to encourage the use of products other than corn and raw grains for ethanol production. The repeal of, or reduction in the benefits to ethanol producers under, ethanol incentive programs, an increase in ethanol imports, a substantial decrease in future renewable volume obligations under the RFS program, or a significant increase in the use of products other than corn and raw grains for ethanol production could affect the demand for corn-based ethanol and result in a decrease in planted corn acreage and in the demand for nitrogen fertilizer products and have a material adverse effect on our results of operations, financial condition and cash flows.

Our Coffeyville Facility may be adversely affected by the supply and price levels of pet coke. Failure by CVR Energy's Coffeyville refinery to continue to supply us with pet coke and the availability of third-party pet coke at higher prices could negatively impact our results of operations.

Unlike our competitors, whose primary costs are related to the purchase of natural gas and whose costs are therefore largely variable, our Coffeyville Fertilizer Facility uses a pet coke gasification process to produce nitrogen fertilizer. Our profitability is directly affected by the price and availability of pet coke obtained from our Coffeyville Refinery pursuant to a long-term agreement. Our Coffeyville Fertilizer Facility has obtained the majority of its pet coke from our Coffeyville Refinery over the past five years. However, should our Coffeyville Refinery fail to perform in accordance with the existing agreement, we would need to purchase pet coke from third parties on the open market, which could negatively impact our results of operations to the extent third-party pet coke is unavailable or available only at higher prices. Currently, we purchase 100% of the pet coke our Coffeyville Refinery produces. However, we are still required to procure additional pet coke from third parties to maintain our production rates. Accordingly, we are party to a pet coke supply agreement with a third-party refinery to provide a significant amount of pet coke at a fixed price. The term of this agreement ends in December 2019.

The market for natural gas has been volatile, and fluctuations in natural gas prices could affect our competitive position.

Our Coffeyville Fertilizer Facility uses a pet coke gasification process to produce nitrogen fertilizer. When compared to our Coffeyville Fertilizer Facility, low natural gas prices benefit our competitors that rely on natural gas as their primary feedstock and disproportionately impact our operations by making us less competitive with natural gas-based nitrogen fertilizer manufacturers. Continued low natural gas prices could result in nitrogen fertilizer pricing drops and impair the ability of the Coffeyville Fertilizer Facility to compete with other nitrogen fertilizer producers who use natural gas as their primary feedstock, and therefore have a material adverse impact on the nitrogen fertilizer segment's results of operations, financial condition and ability to make cash distributions.

The East Dubuque Fertilizer Facility uses natural gas as its primary feedstock, and as such, the profitability of operating the East Dubuque Fertilizer Facility is significantly dependent on the cost of natural gas. An increase in natural gas prices could make it less competitive with producers who do not use natural gas as their primary feedstock. In addition, an increase in natural gas prices in the United States relative to prices of natural gas paid by foreign

nitrogen fertilizer producers may negatively affect our competitive position in the corn belt, and such changes could have a material adverse effect on our results of operations, financial condition and cash flows.

We expect to purchase a portion of our natural gas for use in the East Dubuque Fertilizer Facility on the spot market. As a result, we remain susceptible to fluctuations in the price of natural gas in general and in local markets in particular. We may use short-term, fixed supply, fixed price forward purchase contracts to lock in pricing for a portion of its natural gas requirement, but we may not be able to enter into such agreements on acceptable terms or at all. Without forward purchase contracts for the supply of natural gas, we would need to purchase natural gas on the spot market, which would impair its ability to hedge exposure to risk from fluctuations in natural gas prices. If we enter into forward purchase contracts for natural gas, and natural gas prices decrease, then its cost of sales could be higher than it would have been in the absence of the forward purchase contracts.

December 31, 2018 | 32

Table of Contents

Any interruption in the supply of natural gas to our East Dubuque Facility could have a material adverse effect on our results of operations and financial condition.

Our East Dubuque Fertilizer Facility depends on the availability of natural gas. We have an agreement with Nicor pursuant to which we access natural gas from the ANR Pipeline Company and Northern Natural Gas pipelines. Our access to satisfactory supplies of natural gas through Nicor could be disrupted due to a number of causes, including volume limitations under the agreement, pipeline malfunctions, service interruptions, mechanical failures or other reasons. The agreement extends through October 31, 2019. Upon expiration of the agreement, we may be unable to extend the service under the terms of the existing agreement or renew the agreement on satisfactory terms, or at all. Any disruption in the supply of natural gas to our East Dubuque Fertilizer Facility could restrict our ability to continue to make products at the facility. In the event we need to obtain natural gas from another source, we may need to build a new connection from that source to the East Dubuque Fertilizer Facility and negotiate related easement rights, which would be costly, disruptive and/or may be unfeasible. As a result, any interruption in the supply of natural gas through Nicor could have a material adverse effect on our results of operations and financial condition.

If licensed technology were no longer available, our business may be adversely affected.

We have licensed, and may in the future license, a combination of patent, trade secret and other intellectual property rights of third parties for use in our plant operation. In particular, the gasification process used at the Coffeyville Fertilizer Facility to convert pet coke to high purity hydrogen for subsequent conversion to ammonia is licensed from a third party. The license, which is fully paid, grants us perpetual rights to use the pet coke gasification process on specified terms and conditions and is integral to the operations of the Coffeyville Fertilizer Facility. If this license or any other license agreement on which our operations rely were to be terminated, licenses to alternative technology may not be available, or may only be available on terms that are not commercially reasonable or acceptable. In addition, any substitution of new technology for currently-licensed technology may require substantial changes to manufacturing processes or equipment and may have a material adverse effect on our results of operations, financial condition and cash flows.

Additionally, we may face claims of infringement that could interfere with our ability to use technology that is material to our plant operations. Any litigation of this type related to third-party intellectual property rights could result in substantial costs and diversions of resources, either of which could have a material adverse effect on our results of operations, financial condition and cash flows. In the event a claim of infringement against us is successful, we may be required to pay royalties or license fees for past or continued use of the infringing technology, or we may be prohibited from using the infringing technology altogether. If we are prohibited from using any technology as a result of such a claim, we may not be able to obtain licenses to alternative technology adequate to substitute for the technology we can no longer use, or licenses for such alternative technology may only be available on terms that are not commercially reasonable or acceptable. In addition, any substitution of new technology for currently licensed technology may require us to make substantial changes to its manufacturing processes or equipment or to our products, and could have a material adverse effect on our results of operations, financial condition and cash flows.

Our operations are dependent on third-party suppliers, which could have a material adverse effect on our results of operations, financial condition and cash flows.

Operations of our Coffeyville Fertilizer Facility depend in large part on the performance of third-party suppliers, and the operations of the Coffeyville Fertilizer Facility could be adversely affected if the operation of the third-party air separation plant located adjacent to it were disrupted. Additionally, this air separation plant in the past has experienced numerous short-term interruptions, causing interruptions in our gasifier operations. With respect to electricity, we are party to an electric services agreement with a third-party supplier, which allows for an option for us to extend the term

of such agreement through June 30, 2024.

Our East Dubuque Fertilizer Facility operations also depend in large part on the performance of third-party suppliers, including for the purchase of electricity. We entered into a utility service agreement, which terminates on May 31, 2019 and will continue year-to-year thereafter unless either party provides 12-month advance written notice of termination.

Should any of our other third-party suppliers fail to perform in accordance with existing contractual arrangements, or should we otherwise lose the service of any third-party suppliers, our operations (or a portion thereof) could be forced to halt. Alternative sources of supply could be difficult to obtain. Any shutdown of our operations (or a portion thereof), even for a limited period, could have a material adverse effect on our results of operations, financial condition and ability to make cash distributions.

December 31, 2018 | 33

Table of Contents

We rely on third-party providers of transportation services and equipment, which subjects it to risks and uncertainties beyond its control that may have a material adverse effect on the nitrogen fertilizer segment's results of operations, financial condition and ability to make distributions.

Our business relies on railroad and trucking companies to ship finished products to customers of the Coffeyville Fertilizer Facility. We also lease railcars from railcar owners to ship its finished products. Additionally, although customers of the East Dubuque Fertilizer Facility generally pick up products at the facility, the facility occasionally relies on barge, truck and railroad companies to ship products to customers. These transportation operations, equipment and services are subject to various hazards, including extreme weather conditions, work stoppages, delays, spills, derailments and other accidents and other operating hazards. Further, the limited number of towing companies and barges available for ammonia transport may also impact the availability of transportation for our nitrogen fertilizer segment's products. These transportation operations, equipment and services are also subject to environmental, safety and other regulatory oversight. Due to concerns related to terrorism or accidents, local, state and federal governments could implement new regulations affecting the transportation of our finished products. In addition, new regulations could be implemented affecting the equipment used to ship its finished products.

Any delay in our ability to ship its finished products as a result of these transportation companies' failure to operate properly, the implementation of new and more stringent regulatory requirements affecting transportation operations or equipment, or significant increases in the cost of these services or equipment could have a material adverse effect on our results of operations, financial condition and ability to make cash distributions.

Ammonia can be very volatile and extremely hazardous. Any liability for accidents involving ammonia or other products we produce or transport that cause severe damage to property or injury to the environment and human health could have a material adverse effect on our results of operations, financial condition and ability to make cash distributions. In addition, the costs of transporting ammonia could increase significantly in the future.

Our business manufactures, processes, stores, handles, distributes and transports ammonia, which can be very volatile and extremely hazardous. Major accidents or releases involving ammonia could cause severe damage or injury to property, the environment and human health, as well as a possible disruption of supplies and markets. Such an event could result in civil lawsuits, fines, penalties and regulatory enforcement proceedings, all of which could lead to significant liabilities. Any damage or injury to persons, equipment or property or other disruption of our ability to produce or distribute products could result in a significant decrease in operating revenues and significant additional cost to replace or repair and insure our assets, which could have a material adverse effect on our results of operations, financial condition and ability to make cash distributions. Our facilities periodically experience minor releases of ammonia related to leaks from its equipment. Similar events may occur in the future.

In addition, we may incur significant losses or costs relating to the operation of railcars used for the purpose of carrying various products, including ammonia. Due to the dangerous and potentially hazardous nature of the cargo, in particular ammonia, a railcar accident may result in fires, explosions and releases of material which could lead to sudden, severe damage or injury to property, the environment and human health. In the event of contamination, under environmental law we may be held responsible even if it is not at fault and we complied with the laws and regulations in effect at the time of the accident. Litigation arising from accidents involving ammonia and other products we produce or transport may result in us being named as a defendant in lawsuits asserting claims for substantial damages, which could have a material adverse effect on our results of operations, financial condition and ability to make cash distributions.

December 31, 2018 | 34

Table of Contents

Risks Related to Our Capital Structure

Internally generated cash flows and other sources of liquidity may not be adequate for the capital needs of our businesses.

Our businesses are capital intensive, and working capital needs may vary significantly over relatively short periods of time. For instance, crude oil price volatility can significantly impact working capital on a week-to-week and month-to-month basis. If we cannot generate adequate cash flow or otherwise secure sufficient liquidity to meet our working capital needs or support our short-term and long-term capital requirements, we may be unable to meet our debt obligations, pursue our business strategies or comply with certain environmental standards, which would have a material adverse effect on our business and results of operations.

Instability and volatility in the capital, credit and commodity markets in the global economy could negatively impact our business, financial condition, results of operations and cash flows.

Our business, financial condition and results of operations could be negatively impacted by difficult conditions and volatility in the capital, credit and commodities markets and in the global economy. For example:

Although we believe the petroleum segment has sufficient liquidity under its Amended and Restated ABL credit facility to operate Refineries, and that the nitrogen fertilizer segment has sufficient liquidity under its ABL credit facility to run the nitrogen fertilizer segment, under extreme market conditions there can be no assurance that such funds would be available or sufficient, and in such a case, we may not be able to successfully obtain additional financing on favorable terms, or at all.

Market volatility could exert downward pressure on the price of CVR Partners' common units, which may make it more difficult for us to raise additional capital and thereby limit its ability to grow, which could in turn cause the CVR Energy stock and/or CVR Partners' unit price to drop.

The petroleum segment's and nitrogen fertilizer business' credit facilities contain various covenants that must be complied with, and if either segment is not in compliance, there can be no assurance that either segment would be able to successfully amend the agreement in the future. Further, any such amendment may be expensive. In addition, any new credit facility the petroleum segment or nitrogen fertilizer segment may enter into may require each to agree to additional covenants.

Market conditions could result in significant customers experiencing financial difficulties. We are exposed to the credit risk of our customers, and their failure to meet their financial obligations when due because of bankruptcy, lack of liquidity, operational failure or other reasons could result in decreased sales and earnings for us.

CVR Refining and CVR Partners' level of indebtedness may affect our ability to operate their businesses, and may have a material adverse effect on our financial condition and results of operations.

We have incurred indebtedness at the petroleum and nitrogen fertilizer segments and we may be able to incur significant additional indebtedness in the future. If new indebtedness is added to current indebtedness, the risks described below could increase. Their level of indebtedness could have important consequences, such as:

- limiting our ability to obtain additional financing to fund working capital needs, capital expenditures, debt service requirements, acquisitions or other purposes;
- requiring us to utilize a significant portion of cash flows to service indebtedness, thereby reducing available cash and the ability to make distributions to us and public common unitholders of CVR Partners;
- limiting our ability to use operating cash flow in other areas of our business because we must dedicate a substantial portion of these funds to service debt;

- limiting our ability to compete with other companies who are not as highly leveraged, as we may be less capable of responding to adverse economic and industry conditions;
- limiting our ability to make certain payments on debt that is subordinated or secured on a junior basis;
- restricting us from making strategic acquisitions or investments, introducing new technologies or exploiting business opportunities;
- restricting the way in which we conduct business because of financial and operating covenants in the agreements governing existing and future indebtedness, including, in the case of certain indebtedness of subsidiaries, certain covenants that restrict the ability of subsidiaries to pay dividends or make other distributions;
- limiting our ability to enter into certain transactions with our affiliates;
- limiting our ability to designate our subsidiaries as unrestricted subsidiaries;

December 31, 2018 | 35

Table of Contents

exposing us to potential events of default (if not cured or waived) under financial and operating covenants contained in their or their respective subsidiaries' debt instruments that could have a material adverse effect on our business, financial condition and operating results;

- increasing our vulnerability to a downturn in general economic conditions or in pricing of products; and
- limiting our ability to react to changing market conditions in their respective industries and in respective customers' industries.

In addition to debt service obligations, our petroleum and nitrogen fertilizer operations require substantial capital investments on a continuing basis. The ability to make scheduled debt payments, to refinance obligations with respect to existing indebtedness and to fund capital and non-capital expenditures necessary to maintain the condition of operating assets, properties and systems software, as well as to provide capacity for business growth, depends on our financial and operating performance, which, in turn, is subject to prevailing economic conditions and financial, business, competitive, legal and other factors.

In addition, our petroleum and nitrogen fertilizer segments are and will be subject to covenants contained in agreements governing their present and future indebtedness. These covenants include, and will likely include, restrictions on certain payments (including restrictions on CVR Partners to make distributions to unitholders), the granting of liens, the incurrence of additional indebtedness, dividend restrictions affecting subsidiaries, asset sales, transactions with affiliates and mergers and consolidations. Any failure to comply with these covenants could result in a default under current credit agreements or debt instruments or future credit agreements.

Our operating segments may not be able to generate sufficient cash to service existing indebtedness and may be forced to take other actions to satisfy debt obligations that may not be successful.

The petroleum and nitrogen fertilizer segments' ability to satisfy existing debt obligations will depend upon, among other things:

- future financial and operating performance, which will be affected by prevailing economic conditions and financial, business, regulatory and other factors, many of which are beyond our control; and
- future ability to obtain other financing.

We cannot offer any assurance that our businesses will generate sufficient cash flow from operations, that our petroleum business will be able to draw under its Amended and Restated ABL Credit Facility or that the nitrogen fertilizer business will be able to draw under its ABL credit facility or otherwise, or from other sources of financing, in an amount sufficient to fund respective liquidity needs.

If cash flows and capital resources are insufficient to service existing indebtedness, we may be forced to reduce or delay capital expenditures, sell assets, seek additional capital or restructure or refinance existing indebtedness or seek bankruptcy protection. These alternative measures may not be successful and may not permit the meeting of scheduled debt service obligations. Our ability to restructure or refinance debt will depend on the condition of the capital markets and our financial condition, including that of our operating segments, at such time. Any refinancing of existing debt could be at higher interest rates and may require compliance with more onerous covenants, which could further restrict business operations, and the terms of existing or future debt agreements may restrict us from adopting some of these alternatives. In addition, in the absence of adequate cash flows or capital resources, our businesses could face substantial liquidity problems and might be required to dispose of material assets or operations, or, in the case of CVR Partners, sell equity, and/or negotiate with lenders to restructure the applicable debt in order to meet their debt service and other obligations. We may not be able to consummate those dispositions for fair market value or at all. Market or business conditions may limit our ability to avail themselves of some or all of these options. Furthermore, any

proceeds that they realize from any such dispositions may not be adequate to meet existing debt service obligations when due.

The borrowings under CVR Refining's Amended and Restated ABL Credit Facility and CVR Partners' ABL credit facility bear interest at variable rates and other debt we or they incur could likewise be variable-rate debt. If market interest rates increase, variable-rate debt will create higher debt service requirements, which could adversely affect distributions to us. We may enter into agreements limiting exposure to higher interest rates, but any such agreements may not offer complete protection from this risk.

December 31, 2018 | 36

Table of Contents

Our petroleum and nitrogen fertilizer debt agreements contain restrictions that limit flexibility in operating the respective businesses and, in the case of CVR Partners, limit the ability to make distributions to unitholders.

The CVR Refining and CVR Partners' debt facilities and instruments contain, and any instruments governing future indebtedness would likely contain, a number of covenants that impose significant operating and financial restrictions, including restrictions on the ability to, among other things:

- incur additional indebtedness or issue certain preferred units;
- pay distributions in respect of common units or make other restricted payments;
- make certain payments on debt that is subordinated or secured on a junior basis;
- make certain investments;
- sell certain assets;
- create liens on certain assets;
- consolidate, merge, sell or otherwise dispose of all or substantially all assets;
- enter into certain transactions with affiliates; and
- designate subsidiaries as unrestricted subsidiaries.

Any of these restrictions could limit our ability to plan for or react to market conditions and could otherwise restrict operating activities. Any failure to comply with these covenants could result in a default under existing debt facilities and instruments. Upon a default, unless waived, the lenders under such debt facilities and instruments would have all remedies available to a secured lender, and could elect to terminate their commitments, cease making further loans, institute foreclosure proceedings against assets, and force bankruptcy or liquidation, subject to any applicable intercreditor agreements. In addition, a default under existing debt facilities and instruments would trigger a cross default under other agreements and could trigger a cross default under the agreements governing future indebtedness. Our operating segments' results may not be sufficient to service existing indebtedness or to fund other expenditures and we may not be able to obtain financing to meet these requirements.

Despite existing indebtedness, we may still be able to incur significantly more debt, including secured indebtedness. This could intensify the risks described above.

We may be able to incur substantially more debt in the future, including secured indebtedness. Although existing credit facilities contain restrictions on the incurrence of additional indebtedness, these restrictions are subject to a number of qualifications and exceptions and, under certain circumstances, indebtedness incurred in compliance with these restrictions could be substantial. Also, these restrictions may not prevent incurring new obligations that do not constitute indebtedness. To the extent such new debt or new obligations are added to existing indebtedness, the risks described above could substantially increase.

We are authorized to issue up to a total of 350 million shares of our common stock and 50 million shares of preferred stock, potentially diluting equity ownership of current holders and the share price of our common stock.

We believe that it is necessary to maintain a sufficient number of available authorized shares of our common stock and preferred stock to provide us with the flexibility to issue common stock or preferred stock for business purposes that may arise as deemed advisable by our board of directors. These purposes could include, among other things, (i) future stock dividends or stock splits, which may increase the liquidity of our shares; (ii) the sale of stock to obtain additional capital or to acquire other companies or businesses, which could enhance our growth strategy or allow us to reduce debt if needed; (iii) for use in additional stock incentive programs and (iv) for other bona fide purposes. Our board of directors may authorize us to issue the available authorized shares of common stock or preferred stock without notice to, or further action by, our stockholders, unless stockholder approval is required by law or the rules of

the NYSE. The issuance of additional shares of common stock or preferred stock may significantly dilute the equity ownership of the current holders of our common stock.

December 31, 2018 | 37

Table of Contents

Our ability to pay dividends on our common stock is subject to market conditions and numerous other factors.

In January 2013, our board of directors adopted a quarterly dividend policy. We began paying regular quarterly dividends in the second quarter of 2013. Dividends are subject to change at the discretion of the board of directors and may change from quarter to quarter. Our ability to continue paying dividends is subject to our ability to continue to generate sufficient cash flow from our operating segments, and the amount of dividends we are able to pay each year may vary, possibly substantially, based on market conditions, crack spreads, our capital expenditure and other business needs, covenants contained in any debt agreements we may enter into in the future, covenants contained in existing debt agreements, and the amount of distributions we receive from CVR Partners. We may not be able to continue paying dividends at the rate we currently pay dividends, or at all. If the amount of our dividends decreases, the trading price of our common stock could be materially adversely affected as a result.

