



CVR Energy Reports Third Quarter 2019 Results and Announces Cash Dividend of 80 Cents

SUGAR LAND, Texas (Oct. 23, 2019) – CVR Energy, Inc. (NYSE: CVI) today announced net income of \$119 million, or \$1.18 per diluted share, on net sales of \$1,622 million for the third quarter of 2019, compared to net income of \$81 million, or 85 cents per diluted share, on net sales of \$1,935 million for the third quarter of 2018. Third quarter 2019 EBITDA was \$235 million, compared to third quarter 2018 EBITDA of \$235 million.

“CVR Energy reported solid results for the third quarter 2019, driven by safe and reliable operations, improved capture rates, higher throughput volumes and increased fertilizer sales volumes and pricing,” said Dave Lamp, CVR Energy’s Chief Executive Officer. “We’re pleased to report that our Board of Directors has approved a 7 percent increase in our dividend, raising it to 80 cents per quarter, or \$3.20 on an annualized basis. In addition, it authorized a four-year, \$300 million stock repurchase program, giving us another potential way to return excess cash to stockholders. We also have concluded the formal bank process that we announced in May 2019 for the potential sale of the Company, though we continue to evaluate various revenue diversification and value creation opportunities.

“CVR Partners had strong production for the 2019 third quarter and announced a 7 cents per unit cash distribution,” Lamp said. “In addition, the East Dubuque plant completed its planned turnaround in October and is now coming back up to full production.”

Petroleum

The petroleum segment reported third quarter 2019 operating income of \$173 million on net sales of \$1,535 million, compared to operating income of \$167 million on net sales of \$1,857 million in the third quarter of 2018.

Refining margin per total throughput barrel was \$16.34 in the third quarter of 2019, compared to \$15.70 during the same period in 2018. Crude oil pricing during the quarter led to an inventory valuation impact of \$1 million, or 3 cents per total throughput barrel, compared to \$3 million, or \$0.12 per total throughput barrel, in the third quarter of 2018. Impacting refining margin was a reduction to the 2018 renewable volume obligation, which led, in part, to a \$22 million decrease in RINs expense for the third quarter of 2019 relative to the same period in 2018. The petroleum segment also recognized a third quarter 2019 derivative gain of \$18 million, or 90 cents per total throughput barrel, compared to a gain of \$5 million, or

28 cents per total throughput barrel, for the third quarter of 2018. Included in the total derivative gain for the third quarter of 2019 was an unrealized gain of \$14 million, compared to an unrealized loss of \$4 million for the third quarter of 2018.

Third quarter 2019 combined total throughput was approximately 222,000 barrels per day (bpd), compared to approximately 221,000 bpd of combined total throughput for the third quarter of 2018.

Fertilizer

The nitrogen fertilizer segment reported an operating loss of \$8 million on net sales of \$89 million for the third quarter of 2019, compared to operating income of \$3 million on net sales of \$80 million for the third quarter of 2018.

For the third quarter of 2019, CVR Partners' consolidated average realized gate prices for urea ammonia nitrate (UAN) improved over the prior year, up 7 percent to \$182 per ton, while ammonia was up 13 percent over the prior year to \$337 per ton. Average realized gate prices for UAN and ammonia were \$170 per ton and \$297 per ton, respectively, for the third quarter of 2018.

CVR Partners' fertilizer facilities produced a combined 196,000 tons of ammonia during the third quarter 2019, of which 56,000 net tons were available for sale while the rest was upgraded to other fertilizer products, including 318,000 tons of UAN. During the third quarter 2018, the fertilizer facilities produced 212,000 tons of ammonia, of which 63,000 net tons were available for sale while the remainder was upgraded to other fertilizer products, including 338,000 tons of UAN.

Cash, Debt and Dividend

Consolidated cash and cash equivalents was \$692 million at Sep. 30, 2019. Consolidated total debt and finance lease obligations was \$1,195 million at Sep. 30, 2019, with no debt other than the Petroleum and Fertilizer segments' debt.

CVR Energy also announced a third quarter 2019 cash dividend of 80 cents per share, which represents a 7 percent increase from the prior quarter. The dividend, as declared by CVR Energy's Board of Directors, will be paid on Nov. 12, 2019, to stockholders of record as of the close of market on Nov. 4, 2019. The annualized dividend of \$3.20 per share represents an industry leading dividend yield of 7 percent based on the Oct. 22, 2019, closing stock price.

