HOLLYFRONTIER CORP

FORM 10-Q
(Quarterly Report)

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

FORM 10-Q

(Mark One)

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

For the quarterly period ended March 31, 2017
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 1-3876

HOLLYFRONTIER CORPORATION
(Exact name of registrant as specified in its charter)

Delaware	**75-1056913**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
2828 N. Harwood, Suite 1300 Dallas, Texas	**75201**
(Address of principal executive offices)	**(Zip Code)**

(214) 871-3555
(Registrant's telephone number, including area code)

(Former name, former address and former fiscal year, if changed since last report)

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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

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

Large accelerated filer	☒	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 ☒

177,354,341 shares of Common Stock, par value $.01 per share, were outstanding on April 28, 2017 .

HOLLYFRONTIER CORPORATION
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FORWARD-LOOKING STATEMENTS

References herein to HollyFrontier Corporation (“HollyFrontier”) include HollyFrontier and its consolidated subsidiaries. In accordance with the Securities and Exchange Commission’s (“SEC”) “Plain English” guidelines, this Quarterly Report on Form 10-Q has been written in the first person. In this document, the words “we,” “our,” “ours” and “us” refer only to HollyFrontier and its consolidated subsidiaries or to HollyFrontier or an individual subsidiary and not to any other person with certain exceptions. Generally, the words “we,” “our,” “ours” and “us” include Holly Energy Partners, L.P. (“HEP”) and its subsidiaries as consolidated subsidiaries of HollyFrontier, unless when used in disclosures of transactions or obligations between HEP and HollyFrontier or its other subsidiaries. This document contains certain disclosures of agreements that are specific to HEP and its consolidated subsidiaries and do not necessarily represent obligations of HollyFrontier. When used in descriptions of agreements and transactions, “HEP” refers to HEP and its consolidated subsidiaries.

This Quarterly Report on Form 10-Q contains certain “forward-looking statements” within the meaning of the federal securities laws. All statements, other than statements of historical fact included in this Form 10-Q, including, but not limited to, those under “Results of Operations,” “Liquidity and Capital Resources” and “Risk Management” in Part I, Item 2 “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and those in Part II, Item 1 “Legal Proceedings” are forward-looking statements. Forward-looking statements use words such as “anticipate,” “project,” “expect,” “plan,” “goal,” “forecast,” “intend,” “should,” “would,” “could,” “believe,” “may,” and similar expressions and statements regarding our plans and objectives for future operations. These statements are based on management’s beliefs and assumptions using currently available information and expectations as of the date hereof, are not guarantees of future performance and involve certain risks and uncertainties. All statements concerning our expectations for future results of operations are based on forecasts for our existing operations and do not include the potential impact of any future acquisitions. Although we believe that the expectations reflected in these forward-looking statements are reasonable, we cannot assure you that our expectations will prove to be correct. Therefore, actual outcomes and results could materially differ from what is expressed, implied or forecast in these statements. Any differences could be caused by a number of factors including, but not limited to:

- risks and uncertainties with respect to the actions of actual or potential competitive suppliers of refined petroleum products in our markets;
- the demand for and supply of crude oil and refined products;
- the spread between market prices for refined products and market prices for crude oil;
- the possibility of constraints on the transportation of refined products;
- the possibility of inefficiencies, curtailments or shutdowns in refinery operations or pipelines;
- effects of governmental and environmental regulations and policies;
- the availability and cost of our financing;
- the effectiveness of our capital investments and marketing strategies;
- our efficiency in carrying out construction projects;
- our ability to acquire refined product operations or pipeline and terminal operations on acceptable terms and to integrate any recent or future acquired operations, including Petro-Canada Lubricants Inc.;
- the possibility of terrorist attacks and the consequences of any such attacks;
- general economic conditions; and
- other financial, operational and legal risks and uncertainties detailed from time to time in our SEC filings.

Cautionary statements identifying important factors that could cause actual results to differ materially from our expectations are set forth in this Form 10-Q, including without limitation, the forward-looking statements that are referred to above. This summary discussion should be read in conjunction with the discussion of the known material risk factors and other cautionary statements under the heading “Risk Factors” included in Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2016 and in conjunction with the discussion in this Form 10-Q in “Management’s Discussion and Analysis of Financial Condition and Results of Operations” under the heading “Liquidity and Capital Resources” and Part II, Item 1A “Risk Factors.” All forward-looking statements included in this Form 10-Q and all subsequent written or oral forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by these cautionary statements. The forward-looking statements speak only as of the date made and, other than as required by law, we undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

PART I. FINANCIAL INFORMATION

DEFINITIONS

Within this report, the following terms have these specific meanings:

" **BPD** " means the number of barrels per calendar day of crude oil or petroleum products.

" **BPSD** " means the number of barrels per stream day (barrels of capacity in a 24 hour period) of crude oil or petroleum products.

"Biodiesel" means a clean alternative fuel produced from renewable biological resources.

" **Black wax crude oil** " is a low sulfur, low gravity crude oil produced in the Uintah Basin in Eastern Utah that has certain characteristics that require specific facilities to transport, store and refine into transportation fuels.

" **Cracking** " means the process of breaking down larger, heavier and more complex hydrocarbon molecules into simpler and lighter molecules.

" **Crude oil distillation** " means the process of distilling vapor from liquid crudes, usually by heating, and condensing the vapor slightly above atmospheric pressure turning it back to liquid in order to purify, fractionate or form the desired products.

" **Ethanol** " means a high octane gasoline blend stock that is used to make various grades of gasoline.

" **FCC** ," or fluid catalytic cracking, means a refinery process that breaks down large complex hydrocarbon molecules into smaller more useful ones using a circulating bed of catalyst at relatively high temperatures.

" **Hydrodesulfurization** " means to remove sulfur and nitrogen compounds from oil or gas in the presence of hydrogen and a catalyst at relatively high temperatures.

" **Hydrogen plant** " means a refinery unit that converts natural gas and steam to high purity hydrogen, which is then used in the hydrodesulfurization, hydrocracking and isomerization processes.

" **Isomerization** " means a refinery process for rearranging the structure of C5/C6 molecules without changing their size or chemical composition and is used to improve the octane of C5/C6 gasoline blendstocks.

" **LPG** " means liquid petroleum gases.

" **Lubricant** " or " **lube** " means a solvent neutral paraffinic product used in commercial heavy duty engine oils, passenger car oils and specialty products for industrial applications such as heat transfer, metalworking, rubber and other general process oil.

"MSAT2" means Control of Hazardous Air Pollutants from Mobile Sources, a rule issued by the U.S. Environmental Protection Agency to reduce hazardous emissions from motor vehicles and motor vehicle fuels.

" **MMBTU** " means one million British thermal units.

" **Refinery gross margin** " means the difference between average net sales price and average product costs per produced barrel of refined products sold. This does not include the associated depreciation and amortization costs.

"RINs" means renewable identification numbers and refers to serial numbers assigned to credits generated from biodiesel production under the Environmental Protection Agency's Renewable Fuel Standard 2 ("RFS2") regulations that mandate increased volumes of renewable fuels blended into the nation's fuel supply. In lieu of blending, refiners may purchase these transferable credits in order to comply with the regulations.

" **Sour crude oil** " means crude oil containing quantities of sulfur greater than 0.4 percent by weight, while " **sweet crude oil** " means crude oil containing quantities of sulfur equal to or less than 0.4 percent by weight.

" **Vacuum distillation** " means the process of distilling vapor from liquid crudes, usually by heating, and condensing the vapor below atmospheric pressure turning it back to a liquid in order to purify, fractionate or form the desired products.

"WTI" means West Texas Intermediate and is a grade of crude oil used as a common benchmark in oil pricing. WTI is a sweet crude oil and has a relatively low density.

Item 1. Financial Statements

HOLLYFRONTIER CORPORATION
CONSOLIDATED BALANCE SHEETS
(In thousands, except share data)

	March 31, 2017	December 31, 2016
	(Unaudited)	
ASSETS		
Current assets:		
Cash and cash equivalents *(HEP: $7,007 and $3,657, respectively)*	$ 129,512	$ 710,579
Marketable securities	—	424,148
Total cash, cash equivalents and short-term marketable securities	129,512	1,134,727
Accounts receivable: Product and transportation *(HEP: $10,111 and $7,846, respectively)*	540,585	449,036
Crude oil resales	60,532	30,163
	601,117	479,199
Inventories: Crude oil and refined products	1,168,589	970,361
Materials, supplies and other *(HEP: $1,454 and $1,402, respectively)*	148,908	165,315
	1,317,497	1,135,676
Income taxes receivable	87,384	68,371
Prepayments and other *(HEP: $1,716 and $1,486, respectively)*	33,329	33,036
Total current assets	2,168,839	2,851,009
Properties, plants and equipment, at cost *(HEP: $1,711,865 and $1,702,703., respectively)*	6,059,216	5,546,856
Less accumulated depreciation *(HEP: $(354,543) and $(337,135), respectively)*	(1,605,541)	(1,538,408)
	4,453,675	4,008,448
Other assets: Turnaround costs	265,959	217,340
Goodwill *(HEP: $288,991 and $288,991, respectively)*	2,198,330	2,022,463
Intangibles and other *(HEP: $204,556 and $208,975, respectively)*	455,549	336,401
	2,919,838	2,576,204
Total assets	$ 9,542,352	$ 9,435,661
LIABILITIES AND EQUITY		
Current liabilities:		
Accounts payable *(HEP: $11,459 and $10,518, respectively)*	$ 953,928	$ 935,387
Income taxes payable	288	—
Accrued liabilities *(HEP: $24,511 and $37,793, respectively)*	187,440	147,842
Total current liabilities	1,141,656	1,083,229
Long-term debt *(HEP: $1,240,565 and $1,243,912, respectively)*	2,231,542	2,235,137
Deferred income taxes *(HEP: $574 and $509, respectively)*	737,173	620,414
Other long-term liabilities *(HEP: $62,828 and $62,971, respectively)*	208,787	194,896
Equity:		
HollyFrontier stockholders' equity:		
Preferred stock, $1.00 par value – 5,000,000 shares authorized; none issued	—	—
Common stock $.01 par value – 320,000,000 shares authorized; 255,962,866 shares issued as of March 31, 2017 and December 31, 2016	2,560	2,560
Additional capital	4,045,513	4,026,805
Retained earnings	2,672,269	2,776,728
Accumulated other comprehensive income	8,124	10,612
Common stock held in treasury, at cost – 78,603,277 and 78,617,600 shares as of March 31, 2017 and December 31, 2016, respectively	(2,134,995)	(2,135,311)
Total HollyFrontier stockholders' equity	4,593,471	4,681,394
Noncontrolling interest	629,723	620,591
Total equity	5,223,194	5,301,985
Total liabilities and equity	$ 9,542,352	$ 9,435,661

Parenthetical amounts represent asset and liability balances attributable to Holly Energy Partners, L.P. ("HEP") as of March 31, 2017 and December 31, 2016 . HEP is a consolidated variable interest entity.

See accompanying notes.

HOLLYFRONTIER CORPORATION
CONSOLIDATED STATEMENTS OF INCOME
(Unaudited)
(In thousands, except per share data)

	Three Months Ended March 31,	
	2017	**2016**
Sales and other revenues	$ 3,080,483	$ 2,018,724
Operating costs and expenses:		
Cost of products sold (exclusive of depreciation and amortization):		
Cost of products sold (exclusive of lower of cost or market inventory valuation adjustment)	2,641,157	1,625,163
Lower of cost or market inventory valuation adjustment	11,823	(56,121)
	2,652,980	1,569,042
Operating expenses (exclusive of depreciation and amortization)	307,117	252,583
General and administrative expenses (exclusive of depreciation and amortization)	57,070	25,621
Depreciation and amortization	96,040	87,880
Total operating costs and expenses	3,113,207	1,935,126
Income (loss) from operations	(32,724)	83,598
Other income (expense):		
Earnings of equity method investments	1,840	2,765
Interest income	819	75
Interest expense	(27,158)	(12,087)
Loss on early extinguishment of debt	(12,225)	(8,718)
Gain on foreign currency swap	24,545	—
Loss on foreign currency transactions	(9,933)	—
Other, net	265	65
	(21,847)	(17,900)
Income (loss) before income taxes	(54,571)	65,698
Income tax expense (benefit):		
Current	(24,316)	(24,354)
Deferred	7,527	46,662
	(16,789)	22,308
Net income (loss)	(37,782)	43,390
Less net income attributable to noncontrolling interest	7,686	22,137
Net income (loss) attributable to HollyFrontier stockholders	$ (45,468)	$ 21,253
Earnings (loss) per share attributable to HollyFrontier stockholders:		
Basic	$ (0.26)	$ 0.12
Diluted	$ (0.26)	$ 0.12
Cash dividends declared per common share	$ 0.33	$ 0.33
Average number of common shares outstanding:		
Basic	176,210	176,737
Diluted	176,210	176,784

See accompanying notes.