Risks Related to Our Corporate Structure

We are a holding company and depend upon our subsidiaries for our cash flow.

As of the period ending December 31, 2018, our two principal subsidiaries are CVR Refining (our petroleum segment) and CVR Partners (our nitrogen fertilizer segment), a publicly traded partnership, with a portion of its common units traded on the NYSE. We are a holding company, and these subsidiaries conduct all of our operations and own substantially all of our assets. Consequently, our cash flow and our ability to meet our obligations or to pay dividends or make other distributions in the future will depend upon the cash flow of our subsidiaries and the payment of funds by our subsidiaries to us in the form of distributions. The ability of CVR Partners to make any payments to us will depend on, among other things, their earnings, the terms of existing indebtedness (including the terms of any debt facilities and instruments), tax considerations and legal restrictions. In particular, future debt facilities and instruments incurred at our subsidiaries may impose significant limitations on the ability of our subsidiaries to generate sufficient cash flow or, in the case of CVR Partners, make distributions to us and consequently our ability to issue dividends to our stockholders.

Mr. Carl C. Icahn exerts significant influence over the Company, and his interests may conflict with the interests of the Company's other stockholders.

Mr. Carl C. Icahn indirectly controls approximately 71% of the voting power of our common stock and, by virtue of such stock ownership, is able to control or exert substantial influence over the Company, including:

- the election and appointment of directors;
- business strategy and policies;
- mergers or other business combinations;
- acquisition or disposition of assets;
- future issuances of common stock, common units or other securities;
- incurrence of debt or obtaining other sources of financing; and
- the payment of dividends on the Company's common stock and distributions on the common units of CVR Partners.

The existence of a controlling stockholder may have the effect of making it difficult for, or may discourage or delay, a third party from seeking to acquire a majority of the Company's outstanding common stock, which may adversely affect the market price of the Company's common stock.

Mr. Icahn's interests may not always be consistent with the Company's interests or with the interests of the Company's other stockholders. Mr. Icahn and entities controlled by him may also pursue acquisitions or business opportunities in industries in which we compete, and there is no requirement that any additional business opportunities be presented to us. We also have and may in the future enter into transactions to purchase goods or services with affiliates of Mr. Icahn. To the extent that conflicts of interest may arise between the Company and Mr. Icahn and his affiliates, those conflicts may be resolved in a manner adverse to the Company or its other stockholders.

In addition, if Mr. Icahn were to sell, or otherwise transfer, some or all of his interests in us to an unrelated party or group, a change of control could be deemed to have occurred under the terms of the indentures governing CVR Refining's 6.5% senior notes, which would require it to offer to repurchase all outstanding notes at 101% of their principal amount plus accrued interest to the date of repurchase, and an event of default could be deemed to have occurred under CVR Refining's Amended and Restated ABL Credit Facility, which would allow lenders to accelerate indebtedness owed to them. However, it is possible that

December 31, 2018 | 38

Table of Contents

we will not have sufficient funds at the time of the change of control to make the required repurchase of notes or repay amounts outstanding under CVR Refining's Amended and Restated ABL Credit Facility, if any.

Our stock price may decline due to sales of shares by Mr. Carl C. Icahn.

Sales of substantial amounts of the Company's common stock, or the perception that these sales may occur, may adversely affect the price of the Company's common stock and impede its ability to raise capital through the issuance of equity securities in the future. Mr. Icahn could elect in the future to request that the Company file a registration statement to him to sell shares of the Company's common stock. If Mr. Icahn were to sell a large number of shares into the public markets, Mr. Icahn could cause the price of the Company's common stock to decline.

We are a "controlled company" within the meaning of the NYSE rules and, as a result, qualify for, and are relying on, exemptions from certain corporate governance requirements.

A company of which more than 50% of the voting power is held by an individual, a group or another company is a "controlled company" within the meaning of the NYSE rules and may elect not to comply with certain corporate governance requirements of the NYSE, including:

- the requirement that a majority of our board of directors consist of independent directors;
- the requirement that we have a nominating/corporate governance committee that is composed entirely of independent directors; and
- the requirement that we have a compensation committee that is composed entirely of independent directors.

We are relying on all of these exemptions as a controlled company. Accordingly, you may not have the same protections afforded to stockholders of companies that are subject to all of the corporate governance requirements of the NYSE. In addition, CVR Partners is relying on exemptions from the same NYSE corporate governance requirements described above.

We have various mechanisms in place to discourage takeover attempts, which may reduce or eliminate our stockholders' ability to sell their shares for a premium in a change of control transaction.

Various provisions of our amended certificate of incorporation and second amended and restated bylaws and of Delaware corporate law may discourage, delay or prevent a change in control or takeover attempt of our Company by a third party that our management and board of directors determines is not in the best interest of our Company and its stockholders. Public stockholders who might desire to participate in such a transaction may not have the opportunity to do so. These anti-takeover provisions could substantially impede the ability of public stockholders to benefit from a change of control or change in our management and board of directors. These provisions include:

- preferred stock that could be issued by our board of directors to make it more difficult for a third party to acquire, or to discourage a third party from acquiring, a majority of our outstanding voting stock;
- limitations on the ability of stockholders to call special meetings of stockholders;
- limitations on the ability of stockholders to act by written consent in lieu of a stockholders' meeting; and
- advance notice requirements for nominations of candidates for election to our board of directors or for proposing matters that can be acted upon by our stockholders at stockholder meetings.

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

We are subject to extensive tax liabilities, including United States and state income taxes and transactional taxes such as excise, sales/use, payroll, franchise and withholding taxes. New tax laws and regulations are continuously being enacted or proposed that could result in increased expenditures for tax liabilities in the future.

December 31, 2018 | 39

Table of Contents

Risks Related to Our Ownership in CVR Partners

CVR Partners' policy is to distribute an amount equal to the "available cash" it generates each quarter, which could limit its ability to grow and make acquisitions.

The current policy of the board of directors of CVR Partners' general partner, which is an indirect, wholly-owned subsidiary of CVR Energy, is to distribute an amount equal to the available cash generated by CVR Partners each quarter to its unitholders. As a result of its cash distribution policy, CVR Partners will rely primarily upon external financing sources, including commercial bank borrowings and the issuance of debt and equity securities, to fund acquisitions and expansion capital expenditures. As such, to the extent it is unable to finance growth externally, CVR Partners' cash distribution policy may significantly impair its ability to grow. CVR Partners may not have sufficient available cash each quarter to enable the payment of distributions to common unitholders. Furthermore, its partnership agreement does not require it to pay distributions on a quarterly basis or otherwise. As such, the board of directors of its general partner may modify or revoke its cash distribution policy at any time at its discretion, including in such a manner that would result in an elimination of cash distributions regardless of the amount of available cash our business generates.

In addition, because of its distribution policy, CVR Partners' growth, if any, may not be as robust as that of businesses that reinvest their available cash to expand ongoing operations. To the extent CVR Partners issues additional units in connection with any acquisitions or expansion capital expenditures or as in-kind distributions, current unitholders will experience dilution and the payment of distributions on those additional units will decrease the amount CVR Partners distributes in respect of its outstanding units. Under CVR Partners' partnership agreement, it is authorized to issue an unlimited number of additional interests without a vote of the common unitholders. The issuance by CVR Partners of additional common units or other equity interests of equal or senior rank will reduce the proportionate ownership interest of common unitholders immediately prior to the issuance. As a result of the issuance of common units, the following may occur:

- the amount of cash distributions on each common unit may decrease;
- the ratio of CVR Partners' taxable income to distributions may increase;
- the relative voting strength of each previously outstanding common unit will be diminished; and
- the market price of the common units may decline.

In addition, CVR Partners' partnership agreement does not prohibit the issuance by its subsidiaries of equity interests, which may effectively rank senior to the common units. The incurrence of additional commercial borrowings or other debt to finance its growth strategy would result in increased interest expense, which, in turn, would reduce the available cash it has to distribute to unitholders.

If CVR Partners were to be treated as a corporation for U.S. federal income tax purposes or if it becomes subject to entity-level taxation for state tax purposes, its cash available for distribution to its common unitholders, including to us, would be substantially reduced, likely causing a substantial reduction in the value of its common units, including the common units held by us.

The anticipated after-tax economic benefit of an investment in common units of CVR Partners depends largely on it being treated as a partnership for U.S. federal income tax purposes. Despite the fact that CVR Partners is organized as a limited partnership under Delaware law, it would be treated as a corporation for U.S. federal income tax purposes unless it satisfies a "qualifying income" requirement. CVR Partners may not find it possible to meet this qualifying income requirement, or may inadvertently fail to meet this qualifying income requirement.

Current law may change, causing CVR Partners to be treated as a corporation for U.S. federal income tax purposes or otherwise subjecting CVR Partners to entity-level taxation.

If CVR Partners were to be treated as a corporation for U.S. federal income tax purposes, it would pay U.S. federal income tax on all of its taxable income at the corporate tax rate. Distributions to its common unitholders (including us) would generally be taxed again as corporate distributions, and no income, gains, losses or deductions would flow through to such common unitholders. Because a tax would be imposed upon CVR Partners as a corporation, its cash available for distribution to common unitholders would be substantially reduced. Therefore, treatment of CVR Partners as a corporation would result in a material reduction in the anticipated cash flow and after-tax return to its common unitholders (including us), likely causing a substantial reduction in the value of such common units.

December 31, 2018 | 40

Table of Contents

We may have liability to repay distributions that are wrongfully distributed to us.

Under certain circumstances, we may, as a holder of common units in CVR Partners, have to repay amounts wrongfully returned or distributed to us. Under the Delaware Revised Uniform Limited Partnership Act, a partnership may not make distributions to its unitholders if the distribution would cause its liabilities to exceed the fair value of its assets. Delaware law provides that for a period of three years from the date of an impermissible distribution, limited partners who received the distribution and who knew at the time of the distribution that it violated Delaware law will be liable to the company for the distribution amount.

Public investors own approximately 66% of the nitrogen fertilizer segment through CVR Partners. Although we own the general partner of the CVR Partners, the general partner owes a duty of good faith to public unitholders, which could cause them to manage their respective businesses differently than if there were no public unitholders.

Public investors own approximately 66% of CVR Partners' common units. We are not entitled to receive all of the cash generated by CVR Partners or freely transfer money to finance operations at the petroleum segment. Furthermore, although we own the general partner of CVR Partners, the general partner is subject to certain fiduciary duties, which may require the general partner to manage its business in a way that may differ from our best interests.

The general partner of CVR Partners has limited its liability, replaced default fiduciary duties and restricted the remedies available to common unitholders, including us, for actions that, without these limitations and reductions might otherwise constitute breaches of fiduciary duty.

The partnership agreement of CVR Partners limits the liability and replaces the fiduciary duties of the general partner, while also restricting the remedies available to the partnership's common unitholders, including us, for actions that, without these limitations and reductions, might constitute breaches of fiduciary duty. Delaware partnership law permits such contractual reductions of fiduciary duty. The partnership agreement contains provisions that replace the standards to which the general partner would otherwise be held by state fiduciary duty law. For example:

The partnership agreement permits CVR Partners' general partner to make a number of decisions in its individual capacity, as opposed to its capacity as general partner. This entitles its general partner to consider only the interests and factors that it desires, and means that it has no duty or obligation to give any consideration to any interest of, or factors affecting, any limited partner.

The partnership agreement provides that CVR Partners' general partner will not have any liability to unitholders for decisions made in its capacity as general partner so long as it acted in good faith, meaning it believed that the decision was in the best interest of CVR Partners.

The partnership agreement provides that CVR Partners' general partner and the officers and directors of its general partner will not be liable for monetary damages to common unitholders, including us, for any acts or omissions unless there has been a final and non-appealable judgment entered by a court of competent jurisdiction determining that the general partner or its officers or directors acted in bad faith or engaged in fraud or willful misconduct, or in the case of a criminal matter, acted with knowledge that the conduct was criminal.

In addition, CVR Partners' partnership agreement (i) generally provides that affiliated transactions and resolutions of conflicts of interest not approved by the conflicts committee of the board of directors of its general partner and not involving a vote of unitholders must be on terms no less favorable to CVR Partners than those generally being provided to or available from unrelated third parties or be "fair and reasonable" to CVR Partners, as determined by its general partner in good faith, and that, in determining whether a transaction or resolution is "fair and reasonable," the general partner may consider the totality of the relationships between the parties involved, including other transactions that may be particularly advantageous or beneficial to affiliated parties, including us and (ii) provides that in resolving

conflicts of interest, it will be presumed that in making its decision, the general partner or its conflicts committee acted in good faith, and in any proceeding brought by or on behalf of any holder of common units, the person bringing or prosecuting such proceeding will have the burden of overcoming such presumption.

With respect to the common units that we own, we have agreed to be bound by the provisions set forth in the partnership agreement, including the provisions described above.

December 31, 2018 | 41

Table of Contents

CVR Partners is managed by the executive officers of its general partner, some of whom are employed by and serve as part of the senior management team of the Company. Conflicts of interest could arise as a result of this arrangement.

CVR Partners is managed by the executive officers of its general partner, some of whom are employed by and serve as part of the senior management team of the Company. Furthermore, although CVR Partners has entered into services agreements with the Company under which it compensates the Company for the services of its management, our management is not required to devote any specific amount of time to the nitrogen fertilizer segment and may devote a substantial majority of their time to other business of the Company. Moreover the Company may terminate the services agreement with CVR Partners at any time, in each case subject to a 180-day notice period. In addition, key executive officers of the Company, including its president and chief executive officer, chief financial officer and general counsel, will face conflicts of interest if decisions arise in which CVR Partners and the Company have conflicting points of view or interests.

Item 1B. Unresolved Staff Comments

There are no material unresolved written comments that were received from the SEC staff 180 days or more before the end of our fiscal year relating to our periodic or current reports under the Exchange Act.

Item 2. Properties

Refer to Item 1, “Petroleum” and “Nitrogen Fertilizer” for more information on our core business properties. We also lease property for our executive office which is located in Sugar Land, Texas. Additionally, other office space is leased in Kansas City, Kansas and Oklahoma City, Oklahoma.

Item 3. Legal Proceedings

In the ordinary course of business, we may become party to lawsuits, administrative proceedings and governmental investigations, including environmental, regulatory and other matters. Large, and sometimes unspecified, damages or penalties may be sought from us in some matters and certain matters may require years to resolve. Although we cannot provide assurance, we believe that an adverse resolution of the matters described below would not have a material impact on our liquidity, consolidated financial position, or consolidated results of operations.

Unresolved Matters

The U.S. Attorney’s office for the Southern District of New York contacted CVR Energy in September 2017 seeking production of information pertaining to CVR Refining’s, CVR Energy’s and Mr. Carl C. Icahn’s activities relating to the RFS and Mr. Icahn’s former role as an advisor to the President. CVR Energy cooperated with the request and provided information in response to the subpoena. The U.S. Attorney’s office has not made any claims or allegations against CVR Energy or Mr. Icahn. CVR Energy believes it maintains a strong compliance program and, while no assurances can be made, CVR Energy does not believe this inquiry will have a material impact on its business, financial condition, results of operations or cash flows.

On August 21, 2018, CRRM received a letter from the United States Department of Justice (“DOJ”) on behalf of the EPA and Kansas Department of Health and Environment (“KDHE”) alleging violations of the Clean Air Act (“CAA”) and a 2012 Consent Decree between CRRM, the United States (on behalf of EPA) and KDHE at CRRM’s Coffeyville refinery. In September 2018, CRRM executed a tolling agreement with the DOJ and KDHE extending time for negotiation regarding the agencies’ allegations through March 31, 2019. At this time the Company cannot reasonably

estimate the potential penalties, costs, fines or other expenditures that may result from this matter or any subsequent enforcement or litigation relating thereto and, therefore, the Company cannot determine if the ultimate outcome of this matter will have a material impact on the Company's financial position, results of operations or cash flows.

In September 2018, the Kansas Court of Appeals upheld property tax determinations by the Kansas Board of Tax Appeals in connection with Coffeyville Resources Nitrogen Fertilizer, LLC's ("CRNF") dispute with Montgomery County, Kansas over prior year property tax payments as previously disclosed. On October 29, 2018, Montgomery County petitioned the Kansas Supreme Court to review the Court of Appeals' determination. Subsequent briefs were filed by CRNF and Montgomery County. The Kansas Supreme Court has not yet ruled on whether it will hear the Montgomery County appeal.

December 31, 2018 | 42

Table of Contents

As of February 20, 2019, the Company, CVR Refining and its general partner, CVR Refining Holdings, IEP, and certain directors and affiliates have each been named in at least one of six lawsuits filed in the Court of Chancery of the State of Delaware by purported former unitholders of CVR Refining, on behalf of themselves and an alleged class of similarly situated unitholders (the “Call Option Lawsuits”). The Call Option Lawsuits primarily allege breach of contract, tortious interference and breach of the implied covenant of good faith and fair dealing and seek monetary damages and attorneys’ fees, among other remedies, relating to the Company’s exercise of the call option under the CVR Refining Amended and Restated Agreement of Limited Partnership assigned to it by CVR Refining’s general partner. The Call Option Lawsuits are in the earliest stages of litigation. The Company believes the Call Option Lawsuits are without merit and intends to vigorously defend against them.

Resolved Matters

On December 13, 2018, CVR Partners entered into a “Claim Settlement and Release Agreement” regarding the business interruption claim filed during early 2018 under its insurance policies, related to damage and resulting reduced equipment production rates experienced during the second half of 2017 and early 2018. The settlement is considered favorable for CVR Partners and the claim has now been resolved.

Item 4. Mine Safety Disclosures

Not applicable.

December 31, 2018 | 43

Table of Contents

PART II

Item 5. Market For Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Performance Graph

The performance graph below compares the cumulative total return of our common stock to (a) the cumulative total return of the S&P 500 Composite Index and (b) a composite peer group (“Peer Group”) consisting of Delek US Holdings, Inc., HollyFrontier Corporation, Marathon Petroleum Corp, PBF Energy and Valero Energy Corporation. The graph assumes that the value of the investment in common stock and each index was \$100 on December 31, 2013 and that all dividends were reinvested. Investment is weighted on the basis of market capitalization.

The share price performance shown on the graph is not necessarily indicative of future price performance. Information used in the graph was obtained from Yahoo! Finance (finance.yahoo.com). The performance graph above is furnished and not filed for purposes of the Securities Act and the Exchange Act. The performance graph is not soliciting material subject to Regulation 14A.

Market Information

Our common stock is listed under the symbol “CVI” on the New York Stock Exchange.

CVR Energy, Inc. - Exchange Offer

In August 2018, CVR Energy completed an exchange offer whereby public unitholders tendered a total of 21,625,106 CVR Refining common units in exchange for a total of 13,699,549 shares of CVR Energy common stock. Following the exchange offer, Icahn Enterprises L.P. (“IEP”) and its affiliates owned approximately 71% of the Company’s outstanding shares. Refer to Note 1 (“Organization and Nature of Business”) in Item 8 for further information.

Purchases of Equity Securities by the Issuer

December 31, 2018 | 44

Table of Contents

We did not repurchase any of our common stock during the fiscal year ended December 31, 2018.

Item 6. Selected Financial Data

The following table sets forth certain selected consolidated financial data as of and for each year in the five-year period ended December 31, 2018. The selected consolidated financial information presented below has been derived from our historical financial statements. The following table should be read in conjunction with Item 7 and our consolidated financial statements and relates notes thereto in Item 8.

	Year Ended December 31,				
	2018	2017	2016	2015	2014
(in millions)					
Statements of Operations					
Net sales	\$7,124	\$5,988	\$4,782	\$5,433	\$9,110
Net income attributable to CVR Energy stockholders	289	235	25	170	174
Basic and diluted earnings per share	\$3.12	\$2.70	\$0.28	\$1.95	\$2.00
Dividends declared per share	\$2.50	\$2.00	\$2.00	\$2.00	\$5.00
				Year Ended December 31,	
				2018	2017
(in millions)					
Balance Sheet					
Cash and cash equivalents			\$668	\$482	\$736
Total assets			3,907	3,807	4,050
Total long-term debt and capital lease obligations, net of current portion			1,167	1,164	1,165
Total liabilities			2,039	2,103	2,341
Total CVR stockholders' equity			1,246	919	858
Total equity			1,868	1,704	1,710
				\$765	\$754
				3,299	3,454
				667	667
				1,705	1,787
				984	988
				1,601	1,675

December 31, 2018 | 45

Table of Contents

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and related notes included elsewhere in this Report. References to CVR Energy, the Company, "we", "us", and "our" may refer to consolidated subsidiaries of CVR Energy, including CVR Refining or CVR Partners, as the context may require.

Strategy and Goals

Mission and Core Values

Our mission is to be a top tier North American petroleum refining and nitrogen-based fertilizer company as measured by safe and reliable operations, superior performance and profitable growth. The foundation of how we operate is built on five core values:

Safety - We always put safety first. The protection of our employees, contractors and communities is paramount. We have an unwavering commitment to safety above all else. If it's not safe, then we don't do it.

Environment - We care for our environment. Complying with all regulations and minimizing any environmental impact from our operations is essential. We understand our obligation to the environment and that it's our duty to protect it.