On Oct. 23, 2019, CVR Partners announced that the Board of Directors of its general partner declared a third quarter 2019 cash distribution of 7 cents per common unit, which will be paid on Nov. 12, 2019, to common unitholders of record as of the close of market on Nov. 4, 2019.

Also on Oct. 23, 2019, CVR Energy's Board of Directors approved a four-year, \$300 million stock repurchase program (the "Stock Repurchase Program"), and the Company announced its conclusion of the

formal bank process it announced in May 2019 relating to the evaluation of potential strategic alternatives, including a potential sale.

The Stock Repurchase Program would enable the Company to repurchase up to \$300 million of its common stock, giving the Company another potential mechanism for returning cash to stockholders. Stock repurchases may be made from time-to-time through open market transactions, block trades, privately negotiated transactions or otherwise, and are subject to market conditions, as well as corporate, regulatory and other considerations. The Stock Repurchase Program currently has a duration of four years; however, it does not obligate the Company to acquire any stock and may be terminated by the Board of Directors at any time.

Third Quarter 2019 Earnings Conference Call

CVR Energy previously announced that it will host its third quarter 2019 Earnings Conference Call on Thursday, Oct. 24, at 1 p.m. Eastern. The Earnings Conference Call may also include discussion of Company developments, forward-looking information and other material information about business and financial matters.

The third quarter 2019 Earnings Conference Call will be webcast live and can be accessed on the Investor Relations section of CVR Energy's website at www.CVREnergy.com. For investors or analysts who want to participate during the call, the dial-in number is (877) 407-8291. The webcast will be archived and available for 14 days at <https://edge.media-server.com/mmc/p/cxp42k6f>. A repeat of the call also can be accessed for 14 days by dialing (877) 660-6853, conference ID 13695154.

Forward-Looking Statements

This news release may contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Statements concerning current estimates, expectations and projections about future results, performance, prospects, opportunities, plans, actions and events and other statements, concerns, or matters that are not historical facts are "forward-looking statements," as that term is defined under the federal securities laws. These forward-looking statements include, but are not limited to, statements regarding future: dividends and distributions including the timing, payment and amount (if any) thereof; excess cash and return thereof to stockholders; restart and production at the East Dubuque plant; derivative gains or losses; ability to increase stockholder value; stock repurchases of \$300 million or at all; strategic alternatives; revenue diversification and value creation opportunities; refinery throughput, direct operating expenses, capital spending, depreciation and amortization and turnaround expense; continued safe and reliable operations; ammonia utilization rates including impact of turnarounds; inventory adjustments; and other matters. You can generally identify forward-looking statements by our use of forward-looking terminology such as "anticipate," "believe," "continue," "could," "estimate," "expect," "explore," "evaluate," "intend," "may," "might," "plan," "potential," "predict," "seek," "should," or "will," or the negative thereof or other variations thereon or comparable terminology. These forward-looking statements are only predictions and involve known and unknown risks and uncertainties, many of which are beyond

our control. Investors are cautioned that various factors may affect these forward-looking statements, including (among others) price volatility of crude oil, other feedstocks and refined products; the ability of CVR Partners to make cash distributions; potential operating hazards; costs of compliance with existing, or compliance with new, laws and regulations and potential liabilities arising therefrom; impacts of planting season on CVR Partners; general economic and business conditions; and other risks. For additional discussion of risk factors which may affect our results, please see the risk factors and other disclosures included in our most recent Annual Report on Form 10-K, any subsequently filed Quarterly Reports on Form 10-Q and our other SEC filings. These and other risks may cause our actual results, performance or achievements to differ materially from any future results, performance or achievements expressed or implied by these forward-looking statements. Given these risks and uncertainties, you are cautioned not to place undue reliance on such forward-looking statements. The forward-looking statements included in this news release are made only as of the date hereof. CVR Energy disclaims any intention or obligation to update publicly or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except to the extent required by law.

About CVR Energy, Inc.

Headquartered in Sugar Land, Texas, CVR Energy is a diversified holding company 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, LP. CVR Energy subsidiaries serve as the general partner and own 34 percent of the common units of CVR Partners.

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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.