HOLLYFRONTIER CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(Unaudited)
(In thousands)

	Three Months Ended March 31, 2017	Three Months Ended March 31, 2016
Net income (loss)	$ (37,782)	$ 43,390
Other comprehensive income (loss):		
Foreign currency translation adjustment	(6,713)	—
Securities available-for-sale:		
Unrealized gain (loss) on marketable securities	(4)	78
Reclassification adjustments to net income on sale or maturity of marketable securities	—	23
Net unrealized gain (loss) on marketable securities	(4)	101
Hedging instruments:		
Change in fair value of cash flow hedging instruments	3,413	(12,604)
Reclassification adjustments to net income on settlement of cash flow hedging instruments	361	11,286
Amortization of unrealized loss attributable to discontinued cash flow hedges	270	270
Net unrealized gain (loss) on hedging instruments	4,044	(1,048)
Other comprehensive loss before income taxes	(2,673)	(947)
Income tax expense (benefit)	(235)	(261)
Other comprehensive loss	(2,438)	(686)
Total comprehensive income (loss)	(40,220)	42,704
Less noncontrolling interest in comprehensive income (loss)	7,736	21,862
Comprehensive income (loss) attributable to HollyFrontier stockholders	$ (47,956)	$ 20,842

See accompanying notes.

HOLLYFRONTIER CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)
(In thousands)

	Three Months Ended March 31,	
	2017	2016
Cash flows from operating activities:		
Net income (loss)	$ (37,782)	$ 43,390
Adjustments to reconcile net income (loss) to net cash provided by operating activities:		
Depreciation and amortization	96,040	87,880
Lower of cost or market inventory valuation adjustment	11,823	(56,121)
Net income of equity method investments, inclusive of distributions	273	(265)
Gain on sale of assets	(65)	(23)
Loss on early extinguishment of debt attributable to unamortized discount	2,475	8,718
Deferred income taxes	7,527	46,662
Equity-based compensation expense	7,410	3,226
Change in fair value – derivative instruments	(5,426)	3,189
(Increase) decrease in current assets:		
Accounts receivable	(200)	(78,936)
Inventories	14,005	7,276
Income taxes receivable	(18,598)	(32,813)
Prepayments and other	(2,343)	10,586
Increase (decrease) in current liabilities:		
Accounts payable	(122,744)	2,401
Income taxes payable	288	(10,555)
Accrued liabilities	41,681	8,519
Turnaround expenditures	(47,977)	(36,994)
Other, net	14,229	496
Net cash provided by (used for) operating activities	(39,384)	6,636
Cash flows from investing activities:		
Additions to properties, plants and equipment	(51,492)	(107,389)
Additions to properties, plants and equipment – HEP	(8,265)	(42,184)
Purchase of PCLI, net of cash acquired	(840,432)	—
Proceeds from sale of assets	6	258
Purchases of marketable securities	(41,565)	(4,082)
Sales and maturities of marketable securities	465,716	148,204
Distributions in excess of earnings from equity investments	3,016	—
Net cash used for investing activities	(473,016)	(5,193)
Cash flows from financing activities:		
Borrowings under credit agreements	406,000	837,000
Repayments under credit agreements	(112,000)	(784,000)
Net proceeds from issuance of senior notes - HFC	—	246,690
Redemption of senior notes - HEP	(309,750)	—
Repayment of financing obligation	—	(39,500)
Net proceeds from issuance of common units - HEP	37,563	—
Purchase of treasury stock	—	(133,430)
Dividends	(58,992)	(58,602)
Distributions to noncontrolling interest	(26,536)	(21,731)
Other, net	(4,648)	(3,382)
Net cash provided by (used for) financing activities	(68,363)	43,045
Effect of exchange rate on cash flow	(304)	—
Cash and cash equivalents:		
Increase (decrease) for the period	(581,067)	44,488

Beginning of period		710,579		66,533
End of period	$	129,512	$	111,021
Supplemental disclosure of cash flow information:				
Cash paid during the period for:				
Interest	$	27,111	$	15,261
Income taxes	$	2,513	$	19,166

See accompanying notes.

NOTE 1: Description of Business and Presentation of Financial Statements

References herein to HollyFrontier Corporation ("HollyFrontier") include HollyFrontier and its consolidated subsidiaries. In accordance with the Securities and Exchange Commission's ("SEC") "Plain English" guidelines, this Quarterly Report on Form 10-Q has been written in the first person. In these financial statements, the words "we," "our," "ours" and "us" refer only to HollyFrontier and its consolidated subsidiaries or to HollyFrontier or an individual subsidiary and not to any other person, with certain exceptions. Generally, the words "we," "our," "ours" and "us" include Holly Energy Partners, L.P. ("HEP") and its subsidiaries as consolidated subsidiaries of HollyFrontier, unless when used in disclosures of transactions or obligations between HEP and HollyFrontier or its other subsidiaries. These financial statements contain certain disclosures of agreements that are specific to HEP and its consolidated subsidiaries and do not necessarily represent obligations of HollyFrontier. When used in descriptions of agreements and transactions, "HEP" refers to HEP and its consolidated subsidiaries.

We are principally an independent petroleum refiner that produces high-value light products such as gasoline, diesel fuel, jet fuel, specialty lubricant products, and specialty and modified asphalt. We own and operate petroleum refineries that serve markets throughout the Mid-Continent, Southwest and Rocky Mountain regions of the United States. In addition, we own and operate a lubricant production facility with retail and wholesale marketing of its products through a global sales network with locations in Canada, United States, Europe and China. As of March 31, 2017 , we:

- owned and operated a petroleum refinery in El Dorado, Kansas (the "El Dorado Refinery"), two refinery facilities located in Tulsa, Oklahoma (collectively, the "Tulsa Refineries"), a refinery in Artesia, New Mexico that is operated in conjunction with crude oil distillation and vacuum distillation and other facilities situated 65 miles away in Lovington, New Mexico (collectively, the "Navajo Refinery"), a refinery located in Cheyenne, Wyoming (the "Cheyenne Refinery") and a refinery in Woods Cross, Utah (the "Woods Cross Refinery");
- owned and operated HollyFrontier Asphalt Company LLC ("HFC Asphalt") which operates various asphalt terminals in Arizona, New Mexico and Oklahoma;
- owned and operated Petro-Canada Lubricants Inc. ("PCLI") located in Mississauga, Ontario which produces base oils and other specialized lubricant products; and
- owned a 36% interest in HEP, a consolidated variable interest entity ("VIE"), which includes our 2% general partner interest.

On October 29, 2016, our wholly-owned subsidiary, 9952110 Canada Inc., entered into a Share Purchase Agreement ("SPA") with Suncor Energy Inc. ("Suncor") to acquire 100% of the outstanding capital stock of PCLI. The acquisition closed on February 1, 2017. See Note 2 for additional information.

We have prepared these consolidated financial statements without audit. In management's opinion, these consolidated financial statements include all normal recurring adjustments necessary for a fair presentation of our consolidated financial position as of March 31, 2017 , the consolidated results of operations and comprehensive income for the three months ended March 31, 2017 and 2016 and consolidated cash flows for the three months ended March 31, 2017 and 2016 in accordance with the rules and regulations of the SEC. Although certain notes and other information required by generally accepted accounting principles in the United States ("GAAP") have been condensed or omitted, we believe that the disclosures in these consolidated financial statements are adequate to make the information presented not misleading. These consolidated financial statements should be read in conjunction with our Annual Report on Form 10-K for the year ended December 31, 2016 that has been filed with the SEC.

Our results of operations for the three months ended March 31, 2017 are not necessarily indicative of the results of operations to be realized for the year ending December 31, 2017 .

Accounts Receivable: Our accounts receivable consist of amounts due from customers that are primarily companies in the petroleum industry. Credit is extended based on our evaluation of the customer's financial condition, and in certain circumstances collateral, such as letters of credit or guarantees, is required. We reserve for doubtful accounts based on our historical loss experience as well as specific accounts identified as high risk, which historically have been minimal. Credit losses are charged to the allowance for doubtful accounts when an account is deemed uncollectible. Our allowance for doubtful accounts was $3.6 million and $2.3 million at March 31, 2017 and December 31, 2016 , respectively.

Inventories: Inventories related to our refining operations are stated at the lower of cost, using the last-in, first-out (“LIFO”) method for crude oil and unfinished and finished refined products, or market. In periods of rapidly declining prices, LIFO inventories may have to be written down to market value due to the higher costs assigned to LIFO layers in prior periods. In addition, the use of the LIFO inventory method may result in increases or decreases to cost of sales in years that inventory volumes decline as the result of charging cost of sales with LIFO inventory costs generated in prior periods. An actual valuation of inventory under the LIFO method is made at the end of each year based on the inventory levels at that time. Accordingly, interim LIFO calculations are based on management’s estimates of expected year-end inventory levels and are subject to the final year-end LIFO inventory valuation.

Inventories consisting of process chemicals, materials and maintenance supplies and renewable identification numbers (“RINs”) are stated at the lower of weighted-average cost or net realizable value.

Inventories of our PCLI operations are stated at the lower of cost, using the first-in, first-out (“FIFO”) method, or net realizable value.

Goodwill and Long-lived Assets: As of March 31, 2017 , our goodwill balance was $2.2 billion , with goodwill assigned to our Refining, PCLI and HEP segments of $1.7 billion , $0.2 billion and $0.3 billion , respectively. During the first quarter of 2017, we recognized $180.0 million in goodwill as a result of our PCLI acquisition, all of which has been assigned to our PCLI segment. See Note 16 for additional information on our segments. Goodwill represents the excess of the cost of an acquired entity over the fair value of the assets acquired and liabilities assumed. Goodwill is not subject to amortization and is tested annually or more frequently if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying amount. Our goodwill impairment testing first entails a comparison of our reporting unit fair values relative to their respective carrying values. If carrying value exceeds fair value for a reporting unit, we measure goodwill impairment as the excess of the carrying amount of reporting unit goodwill over the implied fair value of that goodwill based on estimates of the fair value of all assets and liabilities in the reporting unit. As of March 31, 2017 , accumulated goodwill impairment recognized totaled $309.3 million , all of which relates to our refining segment that was recorded in the second quarter of 2016.

As of March 31, 2017 , the fair value of our El Dorado reporting unit exceeded its carrying value by approximately 10%. A reasonable expectation exists that further deterioration in gross margins could result in an impairment of goodwill and the long-lived assets of the El Dorado reporting unit at some point in the future and such impairment charges could be material.

Our long-lived assets principally consist of our refining assets that are organized as refining asset groups and our PCLI business. The refinery asset groups also constitute our individual refinery reporting units that are used for testing and measuring goodwill impairments. Our long-lived assets are evaluated for impairment by identifying whether indicators of impairment exist and if so, assessing whether the long-lived assets are recoverable from estimated future undiscounted cash flows. The actual amount of impairment loss measured, if any, is equal to the amount by which the asset group’s carrying value exceeds its fair value.

Revenue Recognition: Refined product sales and related cost of sales are recognized when products are shipped and title has passed to customers. HEP recognizes pipeline transportation revenues as products are shipped through its pipelines. All revenues are reported inclusive of shipping and handling costs billed and exclusive of any taxes billed to customers. Shipping and handling costs incurred are reported in cost of products sold.

For PCLI subsidiaries in Canada and in the U.S., a portion of sales are made to marketers and distributors under agreements which provide certain rights of return or provisions for PCLI to repurchase product in order to sell directly to end customers. Based on the terms of these agreements, PCLI defers revenues and cost of revenues on sales to Canadian marketers until the related products have been sold to end customers, and PCLI recognizes revenues for sales to its U.S. distributors when products are shipped to the distributors, net of allowances for returns related to inventories PCLI is expected to repurchase from the distributors to sell directly to end customers.