Integrity - We require high business ethics. We comply with the law and practice sound corporate governance. We only conduct business one way—the right way with integrity.

Corporate Citizenship - We are proud members of the communities where we operate. We are good neighbors and know that it's a privilege we can't take for granted. We seek to make a positive economic and social impact through our financial donations and the contributions of time, knowledge and talent of our employees to the places where we live and work.

Continuous Improvement - We believe in both individual and team success. We foster accountability under a performance-driven culture that supports creative thinking, teamwork and personal development so that employees can realize their maximum potential. We use defined work practices for consistency, efficiency and to create value across the organization.

Our core values are driven by our people, inform the way we do business each and every day and enhance our ability to accomplish our mission and related strategic objectives.

Strategic Objectives

We have outlined the following strategic objectives to drive the accomplishment of our mission:

Safety - We aim to achieve continuous improvement in all environmental, health and safety areas through ensuring our people's commitment to environmental, health and safety comes first, the refinement of existing policies, continuous training, and enhanced monitoring procedures.

Reliability - Our goal is to achieve industry-leading utilization factors at our facilities through safe and reliable operations. We are focusing on improvements in day-to-day plant operations, identifying alternative sources for plant

inputs to reduce lost time due to third-party operational constraints, and optimizing our commercial and marketing functions to maintain plant operations at their highest level.

Market Capture - We continuously evaluate opportunities to improve the facilities' netbacks and reduce variable costs incurred in production to maximize our capture of market opportunities.

Financial Discipline - We strive to be as efficient as possible by maintaining low operating costs and a disciplined deployment of capital.

December 31, 2018 | 46

Table of Contents

Achievements

We successfully executed a number of achievements in support of our strategic objectives shown below through the date of this filing:

	Safety	Reliability	Market Capture	Financial Discipline
We achieved significant year-over-year improvement in environmental, health and safety areas at all plants.	ü	ü		
We consolidated certain back office locations reducing administrative overhead costs.				ü
Petroleum Segment:				
We have rationalized our gathering operations to focus on crude oil produced within closer proximity to the refineries where we have transportation advantages.			ü	ü
We increased our throughput of regional crudes and condensate by 38% and 270%, respectively, while reducing reliance on WTI Cushing common crude oil by 30%.			ü	ü
We completed the reversal of our Red River pipeline to deliver SCOOP / STACK barrels to Coffeyville replacing WTI Cushing common barrels.			ü	ü
The Refineries ran at high utilization rates, excluding the unplanned downtime in the first quarter of 2018.	ü	ü	ü	ü
We outlined a multi-year approach to improve crude optionality, market capture and reliability at the Refineries.		ü	ü	ü
We began the Benfree repositioning project at the Wynnewood Refinery which should increase liquid yield by 1%. Scheduled completion is currently Q1 2019.		ü	ü	ü
We increased our production of premium gasoline to over 9,000 bpd in 2018 compared to approximately 6,400 bpd in 2017.			ü	
We increased internal RIN generation by beginning to blend Biodiesel across refinery racks.			ü	ü
Nitrogen Fertilizer:				
During 2018, we maintained high utilization rates, excluding planned downtime at our Coffeyville Facility.	ü	ü	ü	ü
In the second half of 2018, we began loading UAN railcars at a new rail loading rack at our Coffeyville Fertilizer Facility providing unit train capabilities and further geographic reach at reduced per ton/mile distribution costs.			ü	ü
During the second quarter of 2018, the Coffeyville Fertilizer Facility completed its planned turnaround on-time and on-budget.	ü	ü	ü	ü
We are in the process of implementing a plan to construct and operate a backup oxygen unit at the Coffeyville Fertilizer Facility to reduce impacts of third party outages.		ü		ü

Table of Contents

Industry Factors

Petroleum

The earnings and cash flows of the petroleum segment are primarily affected by the relationship between refined product prices and the prices for crude oil and other feedstocks that are processed and blended into refined products. The cost to acquire crude oil and other feedstocks and the price for which refined products are ultimately sold depend on factors beyond the petroleum segment's control, including the supply of and demand for crude oil, as well as, gasoline and other refined products which, in turn, depend on, among other factors, changes in domestic and foreign economies, weather conditions, domestic and foreign political affairs, production levels, the availability of imports, the marketing of competitive fuels and the extent of government regulation. Because the petroleum segment applies first-in first-out accounting to value its inventory, crude oil price movements may impact net income in the short term because of changes in the value of its unhedged inventory. The effect of changes in crude oil prices on the petroleum segment results of operations is partially influenced by the rate at which the process of refined products adjust to reflect these changes.

The prices of crude oil and other feedstocks and refined products are also affected by other factors, such as product pipeline capacity, system inventory local market conditions and the operating levels of competing refineries. Crude oil costs and the prices of refined products have historically been subject to wide fluctuations. Widespread expansion or upgrades of competitors' facilities, price volatility, international political and economic developments and other factors are likely to continue to play an important role in refining industry economics. These factors can impact, among other things, the level of inventories in the market, resulting in price volatility and a reduction in product margins. Moreover, the refining industry typically experiences seasonal fluctuations in demand for refined products, such as increases in the demand for gasoline during the summer driving season and for volatile seasonal exports of diesel from the United States Gulf Coast markets.

In addition to current market conditions, there are long-term factors that may impact the demand for refined products. These factors include mandated renewable fuels standards, proposed climate change laws and regulations and increased mileage standards for vehicles. The petroleum business is also subject to the RFS of the EPA, which requires blending "renewable fuels" with transportation fuels or purchase renewable identification numbers ("RINs"), in lieu of blending, by March 31, 2019 or otherwise be subject to penalties. Our cost to comply with RFS is dependent upon a variety of factors, which include the availability of RINs for purchase, the price at which RINs can be purchased, transportation fuel production levels, the mix of our products, as well as the fuel blending performed at our refineries and downstream terminals, all of which can vary significantly from period to period. Based upon recent market prices of RINs and current estimates related to the other variable factors, our estimated cost to comply with RFS is \$80 to \$90 million for 2019.

Table of Contents

2018 Market Conditions

The tables below show relevant market indicators for the petroleum segment, on a per barrels basis, for the years ended December 31, 2018, 2017, and 2016:

(1)The change over time in NYMEX - WTI, as reflected in the table above, is illustrated below.

(in \$/bbl)	Average 2016	At December 31, 2016	Average 2017	At December 31, 2017	Average 2018	At December 31, 2018
WTI	\$ 43.32	\$ 52.17	\$ 50.95	\$ 57.95	\$ 64.77	\$ 48.98

December 31, 2018 | 49

Table of Contents

(2) Information used in the charts was obtained from MarketView.

Nitrogen Fertilizer

In the nitrogen fertilizer segment, earnings and cash flows from operations are primarily affected by the relationship between nitrogen fertilizer product prices, utilization rates, operating costs and expenses.

The price at which nitrogen fertilizer products are ultimately sold depends on numerous factors, including the global supply and demand for nitrogen fertilizer products which, in turn, depends on, among other factors, world grain demand and production levels, changes in world population, the cost and availability of fertilizer transportation infrastructure, weather conditions, the availability of imports, and the extent of government intervention in agriculture markets.

Nitrogen fertilizer prices are also affected by local factors, including local market conditions and the operating levels of competing facilities. An expansion or upgrade of competitors' facilities, new facility development, political and economic developments and other factors are likely to continue to play an important role in nitrogen fertilizer industry economics. These factors can impact, among other things, the level of inventories in the market, resulting in price volatility and a reduction in product margins. Moreover, the industry typically experiences seasonal fluctuations in demand for nitrogen fertilizer products.

While there is risk of short-term volatility given the inherent nature of the commodity cycle, the long-term fundamentals for the U.S. nitrogen fertilizer industry remain intact. The nitrogen fertilizer segment views the anticipated combination of (i) increasing global population, (ii) decreasing arable land per capita, (iii) continued evolution to more protein-based diets in developing countries, (iv) sustained use of corn as feedstock for the domestic production of ethanol and (v) positioning at the lower end of the global cost curve will continue to provide a solid foundation for nitrogen fertilizer producers in the U.S over the longer term.

Table of Contents

2018 Market Conditions

The table below shows relevant market indicators for the nitrogen fertilizer segment for the years ended December 31, 2016, 2017, and 2018:

(1) Information used in the charts was obtained from various third party sources including MarketView and the U.S. Energy Information Administration (“EIA”), amongst others.

December 31, 2018 | 51

Table of Contents

Non-GAAP Measures

Our management uses certain non-GAAP performance measures to evaluate current and past performance and prospects for the future to supplement our GAAP financial information presented in accordance with U.S. GAAP. These non-GAAP financial measures are important factors in assessing our operating results and profitability and include the performance and liquidity measures defined below.

During the fourth quarter of 2018, management revised its internal and external use of non-GAAP measures. Earnings before interest, tax, depreciation and amortization (“EBITDA”) is now reconciled from net income (loss). Adjusted EBITDA, as defined below, was revised to remove adjustments for (i) first-in-first-out inventory impacts, (ii) derivative gains or losses, and (iii) business interruption insurance recoveries. Additionally, due to the revisions to Adjusted EBITDA to remove certain adjustments, we revised the definitions of our Refining Margin and Direct Operating Expense metrics in our Petroleum segment to conform. Refer to the revised definitions below for further information.

EBITDA - Consolidated net income (loss) before (i) interest expense, net, (ii) income tax expense (benefit) and (iii) depreciation and amortization expense.

Petroleum EBITDA and Nitrogen Fertilizer EBITDA - Segment net income (loss) before segment (i) interest expense, net, (ii) income tax expense (benefit), and (iii) depreciation and amortization.

Adjusted EBITDA - EBITDA adjusted to exclude consolidated turnaround expense and other non-recurring items which management believes are material to an investor’s understanding of the Company’s underlying operating results.

Petroleum Adjusted EBITDA and Nitrogen Fertilizer Adjusted EBITDA - Segment EBITDA adjusted to exclude turnaround expense attributable to each segment and other non-recurring segment items which management believes are material to an investor’s understanding of the Petroleum or Nitrogen Fertilizer segments’ underlying operating results.

Adjusted net income (loss) is not a recognized term under GAAP and should not be substituted for net income as a measure of our performance, but rather should be utilized as a supplemental measure of financial performance in evaluating our business. Management believes that adjusted net income (loss) provides relevant and useful information that enables external users of our financial statements, such as industry analysts, investors, lenders and rating agencies, to better understand and evaluate our ongoing operating results and allow for greater transparency in the review of our overall financial, operational and economic performance. Adjusted net income (loss) per diluted share represents adjusted net income (loss) divided by the weighted-average diluted shares outstanding. Adjusted net income (loss) represents net income, as adjusted, that is attributable to CVR Energy stockholders.

Refining Margin - The difference between our Petroleum Segment net sales and cost of materials and other.

Refining Margin, excluding Inventory Valuation Impacts - Refining Margin adjusted to exclude the impact of current period market price and volume fluctuations on crude oil and refined product inventories recognized in prior periods. We record our commodity inventories on the first-in-first-out basis. As a result, significant current period fluctuations in market prices and the volumes we hold in inventory can have favorable or unfavorable impacts on our refining margins as compared to similar metrics used by other publicly-traded companies in the refining industry.

Refining Margin and Refining Margin, excluding Inventory Valuation Impacts, per Total Throughput Barrel - Refining Margin divided by the total throughput barrels during period, which is calculated as total throughput barrels

per day times the number of days in the period.

Direct Operating Expenses per Throughput Barrel - Direct operating expenses for our Petroleum Segment divided by total throughput barrels for the period, which is calculated as total throughput barrels per day times the number of days in the period.

Direct Operating Expenses per Total Throughput Barrel, excluding Turnaround Expense - Direct operating expenses for our Petroleum segment, excluding turnaround expenses reported as direct operating expense, divided by total throughput barrels for the period, which is calculated as total throughput barrels per day times the number of days in the period.

December 31, 2018 | 52

Table of Contents

We present these measures because we believe they may help investors, analysts, lenders and ratings agencies analyze our results of operations and liquidity in conjunction with our U.S. GAAP results, including but not limited to our operating performance as compared to other publicly-traded companies in the refining industry, without regard to historical cost basis or financing methods and our ability to incur and service debt and fund capital expenditures. Non-GAAP measures have important limitations as analytical tools, because they exclude some, but not all, items that affect net earnings and operating income. These measures should not be considered substitutes for their most directly comparable U.S. GAAP financial measures. See “Non-GAAP Reconciliations” section included herein for reconciliation of these amounts.

Items or Events Impacting Comparability

Refer to the “Non-GAAP Measures” section above for discussion of the changes made during the fourth quarter of 2018 to the Company’s definition of certain non-GAAP measures.

Petroleum Segment

Starting with the fourth quarter of 2018, derivative gains or losses are now presented within Cost of Materials and Other. Prior period amounts have been conformed to the current presentation.

Coffeyville Refinery - During the first quarter of 2018, our Coffeyville, Kansas refinery (the “Coffeyville Refinery”) experienced an outage with its fluid catalytic cracking unit (“FCC”) lasting 48 days. The FCC outage had a significant negative impact on production and sales during that period.

Wynnewood Refinery - During 2017, the Wynnewood, Oklahoma (“Wynnewood Refinery”) underwent a turnaround on its hydrocracking unit in the first quarter of 2017 at a cost of \$13 million and the first phase of its planned facility turnaround, with the second phase scheduled for the first quarter of 2019, at a cost of approximately \$67 million, including \$43 million in the fourth quarter of 2017.

Nitrogen Fertilizer Segment

During the fourth quarter of 2018, the Partnership recognized a \$6 million business interruption insurance recovery associated with an outage at its Coffeyville, Kansas facility (the “Coffeyville Facility”) during 2017. The recovery is recorded in the Other Income (Expense) line item. Prior year amounts, which were not material, were conformed to the current year presentation.

Coffeyville Facility - During 2018, our Coffeyville, Kansas nitrogen fertilizer facility (the “Coffeyville Facility”) had a planned, full facility turnaround lasting 15 days and incurred approximately \$6 million in turnaround expense in the second quarter of 2018. During 2017, the Coffeyville Facility’s third-party air separation unit experienced a shut down. Paired with this shut down and subsequent operational challenges, the Coffeyville Facility experienced unplanned UAN downtime of 11 days during the second quarter of 2017.

East Dubuque Facility - During 2017, our East Dubuque, Illinois nitrogen fertilizer facility (the “East Dubuque Facility”) had a planned, full facility turnaround lasting 14 days and incurred approximately \$3 million in turnaround expense in the third quarter of 2017. Additionally, during the fourth quarter of 2017, the East Dubuque Facility experienced unplanned downtime totaling 12 days.

December 31, 2018 | 53

Table of Contents

Results of Operations

Consolidated

The following sections should be read in conjunction with the information outlined in the previous sections of this Item 7 and the financial statements and related notes thereto in Item 8. Our consolidated results of operations include certain other unallocated corporate activities and the elimination of intercompany transactions and therefore do not equal the sum of the operating results of the petroleum and nitrogen fertilizer segments.

Consolidated Financial Highlights

(1) See “Non-GAAP Reconciliations” section below for reconciliations of the non-GAAP measures shown above.

Operating Income (Loss) by Segment

	Year Ended		
	December 31,		
(in millions)	2018	2017	2016
Petroleum	\$ 599	\$ 134	\$ 58
Nitrogen Fertilizer	6	(10)	26
Other	(18)	(17)	(14)
Consolidated	\$ 587	\$ 107	\$ 70

December 31, 2018 | 54

Table of Contents

EBITDA by Segment (1)

	Year Ended		
	December 31,		
(in millions)	2018	2017	2016
Petroleum	\$742	\$269	\$187
Nitrogen Fertilizer	84	64	80
Other	(11)	(10)	(2)
Consolidated	\$815	\$323	\$265

(1) See “Non-GAAP Reconciliations” section below for reconciliations of the non-GAAP measures shown above.

Year Ended December 31, 2018 Compared to the Year Ended December 31, 2017

Overview - Net income attributable to CVR Energy increased by \$54 million, or \$0.42 per share, from 2017 to 2018 due to significantly improved segment market conditions and operations during 2018 which contributed \$479 million of additional operating income year-over-year. These results were offset by an increase in tax expense of \$306 million and \$140 million in higher earnings attributable to noncontrolling interest given the better results at our business segments. Refer to our detailed discussion of the Petroleum and Nitrogen Fertilizer Segments contained in this section.

Income Taxes - In December 2017, we recognized a \$201 million tax benefit associated with the remeasurement of our deferred tax liabilities upon the enactment of the Tax Cut and Jobs Act (the “Tax Act”), resulting in a total tax benefit of \$217 million for 2017. In 2018, we recognized \$89 million in tax expense for an effective tax rate of 17.8%. Our effective tax rate was lower than prior years due to the reduction in statutory tax rate as part of the Tax Act.

Year Ended December 31, 2017 Compared to the Year Ended December 31, 2016

Overview - Net income attributable to CVR Energy increased by \$210 million, or \$2.42 per share, from 2016 to 2017 due to improved operating income driven primarily by an increase of \$76 million in the Petroleum Segment offset by a decrease of \$36 million in the Nitrogen Fertilizer Segment. The net operational improvement was further aided by an increased tax benefit of \$197 million while being offset by \$26 million in increased interest costs. Refer to our detailed discussion of the Petroleum and Nitrogen Fertilizer Segments contained in this section.

Interest Expense - Our 2017 results included \$26 million in additional interest costs compared to 2016 due to the full year of interest on the debt incurred for the acquisition of our East Dubuque Fertilizer Facility in April 2016.

Income Taxes - In December 2017, we recognized a \$200 million benefit associated with the remeasurement of our deferred tax liabilities upon the enactment of the Tax Act. No such benefit was recognized in 2016.

Table of Contents

Petroleum Segment

Refining Throughput and Production Data by Refinery

During the three months ended December 31, 2018, management revised its internal and external approach to calculating refinery throughput and production data to include ethanol and biodiesel consumed at the refineries. We believe this revised calculation of refinery throughput and production data is appropriate as it conveys more accurate data reflecting each refinery's operational performance for the period. Prior year balances have been conformed with the current year calculation. The adjustments to the calculation of refinery throughput and production had an immaterial impact on the data presented.

Throughput Data (in bpd)	Year Ended December 31,		
	2018	2017	2016
Coffeyville			
Regional crude	31,350	34,805	38,386
WTI	66,952	84,460	57,937
Midland WTI	15,893	—	—
Condensate	4,992	2,169	8,356
Heavy Canadian	5,302	10,135	19,491
Other feedstocks and blendstocks	8,369	9,921	9,264
Wynnewood			
Regional crude	54,746	27,750	24,504
WTI	2,354	15,251	18,592
Midland WTI	10,332	29,045	30,157
Condensate	7,237	1,134	621
Heavy Canadian	—	—	—
Other feedstocks and blendstocks	5,068	3,511	3,164
Total throughput	212,595	218,181	210,472

Production Data (in bpd)	Year Ended December 31,		
	2018	2017	2016
Coffeyville			
Gasoline	67,091	72,778	70,114
Distillate	56,307	59,593	55,790
Other liquid products	5,737	4,704	2,708
Solids	5,190	6,631	7,047
Wynnewood			
Gasoline	40,291	38,311	39,459
Distillate	33,442	30,816	29,302
Other liquid products	4,025	5,429	5,934
Solids	41	54	61
Total production	212,124	218,316	210,415

Liquid volume yield (as % of total throughput) 97.3% 96.9% 96.6%

December 31, 2018 | 56

Table of Contents

Financial Highlights

December 31, 2018 | 57

Table of Contents

(1) See “Non-GAAP Reconciliations” section below for reconciliations of the non-GAAP measures shown above.

Petroleum Operating Results

(in millions)	Year Ended December		
	2018	2017	2016
Net sales	\$6,780	\$5,664	\$4,431
Cost of materials and other	5,602	4,875	3,779
Direct operating expenses	364	441	393
Selling, general and administrative expenses	75	78	72
Depreciation and amortization	134	133	129
Loss on asset disposals	6	3	—
Petroleum Operating income	\$599	\$134	\$58
Petroleum EBITDA (1)	\$742	\$269	\$187
Petroleum Adjusted EBITDA (1)	\$746	\$349	\$218
Key Operating Metrics per Total Throughput Barrel			
Refining Margin (1)	\$15.18	\$9.92	\$8.47
Refining Margin, excluding Inventory Valuation Impacts (1)	\$15.60	\$9.55	\$7.80
Direct Operating Expenses (1)	\$4.69	\$5.55	\$5.10
Direct Operating Expenses, excluding Turnaround Expenses (1)	\$4.65	\$4.54	\$4.70

(1) See “Non-GAAP Reconciliations” section below for reconciliations of the non-GAAP measures shown above.

Year Ended December 31, 2018 Compared to the Year Ended December 31, 2017

Overview - The Petroleum Segment’s operating results for 2018 compared to 2017 increased due primarily to a significant increase in our refining margin on a total throughput barrel basis. Additionally, turnaround expenses totaled \$80 million in 2017 for activities at our Wynnewood Refinery compared to \$4 million in 2018 which relate to costs incurred in planning for the Wynnewood Refinery next turnaround in the first quarter of 2019.