Effective January 1, 2019, the Company revised its accounting policy method for the costs of planned major maintenance activities (turnarounds) specific to the Petroleum Segment from being expensed as incurred (the direct expensing method) to the deferral method. See Note 3 (“Recent Accounting Pronouncements and Accounting Changes”) in the notes to our condensed consolidated quarterly financial statements for a further discussion of the impacts of this change in accounting policy. As a result of this change in accounting policy, the non-GAAP measures of Adjusted EBITDA, Petroleum Adjusted EBITDA, Nitrogen Fertilizer Adjusted EBITDA, Adjusted Net Income (Loss) and Direct Operating Expenses per Total Throughput Barrel net of Turnaround Expense are no longer being presented.

The following are non-GAAP measures that continue to be presented for the period ended September 30, 2019:

EBITDA - Consolidated net income (loss) before (i) interest expense, net, (ii) income tax expense 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.

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

Refining Margin adjusted for Inventory Valuation Impact - 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. The inventory valuation impact is calculated based upon inventory values at the beginning of the accounting period and at the end of the accounting period.

Refining Margin and Refining Margin adjusted for Inventory Valuation Impact, per Throughput Barrel - 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, divided by the total throughput barrels during the 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.

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. Due to rounding, numbers presented within this section may not add or equal to numbers or totals presented elsewhere within this document.

CVR Energy, Inc.

(all information in this release is unaudited)

Financial and Operational Data

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
(in millions, except share data)				
Consolidated Statement of Operations Data				
Net sales	\$ 1,622	\$ 1,935	\$ 4,794	\$ 5,386
Operating costs and expenses:				
Cost of materials and other	1,221	1,556	3,589	4,295
Direct operating expenses (exclusive of depreciation and amortization as reflected below)	139	119	397	390
Depreciation and amortization	69	63	210	196
Cost of sales	1,429	1,738	4,196	4,881
Selling, general and administrative expenses (exclusive of depreciation and amortization as reflected below)	29	27	85	83
Depreciation and amortization	2	3	7	8
Loss (gain) on asset disposals	3	1	(5)	5
Operating income	159	166	511	409
Other (expense) income:				
Interest expense, net	(26)	(26)	(77)	(79)
Other income, net	5	3	10	6
Income before income tax expense	138	143	444	336
Income tax expense	34	33	110	65
Net income	104	110	334	271
Less: Net income (loss) attributable to noncontrolling interest	(15)	29	(2)	86
Net income attributable to CVR Energy stockholders	<u>\$ 119</u>	<u>\$ 81</u>	<u>\$ 336</u>	<u>\$ 185</u>
Basic and diluted earnings per share	\$ 1.18	\$ 0.85	\$ 3.34	\$ 2.05
Dividends declared per share	\$ 0.75	\$ 0.75	\$ 2.25	\$ 2.00
EBITDA*	\$ 235	\$ 235	\$ 738	\$ 619
Weighted-average common shares outstanding - basic and diluted	100.5	95.8	100.5	89.8

* See "Non-GAAP Reconciliations" section below.

Selected Balance Sheet Data

(in millions)	September 30, 2019	December 31, 2018
Cash and cash equivalents	\$ 692	\$ 668
Working capital	737	797
Total assets	3,962	4,000
Total debt and finance lease obligations	1,195	1,170
Total liabilities	2,237	2,057
Total CVR stockholders' equity	1,429	1,286

Selected Cash Flow Data

(in millions)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Net cash flow provided by (used in):				
Operating activities	\$ 269	\$ 288	\$ 653	\$ 526
Investing activities	(30)	(24)	(73)	(74)
Financing activities	(87)	(96)	(556)	(232)
Net increase in cash and cash equivalents	\$ 152	\$ 168	\$ 24	\$ 220

Selected Segment Data

(in millions)	Petroleum	Nitrogen Fertilizer	Consolidated
Three Months Ended September 30, 2019			
Net sales	\$ 1,535	\$ 89	\$ 1,622
Operating income (loss)	173	(8)	159
Net income (loss)	170	(23)	104
EBITDA*	228	11	235
Capital expenditures (1)			
Maintenance capital expenditures	\$ 25	\$ 6	\$ 31
Growth capital expenditures	2	1	3
Total capital expenditures	\$ 27	\$ 7	\$ 34
Nine Months Ended September 30, 2019			
Net sales	\$ 4,484	\$ 318	\$ 4,794
Operating income	492	36	511
Net income (loss)	478	(10)	334
EBITDA*	653	97	738
Capital expenditures (1)			
Maintenance capital expenditures	\$ 58	\$ 11	\$ 73
Growth capital expenditures	7	1	8
Total capital expenditures	\$ 65	\$ 12	\$ 81