Foreign Currency Translation: The functional currency of our PCLI operations consists of the respective local currency of its foreign operations, which includes the Canadian dollar, the euro and Chinese renminbi. Balance sheet accounts are translated into U.S. dollars using exchange rates in effect as of the balance sheet date. Revenue and expense accounts are translated using the weighted-average exchange rates during the period presented. Foreign currency translation adjustments are recorded as a component of accumulated other comprehensive income.

In connection with our PCLI acquisition on February 1, 2017, we issued intercompany notes to initially fund certain of PCLI's foreign businesses. Remeasurement adjustments resulting from the conversion of such intercompany financing from local currencies to the U.S. dollar are recorded as gains and losses as a component of other income (expense) in the income statement. Such adjustments are not recorded to the PCLI segment operations, but to corporate and other. See Note 16 for additional information on our segments.

Income Taxes : Provisions for income taxes include deferred taxes resulting from temporary differences in income for financial and tax purposes, using the liability method of accounting for income taxes. The liability method requires the effect of tax rate changes on deferred income taxes to be reflected in the period in which the rate change was enacted. The liability method also requires that deferred tax assets be reduced by a valuation allowance unless it is more likely than not that the assets will be realized.

For the three months ended March 31, 2017 , we recorded an income tax benefit of $16.8 million compared to an income tax expense of $22.3 million for the three months ended March 31, 2016 . This decrease was due principally to a pre-tax loss during the three months ended March 31, 2017 compared to pre-tax earnings in the same period of 2016 . Our effective tax rates, before consideration of earnings attributable to the noncontrolling interest, were 30.8% and 34.0% for the three months ended March 31, 2017 and 2016 , respectively.

Potential interest and penalties related to income tax matters are recognized in income tax expense. We believe we have appropriate support for the income tax positions taken and to be taken on our income tax returns and that our accruals for tax liabilities are adequate for all open years based on an assessment of many factors, including past experience and interpretations of tax law applied to the facts of each matter.

Inventory Repurchase Obligations: We periodically enter into same-party sell / buy transactions, whereby we sell certain refined product inventory and subsequently repurchase the inventory in order to facilitate delivery to certain locations. Such sell / buy transactions are accounted for as inventory repurchase obligations under which proceeds received under the initial sell is recognized as an inventory repurchase obligation that is subsequently reversed when the inventory is repurchased. For the three months ended March 31, 2017 and 2016 , we received proceeds of $12.3 million and $14.3 million , respectively, and repaid $12.7 million and $13.6 million , respectively, under these sell / buy transactions.

New Accounting Pronouncements

Post-retirement Benefit Cost
In March 2017, Accounting Standard Update ("ASU") 2017-07, "Improving the Presentation of Net Periodic Pension Cost and Net Periodic Post-retirement Benefit Cost," was issued amending current GAAP related to the income statement presentation of the components of net periodic post-retirement cost (credit). This standard has an effective date of January 1, 2018. We do not expect adoption of this standard to have a material impact on our financial condition, results of operations or cash flows.

Share-Based Compensation
In March 2016, ASU 2016-09, "Improvements to Employee Share-Based Payment Accounting," was issued which simplifies the accounting for employee share-based payment transactions, including the accounting for income taxes, forfeitures and statutory tax withholding requirements, as well as classification in the statement of cash flows. We adopted this standard effective January 1, 2017. As the result of the adoption, on a prospective basis, we recognized $0.1 million of excess tax expense from stock-based compensation as a discrete item in our provision for income taxes for the three months ended March 31, 2017 . The new standard also requires that employee taxes paid when an employer withholds shares for tax-withholding purposes be reported as financing activities in the statement of cash flows on a retrospective basis. Previously, this activity was included in operating activities. The impact of this change for the three months ended March 31, 2017 and 2016 was $0.3 million and zero, respectively. Finally, consistent with our existing policy, we have elected to account for forfeitures on an estimated basis.

Leases
In February 2016, ASU 2016-02, "Leases," was issued requiring leases to be measured and recognized as a lease liability, with a corresponding right-of-use asset on the balance sheet. This standard has an effective date of January 1, 2019, and we are evaluating the impact of this standard.

Inventories Measurement
In July 2015, ASU 2015-11, “Inventory - Simplifying the Measurement of Inventory,” was issued requiring measurement of inventories, other than inventories accounted for using the LIFO method, to be measured at the lower of cost or net realizable value. Net realizable value is defined as the estimated selling price in the ordinary course of business less reasonable, predictable cost of completion, disposal and transportation. We adopted this standard effective January 1, 2017 for our affected inventories, which is primarily our PCLI inventory valued on a FIFO basis, and it had no material effect on our financial condition, results of operations or cash flows.

Revenue Recognition
In May 2014, ASU 2014-09, “Revenue from Contracts with Customers” was issued requiring revenue to be recognized when promised goods or services are transferred to customers in an amount that reflects the expected consideration for these goods or services. This standard has an effective date of January 1, 2018, and we anticipate using the modified retrospective implementation method, whereby a cumulative effect adjustment is recorded to retained earnings as of the date of initial application. Our preparation for adoption of this standard is in progress, and we are currently evaluating terms, conditions and our performance obligations of our existing contracts with customers. We are also evaluating the effect of this standard on our revenue recognition policies and whether it will have a material impact on our financial condition, results of operations or cash flows.

NOTE 2: PCLI Acquisition

On October 29, 2016, our wholly-owned subsidiary, 9952110 Canada Inc., entered into an SPA with Suncor to acquire 100% of the outstanding capital stock of PCLI. The acquisition closed on February 1, 2017. Cash consideration paid was approximately $862.0 million , or $1.125 billion in Canadian dollars. PCLI is located in Mississauga, Ontario, Canada and is a producer of lubricant products such as base oils, white oils, specialty products and finished lubricants. PCLI’s operations also include marketing of its products to both retail and wholesale outlets through a global sales network with locations in Canada, the United States, Europe and China.

Aggregate consideration totaled approximately $900.0 million and consists of $862.0 million in cash paid to Suncor, an estimated payable of $33.0 million representing our current estimate of additional amounts payable to Suncor once the closing date working capital has been agreed, which is expected to occur in the second quarter of 2017, and $5.0 million , representing a portion of the fair value of replacement restricted stock unit awards issued to PCLI employees that relate to pre-acquisition services.

This transaction is accounted for as a business combination using the acquisition method of accounting, with the purchase price allocated to the fair value of the acquired PCLI assets and liabilities as of the February 1 acquisition date, with the excess purchase price recorded as goodwill. This goodwill is not deductible for income tax purposes.

The following summarizes our preliminary value estimates of the PCLI assets and liabilities acquired:

	February 1, 2017
	(in millions)
Cash and cash equivalents	$ 22.0
Accounts receivable and other current assets	119.0
Inventories	213.0
Properties, plants and equipment	460.0
Goodwill	180.0
Intangibles and precious metals	118.0
Accounts payable and accrued liabilities	(92.0)
Deferred income tax liabilities	(107.0)
Other long-term liabilities	(13.0)
	$ 900.0

Intangibles and precious metals include trademarks, patents, technical know-how, customer relationships and precious metals.

These values are preliminary and, therefore, may change once all needed information has become available and we complete our valuations.

Our consolidated financial and operating results reflect the PCLI operations beginning February 1, 2017. Our results of operations for the three months ended March 31, 2017 included PCLI revenues and net income of $201.9 million and $8.4 million , respectively, for the period from February 1, 2017 through March 31, 2017 .

As of March 31, 2017 , we have incurred $15.6 million in incremental direct acquisition and integration costs that principally relate to legal, advisory and other professional fees and are presented as general and administrative expenses.

NOTE 3: Holly Energy Partners

HEP, a consolidated VIE, is a publicly held master limited partnership that owns and operates logistic assets consisting of petroleum product and crude oil pipelines, terminals, tankage, loading rack facilities and refinery processing units that principally support our refining and marketing operations in the Mid-Continent, Southwest and Rocky Mountain regions of the United States and Alon USA, Inc.'s ("Alon") refinery in Big Spring, Texas. Additionally, HEP owns a 75% interest in UNEV Pipeline, LLC ("UNEV"), the owner of a pipeline running from Woods Cross, Utah to Las Vegas, Nevada (the "UNEV Pipeline") and associated product terminals; a 50% interest in Frontier Aspen LLC, the owner of a pipeline running from Wyoming to Frontier Station, Utah (the "Frontier Pipeline"); a 50% interest in Osage Pipe Line Company, LLC, the owner of a pipeline running from Cushing, Oklahoma to El Dorado, Kansas (the "Osage Pipeline"); a 50% interest in Cheyenne Pipeline, LLC, the owner of a pipeline running from Fort Laramie, Wyoming to Cheyenne, Wyoming (the "Cheyenne Pipeline"); and a 25% interest in SLC Pipeline LLC, the owner of a pipeline (the "SLC Pipeline") that serves refineries in the Salt Lake City, Utah area.

As of March 31, 2017 , we owned a 36% interest in HEP, including the 2% general partner interest. As the general partner of HEP, we have the sole ability to direct the activities that most significantly impact HEP's financial performance, and therefore we consolidate HEP.

HEP has two primary customers (including us) and generates revenues by charging tariffs for transporting petroleum products and crude oil through its pipelines, by charging fees for terminalling refined products and other hydrocarbons, and storing and providing other services at its storage tanks and terminals. Under our long-term transportation agreements with HEP (discussed further below), we accounted for 84% of HEP's total revenues for the three months ended March 31, 2017 . We do not provide financial or equity support through any liquidity arrangements and / or debt guarantees to HEP.

HEP has outstanding debt under a senior secured revolving credit agreement and its senior notes. HEP's creditors have no recourse to our assets. Furthermore, our creditors have no recourse to the assets of HEP and its consolidated subsidiaries. See Note 10 for a description of HEP's debt obligations.

HEP has risk associated with its operations. If a major customer of HEP were to terminate its contracts or fail to meet desired shipping or throughput levels for an extended period of time, revenue would be reduced and HEP could suffer substantial losses to the extent that a new customer is not found. In the event that HEP incurs a loss, our operating results will reflect HEP's loss, net of intercompany eliminations, to the extent of our ownership interest in HEP at that point in time.

Tulsa Tanks

On March 31, 2016, HEP acquired crude oil tanks located at our Tulsa Refineries from Plains All American Pipeline, L.P. ("Plains") for $39.5 million . Previously in 2009, we sold these tanks to Plains and leased them back, and due to our continuing interest in the tanks, we accounted for the transaction as a financing arrangement. Accordingly, the tanks remained on our balance sheet and were depreciated for accounting purposes, and the proceeds received from Plains were recorded as a financing obligation and presented as a component of outstanding debt.

In accounting for HEP's March 2016 purchase from Plains , the amount paid was recorded against our outstanding financing obligation balance of $30.8 million , with the excess $8.7 million payment resulting in a loss on early extinguishment of debt.

Magellan Asset Exchange
On February 22, 2016, we acquired a 50% membership interest in Osage Pipe Line Company, LLC ("Osage") in exchange for a 20-year terminalling services agreement, whereby a subsidiary of Magellan Midstream Partners ("Magellan Midstream") will provide terminalling services for all of our products originating in Artesia, New Mexico that require terminalling in or through El Paso, Texas. Under the agreement, we will be charged tariffs based on the volumes of refined product processed. Osage is the owner of the Osage Pipeline, a 135 -mile pipeline that transports crude oil from Cushing, Oklahoma to our El Dorado Refinery in Kansas and also has a connection to the Jayhawk pipeline that services the CHS refinery in McPherson, Kansas. This exchange was accounted for at fair value, whereby the 50% membership interest in the Osage Pipeline was recorded at appraised fair value and an offsetting residual deferred credit in the amount of $38.9 million was recorded, which will be amortized to cost of products sold over the 20-year service period. No gain or loss was recorded for this exchange.

Also on February 22, 2016, we contributed the 50% membership interest in Osage to HEP, and in exchange received HEP's El Paso terminal. Pursuant to this exchange, HEP agreed to build two connections to Magellan Midstream's El Paso terminal. In addition, HEP agreed to become operator of the Osage Pipeline. This exchange was accounted for at carry-over basis with no resulting gain or loss.