December 31, 2018 | 58

Table of Contents

Refining Margin - For the year ended December 31, 2018 compared to the year ended December 31, 2017, refining margin increased significantly on a per total throughput barrel basis largely due to the increase in crack spreads and crude differentials realized during the period. The NYMEX 2-1-1 crack spread increased by \$1.23 per barrel, primarily due to an improved distillate crack of \$4.22 offset by a decrease in the gasoline crack of \$1.77. The Group 3 2-1-1 also improved in 2018 by \$1.60 compared to the same period last year, again driven largely by an increase in the distillate crack of \$4.74 offset by a decrease in the gasoline crack of \$1.52. Given our significant distillate production, we were able realize enhanced capture rates on the NYMEX and Group 3 crack spreads in 2018. Additionally, to our benefit in 2018, crude differentials were significantly higher in 2018 than in 2017. WCS and Midland crude supply availability and take-away constraints widened the discounts to WTI to \$26.38 and \$7.36 per barrel, respectively, for the year ended December 31, 2018, respectively, compared to \$12.69 and \$0.34, respectively, for the year ended December 31, 2017. In addition, refining margins benefited from a reduction in RFS compliance costs of \$189 million driven by the significant price decline in RINs throughout 2018.

Direct Operating Expenses - Direct operating expenses, excluding turnaround expenses, increased slightly due to lower throughput in 2018 compared to 2017. Our 2018 throughput rates were negatively impacted by the FCCU outage at the Coffeyville Refinery during the first quarter of 2018.

Year Ended December 31, 2017 Compared to the Year Ended December 31, 2016

Overview - The Petroleum Segment's operating results for 2017 compared to 2016 increased due to an increase in our refining margin on a total throughput barrel basis. This increase was offset by turnaround expenses totaling \$80 million in 2017 for activities at the Wynnewood Refinery compared to \$31 million in 2016 which relate to costs incurred at the Coffeyville Refinery.

Refining Margin - Our refining margin per barrel of total throughput increased to \$9.92 for the year ended December 31, 2017 from \$8.47 for the year ended December 31, 2016 primarily due to the improvement in product margins. The benchmark 2-1-1 crack spread improved to \$18.19 per barrel for the year ended December 31, 2017 from \$14.66 per barrel for the year ended December 31, 2016. Also contributing to the increase in refining margin and 2-1-1 crack spread per barrel was the improvement in the Group 3 gasoline basis to NYMEX gasoline to (\$1.83) per barrel for the year ended December 31, 2017 as compared to (\$3.62) per barrel in the comparable period in 2016. The per barrel improvement from 2016 to 2017 was offset by increased throughput in 2017. Additionally, the Petroleum Segment incurred an additional \$43 million in RFS compliance costs due primarily to unfavorable RINs pricing observed in 2017 compared to 2016.

Nitrogen Fertilizer Segment

Utilization - The following tables summarize the ammonia utilization at the Coffeyville and East Dubuque facilities. Utilization is an important measure used by management to assess operational output at each of the Partnership's facilities. Utilization is calculated as actual tons produced divided by capacity.

The Partnership presents our utilization on a two-year rolling average to take into account the impact of our current turnaround cycles on any specific period. The two-year rolling average is a more useful presentation of the long-term utilization performance of Nitrogen Fertilizer segment's plants.

The Partnership present utilization solely on ammonia production rather than each nitrogen product as it provides a comparative baseline against industry peers and eliminates the disparity of plant configurations for upgrade of ammonia into other nitrogen products. With efforts primarily focused on Ammonia upgrade capabilities, this measure is the most meaningful in terms of management success in operations.

December 31, 2018 | 59

Table of Contents

Sales and Pricing per Ton - Two of the Nitrogen Fertilizer Segment's key operating metrics are total sales for ammonia and UAN along with the product pricing per ton realized at the gate. Product pricing at gate represents net sales less freight revenue divided by product sales volume in tons and is shown in order to provide a pricing measure that is comparable across the fertilizer industry.

Production Volumes - Gross tons produced for ammonia represent the total ammonia produced, including ammonia produced that was upgraded into other fertilizer products. Net tons available for sale represent the ammonia available for sale that was not upgraded into other fertilizer products.

December 31, 2018 | 60

Table of Contents

(in thousands of tons)	Year Ended		
	December 31,		
	2018	2017	2016
Ammonia (gross produced)	794	815	694
Ammonia (net available for sale)	246	268	184
UAN	1,276	1,268	1,193

Feedstock. Our Coffeyville Facility utilizes a pet coke gasification process to produce nitrogen fertilizer. Our East Dubuque Facility uses natural gas in its production of ammonia.

	Year Ended		
	December 31,		
	2018	2017	2016
Feedstock:			
Petroleum coke used in production (thousand tons)	463	488	514
Petroleum coke (dollars per ton)	\$28	\$17	\$15
Natural gas used in production (thousands of MMBtu)(1)	7,933	7,620	5,596
Natural gas used in production (dollars per MMBtu)(1)	\$3.28	\$3.24	\$2.96
Natural gas cost of materials and other (thousands of MMBtu)(1)	7,122	8,052	4,619
Natural gas cost of materials and other (dollars per MMBtu)(1)	\$3.15	\$3.26	\$2.87

(1) The feedstock natural gas shown above does not include natural gas used for fuel. The cost of fuel natural gas is included in direct operating expense (exclusive of depreciation and amortization).

Table of Contents

Financial Highlights

The results of operations from the East Dubuque Merger are included for the post-acquisition period beginning April 1, 2016.

(1) See “Non-GAAP Reconciliations” section below for reconciliations of the non-GAAP measures shown above.

Year Ended December 31, 2018 Compared to the Year Ended December 31, 2017

Net Sales - Nitrogen Fertilizer net sales increased by \$20 million to \$351 million for the year ended December 31, 2018. This increase was benefited primarily from favorable pricing conditions in the second half of 2018 which contributed \$37 million in higher revenues. These price increases were offset by \$18 million in volume reductions in 2018 as compared to 2017.

The following table demonstrates the impact of changes in sales volumes and pricing for the primary components of net sales for the year ended December 31, 2018 as compared to the year ended December 31, 2017:

(in millions)	Price Variance	Volume Variance
UAN	\$ 27	\$ 6
Ammonia	11	(24)

The increase in UAN sales volumes for the year ended December 31, 2018 compared to the year ended December 31, 2017 was primarily attributable to higher production resulting from less planned and unplanned downtime and a larger amount of product available in inventory as of December 31, 2017. The decrease in ammonia sales volumes for 2018 compared to 2017 was partly attributable to more product being left available for sale as of December 31, 2018 due to a comparatively weaker fall 2018 application as compared to in 2017. Weather was also a significant factor contributing to the decrease in ammonia sales volumes. As a result of a wetter than expected fall season, customers were unable to apply ammonia, resulting in certain customers canceling ammonia contracts for delivery in the fourth quarter of 2018.

December 31, 2018 | 62

Table of Contents

Operating Income (Loss) - For 2018, operating income was \$6 million compared to a loss of \$10 million in 2017. The \$16 million increase in operating income in 2018 is driven by improved market conditions discussed above. The net sales increase was offset by increased feedstock costs, due to higher pet coke, and purchased ammonia prices and higher direct operating expenses driven by an increase of \$3 million in turnaround expenses year-over-year. During 2018, our Coffeyville Fertilizer Facility used 5% less pet coke. The facility's cost of pet coke increased due to a higher proportion of pet coke being purchased from third parties at higher prices. The percentage of pet coke obtained from third parties increased from 34% for the year ended December 31, 2017 to 41% for the year ended December 31, 2018. The price for pet coke purchased increased by 51% and 56%, respectively, year-over-year, with third party coke increasing from \$37 to \$56 per ton and internally produced coke increasing from \$6 to \$10 per ton. Direct operating expenses were higher due to \$6 million being spent on the Coffeyville Fertilizer Facility's 2018 turnaround compared to \$3 million on the East Dubuque Facility's 2017 turnaround.

Net Loss - The Nitrogen Fertilizer segment net loss of \$50 million decreased significantly as compared to 2017 due to the operational and market improvements discussed above. Additionally, in December 2018, the Nitrogen Fertilizer segment recognized a business interruption insurance recovery of \$6 million related to outages at our Coffeyville Facility in 2017 and 2018.

Year Ended December 31, 2017 Compared to the Year Ended December 31, 2016

Net Sales - The Nitrogen Fertilizer Segment's net sales were \$331 million for the year ended December 31, 2017 compared to \$356 million for 2016. The decrease of \$25 million was attributable to negative impacts from weaker market conditions. Changes in ammonia and UAN volume did not have a material impact on net sales. The following table demonstrates the impact of changes in sales volumes and pricing for the primary components of net sales for 2017 as compared to 2016:

(in millions)	Price Variance	Volume Variance
UAN	\$ (24)	\$ (7)
Ammonia	(5)	(7)

Operating Income (Loss) - For 2017, operating income decreased by \$36 million as compared to 2016 to a loss of \$10 million. The significant decrease in operating income is primarily due to the unfavorable pricing conditions experienced in 2017. Also contributing in 2017 was an increase of \$16 million in depreciation and amortization expense primarily driven by the full year of depreciation recognized in 2017 associated with East Dubuque Fertilizer Facility in April 2016. These increased costs were offset by lower turnaround expense of \$4 million year-over-year .

Net Loss - The Nitrogen Fertilizer Segment's net loss of \$73 million in 2017 increased significantly compared to 2016 due to the operational and market conditions and operational expenses incurred in 2017. Additionally, in 2017, an increase of \$14 million in interest expense occurred due to a full year of interest on the long-term debt obtained as part of the East Dubuque Facility acquisition in April 2016.

Table of Contents

Non-GAAP Reconciliations

Reconciliation of Net Income to EBITDA and Adjusted EBITDA

(in millions)	Year Ended		
	December 31,		
	2018	2017	2016
Net income	\$411	\$217	\$9
Add:			
Interest expense and other financing costs, net of interest income	102	109	83
Income tax expense (benefit)	89	(217)	(20)
Depreciation and amortization	213	214	193
EBITDA	\$815	\$323	\$265
Add:			
Loss on extinguishment of debt (1)	—	—	5
Turnaround expenses	10	83	38
Expenses associated with the East Dubuque Merger (2)	—	—	3
Adjusted EBITDA	\$825	\$406	\$311

(1) Represents a loss on extinguishment of debt incurred by CVR Partners in June 2016 in connection with the repurchase of senior notes assumed in the East Dubuque Merger.

(2) Represents legal and other professional fees and other merger related expenses associated with the East Dubuque Merger.

Reconciliation of Income (Loss) before Income Tax Expense (Benefit) to Adjusted Net Income

(in millions, except per share amounts)	Year Ended December		
	31,		
	2018	2017	2016
Income (loss) before income tax expense (benefit)	\$500	\$—	\$(11)
Adjustments:			
Turnaround expenses (1)	10	83	38
Expenses associated with the East Dubuque Merger	—	—	3
Loss on extinguishment of debt	—	—	5
Adjusted net income before income tax expense and noncontrolling interest	510	83	35
Adjusted net income attributed to noncontrolling interest	(127)	(12)	(4)
Income tax (expense) benefit, as adjusted	(91)	196	9
Adjusted net income	\$292	\$267	\$40
Weighted-average diluted shares outstanding	92.5	86.8	86.8
Adjusted net income per diluted share	\$3.16	\$3.08	\$0.47

December 31, 2018 | 64

Table of Contents

Reconciliation of Petroleum Segment Net Income to Petroleum EBITDA and Petroleum Adjusted EBITDA

(in millions)	Year Ended		
	December 31,		
	2018	2017	2016
Petroleum net income	\$567	\$89	\$14
Add:			
Interest expense and other financing costs, net of interest income	41	47	44
Depreciation and amortization	134	133	129
Petroleum EBITDA	\$742	\$269	\$187
Add:			
Turnaround expenses (1)	4	80	31
Petroleum Adjusted EBITDA	\$746	\$349	\$218

(1)Represents expense associated with turnaround activities at the Coffeyville and Wynnewood Refineries.

Reconciliation of Petroleum Segment Gross Profit to Refining Margin

(in millions)	Year Ended December		
	31,		
	2018	2017	2016
Net sales	\$6,780	\$5,664	\$4,431
Cost of materials and other	5,602	4,875	3,779
Direct operating expenses (exclusive of depreciation and amortization as reflected below)	360	361	362
Turnaround expenses (1)	4	80	31
Depreciation and amortization	130	129	126
Gross profit	\$684	\$219	\$133
Add:			
Direct operating expenses (exclusive of depreciation and amortization as reflected below)	360	361	362
Turnaround expenses (1)	4	80	31
Depreciation and amortization	130	129	126
Refining margin	\$1,178	\$789	\$652
Exclude: (favorable) unfavorable inventory valuation impacts	32	(29) (52
Refining margin, excluding inventory valuation impacts	\$1,210	\$760	\$600

(1)Represents expense associated with turnaround activities at the Coffeyville and Wynnewood Refineries.

December 31, 2018 | 65

Table of Contents

Reconciliation of Refining Margin and Refining Margin per Total Throughput Barrel

	Year Ended December 31,		
	2018	2017	2016
Total throughput barrels per day	212,595	218,181	210,472
Days in the period	365	365	366
Total throughput barrels	77,597,175	79,636,065	77,032,752

	Year Ended December 31,		
(in millions)	2018	2017	2016
Refining margin	\$1,178	\$789	\$652
Divided by: total throughput barrels	78	80	77
Refining margin per total throughput barrel	\$15.18	\$9.92	\$8.47

	Year Ended December 31,		
(in millions)	2018	2017	2016
Refining margin, excluding inventory valuation impacts	\$1,210	\$760	\$600
Divided by: total throughput barrels	78	80	77
Refining margin per total throughput barrel	\$15.60	\$9.55	\$7.80

Reconciliation of Petroleum Direct Operating Expenses and Direct Operating Expenses, excluding Turnaround Expenses, per Total Throughput Barrel

	Year Ended December 31,		
(in millions, except for per throughput barrel data)	2018	2017	2016
Direct operating expenses (exclusive of depreciation and amortization)	\$364	\$441	\$393
Divided by: total throughput barrels	78	80	77
Direct operating expenses per total throughput barrel	\$4.69	\$5.55	\$5.10
Direct operating expenses (exclusive of depreciation and amortization)	\$364	\$441	\$393
Turnaround expenses (1)	4	80	31
Direct operating expenses	\$360	\$361	\$362
Divided by: total throughput barrels	78	80	77
Direct operating expenses, excluding turnaround expenses, per total throughput barrel	\$4.65	\$4.54	\$4.70

(1)Represents expense associated with turnaround activities at the Coffeyville and Wynnewood Refineries.

Table of Contents

Reconciliation of Nitrogen Fertilizer Net Loss to Nitrogen Fertilizer EBITDA and Nitrogen Fertilizer Adjusted EBITDA

(in millions)	Year Ended		
	December 31,		
	2018	2017	2016
Nitrogen fertilizer net loss	\$(50)	\$(73)	\$(27)
Add:			
Interest expense and other financing costs, net	62	63	49
Depreciation and amortization	72	74	58
Nitrogen fertilizer EBITDA	\$84	\$64	\$80
Add:			
Turnaround expenses	6	3	7
Loss on extinguishment of debt	—	—	5
Expenses associated with the East Dubuque Merger	—	—	3
Adjusted EBITDA	\$90	\$67	\$95

Liquidity and Capital Resources

Our principal source of liquidity has historically been cash from operations. Our principal uses of cash are for working capital, capital expenditures, funding our debt service obligations and paying dividends to our stockholders, as further discussed below.

We believe that our cash from operations and existing cash and cash equivalents, along with borrowings, as necessary, under the AB Credit Facility (“AB Credit Facility”) and Amended ABL Credit Facility (“Amended ABL Credit Facility”), will be sufficient to satisfy anticipated cash requirements associated with our existing operations for at least the next 12 months, and that we have sufficient cash resources to fund our operations for at least the next 12 months. However, our future capital expenditures and other cash requirements could be higher than we currently expect as a result of various factors. Additionally, our ability to generate sufficient cash from our operating activities and secure additional financing depends on our future performance, which is subject to general economic, political, financial, competitive and other factors beyond our control.

Depending on the needs of our business, contractual limitations and market conditions, we may from time to time seek to issue equity securities, incur additional debt, issue debt securities, or otherwise refinance our existing debt. There can be no assurance that we will seek to do any of the foregoing or that we will be able to do any of the foregoing on terms acceptable to us or at all.

Cash Balances and Other Liquidity

As of December 31, 2018, we had consolidated cash and cash equivalents of \$668 million, \$394 million available under CVR Refining’s Amended ABL Credit Facility and \$50 million available under CVR Partners’ Asset Based Credit Facility.

December 31, 2018 | 67

Table of Contents

(in millions)	December 31, December 31,	
	2018	2017
CVR Partners:		
9.25% Senior Secured Notes due June 2023	\$ 645	\$ 645
6.50% Senior Notes due April 2021	2	2
Unamortized discount and debt issuance costs	(18) (22
Total CVR Partners Debt	\$ 629	\$ 625
CVR Refining:		
6.50% Senior Notes due November 2022	\$ 500	\$ 500
Capital lease obligations	44	45
Unamortized debt issuance cost	(3) (4
Current portion of capital lease obligations	(3) (2
Total CVR Refining Debt	\$ 538	\$ 539
Total Long-Term Debt	\$ 1,167	\$ 1,164

Amended ABL Credit Facility - On November 14, 2017, Coffeyville Resources LLC (“CRLLC”), CVR Refining, CVR Refining LLC (“Refining LLC”) and each of the operating subsidiaries of Refining LLC (collectively, the “Credit Parties”) entered into Amendment No. 1 to the Amended and Restated ABL Credit Agreement (the “Amendment”) with a group of lenders and Wells Fargo Bank, National Association (“Wells Fargo”), as administrative agent and collateral agent. The Amendment amends certain provisions of the Amended and Restated ABL Credit Agreement, dated December 20, 2012, by and among Wells Fargo, the group of lenders party thereto and the Credit Parties (the “Existing Credit Agreement” and as amended by the Amendment, the “Amended and Restated ABL Credit Facility”), which was otherwise scheduled to mature in December 2017. The Amended and Restated ABL Credit Facility is a \$400 million asset-based revolving credit facility, with sub-limits for letters of credit and swingline loans of \$60 million and \$40 million, respectively. The Amended and Restated ABL Credit Facility also includes a \$200 million uncommitted incremental facility. The proceeds of the loans may be used for capital expenditures, working capital and general corporate purposes. The Amended and Restated Credit Facility matures in November 2022.

AB Credit Facility - The Nitrogen Fertilizer Segment has an AB Credit Facility, the proceeds of which may be used to fund working capital and other general corporate purposes. The AB Credit Facility is a senior secured asset-based revolving credit facility with an aggregate principal amount of availability of up to \$50.0 million with an incremental facility, which permits an increase in borrowings of up to \$25.0 million in the aggregate subject to additional lender commitments and certain other conditions. The AB Credit Facility matures in September 2021. CVR Partners was in compliance with all applicable covenants as of December 31, 2018.

2023 Notes - CVR Partners issued \$645 million aggregate principal amount of 9.250% Senior Secured Notes due 2023 (the “2023 Notes”) in 2016. The 2023 Notes are guaranteed on a senior secured basis by all of the Nitrogen Fertilizer Segment’s existing subsidiaries. At any time prior to June 15, 2019, we may on any of one or more occasions redeem up to 35% of the aggregate principal amount of the 2023 Notes issued under the indenture governing the 2023 Notes in an amount not greater than the net proceeds of one or more public equity offerings at a redemption price of 109.250% of the principal amount of the 2023 Notes, plus any accrued and unpaid interest to the date of redemption. Prior to June 15, 2019, we may on any one or more occasions redeem all or part of the 2023 Notes at a redemption price equal to the sum of: (i) the principal amount thereof, plus (ii) the make whole premium, as defined in the indenture (the “2023 Indenture”) governing the 2023 Notes, at the redemption date, plus any accrued and unpaid interest to the applicable redemption date.

Upon the occurrence of certain change of control events as defined in the 2023 Indenture (including the sale of all or substantially all of the properties or assets of the Nitrogen Fertilizer Segment and its subsidiaries taken as a whole), each holder of the 2023 Notes will have the right to require that the Nitrogen Fertilizer Segment repurchase all or a portion of such holder's 2023 Notes in cash at a purchase price equal to 101% of the aggregate principal amount thereof plus any accrued and unpaid interest to the date of repurchase.

December 31, 2018 | 68

Table of Contents

2022 Notes - CVR Refining's \$500 million aggregate principal amount of 6.5% Second Lien Senior Notes due 2022 (the "2022 Notes") are unsecured and fully and unconditionally guaranteed by CVI, CVR Refining and each of Refining LLC's existing domestic subsidiaries (other than the co-issuer, Coffeyville Finance) on a joint and several basis. The 2022 Notes mature on November 1, 2022, unless earlier redeemed or repurchased by the issuers. Interest is payable on the 2022 Notes semi-annually on May 1 and November 1 of each year, to holders of record at the close of business on April 15 and October 15, as the case may be, immediately preceding each such interest payment date.