(in millions)

Three Months Ended September 30, 2018

	<u>Petroleum</u>	<u>Nitrogen Fertilizer</u>	<u>Consolidated</u>
Net sales	\$ 1,857	\$ 80	\$ 1,935
Operating income	167	3	166
Net income (loss)	160	(13)	110
EBITDA*	219	19	235

Capital expenditures (1)

Maintenance capital expenditures	\$ 17	\$ 4	\$ 22
Growth capital expenditures	5	1	6
Total capital expenditures	<u>\$ 22</u>	<u>\$ 5</u>	<u>\$ 28</u>

Nine months ended September 30, 2018

Net sales	\$ 5,139	\$ 253	\$ 5,386
Operating income (loss)	424	(2)	409
Net income (loss)	398	(49)	271
EBITDA*	576	51	619

Capital expenditures (1)

Maintenance capital expenditures	\$ 39	\$ 13	\$ 55
Growth capital expenditures	12	3	15
Total capital expenditures	<u>\$ 51</u>	<u>\$ 16</u>	<u>\$ 70</u>

* See "Non-GAAP Reconciliations" section below.

(1) Capital expenditures are shown exclusive of turnaround costs.

Selected Balance Sheet Data

(in millions)

September 30, 2019

	<u>Petroleum</u>	<u>Nitrogen Fertilizer</u>	<u>Consolidated</u>
Cash and cash equivalents	\$ 553	\$ 84	\$ 692
Total assets	3,076	1,180	3,962
Total debt and finance lease obligations	564	632	1,195

December 31, 2018

Cash and cash equivalents	\$ 353	\$ 62	\$ 668
Total assets	2,453	1,254	4,000
Total debt and finance lease obligations	541	629	1,170

Petroleum Segment

Key Operating Metrics per Total Throughput Barrel

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Refining margin*	\$ 16.34	\$ 15.70	\$ 16.18	\$ 15.71
Refining margin adjusted for inventory valuation impact *	16.37	15.57	15.65	14.93
Direct operating expenses *	4.46	4.13	4.53	4.69

* See “Non-GAAP Reconciliations” section below.

Throughput Data by Refinery

(in bpd)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Coffeyville				
Regional crude	41,150	31,244	44,238	29,832
WTI	80,717	68,659	74,325	65,093
Midland WTI	1,436	27,889	4,959	15,012
Condensate	2,378	273	3,588	6,448
Heavy Canadian	4,555	6,746	5,199	4,518
Other feedstocks and blendstocks	8,455	7,707	8,608	7,134
Wynnewood				
Regional crude	61,345	61,618	52,750	55,684
WTI	13	459	4	3,148
Midland WTI	11,313	3,858	12,406	11,194
Condensate	7,435	8,152	7,408	6,708
Other feedstocks and blendstocks	3,203	4,150	3,579	4,829
Total throughput	222,000	220,755	217,064	209,600

Production Data by Refinery

(in bpd)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Coffeyville				
Gasoline	69,122	72,337	71,144	62,543
Distillate	58,457	60,521	59,008	54,914
Other liquid products	7,157	4,352	6,808	6,041
Solids	4,580	5,548	4,886	5,025
Wynnewood				
Gasoline	42,464	38,750	38,673	40,715
Distillate	36,555	33,635	32,003	34,410
Other liquid products	1,756	3,562	3,064	4,374
Solids	33	35	31	46
Total production	220,124	218,740	215,617	208,068