HEP Common Unit Continuous Offering Program
On May 10, 2016, HEP established a continuous offering program under which HEP may issue and sell common units from time to time, representing limited partner interests, up to an aggregate gross sales amount of $200 million . During the three months ended March 31, 2017 , HEP issued 1,142,358 units under this program, providing $39.5 million in net proceeds. In connection with this program and to maintain our 2% general partner interest in HEP, we made capital contributions totaling $0.8 million . As of March 31, 2017 , HEP has issued 1,845,813 units with an aggregate gross sales amount of $63.8 million .

HEP intends to use the net proceeds for general partnership purposes, which may include funding working capital, repayment of debt, acquisitions and capital expenditures. Amounts repaid under HEP's credit facility may be reborrowed from time to time.

As a result of this transaction and resulting HEP ownership changes, we adjusted additional capital and equity attributable to HEP's noncontrolling interest holders to reallocate HEP's equity among its unitholders.

Transportation Agreements
HEP serves our refineries under long-term pipeline, terminal and tankage throughput agreements and refinery processing tolling agreements expiring from 2019 through 2036. Under these agreements, we pay HEP fees to transport, store and process throughput volumes of refined products, crude oil and feedstocks on HEP's pipeline, terminals, tankage, loading rack facilities and refinery processing units that result in minimum annual payments to HEP including UNEV (a consolidated subsidiary of HEP). Under these agreements, the agreed upon tariff rates are subject to annual tariff rate adjustments on July 1 at a rate based upon the percentage change in Producer Price Index or Federal Energy Regulatory Commission index. As of March 31, 2017 , these agreements result in minimum annualized payments to HEP of $321.0 million .

NOTE 4: Fair Value Measurements

Our financial instruments measured at fair value on a recurring basis consist of investments in marketable securities and derivative instruments.

Fair value measurements are derived using inputs (assumptions that market participants would use in pricing an asset or liability, including assumptions about risk). GAAP categorizes inputs used in fair value measurements into three broad levels as follows:

- (Level 1) Quoted prices in active markets for identical assets or liabilities.
- (Level 2) Observable inputs other than quoted prices included in Level 1, such as quoted prices for similar assets and liabilities in active markets, similar assets and liabilities in markets that are not active or can be corroborated by observable market data.
- (Level 3) Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. This includes valuation techniques that involve significant unobservable inputs.

The carrying amounts of marketable securities and derivative instruments at March 31, 2017 and December 31, 2016 were as follows:

		Fair Value by Input Level		
	Carrying Amount	**Level 1**	**Level 2**	**Level 3**
		(In thousands)		
March 31, 2017				
Assets:				
NYMEX futures contracts	$ 1,051	$ 1,051	$ —	$ —
Commodity price swaps	10,256	—	10,256	—
Commodity forward contracts	5,515	—	5,515	—
HEP interest rate swaps	154	—	154	—
Total assets	$ 16,976	$ 1,051	$ 15,925	$ —
Liabilities:				
Commodity price swaps	$ 26,590	$ —	$ 26,590	$ —
Commodity forward contracts	6,872	—	6,872	—
Total liabilities	$ 33,462	$ —	$ 33,462	$ —
December 31, 2016				
Assets:				
Marketable securities	$ 424,148	$ —	$ 424,148	$ —
Commodity price swaps	14,563	—	14,358	205
Commodity forward contracts	5,905	.	5,905	—
HEP interest rate swaps	91	—	91	—
Total assets	$ 444,707	$ —	$ 444,502	$ 205
Liabilities:				
NYMEX futures contracts	$ 1,975	$ 1,975	$ —	$ —
Commodity price swaps	26,845	—	24,086	2,759
Commodity forward contracts	8,316	—	8,316	—
Foreign currency forward contracts	6,519	—	6,519	—
Total liabilities	$ 43,655	$ 1,975	$ 38,921	$ 2,759

Level 1 Instruments
Our NYMEX futures contracts are exchange traded and are measured and recorded at fair value using quoted market prices, a Level 1 input.

Level 2 Instruments
Investments in marketable securities, derivative instruments consisting of commodity price swaps and forward sales and purchase contracts and HEP's interest rate swaps are measured and recorded at fair value using Level 2 inputs. The fair values of the commodity price and interest rate swap contracts are based on the net present value of expected future cash flows related to both variable and fixed rate legs of the respective swap agreements. The measurements are computed using market-based observable inputs, quoted forward commodity prices with respect to our commodity price swaps and the forward London Interbank Offered Rate ("LIBOR") yield curve with respect to HEP's interest rate swaps. The fair value of the marketable securities is based on values provided by a third-party, which were derived using market quotes for similar type instruments, a Level 2 input.

Level 3 Instruments
We at times have commodity price swap contracts that relate to forecasted sales of unleaded gasoline and forward commodity sales and purchase contracts for which quoted forward market prices are not readily available. The forward rate used to value these price swaps and forward sales and purchase contracts are derived using a projected forward rate using quoted market rates for similar products, adjusted for regional pricing and grade differentials, a Level 3 input.

The following table presents the changes in fair value of our Level 3 assets and liabilities (all related to derivative instruments) for the three months ended March 31, 2017 :

Level 3 Instruments	**Three Months Ended March 31, 2017**
	(In thousands)
Liability balance at beginning of period	$ (2,554)
Change in fair value:	
Recognized in other comprehensive income	1,625
Recognized in cost of products sold	(1)
Settlement date fair value of contractual maturities:	
Recognized in sales and other revenues	(165)
Recognized in cost of products sold	1,095
Liability balance at end of period	$ —

NOTE 5: Earnings Per Share

Basic earnings per share is calculated as net income (loss) attributable to HollyFrontier stockholders divided by the average number of shares of common stock outstanding. Diluted earnings per share assumes, when dilutive, the issuance of the net incremental shares from restricted shares and performance share units. The following is a reconciliation of the denominators of the basic and diluted per share computations for net income (loss) attributable to HollyFrontier stockholders:

	Three Months Ended March 31,	
	2017	**2016**
	(In thousands, except per share data)	
Net income (loss) attributable to HollyFrontier stockholders	$ (45,468)	$ 21,253
Participating securities' (restricted stock) share in earnings	379	216
Net income (loss) attributable to common shares	$ (45,847)	$ 21,037
Average number of shares of common stock outstanding	176,210	176,737
Effect of dilutive variable restricted shares and performance share units [(1)]	—	47
Average number of shares of common stock outstanding assuming dilution	176,210	176,784
Basic earnings (loss) per share	$ (0.26)	$ 0.12
Diluted earnings (loss) per share	$ (0.26)	$ 0.12
[(1)] Excludes anti-dilutive restricted and performance share units of:	135	177

NOTE 6: Stock-Based Compensation

As of March 31, 2017 , we have two principal share-based compensation plans (collectively, the "Long-Term Incentive Compensation Plan").

The compensation cost charged against income for these plans was $7.0 million and $3.2 million for the three months ended March 31, 2017 and 2016 , respectively. Our accounting policy for the recognition of compensation expense for awards with pro-rata vesting is to expense the costs ratably over the vesting periods.

Additionally, HEP maintains a share-based compensation plan for Holly Logistic Services, L.L.C.'s non-employee directors and certain executives and employees. Compensation cost attributable to HEP's share-based compensation plan was $0.4 million and $0.7 million for the three months ended March 31, 2017 and 2016 , respectively.

Restricted Stock and Restricted Stock Units

Under our Long-Term Incentive Compensation Plan, we grant certain officers and other key employees restricted stock and restricted stock unit awards with awards generally vesting over a period of one to three years. Restricted stock award recipients are generally entitled to all the rights of absolute ownership of the restricted shares from the date of grant including the right to vote the shares and to receive dividends. Upon vesting, restrictions on the restricted shares lapse at which time they convert to common shares. In addition, we grant non-employee directors restricted stock unit awards, which typically vest over a period of one year and are payable in stock. The fair value of each restricted stock and restricted stock unit award is measured based on the grant date market price of our common shares and is amortized over the respective vesting period.

A summary of restricted stock and restricted stock unit activity and changes during the three months ended March 31, 2017 is presented below:

Restricted Stock and Restricted Stock Units	Grants	Weighted Average Grant Date Fair Value	Aggregate Intrinsic Value ($000)
Outstanding at January 1, 2017 (non-vested)	1,188,774	$ 28.87	
Granted [1]	725,947	28.21	
Vesting (transfer/conversion to common stock)	(29,527)	33.08	
Forfeited	(25,324)	29.40	
Outstanding at March 31, 2017 (non-vested)	1,859,870	$ 28.86	$ 52,709

(1) Includes restricted stock units issued to PCLI employees.

In connection with our February 1, 2017 PCLI acquisition, we issued 472,276 restricted stock units to PCLI employees as replacement units for unvested awards issued under the legacy PCLI plan. The fair value of these awards totaled $13.3 million and is based on a February 1 grant date value of $28.12 per unit. Of this total, $5.0 million is recognized as an increase to our PCLI purchase price as it represents the value of the awards attributable to pre-acquisition services, and the remaining $8.3 million to be recognized as compensation expense over the two-year vesting period.

For the three months ended March 31, 2017 , restricted stock and restricted stock units vested having a grant date fair value of $1.0 million . As of March 31, 2017 , there was $38.1 million of total unrecognized compensation cost related to non-vested restricted stock and restricted stock unit grants. That cost is expected to be recognized over a weighted-average period of 1.5 years.

Performance Share Units

Under our Long-Term Incentive Compensation Plan, we grant certain officers and other key employees performance share units, which are payable in stock upon meeting certain criteria over the service period, and generally vest over a period of three years. Under the terms of our performance share unit grants, awards are subject to “financial performance” and “market performance” criteria. Financial performance is based on our financial performance compared to a peer group of independent refining companies, while market performance is based on the relative standing of total shareholder return achieved by HollyFrontier compared to peer group companies. The number of shares ultimately issued under these awards can range from zero to 200% of target award amounts. As of March 31, 2017 , estimated share payouts for outstanding non-vested performance share unit awards averaged approximately 80% of target amounts.

A summary of performance share unit activity and changes during the three months ended March 31, 2017 is presented below:

Performance Share Units	Grants
Outstanding at January 1, 2017 (non-vested)	703,939
Granted	10,223
Forfeited	(81,344)
Outstanding at March 31, 2017 (non-vested)	632,818

As of March 31, 2017 , there was $11.6 million of total unrecognized compensation cost related to non-vested performance share units having a grant date fair value of $33.48 per unit. That cost is expected to be recognized over a weighted-average period of 2 years.

NOTE 7: Cash and Cash Equivalents and Investments in Marketable Securities

Our investment portfolio at March 31, 2017 consisted of cash and cash equivalents.

We invest in marketable debt securities with the maximum maturity or put date of any individual issue generally not greater than one year from the date of purchase, which are usually held until maturity. All of these instruments are classified as available-for-sale and are reported at fair value. Interest income is recorded as earned. Unrealized gains and losses, net of related income taxes, are reported as a component of accumulated other comprehensive income. Upon sale or maturity, realized gains on our marketable debt securities are recognized as interest income. These gains are computed based on the specific identification of the underlying cost of the securities, net of unrealized gains and losses previously reported in other comprehensive income. Unrealized gains and losses on our available-for-sale securities are due to changes in market prices and are considered temporary.

The following is a summary of our marketable securities as of December 31, 2016 :

	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value (Net Carrying Amount)
	(In thousands)			
December 31, 2016				
Commercial paper	$ 7,687	$ 1	$ (1)	$ 7,687
Corporate debt securities	4,001	—	—	4,001
State and political subdivisions debt securities	412,462	1	(3)	412,460
Total marketable securities	$ 424,150	$ 2	$ (4)	$ 424,148

Interest income recognized on our marketable securities was $0.3 million for the three months ended March 31, 2017 . No interest income was recognized for the three months ended March 31, 2016 .

NOTE 8: Inventories

Inventory consists of the following components:

	March 31, 2017	December 31, 2016
	(In thousands)	
Crude oil	$ 566,459	$ 549,886
Other raw materials and unfinished products (1)	336,375	287,561
Finished products (2)	610,096	465,432
Lower of cost or market reserve	(344,341)	(332,518)
Process chemicals (3)	23,238	2,767
Repair and maintenance supplies and other (4)	125,670	162,548
Total inventory	$ 1,317,497	$ 1,135,676

(1) Other raw materials and unfinished products include feedstocks and blendstocks, other than crude.
(2) Finished products include gasolines, jet fuels, diesels, lubricants, asphalts, LPG’s and residual fuels.
(3) Process chemicals include additives and other chemicals.
(4) Includes RINs.