Credit Agreement - On January 29, 2019, the Company entered into a credit agreement (the "Credit Agreement") with Jefferies Finance LLC to provide a term loan credit facility with a maturity date of March 10, 2019. The borrowings under the Credit Agreement of \$105 million were used to fund a portion of the CVRR Unit Purchase. All amounts were repaid on February 11, 2019.

Capital Spending

We divide capital spending needs into two categories: maintenance and growth. Maintenance capital spending includes non-discretionary maintenance projects and projects required to comply with environmental, health and safety regulations. Growth capital projects generally involve an expansion of existing capacity and/or a reduction in direct operating expenses. We undertake growth capital spending based on the expected return on incremental capital employed.

Our total capital expenditures for the year ended December 31, 2018 along with our estimated expenditures for 2019, by segment, are as follows:

(in millions)	2018 Actual			2019 Estimate (1)					
	Maintenance	Growth	Total	Maintenance		Growth		Total	
				Low	High	Low	High	Low	High
Petroleum	\$62	\$17	\$79	\$125	\$140	\$55	\$60	\$180	\$200
Nitrogen Fertilizer	15	4	19	18	20	2	5	20	25
Other	4	—	4	10	15	—	—	10	15
Total	\$81	\$21	\$102	\$153	\$175	\$57	\$65	\$210	\$240

(1) Total 2019 estimated capital expenditures includes approximately \$50 to 60 million of growth related projects that will require additional approvals before commencement.

Our estimated capital expenditures are subject to change due to unanticipated changes in the cost, scope and completion time for capital projects. For example, we may experience increases/decreases in labor or equipment costs necessary to comply with government regulations or to complete projects that sustain or improve the profitability of the refineries or nitrogen fertilizer plants. We may also accelerate or defer some capital expenditures from time to time. Capital spending for CVR Partners is determined by the board of directors of its general partner.

Dividends to CVR Energy Stockholders

The Company has a dividend policy. Dividends are subject to change at the discretion of the board of directors. On February 20, 2019, the Company's board of directors declared a cash dividend for the fourth quarter of 2018 to the Company's stockholders of \$0.75 per share, or \$75 million in the aggregate. The dividend will be paid on March 11, 2019 to stockholders of record at the close of business on March 4, 2019.

Distributions to Unitholders

For the fourth quarter of 2018, the CVR Partners, upon approval by its general partner's board of directors on February 20, 2019, declared a distribution of \$0.12 per common unit, or \$14 million, payable on March 11, 2019 to unitholders

of record as of March 4, 2019. Of this amount, we will receive approximately \$5 million with remaining amount payable to public unitholders.

December 31, 2018 | 69

Table of Contents

Cash Flows

The following table sets forth our consolidated cash flows for the periods indicated below:

	Year Ended		
	December 31,		
	2018	2017	2016
(in millions)			
Net cash provided by (used in):			
Operating activities	\$620	\$168	\$267
Investing activities	(100)	(196)	(201)
Financing activities	(334)	(226)	(95)
Net increase (decrease) in cash and cash equivalents	\$186	\$(254)	\$(29)

Operating Activities

Net cash flows provided by operating activities for the year ended December 31, 2018 were approximately \$620 million compared to \$168 million in 2017. The increase of \$452 million is due to the improved operating results from our business as illustrated by the increase of \$492 million in EBITDA from 2017 to 2018. This increase was offset by changes in working capital and other assets and liabilities during 2018.

Net cash flows provided by operating activities for the year ended December 31, 2017 decreased by \$99 million from \$267 million in 2016. This decrease was the result of significant cash expenditures to purchase RINs for the Petroleum Segment's RFS compliance which more than offset an increase in EBITDA of \$58 million year-over-year.

Investing Activities

Net cash used in investing activities for the year ended December 31, 2018 was \$100 million compared to \$196 million for the year ended December 31, 2017. The decrease as compared to the prior year is largely a result of the prior year \$76 million investment in a Midway Pipeline, LLC ("Midway") joint venture along with lower capital expenditures in 2018.

Net cash used in investing activities for the year ended December 31, 2017 was \$196 million compared to \$201 million for the year ended December 31, 2016. The decrease of \$5 million of cash used in investing activities was primarily due to the net \$64 million of cash paid in 2016 for the acquisition of the East Dubuque Fertilizer Facility and \$13 million in lower capital expenditures in 2017 compared to 2016. These decreases from 2016 to 2017 were offset by the investment in the Midway joint venture in 2017.

Financing Activities

Net cash used in financing activities for the year ended December 31, 2018 was \$334 million, as compared to \$226 million for the year ended December 31, 2017. The net cash used in financing activities for the year ended December 31, 2018 was primarily attributable to dividend payments to common stockholders of \$238 million and distributions to CVR Refining common unitholders of \$93 million. The increase as compared to the prior year is largely a result of higher dividend and distribution payments being made in the current year by both CVR Energy and CVR Refining.

Net cash used in financing activities for the year ended December 31, 2017 was \$226 million compared to \$95 million for the year ended December 31, 2016. Dividend payments of \$174 million to our common stockholders and

distributions of \$47 million and \$2 million to CVR Refining and CVR Partners common unitholders, respectively, were consistent year-over-year. The increase in net cash used in financing activities of \$131 million for the year ended December 31, 2017 compared to 2016 was primarily due to the \$133 million net proceeds received in 2016 from CVR Partners' issuance of 2023 Notes net of debt repayments in connection with the East Dubuque Fertilizer Facility acquisition.

December 31, 2018 | 70

Table of Contents

Long-Term Commitments

In addition to long-term debt, we are required to make payments relating to various types of obligations. The following table summarizes our minimum payments as of December 31, 2018 relating to contractual obligations and other commercial commitments for the five-year period following December 31, 2018 and thereafter.

(in millions)	Payments Due by Period						Total
	2019	2020	2021	2022	2023	Thereafter	
Contractual Obligations							
Long-term debt (1)	\$—	\$—	\$2	\$500	\$645	\$—	\$1,147
Operating leases (2)	24	20	18	16	12	26	116
Capital lease obligations (3)	3	3	3	3	3	29	44
Unconditional purchase obligations (4)	129	89	78	76	75	444	891
Interest payments (5)	98	98	98	92	33	9	428
Other long-term liabilities (6)	10	1	1	—	—	2	14
Total	\$264	\$211	\$200	\$687	\$768	\$ 510	\$2,640

(1) Consists of the 2021 Notes, the 2022 Notes and the 2023 Notes as of December 31, 2018.

(2) CVR Refining and CVR Partners lease various facilities and equipment.

(3) The amount includes commitments under capital lease arrangements for three leases which include a pipeline lease, a storage and terminal equipment lease and a bundled truck lease.

The amount includes (i) commitments for petroleum products storage and petroleum transportation, (ii) electricity supply agreement, (iii) a product supply agreement, (iv) a pet coke supply agreement, (v) commitments related to our biofuels blending obligation and (vi) various agreements for gas and gas transportation.

(5) Interest payments for our long-term debt outstanding and capital lease obligations as of December 31, 2018 and commitment fees on the unutilized commitments of the ABL Credit Facility.

The amount includes environmental liabilities and a standby letter of credit. Environmental liabilities represents (6) our estimated payments required by federal and/or state environmental agencies. See Item 1 “Business Environmental Matters.”

Off-Balance Sheet Arrangements

We do not have any “off-balance sheet arrangements” as such term is defined within the rules and regulations of the SEC.

Recent Accounting Pronouncements

Refer to Part II, Item 8, Note 2 (“Summary of Significant Accounting Policies”), of this Report for a discussion of recent accounting pronouncements applicable to us.

Critical Accounting Policies

We prepare our consolidated financial statements in accordance with GAAP. In order to apply these principles, management must make judgments, assumptions and estimates based on the best available information at the time. Actual results may differ based on the accuracy of the information utilized and subsequent events. Our accounting policies are described in the notes to our audited consolidated financial statements included elsewhere in this Report. Our critical accounting policies, which are listed below, could materially affect the amounts recorded in our consolidated financial statements.

- Goodwill impairment
- Income taxes
- Impairment of long-lived assets
- Derivative instruments and fair value of financial instruments

Refer to Part II, Item 8, Note 2 (“Summary of Significant Accounting Policies”), of this Report for a discussion of these, and other, accounting policies.

December 31, 2018 | 71

Table of Contents

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

The risk inherent in our market risk sensitive instruments and positions is the potential loss from adverse changes in commodity prices, RINs prices, and interest rates.

Commodity Price Risk

The petroleum segment, as a manufacturer of refined petroleum products, and the nitrogen fertilizer segment, as a manufacturer of nitrogen fertilizer products, all of which are commodities, have exposure to market pricing for products sold in the future. In order to realize value from our processing capacity, a positive spread between the cost of raw materials and the value of finished products must be achieved (i.e., gross margin or crack spread). The physical commodities that comprise our raw materials and finished goods are typically bought and sold at a spot or index price that can be highly variable.

The petroleum segment uses a crude oil purchasing intermediary, Vitol, to purchase the majority of its non-gathered crude oil inventory for the refineries, which allows it to take title to and price its crude oil at locations in close proximity to the refineries, as opposed to the crude oil origination point, reducing its risk associated with volatile commodity prices by shortening the commodity conversion cycle time. The commodity conversion cycle time refers to the time elapsed between raw material acquisition and the sale of finished goods. In addition, the petroleum segment seeks to reduce the variability of commodity price exposure by engaging in hedging strategies and transactions that will serve to protect gross margins as forecasted in the annual operating plan. With regard to its hedging activities, the petroleum segment may enter into, or has entered into, derivative instruments which serve to: lock in or fix a percentage of the anticipated or planned gross margin in future periods when the derivative market offers commodity spreads that generate positive cash flows; hedge the value of inventories in excess of minimum required inventories; and manage existing derivative positions related to a change in anticipated operations and market conditions.

Compliance Program Price Risk

As a producer of transportation fuels from petroleum, CVR Refining is required to blend biofuels into the product it produces or to purchase RINs in the open market in lieu of blending to meet the mandates established by the EPA. CVR Refining is exposed to market risk related to volatility in the price of RINs needed to comply with the RFS that are not otherwise generated through blending of renewable fuels in our refining and marketing operations. To mitigate the impact of this risk on CVR Refining's results of operations and cash flows, CVR Refining purchases RINs when prices are deemed favorable. See Note 13 ("Related Party Transactions") to Part II, Item 8 of this Report for further discussion about compliance with the RFS.

December 31, 2018 | 72

Table of Contents

Item 8. Financial Statements and Supplementary Data

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of CVR Energy, Inc.

Opinion on the financial statements

We have audited the accompanying consolidated balance sheets of CVR Energy, Inc. (a Delaware corporation) and subsidiaries (the “Company”) as of December 31, 2018 and 2017, the related consolidated statements of operations, changes in equity, and cash flows for each of the three years in the period ended December 31, 2018, and the related notes (collectively referred to as the “financial statements”). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), the Company’s internal control over financial reporting as of December 31, 2018, based on the criteria established in the 2013 Internal Control - Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”), and our report dated February 21, 2019 expressed an unqualified opinion.

Basis for opinion

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

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

/s/ GRANT THORNTON LLP

We have served as the Company’s auditor since 2013.

Kansas City, Missouri
February 21, 2019

December 31, 2018 | 73

Table of Contents

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of CVR Energy, Inc.

Opinion on internal control over financial reporting

We have audited the internal control over financial reporting of CVR Energy, Inc. (a Delaware corporation) and subsidiaries (the “Company”) as of December 31, 2018, based on criteria established in the 2013 Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in the 2013 Internal Control - Integrated Framework issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), the consolidated financial statements of the Company as of and for the year ended December 31, 2018, and our report dated February 21, 2019 expressed an unqualified opinion on those financial statements.

Basis for opinion

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

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

Definition and limitations of internal control over financial reporting

A company’s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company’s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company’s assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become

inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ GRANT THORNTON LLP

Kansas City, Missouri
February 21, 2019

December 31, 2018 | 74

Table of ContentsCVR Energy, Inc. and Subsidiaries
CONSOLIDATED BALANCE SHEETS

	December 31,	
(in millions)	2018	2017
ASSETS		
Current assets:		
Cash and cash equivalents (including \$415 and \$223, respectively, of consolidated variable interest entities (VIEs))	\$ 668	\$ 482
Accounts receivable of VIEs	169	179
Inventories of VIEs	380	369
Prepaid expenses and other current assets (including \$56 and \$30, respectively, of VIEs)	76	48
Total current assets	1,293	1,078
Property, plant and equipment, net of accumulated depreciation (including \$2,429 and \$2,543, respectively, of VIEs)	2,445	2,588
Other long-term assets (including \$162 and \$137, respectively, of VIEs)	169	141
Total assets	\$3,907	\$3,807
LIABILITIES AND EQUITY		
Current liabilities:		
Note payable and capital lease obligations of VIEs	\$ 3	\$ 2
Accounts payable (including \$317 and \$329, respectively, of VIEs)	320	334
Other current liabilities (including \$154 and \$181, respectively, of VIEs)	173	208
Total current liabilities	496	544
Long-term liabilities:		
Long-term debt and capital lease obligations of VIEs, net of current portion	1,167	1,164
Deferred income taxes	362	386
Other long-term liabilities (including \$7 and \$4, respectively, of VIEs)	14	9
Total long-term liabilities	1,543	1,559
Commitments and contingencies (See Note 11)		
Equity:		
CVR stockholders' equity:		
Common stock \$0.01 par value per share, 350,000,000 shares authorized, 100,629,209 shares issued (86,929,660 shares issued as of December 31, 2017)	\$ 1	\$ 1
Additional paid-in-capital	1,473	1,197
Retained deficit	(226)	(277)
Treasury stock, 98,610 shares at cost	(2)	(2)
Total CVR stockholders' equity	1,246	919
Noncontrolling interest	622	785
Total equity	1,868	1,704
Total liabilities and equity	\$3,907	\$3,807

The accompanying notes are an integral part of these consolidated financial statements.

December 31, 2018 | 75

Table of ContentsCVR Energy, Inc. and Subsidiaries
CONSOLIDATED STATEMENTS OF OPERATIONS

	For the Twelve Months Ended December 31,		
	2018	2017	2016
(in millions)			
Net sales	\$7,124	\$5,988	\$4,782
Operating costs and expenses:			
Cost of materials and other (exclusive of depreciation and amortization shown below)	5,683	4,953	3,867
Direct operating expenses (exclusive of depreciation and amortization shown below)	523	598	541
Depreciation and amortization	202	203	184
Cost of sales	\$6,408	\$5,754	\$4,592
Selling, general and administrative expenses	112	113	110
Depreciation and amortization	11	11	9
Loss on asset disposals	6	3	1
Operating income	\$587	\$107	\$70
Other income (expense):			
Interest expense, net	(102)	(109)	(83)
Other income, net	15	2	2
Income (loss) before income taxes	\$500	\$—	\$(11)
Income tax expense (benefit)	89	(217)	(20)
Net income	\$411	\$217	\$9
Less: Net income (loss) attributable to noncontrolling interest	122	(18)	(16)
Net income attributable to CVR Energy stockholders	289	235	25
Basic and diluted earnings per share	\$3.12	\$2.70	\$0.28
Dividends declared per share	\$2.50	\$2.00	\$2.00
Weighted-average common shares outstanding:			
Basic and Diluted	92.5	86.8	86.8

The accompanying notes are an integral part of these consolidated financial statements.

December 31, 2018 | 76

Table of Contents

CVR Energy, Inc. and Subsidiaries

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

	Common Stockholders				Treasury	Total CVR	Noncontrolling	Total
	Shares	Common	Additional	Retained	Stock	Stockholders	Interest	Equity
	Issued	Stock	Paid-In	Deficit		Equity		
		Capital						
(in millions, except share data)								
Balance at December 31, 2015	86,929,660	\$ 1	\$ 1,174	\$(189)	\$(2)	\$ 984	\$ 616	\$1,600
Dividends paid to CVR Energy stockholders	—	—	—	(174)	—	(174)	—	(174)
Distributions from CVR Partners to public unitholders	—	—	—	—	—	—	(41)	(41)
Impact of CVR Partners' common units issuance for the East Dubuque Merger, net of tax of \$20	—	—	23	—	—	23	293	316
Net income (loss)	—	—	—	25	—	25	(16)	9
Balance at December 31, 2016	86,929,660	1	1,197	(338)	(2)	858	852	1,710
Dividends paid to CVR Energy stockholders	—	—	—	(174)	—	(174)	—	(174)
Distributions from CVR Partners to public unitholders	—	—	—	—	—	—	(2)	(2)
Distributions from CVR Refining to public unitholders	—	—	—	—	—	—	(47)	(47)
Net income (loss)	—	—	—	235	—	235	(18)	217
Balance at December 31, 2017	86,929,660	1	1,197	(277)	(2)	919	785	1,704
Exchange offer impact	13,699,549	—	276	—	—	276	(192)	84
Dividends paid to CVR Energy stockholders	—	—	—	(238)	—	(238)	—	(238)
Distributions from CVR Refining to public unitholders	—	—	—	—	—	—	(93)	(93)
Net income	—	—	—	289	—	289	122	411
Balance at December 31, 2018	100,629,209	\$ 1	\$ 1,473	\$(226)	\$(2)	\$ 1,246	\$ 622	\$1,868

The accompanying notes are an integral part of these consolidated financial statements.

CVR Energy, Inc. and Subsidiaries
CONSOLIDATED STATEMENTS OF CASH FLOWS

(in millions)	Year Ended		
	December 31,		
	2018	2017	2016
Cash flows from operating activities:			
Net income	\$411	\$217	\$9
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	213	214	193
Deferred income taxes	59	(217)	(84)
Loss on asset disposals	6	3	1
Share-based compensation	16	19	9
Other items	3	7	6
Changes in assets and liabilities:			
Accounts receivable	56	(27)	(48)
Inventories	(9)	(40)	(9)
Prepaid expenses and other current assets	(29)	34	(3)
Due to (from) parent	2	(16)	22
Accounts payable	(23)	87	(10)
Deferred revenue	11	1	(20)
Other current liabilities	(104)	(113)	203
Other long-term assets and liabilities	8	(1)	(2)
Net cash provided by operating activities	620	168	267
Cash flows from investing activities:			
Capital expenditures	(102)	(120)	(133)
Acquisition of CVR Nitrogen, net of cash acquired	—	—	(64)
Investment in affiliates, net of return of investment	—	(76)	(5)
Other investing activities	2	—	1
Net cash used in investing activities	(100)	(196)	(201)
Cash flows from financing activities:			
Proceeds on issuance of 2023 Notes, net of original issue discount	—	—	629
Principal and premium payments on 2021 Notes	—	—	(322)
Payments of revolving debt	—	—	(49)
Principal payments on CRNF credit facility	—	—	(125)
Dividends to CVR Energy's stockholders	(238)	(174)	(174)
Distributions to CVR Refining's noncontrolling interest holders	(93)	(47)	—
Distributions to CVR Partners' noncontrolling interest holders	—	(2)	(42)
Other financing activities	(3)	(3)	(12)
Net cash used in financing activities	(334)	(226)	(95)
Net increase (decrease) in cash and cash equivalents	186	(254)	(29)
Cash and cash equivalents, beginning of period	482	736	765
Cash and cash equivalents, end of period	\$668	\$482	\$736

The accompanying notes are an integral part of these consolidated financial statements.

December 31, 2018 | 78

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(1) Organization and Nature of Business

Organization

CVR Energy, Inc. (“CVR Energy,” “CVR,” or the “Company”) is a diversified holding company primarily engaged in the petroleum refining and nitrogen fertilizer manufacturing industries through its holdings in CVR Refining, LP (“CVR Refining” or “CVRR”) and CVR Partners, LP (“CVR Partners”). CVR Refining is an independent petroleum refiner and marketer of high value transportation fuels. CVR Partners produces and markets nitrogen fertilizers in the form of urea ammonium nitrate (“UAN”) and ammonia. The Company’s operations include two business segments: the petroleum segment and the nitrogen fertilizer segment. CVR’s common stock is listed on the New York Stock Exchange (“NYSE”) under the symbol “CVI.”

In August 2018, CVR Energy completed an exchange offer whereby public unitholders tendered a total of 21,625,106 CVR Refining common units in exchange for a total of 13,699,549 shares of CVR Energy common stock (the “CVRR Unit Exchange”). In connection with the CVRR Unit Exchange, the Company incurred a total of \$0.7 million of issuance costs, which were capitalized to additional paid-in-capital. Further, due to the change in our ownership of CVR Refining, we recognized an increase of \$276 million to additional paid-in-capital and \$84 million in deferred tax assets. Following the CVRR Unit Exchange, Icahn Enterprises L.P. (“IEP”) and its affiliates owned approximately 71% of the Company’s outstanding common shares.

CVR Refining, LP

As of December 31, 2018, public security holders held approximately 16% of CVR Refining’s common units that were traded on the NYSE under “CVRR” (including units owned by IEP and its affiliates, representing 3.9% of CVR Refining’s outstanding common units). The Company and CVR Refining Holdings, LLC (“CVR Refining Holdings”), an indirect wholly-owned subsidiary of CVR, owned 100% of CVR Refining’s general partner interest and approximately 81% of CVR Refining’s outstanding limited partner interests. The consolidated results of operations and financial position of CVR Refining are reflected as CVR’s petroleum segment (the “Petroleum Segment”).