Liquid volume yield (as % of total throughput) **97.1%** 96.6% **97.1%** 96.8%

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Market Indicators (dollars per barrel)				
West Texas Intermediate (WTI) NYMEX	\$ 56.44	\$ 69.43	\$ 57.10	\$ 66.79
Crude Oil Differentials:				
WTI less WTS (light/medium sour)	0.49	14.26	1.12	8.14
WTI less WCS (heavy sour)	12.59	27.76	11.93	23.77
WTI less condensate	0.55	0.37	0.99	0.40
Midland Cushing Differential	0.26	14.33	1.23	7.69
NYMEX Crack Spreads:				
Gasoline	16.37	16.96	16.55	17.69
Heating Oil	23.14	22.03	24.30	21.59
NYMEX 2-1-1 Crack Spread	19.76	19.50	20.42	19.64
PADD II Group 3 Basis:				
Gasoline	(1.07)	(0.13)	(1.89)	(2.16)
Ultra Low Sulfur Diesel	(1.84)	0.89	(1.45)	0.08
PADD II Group 3 Product Crack Spread:				
Gasoline	15.30	16.83	14.66	15.53
Ultra Low Sulfur Diesel	21.30	22.92	22.85	21.67
PADD II Group 3 2-1-1	18.30	19.88	18.76	18.60

Q4 2019 Petroleum Segment Outlook

The table below summarizes our outlook for certain operational statistics and financial information for the fourth quarter of 2019. See “forward looking statements.”

	Q4 2019	
	Low	High
Total throughput (bpd)	205,000	220,000
Direct operating expenses (1) (in millions)	\$ 90	\$ 100
Total capital spending (in millions)	\$ 50	\$ 60

(1) Direct operating expenses are shown exclusive of depreciation and amortization and turnaround expenses.

Nitrogen Fertilizer Segment:

Key Operating Data:

Ammonia Utilization Rates (1)

(capacity utilization)

	Two Years Ended September 30	
	2019	2018
Consolidated	93%	95%
Coffeyville	95%	94%
East Dubuque	91%	96%

(1) Reflects ammonia utilization rates on a consolidated basis and at each of the Nitrogen Fertilizer facilities. Utilization is an important measure used by management to assess operational output at each of the facilities. Utilization is calculated as actual tons produced divided by capacity. The Nitrogen Fertilizer Segment presents utilization on a two-year rolling average to take into account the impact of current turnaround cycles on any specific period. The two-year rolling average is a more useful presentation of the long-term utilization performance of our plants. Additionally, we 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 the Nitrogen Fertilizer Segments' efforts being primarily focused on ammonia upgrade capabilities, this measure provides a meaningful view of how well the facilities operate.

Sales and Production Data

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Consolidated sales (thousand tons):				
Ammonia	33	38	179	156
UAN	340	310	968	925
Consolidated product pricing at gate (dollars per ton):				
Ammonia	\$ 337	\$ 297	\$ 416	\$ 329
UAN	\$ 182	\$ 170	\$ 206	\$ 169
Consolidated production volume (thousand tons):				
Ammonia (gross produced)	196	212	586	584
Ammonia (net available for sale)	56	63	168	187
UAN	318	338	969	919
Feedstock:				
Petroleum coke used in production (thousand tons)	137	117	404	325
Petroleum coke (dollars per ton)	\$ 37.75	\$ 25.65	\$ 36.68	\$ 22.89
Natural gas used in production (thousands of MMBtu) (2)	1,700	2,118	5,210	5,933
Natural gas used in production (dollars per MMBtu) (2)	\$ 2.40	\$ 3.03	\$ 2.88	\$ 3.01
Natural gas in cost of materials and other (thousands of MMBtus) (2)	1,294	1,439	5,487	5,268
Natural gas in cost of materials and other (dollars per MMBtu) (2)	\$ 2.46	\$ 2.98	\$ 3.22	\$ 3.03

(2) 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).

Key Market Indicators

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Ammonia — Southern Plains (dollars per ton)	\$ 298	\$ 337	\$ 369	\$ 354
Ammonia — Corn belt (dollars per ton)	363	398	452	407
UAN — Corn belt (dollars per ton)	196	203	217	208
Natural gas NYMEX (dollars per MMBtu)	\$ 2.38	\$ 2.87	\$ 2.59	\$ 2.85

Q4 2019 Nitrogen Fertilizer Segment Outlook

The table below summarizes our outlook for certain operational statistics and financial information for the fourth quarter of 2019. See “forward looking statements.”

	Q4 2019	
	Low	High
Ammonia utilization rates (1)		
Consolidated	95%	100%
Coffeyville	95%	100%
East Dubuque	95%	100%
Direct operating expenses (2) (in millions)	\$ 40	\$ 45
Total capital spending (in millions)	\$ 8	\$ 10

(1) Ammonia utilization rates exclude the impact of Turnarounds.

(2) Direct operating expenses are shown exclusive of depreciation and amortization, turnaround expenses, and impacts of inventory adjustments.