We acquired $213.0 million of other raw materials and unfinished products, finished products and repair and maintenance supplies in connection with our February 1, 2017 acquisition of PCLI. We value these inventories at the lower of FIFO cost or net realizable value.

Inventories, which are valued at the lower of LIFO cost or market, reflect a valuation reserve of $344.3 million and $332.5 million at March 31, 2017 and December 31, 2016 , respectively. The December 31, 2016 market reserve of $332.5 million was reversed due to the sale of inventory quantities that gave rise to the 2016 reserve. A new market reserve of $344.3 million was established as of March 31, 2017 based on market conditions and prices at that time. The effect of the change in lower of cost or market reserve was an increase to cost of goods sold totaling $11.8 million for the three months ended March 31, 2017 and a decrease of $56.1 million for the three months ended March 31, 2016 , respectively.

At March 31, 2017 , the LIFO value of inventory, net of the lower of cost or market reserve, was equal to current costs.

NOTE 9: Environmental

Environmental costs are charged to operating expenses if they relate to an existing condition caused by past operations and do not contribute to current or future revenue generation. We have ongoing investigations of environmental matters at various locations as part of our assessment process to determine the amount of environmental obligation we may have, if any, with respect to these matters for which we have recorded the estimated cost of the studies. Liabilities are recorded when site restoration and environmental remediation, cleanup and other obligations are either known or considered probable and can be reasonably estimated. Such estimates are undiscounted and require judgment with respect to costs, time frame and extent of required remedial and cleanup activities and are subject to periodic adjustments based on currently available information. Recoveries of environmental costs through insurance, indemnification arrangements or other sources are included in other assets to the extent such recoveries are considered probable.

We incurred no expense for the three months ended March 31, 2017 , and $0.9 million for the three months ended March 31, 2016 , for environmental remediation obligations. The accrued environmental liability reflected in our consolidated balance sheets was $98.8 million and $96.4 million at March 31, 2017 and December 31, 2016 , respectively, of which $85.2 million and $82.9 million , respectively, were classified as other long-term liabilities. These accruals include remediation and monitoring costs expected to be incurred over an extended period of time (up to 30 years for certain projects). The amount of our accrued liability includes PCLI environmental obligations of $4.5 million assumed upon our February 1, 2017 acquisition. Estimated liabilities could increase in the future when the results of ongoing investigations become known, are considered probable and can be reasonably estimated.

NOTE 10: Debt

HollyFrontier Credit Agreement
In February 2017, we increased the size of our senior unsecured revolving credit facility from $1 billion to $1.35 billion and extended the maturity date to February 2022 (the "HollyFrontier Credit Agreement"). The Holly Frontier Credit Agreement may be used for revolving credit loans and letters of credit from time to time and is available to fund general corporate purposes. During the three months ended March 31, 2017 , we received advances totaling $26.0 million and repaid $26.0 million under the HollyFrontier Credit Agreement. At March 31, 2017 , we were in compliance with all covenants, had no outstanding borrowings and had outstanding letters of credit totaling $3.3 million under the HollyFrontier Credit Agreement.

HEP Credit Agreement
HEP has a $1.2 billion senior secured revolving credit facility maturing in November 2018 (the "HEP Credit Agreement") and is available to fund capital expenditures, investments, acquisitions, distribution payments and working capital and for general partnership purposes. It is also available to fund letters of credit up to a $50 million sub-limit. During the three months ended March 31, 2017 , HEP received advances totaling $380.0 million and repaid $86.0 million under the HEP Credit Agreement. At March 31, 2017 , HEP was in compliance with all of its covenants, had outstanding borrowings of $847.0 million and no outstanding letters of credit under the HEP Credit Agreement.

HEP's obligations under the HEP Credit Agreement are collateralized by substantially all of HEP's assets. Indebtedness under the HEP Credit Agreement involves recourse to HEP Logistics Holdings, L.P., its general partner, and is guaranteed by HEP's wholly-owned subsidiaries. Any recourse to the general partner would be limited to the extent of HEP Logistics Holdings, L.P.'s assets, which other than its investment in HEP are not significant. HEP's creditors have no recourse to our other assets. Furthermore, our creditors have no recourse to the assets of HEP and its consolidated subsidiaries.

HollyFrontier Senior Notes
Our 5.875% senior notes ($1 billion aggregate principal amount maturing April 2026) (the "HollyFrontier Senior Notes") are unsecured and unsubordinated obligations of ours and rank equally with all our other existing and future unsecured and unsubordinated indebtedness.

HollyFrontier Financing Obligation
In March 2016, we extinguished a financing obligation at a cost of $39.5 million and recognized an $8.7 million loss on the early termination. The financing obligation related to a sale and lease-back of certain crude oil tankage that we sold to an affiliate of Plains in October 2009 for $40.0 million .

HEP Senior Notes
HEP's 6.0% senior notes ($400 million aggregate principal amount maturing August 2024) (the "HEP Senior Notes") are unsecured and impose certain restrictive covenants, including limitations on HEP's ability to incur additional indebtedness, make investments, sell assets, incur certain liens, pay distributions, enter into transactions with affiliates, and enter into mergers. At any time when the HEP Senior Notes are rated investment grade by both Moody's and Standard & Poor's and no default or event of default exists, HEP will not be subject to many of the foregoing covenants. Additionally, HEP has certain redemption rights under the HEP Senior Notes.

In January 2017, HEP redeemed its $300 million aggregate principal amount of 6.5% senior notes maturing March 2020 at a redemption cost of $309.8 million , at which time HEP recognized a $12.2 million early extinguishment loss consisting of a $9.8 million debt redemption premium and unamortized discount and financing costs of $2.4 million . HEP funded the redemption with borrowings under the HEP Credit Agreement.

Indebtedness under the HEP Senior Notes is guaranteed by HEP's wholly-owned subsidiaries. HEP's creditors have no recourse to our assets. Furthermore, our creditors have no recourse to the assets of HEP and its consolidated subsidiaries.

The carrying amounts of long-term debt are as follows:

	March 31, 2017	December 31, 2016
	(In thousands)	
HollyFrontier 5.875% Senior Notes		
Principal	$ 1,000,000	$ 1,000,000
Unamortized discount and debt issuance costs	(9,023)	(8,775)
	990,977	991,225
HEP Credit Agreement	847,000	553,000
HEP 6% Senior Notes		
Principal	400,000	400,000
Unamortized discount and debt issuance costs	(6,435)	(6,607)
	393,565	393,393
HEP 6.5% Senior Notes		
Principal	—	300,000
Unamortized discount and debt issuance costs	—	(2,481)
	—	297,519
Total HEP long-term debt	1,240,565	1,243,912
Total long-term debt	$ 2,231,542	$ 2,235,137

The fair values of the senior notes are as follows:

	March 31, 2017	December 31, 2016
	(In thousands)	
HollyFrontier senior notes	$ 1,065,320	$ 1,022,500
HEP senior notes	$ 422,288	$ 723,750

These fair values are based on estimates provided by a third party using market quotes for similar type instruments, a Level 2 input. See Note 4 for additional information on Level 2 inputs.

We capitalized interest attributable to construction projects of $2.6 million and $0.7 million for the three months ended March 31, 2017 and 2016 , respectively.

NOTE 11: Derivative Instruments and Hedging Activities

Commodity Price Risk Management
Our primary market risk is commodity price risk. We are exposed to market risks related to the volatility in crude oil and refined products, as well as volatility in the price of natural gas used in our refining operations. We periodically enter into derivative contracts in the form of commodity price swaps, forward purchase and sales and futures contracts to mitigate price exposure with respect to:

- our inventory positions;
- natural gas purchases;
- costs of crude oil and related grade differentials;
- prices of refined products; and
- our refining margins.

Accounting Hedges

We have swap contracts serving as cash flow hedges against price risk on forecasted purchases of natural gas. We also periodically have forward sales contracts that lock in the prices of future sales of crude oil and refined product and swap contracts serving as cash flow hedges against price risk on forecasted purchases of WTI crude oil and forecasted sales of refined product. These contracts have been designated as accounting hedges and are measured at fair value with offsetting adjustments (gains/losses) recorded directly to other comprehensive income. These fair value adjustments are later reclassified to earnings as the hedging instruments mature. On a quarterly basis, hedge ineffectiveness is measured by comparing the change in fair value of the swap contracts against the expected future cash inflows/outflows on the respective transaction being hedged. Any hedge ineffectiveness is also recognized in earnings.

The following table presents the pre-tax effect on other comprehensive income (“OCI”) and earnings due to fair value adjustments and maturities of commodity price swaps and forward sales under hedge accounting:

	Unrealized Gain (Loss) Recognized in OCI	Gain (Loss) Recognized in Earnings Due to Settlements		Gain (Loss) Attributable to Hedge Ineffectiveness Recognized in Earnings	
		Location	Amount	Location	Amount
			(In thousands)		
Three Months Ended March 31, 2017					
Change in fair value	$ 3,337	Sales and other revenues	$ 3,950		
Loss reclassified to earnings due to settlements	374	Cost of products sold	(299)		
Amortization of discontinued hedges reclassified to earnings	270	Operating expenses	(4,295)	Operating expenses	$ —
Total	$ 3,981		$ (644)		$ —
Three Months Ended March 31, 2016					
Change in fair value	$ (11,921)				
Loss reclassified to earnings due to settlements	11,056	Sales and other revenue	$ (4,756)		
Amortization of discontinued hedges reclassified to earnings	270	Operating expenses	(6,570)	Operating expenses	$ —
Total	$ (595)		$ (11,326)		$ —

As of March 31, 2017 , we have the following notional contract volumes related to outstanding derivative instruments serving as cash flow hedges against price risk on forecasted transactions:

		Notional Contract Volumes by Year of Maturity					
Derivative Instruments	**Total Outstanding Notional**	**2017**	**2018**	**2019**	**2020**	**2021**	**Unit of Measure**
Natural gas price swaps - long	14,400,000	7,200,000	1,800,000	1,800,000	1,800,000	1,800,000	MMBTU
Forward gasoline and diesel contracts - short	975,000	975,000	—	—	—	—	Barrels
Physical crude contracts - short	150,000	150,000	—	—	—	—	Barrels

In 2013 , we dedesignated certain commodity price swaps (long positions) that previously received hedge accounting treatment. These contracts now serve as economic hedges against price risk on forecasted natural gas purchases totaling 7,200,000 MMBTU’s to be purchased ratably through 2017. As of March 31, 2017 , we have an unrealized loss of $0.8 million classified in accumulated other comprehensive income that relates to the application of hedge accounting prior to dedesignation that is amortized as a charge to operating expenses as the contracts mature.

Economic Hedges

We also have swap contracts that serve as economic hedges (derivatives used for risk management, but not designated as accounting hedges) to lock in basis spread differentials on forecasted purchases of crude oil and natural gas. Also, we have commodity forward contracts and NYMEX futures contracts to lock in prices on forecasted purchases of inventory. In addition, we had Canadian currency swap contracts that effectively fixed the conversion rate on $1.125 billion Canadian dollars (the PCLI purchase price), which were settled on February 1, 2017, in connection with the closing of the PCLI acquisition. These contracts are measured at fair value with offsetting adjustments (gains/losses) recorded directly to income.

The following table presents the pre-tax effect on income due to maturities and fair value adjustments of our economic hedges:

Location of Gain (Loss) Recognized in Earnings	Three Months Ended March 31, 2017	2016
	(In thousands)	
Cost of products sold	$ 7,052	$ 474
Operating expenses	(4,222)	(3,469)
Gain on foreign currency swap	24,545	—
Total	$ 27,375	$ (2,995)

As of March 31, 2017 , we have the following notional contract volumes related to our outstanding derivative contracts serving as economic hedges (all maturing in 2017):

Derivative Instrument	Total Outstanding Notional	Unit of Measure
Crude price swaps (basis spread) - long	2,745,000	Barrels
Natural gas price swaps (basis spread) - long	7,731,000	MMBTU
Natural gas price swaps - long	7,200,000	MMBTU
Natural gas price swaps - short	7,200,000	MMBTU
NYMEX futures (WTI) - short	620,000	Barrels
Forward gasoline and diesel contracts - long	550,000	Barrels

Interest Rate Risk Management

HEP uses interest rate swaps to manage its exposure to interest rate risk.