On January 17, 2019, the general partner of CVRR assigned to the Company its right to purchase all of the issued and outstanding CVRR common units not already owned by CVRR’s general partner or its affiliates. On January 29, 2019, the Company purchased all remaining CVRR common units not already owned by the Company or its affiliates for a cash purchase price of \$10.50 per unit (the “Call Price”), or approximately \$241 million in the aggregate (the “Public Unit Purchase”). In conjunction with the exercise of its call right for all CVRR common units not already owned by the Company or its affiliates, the Company entered into a purchase agreement with American Entertainment Properties Corporation (“AEP”) and IEP, pursuant to which, on January 29, 2019, all of the Common Units held by AEP and IEP were purchased by the Company for a cash price per unit equal to the Call Price, or approximately \$60 million in the aggregate (the “Affiliate Unit Purchase” together with the Public Unit Purchase, the “CVRR Unit Purchase”). The total purchase price of \$301 million was funded with approximately \$105 million in borrowings under a new credit agreement entered into by the Company on January 29, 2019 with the remaining amount being funded from the Company’s cash on hand. Refer to Note 5 (“Long-Term Debt”) for further information on the credit agreement.

Effective February 8, 2019, CVRR’s reporting obligations under the Exchange Act were suspended. Upon closing of the CVRR Unit Purchase, the Company executed a full and unconditional guarantee of CVRR’s senior notes due 2022 (the “2022 Senior Notes”). Pursuant to SEC regulations, the Company has elected to provide condensed consolidating

financial statements in lieu of providing standalone CVRR financial statements. Refer to Note 14, (“Guarantor Financial Information”) for further discussion and the condensed consolidating financial statements.

CVR Partners, LP

As of December 31, 2018, public security holders held approximately 66% of CVR Partners’ outstanding common units that are traded on the NYSE under “UAN.” Coffeyville Resources, LLC (“CRLLC”), a wholly-owned subsidiary of CVR Energy, held approximately 34% of CVR Partners’ outstanding common units. In addition, CRLLC owns 100% of CVR

December 31, 2018 | 79

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Partners' general partner, CVR GP, LLC, which holds a general partner interest. The consolidated results of operations and financial position of CVR Partners are reflected as our nitrogen fertilizer segment (the "Nitrogen Fertilizer Segment").

Subsequent Events

The Company evaluated subsequent events, if any, that would require an adjustment to the Company's consolidated financial statements or require disclosure in the notes to the consolidated financial statements through the date of issuance of the consolidated financial statements. Where applicable, the notes to these consolidated financial statements have been updated to discuss all significant subsequent events which have occurred.

(2) Summary of Significant Accounting Policies

Principles of Consolidation

The accompanying consolidated financial statements include the accounts of the Company and its majority-owned direct and indirect subsidiaries. All intercompany accounts and transactions have been eliminated. The ownership interests of noncontrolling investors in the Company's subsidiaries are recorded as noncontrolling interests. CVR Energy has not recognized any other comprehensive income for the periods ended December 31, 2018, 2017 and 2016.

CVR Refining and CVR Partners are considered variable interest entities ("VIE"). As the 100% owner of the general partner for both CVR Refining and CVR Partners, the Company has the sole ability to direct the activities that most significantly impact the economic performance of both partnerships and is considered to be the primary beneficiary. In January 2019, following the CVRR Unit Purchase, CVR Refining is no longer considered to be a VIE, and will be accounted for as a wholly-owned subsidiary.

Investments in entities over which the Company has significant influence, but not control, are accounted for using the equity method of accounting. Income from equity method investments represents CVR Energy's proportionate share of net income generated by the equity method investees and is recorded in other income, net on the Company's Consolidated Statements of Operations.

Use of Estimates

These consolidated financial statements are prepared in conformity with accounting principles generally accepted in the United States of America ("GAAP"), which requires management to make estimates and assumptions that affect the reported amounts and disclosure of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Estimates are reviewed on an ongoing basis, based on currently available information. Changes in facts and circumstances may result in revised estimates and actual results could differ from those estimates.

Cash and Cash Equivalents

Cash and cash equivalents include cash on hand and on deposit and investments in highly liquid money market accounts and debt instruments with original maturities of three months or less.

Accounts Receivable, net

Accounts receivable primarily consist of customer accounts receivable recorded at the invoiced amounts and generally do not bear interest. Also included within accounts receivable of the Nitrogen Fertilizer Segment are unbilled fixed price contracts recognized with the adoption of ASC 606 (defined below) as discussed further within the “Recent Accounting Pronouncements - Adoption of Revenue Recognition Standard” section to this note below.

Allowances for doubtful accounts are generally recorded when it becomes probable the receivable will not be collected and is booked to bad debt expense. The largest concentration of credit for any one customer at December 31, 2018 and 2017 was approximately 12% and 11%, respectively, of the net accounts receivable balance.

December 31, 2018 | 80

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Inventories

Inventories consist primarily of domestic and foreign crude oil, blending stock and components, work-in-progress, fertilizer products, and refined fuels and by-products. All inventories are valued at the lower of the first-in, first-out (“FIFO”) cost, or net realizable value. Refinery unfinished and finished products inventory values were determined using the ability-to-bear methodology. Other inventories, including other raw materials, spare parts, and supplies, are valued at the lower of moving-average cost, which approximates FIFO, or net realizable value. The cost of inventories includes inbound freight costs. At December 31, 2018 and 2017, inventories on the Consolidated Balance Sheets related to the Nitrogen Fertilizer segment included depreciation of approximately \$6 million and \$4 million, respectively.

Inventories consisted of the following:

	December 31,	
(in millions)	2018	2017
Finished goods	\$186	\$172
Raw materials	105	98
In-process inventories	12	22
Parts and supplies	77	77
Total Inventories	\$380	\$369

Certain reclassifications have been made on the Consolidated Balance Sheets to reclassify precious metals from inventory to the property, plant and equipment financial statement line item in the amount of \$15 million for the year ended December 31, 2018. The prior year balance of \$16 million has been reclassified to conform with the current year presentation.

Property, Plant and Equipment

Additions to property, plant and equipment, including capitalized interest and certain costs allocable to construction and property purchases, are recorded at cost. Expenditures for improvements that increase economic benefit or returns and/or extend useful life are capitalized. Depreciation is computed using the straight-line method over the estimated useful lives of the various classes of depreciable assets. The lives used in computing depreciation for significant asset classes are as follows:

Asset	Range of Useful Lives, in Years
Land improvements	15 to 30
Buildings	20 to 30
Machinery and equipment	5 to 30
Other	5 to 30

Property, plant and equipment consisted of the following:

	December 31,	
(in millions)	2018	2017
Land and improvements	\$43	\$47
Buildings	82	83
Machinery and equipment	3,754	3,734

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Other	203	155
	4,082	4,019
Less: Accumulated depreciation	1,637	1,431
Total Property, plant and equipment, net	\$2,445	\$2,588

December 31, 2018 | 81

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Leasehold improvements and assets held under capital leases are depreciated or amortized on the straight-line method over the shorter of the contractual lease term or the estimated useful life of the asset. Expenditures for routine maintenance and repair costs are expensed when incurred. Such expenses are reported in direct operating expenses in the Company's Consolidated Statements of Operations.

During the period, the Petroleum Segment began actively marketing certain assets with a carrying value of \$33 million at December 31, 2018. The carrying value of these assets held for sale were included in Other Long-term Assets on the Company's Condensed Consolidated Balance Sheets. No loss has been recognized upon designation of these assets as held for sale.

Deferred Financing Costs

Lender and other third-party costs associated with debt issuances are deferred and amortized to interest expense and other financing costs using the effective-interest method over the life of the debt. Deferred financing costs related to line-of-credit arrangements are amortized using the straight-line method through the termination date of the facility. The deferred financing costs are included net within long-term debt and in other long-term assets for the line-of-credit arrangements where no debt balance exists.

Impairment of Long-Lived Assets

Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to estimated undiscounted future net cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated undiscounted future net cash flows, an impairment charge is recognized for the amount by which the carrying amount of the assets exceeds their fair value. Assets to be disposed of by sale are reported at the lower of their carrying value or fair value less cost to sell.

Goodwill represents the excess of the cost of an acquired entity over the fair value of the assets acquired less liabilities assumed. Intangible assets are assets that lack physical substance (excluding financial assets). Goodwill acquired in a business combination and intangible assets with indefinite useful lives are not amortized, and intangible assets with finite useful lives are amortized. Goodwill and intangible assets not subject to amortization are tested for impairment annually or more frequently if events or changes in circumstances indicate the asset might be impaired. November 1 of each year is used as the annual valuation date for its goodwill impairment test.

The Company performed its annual impairment review of goodwill for 2018, 2017 and 2016 and concluded there were no impairments. For the period ended December 31, 2017, the fair value of the Coffeyville, Kansas nitrogen fertilizer business (the "Coffeyville Fertilizer Facility") reporting unit exceeded its carrying value by approximately 12% based upon the results of the Partnership's goodwill impairment test. For the period ended December 31, 2018, due to improved market conditions and financial forecasts, the amount by which fair value exceeds the carrying value for the Coffeyville Fertilizer Facility reporting unit is significant.

Loss Contingencies

In the ordinary course of business, the Company may become party to lawsuits, administrative proceedings and governmental investigations, including environmental, regulatory and other matters. The outcome of these matters cannot always be predicted accurately, but the Company accrues liabilities for these matters if the Company has determined that it is probable a loss has been incurred and the loss can be reasonably estimated.

December 31, 2018 | 82

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Environmental, Health & Safety (“EHS”) Matters

The Petroleum and Nitrogen Fertilizer Segments are subject to various federal, state and local EHS rules and regulations. Liabilities related to EHS matters are recognized when the related costs are probable and can be reasonably estimated. Estimates of these costs are based upon currently available facts, internal and third party assessments of contamination, available remediation technology, site-specific costs, and currently enacted laws and regulations. In reporting environmental liabilities, no offset is made for potential recoveries. Loss contingency accruals, including those for environmental remediation, are subject to revision as further information develops or circumstances change and such accruals can take into account the legal liability of other parties. Environmental expenditures are capitalized at the time of the expenditure when such costs provide future economic benefits.

Revenue Recognition

The Company recognizes revenue based on consideration specified in contracts or agreements with customers when performance obligations are satisfied by transferring control over products or services to a customer. The adoption of ASC 606, described below, did not materially change the Company’s revenue recognition patterns, which are described below by reportable segment:

Petroleum Segment - The vast majority of Petroleum Segment contracts contain pricing that is based on the market price for the product at the time of delivery. Obligations to deliver product volumes are typically satisfied and revenue is recognized when control of the product transfers to customers. Concurrent with the transfer of control, the right to payment for the delivered product is received, the customer accepts the product and the customer has significant risks and rewards of ownership of the product. Payment terms require customers to pay shortly after delivery and do not contain significant financing components. Any pass-through finished goods delivery costs reimbursed by customers are reported in net sales, while an offsetting expense is included in cost of materials and other. Non-monetary product exchanges and certain buy/sell transactions which are entered into in the normal course of business are included on a net cost basis in operating expenses on the Consolidated Statements of Operations.

Nitrogen Fertilizer Segment - Revenue is recognized when our customers receive control of the product. The adoption of ASC 606 resulted in the recognition of deferred revenue which represents customer prepayments under contracts that guarantee a price and supply of nitrogen fertilizer product in quantities expected to be delivered in the normal course of business.

Other considerations - For both segments, excise and other taxes collected from customers and remitted to governmental authorities are excluded from reported revenues.

Cost Classifications

Cost of materials and other (exclusive of depreciation and amortization) includes cost of crude oil, other feedstocks, blendstocks, purchased refined products, pet coke expenses, renewable identification numbers (“RINs”) expenses, derivative gain or losses and freight and distribution costs. Direct operating expenses (exclusive of depreciation and amortization) consist primarily of energy and other utility costs, direct costs of labor, including applicable share-based compensation expense, property taxes, plant-related maintenance services, including turnaround, and environmental and safety compliance costs as well as catalyst and chemical costs. Selling, general and administrative expenses consist primarily of labor and other direct expenses associated with the Company’s corporate activities, including accounting, finance, information technology, human resources, legal and other related administrative functions. For the Company’s Nitrogen Fertilizer Segment, each of these financial statement line items are also impacted by changes

in inventory balances.

Certain reclassifications have been made within the Consolidated Statements of Operations to include gain (loss) on derivatives within the Cost of Materials and Other financial statement line item. Prior year balances have been reclassified to conform with the current years presentation. The reclassifications from gain (loss) on derivatives to cost of materials and other totaled \$146 million, \$(70) million, and \$(20) million for the years ended December 31, 2018, 2017, and 2016, respectively.

December 31, 2018 | 83

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Derivatives and Fair Value of Financial Instruments

The Petroleum Segment uses futures contracts, options, and forward contracts primarily to reduce exposure to changes in crude oil and finished goods product prices to provide economic hedges of inventory positions. These derivative instruments do not qualify as hedges for hedge accounting purposes under ASC Topic 815, Derivatives and Hedging, and accordingly are recorded at fair value at the end of each reporting period based on quoted market prices. The Nitrogen Fertilizer Segment may enter into forward contracts with fixed delivery prices to purchase portions of its natural gas requirements. These natural gas contracts are not treated as derivative under normal purchase and normal sale exclusions. Accordingly, the fair value of these contracts are not recorded at the end of each reporting period. Refer to Note 7 (“Derivatives and Fair Value of Financial Instruments”) for further discussion of the Company’s derivative activity.

Other financial instruments consisting of cash and cash equivalents, accounts receivable, and accounts payable are carried at cost, which approximates fair value, as a result of the short-term nature of the instruments. Refer to Note 7 (“Derivatives and Fair Value of Financial Instruments”) for further fair value disclosures.

Turnaround Expenses

The direct-expense method of accounting is used for turnaround activities. Turnarounds represent major maintenance activities that require the shutdown of significant parts of a plant to perform necessary inspection, cleaning, repairs and replacements of assets. Costs incurred for routine repairs and maintenance or unplanned outages at our facilities are expensed as incurred. Planned turnaround activities for the Petroleum Segment vary in frequency dependent on refinery units, but generally occur every four to five years. The frequency of turnarounds in the Nitrogen Fertilizer segment is every two to three years.

Costs associated with these turnaround activities were included in Direct Operating Expenses (exclusive of depreciation and amortization) in the Consolidated Statements of Operations. During the years ended December 31, 2018, 2017 and 2016, the Petroleum Segment incurred turnaround expenses of \$4 million, \$80 million and \$31 million, respectively. For the same periods, the Nitrogen Fertilizer Segment incurred turnaround expenses of \$6 million, \$3 million and \$7 million, respectively.

Share-Based Compensation

The Company accounts for share-based compensation in accordance with ASC Topic 718, Compensation — Stock Compensation (“ASC 718”). Currently, all of the Company’s share-based compensation awards, including those issued by CVR Refining and CVR Partners, are liability-classified and are measured at fair value at the end of each reporting period based on the applicable closing unit price. Compensation expense will fluctuate based on changes in the applicable share or unit prices and expense reversals resulting from employee terminations prior to award vesting. Additionally, the Company has issued certain performance unit awards. The fair value of these performance unit awards is recognized as compensation expense only if the attainment of the performance conditions is considered probable. Uncertainties involved in this estimate include continued employment requirements and whether or not the performance conditions will be attained. The performance objectives are set in accordance with approved levels of the business plan for the fiscal year during the performance cycle and therefore are considered reasonably possible of being achieved. If this assumption proves not to be true and the awards do not vest, compensation expense recognized during the performance cycle will be reversed.

Income Taxes

Income taxes are accounted for utilizing the asset and liability approach. Under this method, deferred tax assets and liabilities are recognized for the anticipated future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax basis. 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. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date.

December 31, 2018 | 84

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Earnings Per Share

There were no dilutive awards outstanding during the years ended December 31, 2018, 2017, and 2016.

Recent Accounting Pronouncements - Adoption of New Accounting Standard

On January 1, 2018, the Company adopted Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (“ASC”) Topic 606, “Revenue from Contracts with Customers” (“ASC 606”) using the modified retrospective method applied to contracts which were not completed as of January 1, 2018. The standard was applied prospectively and the comparative information for 2017 has not been restated and continues to be reported under the accounting standards in effect for the prior period. The Company did not identify any material differences in its existing revenue recognition methods that require modification under the new standard and, as such, a cumulative effect adjustment of applying the standard using the modified retrospective method was not recorded.

The adoption of ASC 606 resulted in changes to how the Nitrogen Fertilizer Segment accounts for prepaid contracts. Prior to the adoption of ASC 606, deferred revenue was recorded upon customer prepayment, however, under the new revenue standard, deferred revenue and an associated receivable is recorded at the point in time in which a prepaid contract is legally enforceable and the associated right to consideration is unconditional. Due to this change, the adoption of ASC 606 resulted in a \$21 million increase to deferred revenue and accounts receivable as of January 1, 2018. After the effect of adoption of the new revenue standard, deferred revenue and accounts receivable of CVR Partners were \$34 million and \$31 million, respectively, as of January 1, 2018.

In addition to the change noted above, the adoption of ASC 606 also resulted in a change in accounting for fees collected from certain customers by the Petroleum Segment that were previously recorded as a reduction to cost of materials and other. The particular fee, the Oil Spill Liability Tax, relates to taxes imposed on refineries as part of the crude oil procurement process, is charged to certain of CVR Refining’s customers on product sales and is required under the new standard to be included in the transaction price. The impact of the change in presentation was an increase of \$2 million to net sales and cost of materials and other for the period ended December 31, 2018.

The following table displays the effect of the changes to the Consolidated Balance Sheet as of December 31, 2018 for the adoption of ASC 606. The Company’s Consolidated Statement of Cash Flows was not impacted due to the adoption of ASC 606 for the period ended December 31, 2018.

(in millions)	December 31, 2018		
	Balances		
	As Reported	without adoption of ASC 606	Effect of change
Assets			
Accounts Receivable	\$ 169	\$ 124	\$ 45
Liabilities			
Deferred Revenue (1)	\$ 69	\$ 24	\$ 45

(1)Deferred Revenues are recorded within the Other Current Liabilities financial statement line item.

Recent Accounting Pronouncements - New Accounting Standards Issued But Not Yet Implemented

In February 2016, the FASB issued ASU No. 2016-02, “Leases” (“ASU 2016-02”), creating a new topic, FASB ASC Topic 842, “Leases” (“Topic 842”), which supersedes lease requirements in FASB ASC Topic 840, “Leases”. The new standard revises accounting for operating leases by a lessee, among other changes, and requires a lessee to recognize a liability related to future lease payments and an asset representing its right to use of the underlying asset for the lease term on the balance sheet. Quantitative and qualitative disclosures, including disclosures regarding significant judgments made by management, will be required.

December 31, 2018 | 85

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Topic 842 was adopted by the FASB as of January 1, 2019 electing the option to apply the transition provisions at the adoption date instead of the earliest comparative period presented in the financial statements. In connection with the adoption of ASC 842, the following elections were made in the application of Topic 842:

- Under the short-term lease exception provided for in the standard, ROU assets and related lease liabilities for leases with a term greater than one year were and will be recognized;
- The accounting treatment for existing land easements was carried forward;
- Lease and non-lease components were and will not be bifurcated for all of the Company's asset groups; and
- The portfolio approach was and will be used in the selection of the discount rate used to calculate minimum lease payments and the related ROU asset and operating lease liability amounts.

Adoption of Topic 842 resulted in the recording of additional ROU assets and lease liabilities of approximately \$53 million, in addition to the recognition of a finance lease asset and obligation of approximately \$26 million, as of January 1, 2019. The standard will not materially affect the Company's consolidated net earnings or cash flows.

In August 2018, the FASB issued ASU 2018-15, Intangibles-Goodwill and Other-Internal-Use Software (Subtopic 350-40). This ASU addresses customer's accounting for implementation costs incurred in a cloud computing arrangement that is a service contract and also adds certain disclosure requirements related to implementation costs incurred for internal-use software and cloud computing arrangements. The amendment aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). This standard is effective for the Company beginning January 1, 2020, with early adoption permitted. The amendments in this standard can be applied either retrospectively or prospectively to all implementation costs incurred after the date of adoption. The Company is evaluating the effect of adopting this new accounting guidance on its consolidated financial statements, but does not expect adoption will have a material impact on the Company's consolidated financial position or results of operations.

In August 2018, the FASB issued ASU 2018-13, Fair Value Measurement (Topic 820). The ASU eliminates such disclosures as the amount of and reasons for transfers between Level 1 and Level 2 of the fair value hierarchy. Certain disclosures are required to be applied on a retrospective basis and others on a prospective basis. This standard is effective for the Company beginning January 1, 2020, with early adoption permitted. The Company is evaluating the effect of adopting this new accounting guidance, but does not expect adoption will have a material impact on the Company's disclosures.