Non-GAAP Reconciliations:

Reconciliation of Net Income to EBITDA

(in millions)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Net income	\$ 104	\$ 110	\$ 334	\$ 271
Add:				
Interest expense, net	26	26	77	79
Income tax expense	34	33	110	65
Depreciation and amortization	71	66	217	204
EBITDA	\$ 235	\$ 235	\$ 738	\$ 619

Reconciliation of Petroleum Segment Net Income to EBITDA

(in millions)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Petroleum net income	\$ 170	\$ 160	\$ 478	\$ 398
Add:				
Interest expense, net	7	10	23	32
Depreciation and amortization	51	49	152	146
Petroleum EBITDA	\$ 228	\$ 219	\$ 653	\$ 576

Reconciliation of Petroleum Segment Gross Profit to Refining Margin and Refining Margin Adjusted for Inventory Valuation Impact (in millions and on per total throughput barrel basis) and Direct Operating Expenses per total throughput barrel

(in millions)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Net sales	\$ 1,535	\$ 1,857	\$ 4,484	\$ 5,139
Cost of materials and other	1,201	1,538	3,525	4,240
Direct operating expenses (exclusive of depreciation and amortization as reflected below)	91	84	269	268
Depreciation and amortization	51	49	152	146
Gross profit	192	186	538	485
Add:				
Direct operating expenses (exclusive of depreciation and amortization as reflected below)	91	84	269	268
Depreciation and amortization	51	49	152	146
Refining margin	334	319	959	899
Inventory valuation impact, (favorable) unfavorable (1)	1	(3)	(31)	(45)
Refining margin adjusted for inventory valuation impact	\$ 335	\$ 316	\$ 928	\$ 854

(1) The Petroleum Segment's basis for determining inventory value under GAAP is First-In, First-Out ("FIFO"). Changes in crude oil prices can cause fluctuations in the inventory valuation of crude oil, work in process and finished goods, thereby resulting in a favorable inventory valuation impact when crude oil prices increase and an unfavorable inventory valuation impact when crude oil prices decrease. The inventory valuation impact is calculated based upon inventory values at the beginning of the accounting period and at the end of the accounting period. In order to derive the inventory valuation impact per total throughput barrel, we utilize the total dollar figures for the inventory valuation impact and divide by the number of total throughput barrels for the period.

Reconciliation of Petroleum Segment total throughput barrels

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Total throughput barrels per day	222,000	220,755	217,064	209,600
Days in the period	92	92	273	273
Total throughput barrels	20,423,972	20,309,500	59,258,366	57,220,863

Reconciliation of Petroleum Segment Refining Margin (in millions and on per total throughput barrel basis)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
(in millions, except for per throughput barrel data)				
Refining margin	\$ 334	\$ 319	\$ 959	\$ 899
Divided by: total throughput barrels	20	20	59	57
Refining margin per total throughput barrel	\$ 16.34	\$ 15.70	\$ 16.18	\$ 15.71

Reconciliation of Petroleum Segment Refining Margin Adjusted for Inventory Valuation Impact (in millions and on per total throughput barrel basis)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
(in millions, except for throughput barrel data)				
Refining margin adjusted for inventory valuation impact	\$ 335	\$ 316	\$ 928	\$ 854
Divided by: total throughput barrels	20	20	59	57
Refining margin adjusted for inventory valuation impact per total throughput barrel	\$ 16.37	\$ 15.57	\$ 15.65	\$ 14.93

Reconciliation of Petroleum Segment Direct Operating Expenses (in millions and on per total throughput barrel basis)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
(in millions, except for throughput barrel data)				
Direct operating expenses (exclusive of depreciation and amortization)	\$ 91	\$ 84	\$ 269	\$ 268
Divided by: total throughput barrels	20	20	59	57
Direct operating expenses per total throughput barrel	\$ 4.46	\$ 4.13	\$ 4.53	\$ 4.69

Reconciliation of Nitrogen Fertilizer Segment Net Loss to EBITDA

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
(in millions)				
Nitrogen fertilizer net loss	\$ (23)	\$ (13)	\$ (10)	\$ (49)
Add:				
Interest expense, net	16	16	47	47
Depreciation and amortization	18	16	60	53
Nitrogen Fertilizer EBITDA	\$ 11	\$ 19	\$ 97	\$ 51