As of March 31, 2017 , HEP had two interest rate swap contracts with identical terms that hedge its exposure to the cash flow risk caused by the effects of LIBOR changes on $150.0 million in credit agreement advances. The swaps effectively convert $150.0 million of LIBOR based debt to fixed rate debt having an interest rate of 0.74% plus an applicable margin of 2.25% as of March 31, 2017 , which equaled an effective interest rate of 2.99% . Both of these swap contracts mature in July 2017 and have been designated as cash flow hedges. To date, there has been no ineffectiveness on these cash flow hedges.

The following table presents the pre-tax effect on other comprehensive income and earnings due to fair value adjustments and maturities of HEP's interest rate swaps under hedge accounting:

	Unrealized Gain (Loss) Recognized in OCI	Gain (Loss) Recognized in Earnings Due to Settlements: Location	Gain (Loss) Recognized in Earnings Due to Settlements: Amount
	(In thousands)		
Three Months Ended March 31, 2017			
Interest rate swaps			
Change in fair value	$ 76		
Gain reclassified to earnings due to settlements	(13)	Interest expense	$ 13
Total	$ 63		$ 13
Three Months Ended March 31, 2016			
Interest rate swaps			
Change in fair value	$ (683)		
Loss reclassified to earnings due to settlements	230	Interest expense	$ (230)
Total	$ (453)		$ (230)

The following table presents the fair value and balance sheet locations of our outstanding derivative instruments. These amounts are presented on a gross basis with offsetting balances that reconcile to a net asset or liability position in our consolidated balance sheets. We present on a net basis to reflect the net settlement of these positions in accordance with provisions of our master netting arrangements.

	Derivatives in Net Asset Position			Derivatives in Net Liability Position		
	Gross Assets	Gross Liabilities Offset in Balance Sheet	Net Assets Recognized in Balance Sheet	Gross Liabilities	Gross Assets Offset in Balance Sheet	Net Liabilities Recognized in Balance Sheet
			(In thousands)			
March 31, 2017						
Derivatives designated as cash flow hedging instruments:						
Commodity price swap contracts	$ —	$ —	$ —	$ 13,087	$ —	$ 13,087
Forward contracts	531	—	531	3,558	(1,502)	2,056
Interest rate swap contracts	154	—	154	—	—	—
	$ 685	$ —	$ 685	$ 16,645	$ (1,502)	$ 15,143
Derivatives not designated as cash flow hedging instruments:						
Commodity price swap contracts	$ —	$ —	$ —	$ 13,503	$ (10,256)	$ 3,247
NYMEX futures contracts	1,051	—	1,051	—	—	—
Forward contracts	3,481	—	3,481	3,313	—	3,313
	$ 4,532	$ —	$ 4,532	$ 16,816	$ (10,256)	$ 6,560
Total net balance			$ 5,217			$ 21,703
Balance sheet classification:				Accrued liabilities		$ 20,522
				Other long-term liabilities		1,181
		Prepayment and other	$ 5,217			$ 21,703

	Derivatives in Net Asset Position			Derivatives in Net Liability Position		
	Gross Assets	Gross Liabilities Offset in Balance Sheet	Net Assets Recognized in Balance Sheet	Gross Liabilities	Gross Assets Offset in Balance Sheet	Net Liabilities Recognized in Balance Sheet
			(In thousands)			
December 31, 2016						
Derivatives designated as cash flow hedging instruments:						
Commodity price swap contracts	$ —	$ —	$ —	$ 13,185	$ (431)	$ 12,754
Commodity forward contracts	—	—	—	2,978	—	2,978
Interest rate swap contracts	91	—	91	—	—	—
	$ 91	$ —	$ 91	$ 16,163	$ (431)	$ 15,732
Derivatives not designated as cash flow hedging instruments:						
Commodity price swap contracts	$ 4,244	$ (756)	$ 3,488	$ 12,903	$ (9,887)	$ 3,016
NYMEX futures contracts	—	—	—	1,975	—	1,975
Commodity forward contracts	5,905	—	5,905	5,338	—	5,338
Foreign currency forward contracts	—	—	—	6,519	—	6,519
	$ 10,149	$ (756)	$ 9,393	$ 26,735	$ (9,887)	$ 16,848
Total net balance			$ 9,484			$ 32,580
Balance sheet classification:	Prepayment and other		$ 9,484	Accrued liabilities		$ 32,580

At March 31, 2017 , we had a pre-tax net unrealized loss of $11.8 million classified in accumulated other comprehensive income that relates to all accounting hedges having contractual maturities through 2021. Assuming commodity prices and interest rates remain unchanged, an unrealized loss of $10.6 million will be effectively transferred from accumulated other comprehensive income into the statement of income as the hedging instruments contractually mature over the next twelve-month period.

NOTE 12: Equity

Changes to equity during the three months ended March 31, 2017 are presented below:

	HollyFrontier Stockholders' Equity	Noncontrolling Interest	Total Equity
		(In thousands)	
Balance at December 31, 2016	$ 4,681,394	$ 620,591	$ 5,301,985
Net income (loss)	(45,468)	7,686	(37,782)
Dividends	(58,992)	—	(58,992)
Distributions to noncontrolling interest holders	—	(26,536)	(26,536)
Other comprehensive income (loss), net of tax	(2,488)	50	(2,438)
Allocated equity on HEP common unit issuances, net of tax	7,266	27,516	34,782
Equity awards issued in PCLI acquisition	5,056	—	5,056
Equity-based compensation	6,977	433	7,410
Purchase of treasury stock (1)	(274)	—	(274)
Purchase of HEP units for restricted grants	—	(35)	(35)
Other	—	18	18
Balance at March 31, 2017	$ 4,593,471	$ 629,723	$ 5,223,194

(1) Includes 9,349 shares withheld under the terms of stock-based compensation agreements to provide funds for the payment of payroll and income taxes due at the vesting of share-based awards.

In May 2015, our Board of Directors approved a $1 billion share repurchase program, which replaced all existing share repurchase programs, authorizing us to repurchase common stock in the open market or through privately negotiated transactions. The timing and amount of stock repurchases will depend on market conditions and corporate, regulatory and other relevant considerations. This program may be discontinued at any time by the Board of Directors. As of March 31, 2017 , we had remaining authorization to repurchase up to $178.8 million under this stock repurchase program. In addition, we are authorized by our Board of Directors to repurchase shares in an amount sufficient to offset shares issued under our compensation programs.

NOTE 13: Other Comprehensive Income (Loss)

The components and allocated tax effects of other comprehensive income (loss) are as follows:

	Before-Tax	Tax Expense (Benefit)	After-Tax
		(In thousands)	
Three Months Ended March 31, 2017			
Net change in foreign currency translation adjustment	$ (6,713)	$ (1,779)	$ (4,934)
Net unrealized loss on marketable securities	(4)	(1)	(3)
Net unrealized gain on hedging instruments	4,044	1,545	2,499
Other comprehensive loss	(2,673)	(235)	(2,438)
Less other comprehensive income attributable to noncontrolling interest	50	—	50
Other comprehensive loss attributable to HollyFrontier stockholders	$ (2,723)	$ (235)	$ (2,488)
Three Months Ended March 31, 2016			
Net unrealized gain on marketable securities	$ 101	$ 40	$ 61
Net unrealized loss on hedging instruments	(1,048)	(301)	(747)
Other comprehensive loss	(947)	(261)	(686)
Less other comprehensive loss attributable to noncontrolling interest	(275)	—	(275)
Other comprehensive loss attributable to HollyFrontier stockholders	$ (672)	$ (261)	$ (411)

The following table presents the income statement line item effects for reclassifications out of accumulated other comprehensive income ("AOCI"):

AOCI Component	Gain (Loss) Reclassified From AOCI		Income Statement Line Item
	(In thousands)		
	Three Months Ended March 31,		
	2017	2016	
Marketable securities	$ —	$ (23)	Interest income
	—	(9)	Income tax benefit
	—	(14)	Net of tax
Hedging instruments:			
Commodity price swaps	$ 3,950	$ (4,756)	Sales and other revenues
	(299)	—	Cost of products sold
	(4,295)	(6,570)	Operating expenses
Interest rate swaps	13	(230)	Interest expense
	(631)	(11,556)	
	(247)	(4,418)	Income tax benefit
	(384)	(7,138)	Net of tax
	(8)	139	Noncontrolling interest
	(392)	(6,999)	Net of tax and noncontrolling interest
Total reclassifications for the period	$ (392)	$ (7,013)	

Accumulated other comprehensive income (loss) in the equity section of our consolidated balance sheets includes:

	March 31, 2017	December 31, 2016
	(In thousands)	
Foreign currency translation adjustment	$ (4,934)	$ —
Unrealized gain on post-retirement benefit obligations	20,055	20,055
Unrealized gain (loss) on marketable securities	—	3
Unrealized loss on hedging instruments, net of noncontrolling interest	(6,997)	(9,446)
Accumulated other comprehensive income (loss)	$ 8,124	$ 10,612

NOTE 14: Post-retirement Plans

In connection with our PCLI acquisition, we agreed to establish employee benefit plans including union and non-union pension plans and a post retirement plan for PCLI employees that were previously covered under legacy Suncor plans.

Our agreement with Suncor also provides that pension assets related to the union and non-union pension plans will be transferred to a pension trust which will be established by us. The amount of assets to be transferred will be agreed by Suncor and us based on actuarial valuations and a formula specified in the SPA.

Our purchase price allocation as of February 1, 2017 included estimates of the amount of pension benefit obligation and the pension assets to be transferred based on actuarial estimates and are as follows:

	February 1, 2017
	(in thousands)
Estimated projected benefit obligation	$ 49,559
Estimated pension assets	50,761
Estimated funded status	$ 1,202

The net periodic pension expense of these plans consisted of the following components:

	Three Months Ended March 31, 2017
	(in thousands)
Service cost - benefit earned during the period	$ 635
Interest cost on projected benefit obligations	349
Expected return on plan assets	(511)
Net periodic pension expense	$ 473

We have a post-retirement healthcare and other benefits plan that is available to certain of our non-PCLI employees who satisfy certain age and service requirements. The net periodic benefit credit of this plan consisted of the following components:

	Three Months Ended March 31,	
	2017	2016
	(In thousands)	
Service cost – benefit earned during the period	$ 300	$ 324
Interest cost on projected benefit obligations	170	197
Amortization of prior service credit	(870)	(871)
Net periodic post-retirement credit	$ (400)	$ (350)

In addition, we established a post-retirement healthcare and other benefits plan for our PCLI employees. Our purchase price allocation as of February 1, 2017 included estimates of the amount of projected benefit obligations of $8.0 million . The net periodic benefit expense related to this plan was $0.1 million for the three months ended March 31, 2017 .

NOTE 15: Contingencies

We are a party to various litigation and legal proceedings which we believe, based on advice of counsel, will not either individually or in the aggregate have a material adverse effect on our financial condition, results of operations or cash flows.

In March, 2006, a subsidiary of ours sold the assets of Montana Refining Company under an Asset Purchase Agreement (“APA”). Calumet Montana Refining LLC, the current owner of the assets, has submitted requests for reimbursement pursuant to contractual indemnity provisions under the APA for various costs incurred, as well as additional claims related to environmental matters. This matter is scheduled for arbitration beginning in January 2018. We have accrued the costs we believe are owed pursuant to the APA, and we estimate that any reasonably possible losses beyond the amounts accrued are not material.

NOTE 16: Segment Information

Our operations are organized into three reportable segments, Refining, PCLI and HEP. Our operations that are not included in the Refining, PCLI and HEP segments are included in Corporate and Other. Intersegment transactions are eliminated in our consolidated financial statements and are included in Consolidations and Eliminations.