(3) Acquisition

On April 1, 2016, CVR Partners acquired the East Dubuque Facility as part of the Agreement and Plan of Merger, dated as of August 9, 2015 (the "East Dubuque Merger"). The East Dubuque Merger was accounted for as an acquisition of a business with CVR Partners as the acquirer. The aggregate merger consideration was approximately \$802 million, including the fair value of CVR Partners common units issued of \$335 million, cash consideration of \$99 million and \$368 million fair value of assumed debt. From the date of acquisition, the East Dubuque Facility's operations contributed net sales of \$128 million and an operating loss of \$1 million to the Consolidated Statement of Operations for the year ended December 31, 2016.

(4) Equity Method Investments

For each of the following investments, CVR Refining has the ability to exercise influence through its participation in the management committees, which make all significant decisions. However, since CVR Refining has equal or proportionate influence over each committee as a joint partner without regard to its economic interest and does not

serve as the day-to-day operator, we have determined that these entities should not be consolidated and apply the equity method of accounting.

Enable South Central Pipeline, LLC (“Enable JV”, formerly Velocity Pipeline Partners, LLC) - CVR Refining owns a 40% interest in Enable JV, which operates a 12-inch 26-mile crude oil pipeline with a capacity of approximately 80,000 barrels per day that is connected to the Wynnewood Refinery. The remaining interest in Enable JV is owned by Enable Midstream Partners, LP.

Midway Pipeline, LLC (“Midway JV”) - CVR Refining owns a 50% interest in Midway JV, which operates a 16-inch 400 mile crude oil pipeline with a capacity of approximately 120,000 barrels per day which connects the Coffeyville Refinery to the Cushing Oklahoma oil hub.

December 31, 2018 | 86

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

(in millions)	Enable Midway		Total
	JV	JV	
Balance at December 31, 2016	6	—	6
Contributions	1	-76	77
Cash Distributions	(1)	—	(1)
Equity income	—	+1	1
Balance at December 31, 2017	6	77	83
Cash Distributions	(2)	(5)	(7)
Equity income	2	6	8
Balance at December 31, 2018	\$ 6	\$ 78	\$ 84

(5) Long-Term Debt

(in millions)	December 31, 2018	December 31, 2017
CVR Partners:		
9.25% Senior Secured Notes due June 2023 (a)	\$ 645	\$ 645
6.50% Senior Notes due April 2021	2	2
Unamortized discount and debt issuance costs	(18)	(22)
Total CVR Partners Debt	\$ 629	\$ 625
CVR Refining:		
6.50% Senior Notes due November 2022 (b)	\$ 500	\$ 500
Capital lease obligations	44	45
Unamortized debt issuance cost	(3)	(4)
Current portion of capital lease obligations	(3)	(2)
Total CVR Refining Debt	\$ 538	\$ 539
Total Long-Term Debt	\$ 1,167	\$ 1,164

(a) This debt was issued at a \$16 million discount which is being amortized, as interest expense, over the remaining term of the debt. Debt issuance costs associated with this debt totaled \$9 million.

Debt issuance costs associated with this debt totaled \$9 million. On January 29, 2019, the 2022 Senior Notes were amended such that CVR Refining was replaced by CVR Energy Inc. as the primary guarantor, on a senior (b) unsecured basis, of the 2022 Senior Notes. The CVR Energy Inc. guarantee is full and unconditional and joint and several. See Note 15 ("Guarantor") for further discussion and implications of this change to guarantor.

Credit Facilities

(in millions)	Total Capacity	Amount Borrowed as of December 31, 2018	Outstanding Letters of Credit	Available	Maturity Date
				Capacity as of December 31, 2018	
Amended and Restated Asset Based (ABL) Credit Facility (c)	\$400	\$	—\$ 6	\$ 394	November 14, 2022

Asset Based (ABL) Credit Facility (d)	50	—	—	50	September 30, 2021
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- (c) Loans under the Amended and Restated ABL Credit Facility initially bear interest at an annual rate equal to (i) 1.50% plus LIBOR or (ii) 0.50% plus a base rate, subject to quarterly excess availability.
- (d) Loans under the ABL Credit Facility initially bear interest at an annual rate equal to (i) 2.00% plus LIBOR or (ii) 1.00% plus a base rate, subject to a 0.50% step-down based on the previous quarter's excess availability.

December 31, 2018 | 87

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Included in other current liabilities on the Consolidated Balance Sheets is accrued interest payable totaling approximately \$8 million for both December 31, 2018 and 2017, \$5 million relates to the 2022 Notes and \$3 million relates to the 2023 Notes.

The Company is in compliance with all covenants of the ABL credit facilities and the senior notes as of December 31, 2018.

Amended and Restated Asset Based (ABL) Credit Facility

On November 14, 2017, CRLLC, CVR Refining, its wholly-owned subsidiary, CVR Refining, LLC (“Refining LLC”) and each of the operating subsidiaries of Refining LLC (collectively, the “Credit Parties”) entered into Amendment No. 1 to the Amended and Restated ABL Credit Agreement (the “Amendment”) with a group of lenders and Wells Fargo Bank, National Association (“Wells Fargo”), as administrative agent and collateral agent. The Amended and Restated ABL Credit Facility is a \$400 million asset-based revolving credit facility, with sub-limits for letters of credit and swingline loans of \$60 million and \$40 million, respectively. The Amended and Restated ABL Credit Facility also includes a \$200 million uncommitted incremental facility.

Asset Based (ABL) Credit Facility

On September 30, 2016, CVR Partners entered into a senior secured asset based revolving credit facility (the “ABL Credit Facility”) with a group of lenders and UBS AG (“UBS”), as administrative agent and collateral agent. The ABL Credit Facility has an aggregate principal amount of availability of up to \$50 million with an incremental facility, which permits an increase in borrowings of up to \$25 million in the aggregate subject to additional lender commitments and certain other conditions. The ABL Credit Facility is scheduled to mature on September 30, 2021.

Credit Agreement

On January 29, 2019, the Company entered into a credit agreement (the “Credit Agreement”) with Jefferies Finance LLC to provide a term loan credit facility with a maturity date of March 10, 2019. The borrowings under the Credit Agreement of \$105 million were used to fund a portion of the CVRR Unit Purchase. All amounts were repaid on February 11, 2019.

Capital Lease Obligations

CVR Refining maintains three significant leases, accounted for as a capital lease, which include a pipeline lease, a storage and terminal equipment lease and a bundled truck lease. These leases range in expiry from 44 months to 130 months. As of December 31, 2018, the outstanding obligation associated with these arrangements totaled approximately \$44 million.

Future payments required under these capital lease at December 31, 2018 are as follows:

Year Ending December 31,	Capital Lease
(in millions)	
2019 - 2023 (annually \$7 million)	\$ 35
Thereafter	37
Total future payments	72
Less: amount representing interest	28

Present value of future minimum payments	44
Less: current portion	3
Long-term portion	\$ 41

December 31, 2018 | 88

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

(6) Revenue

On January 1, 2018, the Company adopted Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (“ASC”) Topic 606, “Revenue from Contracts with Customers” (“ASC 606”) using the modified retrospective method applied to contracts which were not completed as of January 1, 2018. The standard was applied prospectively and the comparative information for 2017 has not been restated and continues to be reported under the accounting standards in effect for the prior period. The Company did not identify any material differences in its existing revenue recognition methods that required modification under the new standard and, as such, a cumulative effect adjustment of applying the standard using the modified retrospective method was not recorded.

The following tables present the Company’s revenue disaggregated by major product. The following tables include a reconciliation of the disaggregated revenue by product and other revenue components for the Company’s reportable segments.

(in millions)	Year Ended December 31, 2018			Consolidated
	Petroleum	Nitrogen Fertilizer	Other / Eliminations	
Gasoline	\$3,383	\$ —	\$ —	\$ 3,383
Distillates (a)	3,067	—	—	3,067
Ammonia	—	66	—	66
UAN	—	222	—	222
Other urea products	—	21	—	21
Freight revenue	23	34	—	57
Other (b)	206	8	(7)	207
Revenue from product sales	6,679	351	(7)	7,023
Crude oil sales	96	—	—	96
Other revenue (b)	5	—	—	5
Total revenue	\$6,780	\$ 351	\$ (7)	\$ 7,124

(a) Distillates consist primarily of diesel fuel, kerosene and jet fuel.

(b) Other revenue consists primarily of feedstock and asphalt sales and Cushing, OK storage tank lease revenue. See Note 2 (“Summary of Significant Accounting Policies”) for further discussion.

Petroleum Segment

The Petroleum Segment’s revenue from product sales is recorded upon delivery of the products to customers, which is the point at which title is transferred and the customer has assumed the risk of loss. This generally takes place as product passes into the pipeline, as a product transfer order occurs within a pipeline system, or as product enters equipment or locations supplied or designated by the customer. The sales tax practical expedient is being applied, whereby qualifying excise and other taxes collected from customers and remitted to governmental authorities are not included in reported Petroleum Segment revenues.

Many of the Petroleum Segment’s contracts have index-based pricing which is considered variable consideration that should be estimated in determining the transaction price. The Petroleum Segment does not estimate the variable consideration because the uncertainty related to the consideration is resolved on the pricing date or the date when the product is delivered.

The Petroleum Segment may incur broker commissions or transportation costs prior to product transfer on some of its sales. The Petroleum Segment has elected to apply the practical expedient allowing it to expense the broker costs since the contract durations are less than a year in length. Transportation costs are accounted for as fulfillment costs and are expensed as incurred since they do not meet the requirement for capitalization.

December 31, 2018 | 89

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

The Petroleum Segment's contracts with its customers state the terms of the sale, including the description, quantity, and price of each product sold. Depending on the product sold, payment from customers is generally due in full within 2 to 30 days of product delivery or invoice date. The Petroleum Segment's contracts with customers commonly include a provision which states that the petroleum segment will accept customer returns of off-spec product, refund the customer (or provide on-spec product), and pay for damages to any customer equipment which resulted from the off-spec product. Typically, if the customer is not satisfied with the product, the price is adjusted downward instead of the product being returned or exchanged. Product returns or refunds are rare and will be accounted for as they occur. The Petroleum Segment generally provides no warranty other than the implicit promise that goods delivered are free of liens and encumbrances and meet the agreed upon specification.

Freight revenue recognized by the petroleum segment is primarily tariff and line loss charges that are re-billed to customers for expenses reflected in cost of materials and other for the transportation and distribution of products to the customer.

Nitrogen Fertilizer Segment

The Nitrogen Fertilizer Segment sells its products on a wholesale basis under a contract or by purchase order. Contracts with customers, including purchase orders, generally contain fixed pricing and have terms of less than one year. The Nitrogen Fertilizer Segment recognizes revenue at the point in time at which the customer obtains control of the product, which is generally upon delivery and acceptance by the customer. The customer acceptance point is stated in the contract and may be at one of the Nitrogen Fertilizer Segment's manufacturing facilities or off-site loading facilities or at the customer's designated facility. Freight revenue recognized by the Nitrogen Fertilizer Segment represents the pass-through finished goods delivery costs incurred prior to customer acceptance and is reimbursed by customers. An offsetting expense for freight is included in cost of materials and other. Qualifying taxes collected from customers and remitted to governmental authorities are not included in reported Nitrogen Fertilizer Segment revenues.

Depending on the product sold and the type of contract, payments from customers are generally either due prior to delivery or within 15 to 30 days of product delivery.

The Nitrogen Fertilizer Segment generally provides no warranty other than the implicit promise that goods delivered are free of liens and encumbrances and meet the agreed upon specifications. Product returns are rare, and as such, no specific warranty reserve is recorded and activities related to such warranty, if any, are not considered to be a separate performance obligation.

The Nitrogen Fertilizer Segment has an immaterial amount of variable consideration for contracts with an original duration of less than a year. An insignificant portion of the Nitrogen Fertilizer Segment's revenue includes contracts extending beyond one year, some of which contain variable pricing in which the majority of the variability is attributed to the market-based pricing. The Nitrogen Fertilizer Segment's contracts do not contain a significant financing component.

The Nitrogen Fertilizer Segment has an immaterial amount of fee-based revenue, included in other revenue in the table above, that is recognized based on the net amount of the proceeds received, consistent with prior accounting practice.

Remaining performance obligations

As of December 31, 2018, the Nitrogen Fertilizer Segment had approximately \$11 million of remaining performance obligations for contracts with an original expected duration of more than one year. Approximately 45% of these performance obligations are expected to be recognized as revenue by the end of 2019 with an additional 27% by 2020 and the remaining balance thereafter.

Contract balances

Deferred revenue is a contract liability associated with the Nitrogen Fertilizer Segment that primarily relates to fertilizer sales contracts requiring customer prepayment prior to product delivery to guarantee a price and supply of nitrogen fertilizer. Deferred revenue is recorded at the point in time in which a prepaid contract is legally enforceable and the associated right to consideration is unconditional prior to transferring product to the customer. An associated receivable is recorded for uncollected prepaid contract amounts. Contracts requiring prepayment are generally short-term in nature and, as discussed above, revenue is recognized at the point in time in which the customer obtains control of the product.

December 31, 2018 | 90

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

A summary of the Nitrogen Fertilizer Segment's deferred revenue activity during the year ended December 31, 2018 is presented below:

(in millions)	Year Ended December 31, 2018
Balance at January 1, 2018	\$ 34
Add:	
New prepay contracts entered into during the period, net of adjustments	92
Less:	
Revenue recognized that was included in the contract liability balance at the beginning of the period	34
Revenue recognized related to contracts entered into during the period	23
Balance at December 31, 2018	\$ 69

Major Customers

Petroleum Segment - The Petroleum Segment has one customer who comprised 15%, 19%, and 15% of net sales for the years ended December 31, 2018, 2017, and 2016, respectively.

Nitrogen Fertilizer Segment - The Nitrogen Fertilizer Segment has two customers who comprised 20%, 16%, and 20% of net sales for the years ended December 31, 2018, 2017, and 2016, respectively. One of these customers comprised 14%, 11%, and 10% of net sales for the same periods, respectively.

(7) Derivative Financial Instruments

Our segments are subject to price fluctuations caused by supply conditions, weather, economic conditions, interest rate fluctuations and other factors. To manage price risk on crude oil and other inventories and to fix margins on certain future production, the Petroleum Segment from time to time enters into various commodity derivative transactions. The Petroleum Segment holds derivative instruments, such as exchange-traded crude oil futures and certain over-the-counter forward swap agreements, which it believes provide an economic hedge on future transactions, but such instruments are not designated as hedges under GAAP. There are no premiums paid or received at inception of the derivative contracts and upon settlement. The Petroleum Segment may enter into forward purchase or sale contracts associated with RINs. As of December 31, 2018, the Petroleum Segment had open commitments to purchase 27 million 2019 year RINs at \$4 million and 8 million 2018 year RINs for \$3 million.

Commodity derivatives include commodity swaps and forward purchase and sale commitments. There were no outstanding commodity swap positions as of December 31, 2018.

The following outlines the gains (losses) recognized on the Company's derivative activities, all of which are recorded in Cost of Materials and Other on the Consolidated Statements of Operations:

Gain (Loss) on Derivatives by Type

(in millions)	Year Ended December 31,		
	2018	2017	2016
Forward purchases	\$103	\$(26)	\$—
Swaps	44	(43)	(19)
Futures	(1)	(1)	—

Total gain (loss) on derivatives, net \$146 \$(70) \$(19)

December 31, 2018 | 91

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

The following outlines the open positions (in millions of barrels) held by the Petroleum Segment as of December 31, 2018 and 2017:

Open Commodity Derivative Instruments

	Year Ended	
	December	
	31,	
	2018	2017
Commodity Swap Instruments:		
2-1-1 Crack spreads	—	7
Distillate Crack spreads	—	4
Gasoline Crack spreads	—	4
Purchase and Sale Commitments - Futures Contracts:		
Canadian crude oil	2	6

Offsetting Assets and Liabilities

The Company elected to offset the fair value amounts recognized for multiple derivative contracts executed with the same counterparty. These amounts are recognized as current assets and current liabilities within the prepaid expenses and other current assets and accrued expenses and other current liabilities financial statement line items, respectively, in the Consolidated Balance Sheets as follows:

	Derivative		Derivative	
	Assets		Liabilities	
	December		December	
	31,		31,	
(in millions)	2018	2017	2018	2017
Commodity Derivatives	\$ 8	\$ 7	\$ 1	\$ 71
Less: Counterparty Netting	(1)	(7)	(1)	(7)
Total Net Fair Value of Derivatives	\$ 7	\$ —	\$ —	\$ 64

In accordance with FASB ASC Topic 820 — Fair Value Measurements and Disclosures (“ASC 820”), the Company utilizes the market approach to measure fair value for its financial assets and liabilities. The market approach uses prices and other relevant information generated by market transactions involving identical or comparable assets, liabilities or a group of assets or liabilities, such as a business.

ASC 820 utilizes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels. The following is a brief description of those three levels:

- Level 1 — Quoted prices in active markets for identical assets or liabilities
- Level 2 — Other significant observable inputs (including quoted prices in active markets for similar assets or liabilities)
- Level 3 — Significant unobservable inputs (including the Company’s own assumptions in determining the fair value)

December 31, 2018 | 92

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

The following table sets forth the assets and liabilities measured or disclosed at fair value on a recurring basis, by input level, as of December 31, 2018 and 2017:

(in millions)	December 31, 2018			
	Level 1	Level 2	Level 3	Total
Location and Description				
Cash equivalents	\$50	\$—	\$	—\$50
Other current assets (commodity derivatives)	—	7	—	7
Total Assets	\$50	\$7	\$	—\$57
Other current liabilities (Renewable Fuel Standard “RFS” obligation)	—	(2)	—	(2)
Long-term debt	—	(1,163)	—	(1,163)
Total Liabilities	\$—	\$(1,165)	\$	—\$(1,165)

(In millions)	December 31, 2017			
	Level 1	Level 2	Level 3	Total
Location and Description				
Cash equivalents	\$15	\$—	\$	—\$15
Total Assets	\$15	\$—	\$	—\$15
Other current liabilities (commodity derivatives)	\$—	\$(64)	\$	—\$(64)
Other current liabilities (RFS obligation)	—	(1)	—	(1)
Long-term debt	—	(1,209)	—	(1,209)
Total Liabilities	\$—	\$(1,274)	\$	—\$(1,274)

As of December 31, 2018 and 2017, the only financial assets and liabilities that are measured at fair value on a recurring basis are the Company’s cash equivalents, derivative instruments, and the RFS obligation. The Petroleum Segment’s commodity derivative contracts and RFS obligation, which use fair value measurements and are valued using broker quoted market prices of similar instruments, are considered Level 2 inputs. The Company had no transfers of assets or liabilities between any of the above levels during the year ended December 31, 2018.

(8) Share-Based Compensation

Overview

CVR Energy, CVR Refining and CVR Partners all have a Long-Term Incentive Plans (collectively, the “LTIPs”) which permit the granting of options, stock and unit appreciation rights (“SARs”), restricted shares, restricted stock units, phantom units, unit awards, substitute awards, other unit-based awards, cash awards, dividend and distribution equivalent rights, share awards and performance awards (including performance share units, performance units and performance-based restricted stock). Individuals who are eligible to receive awards and grants under the LTIP include the Company’s and employees, officers, consultants, advisors and directors of CVR Refining and CVR Partners.

December 31, 2018 | 93

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Incentive and Phantom Unit Awards

Incentive and phantom unit awards have been granted to officers, employees, consultants and directors (collectively, the “Share-Based Awards”) under the LTIPs. As a result, Share-Based Awards that reflect the value and dividend or distributions of CVR Energy, CVR Refining or CVR Partners have been granted and remain outstanding as of December 31, 2018. Each Share-Based Award and the related dividend or distribution equivalent right represents the right to receive, upon vesting, a cash payment equal to (i) the average fair market value of one share or unit, as applicable, in accordance with the award agreement, plus (ii) the per share or unit cash value of all dividends or distributions declared and paid, as applicable, from the grant date to and including the vesting date. The Share-Based Awards are generally graded-vesting awards, which are expected to vest over three years with one-third of the award vesting each year the grantee remains employed by the Company or its subsidiaries. Compensation expense is recognized on a ratably based on service provided to the Company and its subsidiaries with the amount recognized fluctuating as a result of the Share-Based Awards being re-measured to fair value at the end of each reporting period due to their liability-award classification.

Phantom and Incentive Unit Awards - A summary of activity for the Company’s Share-Based Awards for the years ended December 31, 2018, 2017 and 2016 is presented below:

	Shares or Units	Weighted- Average Grant-Date Fair Value (Per Share or Unit)	Aggregate Intrinsic Value (In Millions)
Non-vested at December 31, 2016	2,664,438	\$ 10.76	\$ 24
Granted	1,713,192	8.52	
Vested	(1,062,382)	11.62	
Forfeited	(361,301)	12.29	
Non-vested at December 31, 2017	2,953,947	\$ 8.97	\$ 33
Granted	1,236,322	16.11	
Vested	(1,140,423)	9.74	
Forfeited	(617,773)	9.39	
Non-vested December 31, 2018	2,432,073	\$ 12.13	\$ 24

Performance Unit Awards

Pursuant to an employment agreement with the Company’s current chief executive officer, the Company entered into two performance award agreements on November 1, 2017. In connection with the performance period of January 1, 2018 to December 31, 2018, a performance award was granted with a target value of \$1.5 million that is payable in February 2019 (the “2018 CEO Performance Award”). The payout under the 2018 CEO Performance Award is based on the Company’s performance against certain safety, operating and financial measures. Additionally, the Company entered into a performance award agreement (the “CEO Performance Award”). The CEO Performance Award represents the right to receive upon vesting, a cash payment equal to \$10 million if the average closing price of the Company’s common stock over the 30-trading day period from January 4, 2022 to February 15, 2022 is equal to or greater than \$60 per share. An accrual of approximately \$2 million has been recognized at December 31, 2018 associated with the 2018 CEO Performance Award.