The Refining segment represents the operations of the El Dorado, Tulsa, Navajo, Cheyenne and Woods Cross Refineries and HFC Asphalt (aggregated as a reportable segment). Refining activities involve the purchase and refining of crude oil and wholesale and branded marketing of refined products, such as gasoline, diesel fuel and jet fuel. These petroleum products are primarily marketed in the Mid-Continent, Southwest and Rocky Mountain regions of the United States. Additionally, the Refining segment includes specialty lubricant products produced at our Tulsa Refineries that are marketed throughout North America and are distributed in Central and South America. HFC Asphalt operates various asphalt terminals in Arizona, New Mexico and Oklahoma.

On February 1, 2017, we acquired PCLI, a Canadian-based producer of lubricant products such as base oils, white oils, specialty products and finished lubricants. The PCLI segment involves production operations, located in Mississauga, Ontario, and marketing of its products to both retail and wholesale outlets through a global sales network with locations in Canada, the United States, Europe and China.

The HEP segment includes all of the operations of HEP, which owns and operates logistics and refinery assets consisting of petroleum product and crude oil pipelines, terminals, tankage, loading rack facilities and processing units in the Mid-Continent, Southwest and Rocky Mountain regions of the United States. The HEP segment also includes a 75% ownership interest in UNEV (a consolidated subsidiary of HEP); a 50% ownership interest in each of the Frontier Pipeline, Osage Pipeline and the Cheyenne Pipeline and a 25% ownership interest in the SLC Pipeline. Revenues from the HEP segment are earned through transactions with unaffiliated parties for pipeline transportation, rental and terminalling operations as well as revenues relating to pipeline transportation services provided for our refining operations. Due to certain basis differences, our reported amounts for the HEP segment may not agree to amounts reported in HEP’s periodic public filings.

The accounting policies for our segments are the same as those described in the summary of significant accounting policies in our Annual Report on Form 10-K for the year ended December 31, 2016 .

	Refining	PCLI	HEP (1)	Corporate and Other	Consolidations and Eliminations	Consolidated Total
			(In thousands)			
Three Months Ended March 31, 2017						
Sales and other revenues	$ 2,862,076	$ 201,940	$ 105,634	$ 27	$ (89,194)	$ 3,080,483
Operating expenses	$ 257,115	$ 36,029	$ 32,489	$ 1,013	$ (19,529)	$ 307,117
Depreciation and amortization	$ 69,668	$ 5,074	$ 18,373	$ 3,132	$ (207)	$ 96,040
Income (loss) from operations	$ (50,255)	$ 12,394	$ 52,138	$ (46,435)	$ (566)	$ (32,724)
Earnings of equity method investments	$ —	$ —	$ 1,840	$ —	$ —	$ 1,840
Capital expenditures	$ 47,674	$ 1,595	$ 8,265	$ 2,223	$ —	$ 59,757
Three Months Ended March 31, 2016						
Sales and other revenues	$ 1,999,587	$ —	$ 102,010	$ 110	$ (82,983)	$ 2,018,724
Operating expenses	$ 228,762	$ —	$ 26,823	$ 1,255	$ (4,257)	$ 252,583
Depreciation and amortization	$ 68,878	$ —	$ 16,029	$ 3,180	$ (207)	$ 87,880
Income (loss) from operations	$ 55,000	$ —	$ 56,067	$ (26,855)	$ (614)	$ 83,598
Earnings of equity method investments	$ —	$ —	$ 2,765	$ —	$ —	$ 2,765
Capital expenditures	$ 104,707	$ —	$ 42,184	$ 2,682	$ —	$ 149,573

	Refining	PCLI	HEP	Corporate and Other	Consolidations and Eliminations	Consolidated Total
			(In thousands)			
March 31, 2017						
Cash, cash equivalents and investments in marketable securities	$ 90	$ 56,799	$ 7,007	$ 65,616	$ —	$ 129,512
Total assets	$ 6,514,854	$ 1,152,870	$ 1,906,791	$ 252,549	$ (284,712)	$ 9,542,352
Long-term debt	$ —	$ —	$ 1,240,565	$ 990,977	$ —	$ 2,231,542
December 31, 2016						
Cash, cash equivalents and investments in marketable securities	$ 49	$ —	$ 3,657	$ 1,131,021	$ —	$ 1,134,727
Total assets	$ 6,513,806	$ —	$ 1,920,487	$ 1,306,169	$ (304,801)	$ 9,435,661
Long-term debt	$ —	$ —	$ 1,243,912	$ 991,225	$ —	$ 2,235,137

(1) HEP acquired a newly constructed crude unit, FCCU and polymerization unit at our Woods Cross Refinery in October 2016. As a result, we have recast our 2016 HEP segment information to include these asset-related capital expenditures and certain operating expenses that were previously presented under the Refining segment.

HEP segment revenues from external customers were $16.6 million and $19.2 million for the three months ended March 31, 2017 and 2016 , respectively.

NOTE 17: Additional Financial Information

Borrowings pursuant to the HollyFrontier Credit Agreement are recourse to HollyFrontier, but not HEP. Furthermore, borrowings under the HEP Credit Agreement are recourse to HEP, but not to the assets of HFC with the exception of HEP Logistics Holdings, L.P., HEP's general partner. Other than its investment in HEP, the assets of the general partner are insignificant.

The following condensed financial information is provided for HollyFrontier Corporation (on a standalone basis, before consolidation of HEP), and for HEP and its consolidated subsidiaries (on a standalone basis, exclusive of HFC). Due to certain basis differences, our reported amounts for HEP may not agree to amounts reported in HEP's periodic public filings.

Condensed Consolidating Balance Sheet

March 31, 2017	HollyFrontier Corp. Before Consolidation of HEP	HEP Segment	Consolidations and Eliminations	Consolidated
	(In thousands)			
ASSETS				
Current assets:				
Cash and cash equivalents	$ 122,505	$ 7,007	$ —	$ 129,512
Accounts receivable, net	597,486	45,746	(42,115)	601,117
Inventories	1,316,043	1,454	—	1,317,497
Income taxes receivable	87,384	—	—	87,384
Prepayments and other	37,697	1,716	(6,084)	33,329
Total current assets	2,161,115	55,923	(48,199)	2,168,839
Properties, plants and equipment, net	3,323,981	1,357,322	(227,628)	4,453,675
Intangibles and other assets	2,425,713	493,547	578	2,919,838
Total assets	$ 7,910,809	$ 1,906,792	$ (275,249)	$ 9,542,352
LIABILITIES AND EQUITY				
Current liabilities:				
Accounts payable	$ 978,103	$ 17,940	$ (42,115)	$ 953,928
Income tax payable	288	—	—	288
Accrued liabilities	169,013	24,511	(6,084)	187,440
Total current liabilities	1,147,404	42,451	(48,199)	1,141,656
Long-term debt	990,977	1,240,565	—	2,231,542
Liability to HEP	208,763	—	(208,763)	—
Deferred income taxes	736,599	574	—	737,173
Other long-term liabilities	146,525	62,828	(566)	208,787
Investment in HEP	145,885	—	(145,885)	—
Equity – HollyFrontier	4,534,656	467,183	(408,368)	4,593,471
Equity – noncontrolling interest	—	93,191	536,532	629,723
Total liabilities and equity	$ 7,910,809	$ 1,906,792	$ (275,249)	$ 9,542,352

Condensed Consolidating Balance Sheet

December 31, 2016	HollyFrontier Corp. Before Consolidation of HEP	HEP Segment	Consolidations and Eliminations	Consolidated
	(In thousands)			
ASSETS				
Current assets:				
Cash and cash equivalents	$ 706,922	$ 3,657	$ —	$ 710,579
Marketable securities	424,148	—	—	424,148
Accounts receivable, net	487,693	50,408	(58,902)	479,199
Inventories	1,134,274	1,402	—	1,135,676
Income taxes receivable	68,371	—	—	68,371
Prepayments and other	37,379	1,486	(5,829)	33,036
Total current assets	2,858,787	56,953	(64,731)	2,851,009
Properties, plants and equipment, net	2,874,041	1,365,568	(231,161)	4,008,448
Intangibles and other assets	2,077,683	497,966	555	2,576,204
Total assets	$ 7,810,511	$ 1,920,487	$ (295,337)	$ 9,435,661

LIABILITIES AND EQUITY				
Current liabilities:				
Accounts payable	$ 967,347	$ 26,942	$ (58,902)	$ 935,387
Accrued liabilities	115,878	37,793	(5,829)	147,842
Total current liabilities	1,083,225	64,735	(64,731)	1,083,229
Long-term debt	991,225	1,243,912	—	2,235,137
Liability to HEP	208,603	—	(208,603)	—
Deferred income taxes	619,905	509	—	620,414
Other long-term liabilities	132,515	62,971	(590)	194,896
Investment in HEP	136,435	—	(136,435)	—
Equity – HollyFrontier	4,638,603	454,803	(412,012)	4,681,394
Equity – noncontrolling interest	—	93,557	527,034	620,591
Total liabilities and equity	$ 7,810,511	$ 1,920,487	$ (295,337)	$ 9,435,661

Condensed Consolidating Statement of Income and Comprehensive Income

Three Months Ended March 31, 2017	HollyFrontier Corp. Before Consolidation of HEP	HEP Segment	Consolidations and Eliminations	Consolidated
		(In thousands)		
Sales and other revenues	$ 3,064,043	$ 105,634	$ (89,194)	$ 3,080,483
Operating costs and expenses:				
Cost of products sold	2,710,029	—	(68,872)	2,641,157
Lower of cost or market inventory valuation adjustment	11,823	—	—	11,823
Operating expenses	294,157	32,489	(19,529)	307,117
General and administrative	54,456	2,634	(20)	57,070
Depreciation and amortization	81,200	18,373	(3,533)	96,040
Total operating costs and expenses	3,151,665	53,496	(91,954)	3,113,207
Income (loss) from operations	(87,622)	52,138	2,760	(32,724)
Other income (expense):				
Earnings of equity method investments	20,588	1,840	(20,588)	1,840
Interest income (expense)	(10,584)	(13,437)	(2,318)	(26,339)
Loss on early extinguishment of debt	—	(12,225)	—	(12,225)
Other, net	14,804	73	—	14,877
	24,808	(23,749)	(22,906)	(21,847)
Income (loss) before income taxes	(62,814)	28,389	(20,146)	(54,571)
Income tax provision	(16,895)	106	—	(16,789)
Net income (loss)	(45,919)	28,283	(20,146)	(37,782)
Less net income (loss) attributable to noncontrolling interest	(10)	2,316	5,380	7,686
Net income (loss) attributable to HollyFrontier stockholders	$ (45,909)	$ 25,967	$ (25,526)	$ (45,468)
Comprehensive income (loss) attributable to HollyFrontier stockholders	$ (48,397)	$ 26,005	$ (25,564)	$ (47,956)

Condensed Consolidating Statement of Income and Comprehensive Income

Three Months Ended March 31, 2016	HollyFrontier Corp. Before Consolidation of HEP	HEP Segment	Consolidations and Eliminations	Consolidated
		(In thousands)		
Sales and other revenues	$ 1,999,697	$ 102,010	$ (82,983)	$ 2,018,724
Operating costs and expenses:				
Cost of products sold	1,703,068	—	(77,905)	1,625,163
Lower of cost or market inventory valuation adjustment	(56,121)	—	—	(56,121)
Operating expenses	230,017	26,823	(4,257)	252,583
General and administrative	22,530	3,091	—	25,621
Depreciation and amortization	75,421	16,029	(3,570)	87,880
Total operating costs and expenses	1,974,915	45,943	(85,732)	1,935,126
Income from operations	24,782	56,067	2,749	83,598
Other income (expense):				
Earnings of equity method investments	25,797	2,765	(25,797)	2,765
Interest income (expense)	708	(10,423)	(2,297)	(12,012)
Loss on early extinguishment of debt	(8,718)	—	—	(8,718)
Other, net	73	(8)	—	65
	17,860	(7,666)	(28,094)	(17,900)
Income before income taxes	42,642	48,401	(25,345)	65,698
Income tax provision	22,212	96	—	22,308
Net income	20,430	48,305	(25,345)	43,390

Less net income (loss) attributable to noncontrolling interest	(7)	4,927	17,217	22,137
Net income attributable to HollyFrontier stockholders	$ 20,437	$ 43,378	$ (42,562)	$ 21,253
Comprehensive income attributable to HollyFrontier stockholders	$ 20,026	$ 43,200	$ (42,384)	$ 20,842