In December 2016, the Company entered into a performance unit award agreement with the Company's former chief executive officer related to the performance period from January 1, 2017 to December 31, 2017 (the "Former CEO Performance Award"). As of and for the year ended December 31, 2018, there was no outstanding liability or expense recognized related to the Former CEO Performance Award.

December 31, 2018 | 94

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Compensation Expense

A summary of total share based compensation expense and unrecognized compensation expense related to the Share-Based Awards and Company's performance awards, the amounts allocated to each of the Company's segments, and the amounts that were not allocated to segments during the years ended December 31, 2018, 2017 and 2016 is presented below:

(in millions)	Expenses For the year ended December 31,			Unrecognized Expense At December 31, 2018	
	2018	2017	2016	Amount	Weighted Average Remaining Years
Share based awards					
Incentive Units	\$ 4	\$ 7	\$ 2	\$ 15	1.7
Phantom Units	8	8	3	4	1.6
Performance awards					
CEO Performance Award	2	—	—	8	3.0
2018 CEO Performance Award	2	—	—	—	0.0
Former CEO Performance Award	—	4	4	—	0.0
Total expense	\$ 16	\$ 19	\$ 9	\$ 27	

Other Benefit Plans

CVR sponsors and administers two defined-contribution 401(k) plans, the CVR Energy 401(k) Plan and the CVR Energy 401(k) Plan for Represented Employees (the "Plans"), in which CVR employees may participate. CVR's contributions under the Plans were approximately \$9 million, \$9 million and \$8 million for the years ended December 31, 2018, 2017 and 2016, respectively.

(9) Income Taxes

Tax Allocation Agreement

Prior to the CVRR Unit Exchange, CVR Energy was a member of the consolidated federal tax group of AEP, an affiliate of IEP, and party to a tax allocation agreement with AEP (the "Tax Allocation Agreement"). The Tax Allocation Agreement provides that AEP will pay all consolidated federal income taxes on behalf of the consolidated tax group. As a result, CVR Energy is required to make payments to AEP in an amount equal to the tax liability, if any, that it would have paid if it were to file as a consolidated group separate and apart from AEP.

Following the CVRR Unit Exchange, IEP and affiliates' ownership of CVR Energy was reduced below 80% and CVR Energy is no longer eligible to file as a member of the AEP consolidated federal income tax group. Beginning with the tax period after the exchange, CVR Energy became the parent of a new consolidated group for U.S. federal income tax purposes and will file and pay its federal income tax obligations directly to the IRS. Pursuant to the terms of the Tax Allocation Agreement, however, CVR Energy may be required to make payments in respect of taxes owed by AEP for periods prior to the exchange. Similar principles may apply for state or local income tax purposes where CVR Energy filed combined, consolidated for unitary tax returns with AEP.

As of December 31, 2018 and 2017, the Company's Consolidated Balance Sheets reflected a receivable of \$4 million and \$5 million, respectively, for federal income taxes due from AEP. These amounts are recorded as Other Current Assets in the Consolidated Balance Sheets. As of December 31, 2018, the Company's Consolidated Balance Sheets also reflected a receivable of \$12 million from the IRS and certain state jurisdictions.

December 31, 2018 | 95

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Income Tax Expense (Benefit)

Income tax expense (benefit) is comprised of the following:

(in millions)	Year Ended		
	December 31,		
	2018	2017	2016
Current:			
Federal	\$31	\$(1)	\$67
State	(7)	(22)	(7)
Total current	24	(23)	60
Deferred:			
Federal	47	(181)	(61)
State	18	(13)	(19)
Total deferred	65	(194)	(80)
Total income tax expense (benefit)	\$89	\$(217)	\$(20)

The following is a reconciliation of total income tax expense (benefit) to income tax expense (benefit) computed by applying the statutory federal income tax rate to pretax income (loss):

(in millions)	Year Ended		
	December 31,		
	2018	2017	2016
Tax computed at federal statutory rate	\$105	\$—	\$(4)
State income taxes, net of federal tax benefit	14	(16)	(8)
State tax incentives, net of federal tax expense	(4)	(7)	(9)
Noncontrolling interest	(26)	6	6
Other, net	—	—	(5)
Adjustment to deferred tax assets and liabilities for enacted change in federal tax rate (a)	—	(200)	—
Total income tax expense (benefit)	\$89	\$(217)	\$(20)

The income tax benefit for the year ended December 31, 2017 was favorably impacted as a result of the Tax Cuts and Jobs Act legislation that was signed into law in December 2017, reducing the federal income tax rate from 35% (a) to 21% beginning in 2018. As a result, the Company's net deferred tax liabilities at December 31, 2017 were remeasured to reflect the lower tax rate that will be in effect for the years in which the deferred tax assets and liabilities will be realized.

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Deferred Tax Assets and Liabilities

The income tax effect of temporary differences that give rise to significant portions of the deferred income tax assets and deferred income tax liabilities at December 31, 2018 and 2017 are as follows:

(in millions)	December 31,	
	2018	2017
Deferred income tax assets:		
State tax credit carryforward, net	\$11	\$11
Net operating loss carryforward	—	7
Total gross deferred income tax assets	11	18
Deferred income tax liabilities:		
Investment in CVR Partners	(59)	(55)
Investment in CVR Refining	(309)	(345)
Other	(5)	(4)
Total gross deferred income tax liabilities	(373)	(404)
Net deferred income tax liabilities	\$(362)	\$(386)

In assessing the realizability of deferred tax assets including net operating loss and credit carryforwards, management considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income, and tax planning strategies in making this assessment. Although realization is not assured, management believes that it is more likely than not that all of the deferred tax assets will be realized and thus, no valuation allowance was provided as of December 31, 2018 and 2017.

As of December 31, 2018, CVR Energy has state credits of approximately \$35 million, which are available to reduce future state income taxes. These credits, if not used, will begin expiring in 2033.

Uncertain Tax Positions

A reconciliation of unrecognized tax benefits is as follows:

(in millions)	Year Ended		
	December 31,		
	2018	2017	2016
Balance beginning of year	\$29	\$44	\$49
Reductions related to expirations of statute of limitations	(6)	(15)	(5)
Balance end of year	\$23	\$29	\$44

Included in the balance of unrecognized tax benefits as of December 31, 2018, 2017 and 2016 are \$18 million, \$23 million and \$29 million, respectively, of tax benefits that, if recognized, would affect the effective tax rate.

Approximately \$6 million, \$15 million and \$5 million of the unrecognized tax positions relating to state tax credits were recognized in 2018, 2017 and 2016, respectively, as a result of a lapse of statute of limitations. Additionally, the Company believes that it is reasonably possible that approximately \$3 million of its unrecognized tax positions relating to state tax credits may be recognized by the end of 2019 as a result of a lapse of the statute of limitations.

Approximately \$22 million and \$26 million of unrecognized tax benefits were netted with deferred tax asset carryforwards as of December 31, 2018 and 2017, respectively. The remaining unrecognized tax benefits are included in Other Long-term Liabilities in the Consolidated Balance Sheets.

December 31, 2018 | 97

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

CVR Energy recognizes interest expense (income) and penalties on uncertain tax positions and income tax deficiencies (refunds) in income tax expense. CVR Energy recognized interest benefit of approximately \$1 million during 2018 and has recognized a nominal liability for interest as of December 31, 2018. In 2017, CVR Energy recognized interest expense of approximately \$7 million and had recognized a liability for interest of approximately \$1 million as of December 31, 2017. In 2016, CVR Energy recognized interest expense of approximately \$1 million and had recognized a liability for interest of approximately \$8 million as of December 31, 2016. No penalties were recognized during 2018 or 2017.

At December 31, 2018, the Company's tax filings are generally open to examination in the United States for the tax years ended December 31, 2015 through December 31, 2017 and in various individual states for the tax years ended December 31, 2013 through December 31, 2017.

(10) Commitments and Contingencies

Leases

The minimum required payments for CVR's operating lease agreements and unconditional purchase obligations are as follows:

Year Ending December 31,	Operating Leases	Unconditional Purchase Obligations
(in millions)		
2019	\$24	\$ 129
2020	20	89
2021	18	78
2022	16	76
2023	12	75
Thereafter	26	444
	\$116	\$ 891

Leases - The Company leases equipment, including railcars and real properties, under long-term operating leases. For the years ended December 31, 2018, 2017 and 2016, rent expense totaled approximately \$10 million, \$8 million and \$8 million, respectively.

Supply Commitments - The Company is a party to various supply agreements with both related and third parties which commit the Company to purchase minimum volumes of crude oil, hydrogen, oxygen, nitrogen, petroleum coke ("pet coke"), and natural gas to run its facilities' operations. For the years ended December 31, 2018, 2017 and 2016, amounts purchased under these supply agreements totaled approximately \$214 million, \$209 million, and \$151 million, respectively.

Crude Oil Supply Agreement

On August 31, 2012, an indirect, wholly-owned subsidiary of CVR Refining and Vitol Inc. ("Vitol") entered into an Amended and Restated Crude Oil Supply Agreement (as amended, the "Crude Oil Supply Agreement"). Under the Crude Oil Supply Agreement, Vitol supplies the Petroleum Segment with crude oil and intermediation logistics helping to reduce the amount of inventory held at a certain point and mitigate crude oil pricing risk. Volumes contracted under the Crude Oil Supply Agreement, as a percentage of the total crude oil purchases (in barrels), was approximately 42%, 55% and 61% for the years ended December 31, 2018, 2017 and 2016, respectively. The Crude Oil Supply Agreement automatically renews for successive one-year terms (each such term, a "Renewal Term") unless either party provides the other with notice of nonrenewal at least 180 days prior to expiration of any Renewal Term.

December 31, 2018 | 98

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Contingencies

CVRR Unit Purchase - As of February 20, 2019, the Company, CVR Refining and its general partner, CVR Refining Holdings, IEP and certain directors and affiliates have each been named in at least one of six lawsuits filed in the Court of Chancery of the State of Delaware by purported former unitholders of CVR Refining, on behalf of themselves and an alleged class of similarly situated unitholders (the “Call Option Lawsuits”). The Call Option Lawsuits primarily allege breach of contract, tortious interference and breach of the implied covenant of good faith and fair dealing and seek monetary damages and attorneys’ fees, among other remedies, relating to the Company’s exercise of the call option under the CVR Refining Amended and Restated Agreement of Limited Partnership assigned to it by CVR Refining’s general partner. The Call Option Lawsuits are in the earliest stages of litigation. The Company believes the Call Option Lawsuits are without merit and intends to vigorously defend against them.

Business Interruption Recovery - In 2018, CVR Partners submitted a business interruption claim for losses under its insurance policies, related to damage and resulting reduced equipment production rates experienced during the second half of 2017 and early 2018. In December 2018, in connection with a signed Claim Settlement and Release Agreement with the underwriters of the insurance policy, CVR Partners recognized a recovery of approximately \$6 million. Approximately \$5 million was received prior to year end and recorded as Other Income within the Consolidated Statement of Operations. The remaining amount of approximately \$1 million was recorded as Accounts Receivable as of December 31, 2018 and was subsequently collected in January 2019.

Property Tax Matter - In 2008, CRNF protested the reclassification and reassessment by Montgomery County, Kansas (the “County”) of CRNF’s nitrogen fertilizer plant following expiration of its ten-year property tax abatement that expired on December 31, 2007, which reclassification and reassessment resulted in an increase in CRNF’s annual property tax expense in excess of \$10 million per year for the 2008 through 2012 tax years. Despite its protest, CRNF fully accrued and paid these property taxes. In February 2013, the County and CRNF agreed to a settlement for tax years 2009 through 2012 which resulted in decreased property taxes through 2017, leaving 2008 in dispute. In 2013, the Kansas Court of Appeals overturned an adverse ruling of the Kansas Board of Tax Appeals (“BOTA”) and instructed BOTA to classify each CRNF asset on an asset-by-asset basis. In March 2015, BOTA concluded its classification and determined a substantial majority of CRNF’s assets in dispute were personal property for the 2008 tax year. In September 2018, the Kansas Court of Appeals upheld BOTA’s property tax determinations in CRNF’s favor. In October 2018, the County petitioned the Kansas Supreme Court to review the Court of Appeals determination. Subsequent briefs were filed by CRNF and the County. The Kansas Supreme Court has not yet ruled on whether it will hear the County’s appeal.

Environmental, Health, and Safety (“EHS”) Matters

Clean Air Act Matter - On August 21, 2018, CRRM received a letter from the United States Department of Justice (“DOJ”) on behalf of the EPA and Kansas Department of Health and Environment (“KDHE”) alleging violations of the Clean Air Act (“CAA”) and a 2012 Consent Decree between CRRM, the United States (on behalf of EPA) and KDHE at CRRM’s Coffeyville refinery. In September 2018, CRRM executed a tolling agreement with the DOJ and KDHE extending time for negotiation regarding the agencies’ allegations through March 31, 2019. At this time the Company cannot reasonably estimate the potential penalties, costs, fines or other expenditures that may result from this matter or any subsequent enforcement or litigation relating thereto and, therefore, the Company cannot determine if the ultimate outcome of this matter will have a material impact on the Company’s financial position, results of operations or cash flows.

Renewable Fuel Standards - The Company's Petroleum Segment is subject to the renewable fuel standards ("RFS") of the Environmental Protection Agency ("EPA") that require refiners to either blend "renewable fuels" in with their transportation fuels or purchase renewable fuel credits, known as renewable identification numbers ("RINs"), in lieu of blending. CVR Refining is not able to blend the substantial majority of its transportation fuels and has to purchase RINs on the open market, as well as obtain waiver credits for cellulosic biofuels from the EPA in order to comply with the RFS.

December 31, 2018 | 99

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

The Company recognized expense of approximately \$60 million, \$249 million and \$206 million for the years ended December 31, 2018, 2017 and 2016, respectively, for the Petroleum Segment's compliance with RFS. The expense recognized was included within Cost of Materials and Other in the Consolidated Statements of Operations. The Company's costs to comply with RFS include the purchased cost of RINs, the impact of recognizing CVR Refining's uncommitted biofuel blending obligation at fair value based on market prices at each reporting date and the valuation change of RINs purchases in excess of CVR Refining's RFS obligation as of the reporting date. During the year ended December 31, 2018, the Company's cost to comply with RFS was favorably impacted by a reduction in CVR Refining's RFS obligation and reduced market pricing. As of December 31, 2018 and 2017, CVR Refining's biofuel blending obligation was approximately \$4 million and \$28 million, respectively, which is recorded in Other Current Liabilities in the Consolidated Balance Sheets.

Environmental Remediation - As of December 31, 2018 and 2017, environmental accruals representing estimated costs for future remediation efforts at certain Petroleum Segment sites totaled approximately \$8 million and \$4 million, respectively. These amounts are reflected in Other Current Liabilities or Other Long-Term Liabilities depending when the Company expects to expend such amounts.

Wynnewood Refinery Incident - On September 28, 2012, the Petroleum Segment's Wynnewood refinery, owned and operated by Wynnewood Refining Company, LLC ("WRC"), an indirect wholly-owned subsidiary of CVR Refining, experienced an explosion in a boiler unit during startup after a short outage as part of the turnaround process. Two employees were fatally injured. Damage at the refinery was limited to the boiler. Additionally, there was no environmental impact. The refinery was in the final stages of shutdown for turnaround maintenance at the time of the incident. The Company completed an internal investigation of the incident and cooperated with the Occupational Safety and Health Administration ("OSHA") in its investigation. OSHA also conducted a general inspection of the facility during the boiler incident investigation. In March 2013, OSHA completed its investigation, communicated its citations, and placed WRC in its Severe Violators Enforcement Program ("SVEP"). The Company is vigorously contesting the citations and OSHA's placement of WRC in the SVEP. Any penalties associated with OSHA's citations are not expected to have a material adverse effect on the consolidated financial statements.

(11) Business Segments

The Company as two operating segments: Petroleum and Nitrogen Fertilizer. These operating segments are also the Company's reportable segments. As discussed in Note 1 ("Organization and Nature of Business"), the Petroleum Segment is comprised entirely of the consolidated operations of CVR Refining and its subsidiaries. The Nitrogen Fertilizer Segment is comprised entirely of the consolidated operations of CVR Partners and its subsidiaries. Other corporate activities, and related costs, are not included in these segments but costs related to such activities are allocated to each segment based on amounts attributable to each. All intercompany transactions are eliminated and are reflect as other below. All operations of the segments are located within the United States.

December 31, 2018 | 100

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

The following tables summarize operating results, capital expenditures, and total asset information by segment:

(in millions)	Year Ended December 31,		
	2018	2017	2016
Net sales			
Petroleum	\$6,780	\$5,664	\$4,431
Nitrogen Fertilizer	351	331	356
Other	(7)	(7)	(5)
Total net sales	\$7,124	\$5,988	\$4,782
Operating income (loss)			
Petroleum	\$599	\$134	\$58
Nitrogen Fertilizer	6	(10)	26
Other	(18)	(17)	(14)
Total operating income (loss)	\$587	\$107	\$70
Interest expense, net	(102)	(109)	(83)
Other income, net	15	2	2
Earnings before income taxes	500	—	(11)
Depreciation and amortization			
Petroleum	134	133	129
Nitrogen Fertilizer	72	74	58
Other	7	7	6
Total depreciation and amortization	213	214	193
Capital expenditures			
Petroleum	\$79	\$101	\$102
Nitrogen fertilizer	19	14	23
Other	4	5	8
Total	\$102	\$120	\$133

(in millions)	Year Ended December 31,		
	2018	2017	2016
Total assets			
Petroleum	\$2,360	\$2,270	\$2,332
Nitrogen Fertilizer	1,254	1,234	1,312
Other	293	303	406
Total	\$3,907	\$3,807	\$4,050

December 31, 2018 | 101

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

(12) Supplemental Cash Flow Information

Supplemental cash flow information related to income taxes, interest, and capital expenditures is as follows:

	Year Ended December 31, 2018 2017	
(in millions)		
Supplemental disclosures:		
Cash paid for income taxes, net of refunds	\$ 31	\$ 15
Cash paid for interest	103	106
Non-cash investing and financing activities:		
Construction in progress additions included in accounts payable	\$ 17	\$ 8
Change in accounts payable related to construction in progress additions	9	(5)
Landlord incentives for leasehold improvements	—	1

(13) Related Party Transactions

Activity associated with the Company's related party arrangements for the years ended December 31, 2018, 2017, and 2016 is summarized below:

	Year ended December 31, 2018 2017 2016		
(in millions)			
Expenses with related parties			
Cost of materials and other			

Joint Venture Transportation Agreement:

Enable JV	\$ 8	\$ 2	\$ —
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Payments made

Dividends (1)	179	\$ 142	142
Tax Allocation Agreement with AEP	12	15	45
Amounts due to/from related parties			
(in millions)		December 31, 2018	December 31, 2017
Accounts Receivable (Payable)			
Tax Allocation Agreement with AEP	\$ 4	\$	5

(1) See below for a summary of the dividends paid to IEP for the periods ended December 31, 2018, 2017, and 2016.

Joint Venture Agreement

CVR Refining is party to a transportation agreement as part of the Enable JV for an initial term of 20 years under which Enable provides transportation services for crude oil purchased within a defined geographic area. Additionally, CR Refining entered into a terminalling services agreement with Enable JV under which it receives access to Enable JV's terminal in Lowrance, Oklahoma to unload and pump crude oil into Enable JV's pipeline for an initial term of 20 years.

December 31, 2018 | 102

Table of Contents

CVR Energy, Inc. and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Dividends

IEP and its affiliates, through its ownership of the Company's common shares, is entitled to receive its share of dividends that are declared and paid by the Company based on the number of shares held at each record date. The following is a summary of the quarterly and special dividends paid to stockholders, including IEP and its affiliates during the years ended December 31, 2018 and 2017:

(in millions)	December 31, 2017	March 31, 2018	June 30, 2018	September 30, 2018	Total Dividends Paid in 2018
Amount paid to IEP	\$ 36	\$ 36	\$ 53	\$ 54	\$ 179
Amounts paid to public stockholders	7	8	22	22	59
Total amount paid	\$ 43	\$ 44	\$ 75	\$ 76	\$ 238
Per common share	\$ 0.50	\$ 0.50	\$ 0.75	\$ 0.75	\$ 2.50

(in millions)	December 31, 2016	March 31, 2017	June 30, 2017	September 30, 2017	Total Dividends Paid in 2017
Amount paid to IEP	\$ 35	\$ 36	\$ 35	\$ 36	\$ 142
Amounts paid to public stockholders	8	8	8	8	32
Total amount paid	\$ 43	\$ 44	\$ 43	\$ 44	\$ 174
Per common share	\$ 0.50	\$ 0.50	\$ 0.50		