Condensed Consolidating Statement of Cash Flows

Three Months Ended March 31, 2017	HollyFrontier Corp. Before Consolidation of HEP	HEP Segment	Consolidations and Eliminations	Consolidated
	(In thousands)			
Cash flows from operating activities	$ (53,139)	$ 43,599	$ (29,844)	$ (39,384)
Cash flows from investing activities				
Additions to properties, plants and equipment	(51,492)	—	—	(51,492)
Additions to properties, plants and equipment – HEP	—	(8,265)	—	(8,265)
Purchase of shares of PCLI, net of cash acquired	(840,432)	—	—	(840,432)
Proceeds from sale of assets	6	424	(424)	6
Purchases of marketable securities	(41,565)	—	—	(41,565)
Sales and maturities of marketable securities	465,716	—	—	465,716
Distributions in excess of earnings from equity investments	—	3,016	—	3,016
	(467,767)	(4,825)	(424)	(473,016)
Cash flows from financing activities				
Net borrowings under credit agreements	—	294,000	—	294,000
Redemption of senior notes - HEP	—	(309,750)	—	(309,750)
Proceeds from issuance of common units	—	37,563	—	37,563
Dividends	(58,992)	—	—	(58,992)
Distributions to noncontrolling interest	—	(56,804)	30,268	(26,536)
Other, net	(4,215)	(433)	—	(4,648)
	(63,207)	(35,424)	30,268	(68,363)
Effect of exchange rates on cash flows	(304)	—	—	(304)
Cash and cash equivalents				
Increase (decrease) for the period	(584,417)	3,350	—	(581,067)
Beginning of period	706,922	3,657	—	710,579
End of period	$ 122,505	$ 7,007	$ —	$ 129,512

Condensed Consolidating Statement of Cash Flows

Three Months Ended March 31, 2016	HollyFrontier Corp. Before Consolidation of HEP	HEP Segment	Consolidations and Eliminations	Consolidated
	(In thousands)			
Cash flows from operating activities	$ (8,257)	$ 39,372	$ (24,479)	$ 6,636
Cash flows from investing activities:				
Additions to properties, plants and equipment	(107,389)	—	—	(107,389)
Additions to properties, plants and equipment – HEP	—	(42,184)	—	(42,184)
Proceeds from sale of assets	258	—	—	258
Purchases of marketable securities	(4,082)	—	—	(4,082)
Sales and maturities of marketable securities	148,204	—	—	148,204
	36,991	(42,184)	—	(5,193)
Cash flows from financing activities:				
Net borrowings under credit agreements	—	53,000	—	53,000
Net proceeds from issuance of senior notes - HFC	246,690	—	—	246,690
Repayment of financing obligation	—	(39,500)	—	(39,500)
Purchase of treasury stock	(133,430)	—	—	(133,430)

Dividends	(58,602)	—	—	(58,602)
Distributions to noncontrolling interest	—	(46,210)	24,479	(21,731)
Other, net	(32,925)	29,543	—	(3,382)
	21,733	(3,167)	24,479	43,045
Cash and cash equivalents				
Increase (decrease) for the period:	50,467	(5,979)	—	44,488
Beginning of period	51,520	15,013	—	66,533
End of period	$ 101,987	$ 9,034	$ —	$ 111,021

Item 2. Management’s Discussion and Analysis of Financial Condition and Results of Operations

This Item 2 contains “forward-looking” statements. See “Forward-Looking Statements” at the beginning of Part I of this Quarterly Report on Form 10-Q. References herein to HollyFrontier Corporation (“HollyFrontier”) include HollyFrontier and its consolidated subsidiaries. In accordance with the Securities and Exchange Commission’s (“SEC”) “Plain English” guidelines, this Quarterly Report on Form 10-Q has been written in the first person. In this document, the words “we,” “our,” “ours” and “us” refer only to HollyFrontier and its consolidated subsidiaries or to HollyFrontier or an individual subsidiary and not to any other person with certain exceptions. Generally, the words “we,” “our,” “ours” and “us” include Holly Energy Partners, L.P. (“HEP”) and its subsidiaries as consolidated subsidiaries of HollyFrontier, unless when used in disclosures of transactions or obligations between HEP and HollyFrontier or its other subsidiaries. This document contains certain disclosures of agreements that are specific to HEP and its consolidated subsidiaries and do not necessarily represent obligations of HollyFrontier. When used in descriptions of agreements and transactions, “HEP” refers to HEP and its consolidated subsidiaries.

OVERVIEW

We are principally an independent petroleum refiner that produces high-value refined products such as gasoline, diesel fuel, jet fuel, specialty lubricant products, and specialty and modified asphalt. We own and operate refineries having a combined nameplate crude oil processing capacity of 457,000 barrels per day that serve markets throughout the Mid-Continent, Southwest and Rocky Mountain regions of the United States. Our refineries are located in El Dorado, Kansas (the “El Dorado Refinery”), Tulsa, Oklahoma (the, “Tulsa Refineries”), which comprise two production facilities, the Tulsa West and East facilities, Artesia, New Mexico, which operates in conjunction with crude, vacuum distillation and other facilities situated 65 miles away in Lovington, New Mexico (collectively, the “Navajo Refinery”), Cheyenne, Wyoming (the “Cheyenne Refinery”) and Woods Cross, Utah (the “Woods Cross Refinery”).

On October 29, 2016, our wholly-owned subsidiary, 9952110 Canada Inc., entered into a share purchase agreement with Suncor to acquire 100% of the outstanding capital stock of Petro-Canada Lubricants Inc. (“PCLI”). The acquisition closed on February 1, 2017. Cash consideration paid was $862.0 million , or $1.125 billion in Canadian dollars.

PCLI is Canadian-based producer of base oils with a plant having 15,600 BPD of lubricant production capacity that is located in Mississauga, Ontario. The facility is downstream integrated from base oils to finished lubricants and produces a broad spectrum of specialty lubricants and white oils that are distributed to end customers worldwide through a global sales network with locations in Canada, the United States, Europe and China.

For the three months ended March 31, 2017 , net loss attributable to HollyFrontier stockholders was $(45.5) million compared to net income of $21.3 million for the three months ended March 31, 2016 . First quarter earnings reflect weak refining margins across the industry, with overall gross refining margin per produced barrel increasing slightly by 2% compared to the three months ended March 31, 2016 . Additionally, our first quarter results reflect $8.4 million in earnings attributable to our recently acquired PCLI operations for the period from February 1, 2017 through March 31, 2017.

First quarter crude rate was negatively impacted by our planned turnaround at Navajo, planned maintenance at the El Dorado vacuum tower, unplanned maintenance at the Tulsa CCR reformer and the crude supply pipeline outage to our Woods Cross refinery. The Navajo turnaround included projects to improve efficiency and debottleneck the refinery.

Pursuant to the 2007 Energy Independence and Security Act, the Environmental Protection Agency (“EPA”) promulgated the Renewable Fuel Standard 2 (“RFS2”) regulations, which increased the volume of renewable fuels mandated to be blended into the nation’s fuel supply. The regulations, in part, require refiners to add annually increasing amounts of “renewable fuels” to their petroleum products or purchase credits, known as renewable identification numbers (“RINs”), in lieu of such blending. Compliance with RFS2 significantly increases our cost of products sold, with RINs costs totaling $66.0 million for the three months ended March 31, 2017 . Year-over-year increased costs of ethanol blended into our petroleum products, which exceeded the cost of crude oil, also contributed to lower refining margins for the quarter.

OUTLOOK

Our profitability is affected by the spread, or differential, between the market prices for crude oil on the world market (which is based on the price for Brent, North Sea Crude) and the price for inland U.S. crude oil (which is based on the price for WTI). We expect continued volatility in the pricing relationship between inland and coastal crude, currently averaging in the range of $1.00 to $2.00 per barrel.

Our RINs costs are material and represent a cost of products sold. The price of RINs may be extremely volatile due to real or perceived future shortages in RINs. As of March 31, 2017 , we are purchasing RINs in order to meet approximately half of our renewable fuel requirements.

A more detailed discussion of our financial and operating results for the three months ended March 31, 2017 and 2016 is presented in the following sections.

RESULTS OF OPERATIONS

Financial Data

	Three Months Ended March 31,		Change from 2016	
	2017	2016	Change	Percent
	(In thousands, except per share data)			
Sales and other revenues	$ 3,080,483	$ 2,018,724	$ 1,061,759	53 %
Operating costs and expenses:				
Cost of products sold (exclusive of depreciation and amortization):				
Cost of products sold (exclusive of lower of cost or market inventory valuation adjustment)	2,641,157	1,625,163	1,015,994	63
Lower of cost or market inventory valuation adjustment	11,823	(56,121)	67,944	(121)
	2,652,980	1,569,042	1,083,938	69
Operating expenses (exclusive of depreciation and amortization)	307,117	252,583	54,534	22
General and administrative expenses (exclusive of depreciation and amortization)	57,070	25,621	31,449	123
Depreciation and amortization	96,040	87,880	8,160	9
Total operating costs and expenses	3,113,207	1,935,126	1,178,081	61
Income (loss) from operations	(32,724)	83,598	(116,322)	(139)
Other income (expense):				
Earnings of equity method investments	1,840	2,765	(925)	(33)
Interest income	819	75	744	992
Interest expense	(27,158)	(12,087)	(15,071)	125
Loss on early extinguishment of debt	(12,225)	(8,718)	(3,507)	40
Gain on foreign currency swaps	24,545	—	24,545	—
Loss on foreign currency transactions	(9,933)	—	(9,933)	—
Other, net	265	65	200	308
	(21,847)	(17,900)	(3,947)	22
Income (loss) before income taxes	(54,571)	65,698	(120,269)	(183)
Income tax expense (benefit)	(16,789)	22,308	(39,097)	(175)
Net income (loss)	(37,782)	43,390	(81,172)	(187)
Less net income attributable to noncontrolling interest	7,686	22,137	(14,451)	(65)
Net income (loss) attributable to HollyFrontier stockholders	$ (45,468)	$ 21,253	$ (66,721)	(314)%
Earnings (loss) per share attributable to HollyFrontier stockholders:				
Basic	$ (0.26)	$ 0.12	$ (0.38)	(317)%
Diluted	$ (0.26)	$ 0.12	$ (0.38)	(317)%
Cash dividends declared per common share	$ 0.33	$ 0.33	$ —	— %
Average number of common shares outstanding:				
Basic	176,210	176,737	(527)	— %
Diluted	176,210	176,784	(574)	— %

Balance Sheet Data

	March 31, 2017	December 31, 2016
	(Unaudited)	
	(In thousands)	
Cash, cash equivalents and total investments in marketable securities	$ 129,512	$ 1,134,727
Working capital	$ 1,027,183	$ 1,767,780
Total assets	$ 9,542,352	$ 9,435,661
Long-term debt	$ 2,231,542	$ 2,235,137
Total equity	$ 5,223,194	$ 5,301,985

Other Financial Data

	Three Months Ended March 31,	
	2017	2016
	(In thousands)	
Net cash provided by (used for) operating activities	$ (39,384)	$ 6,636
Net cash used for investing activities	$ (473,016)	$ (5,193)
Net cash provided by (used for) financing activities	$ (68,363)	$ 43,045
Capital expenditures	$ 59,757	$ 149,573
EBITDA [(1)]	$ 72,347	$ 152,171

(1) Earnings before interest, taxes, depreciation and amortization, which we refer to as "EBITDA," is calculated as net income (loss) plus (i) interest expense, net of interest income, (ii) income tax provision, and (iii) depreciation and amortization. EBITDA is not a calculation provided for under GAAP; however, the amounts included in the EBITDA calculation are derived from amounts included in our consolidated financial statements. EBITDA should not be considered as an alternative to net income or operating income as an indication of our operating performance or as an alternative to operating cash flow as a measure of liquidity. EBITDA is not necessarily comparable to similarly titled measures of other companies. EBITDA is presented here because it is a widely used financial indicator used by investors and analysts to measure performance. EBITDA is also used by our management for internal analysis. EBITDA presented above is reconciled to net income under "Reconciliations to Amounts Reported Under Generally Accepted Accounting Principles" following Item 3 of Part I of this Form 10-Q.

Our operations are organized into three reportable segments, Refining, PCLI and HEP. See Note 16 "Segment Information" in the Notes to Consolidated Financial Statements for additional information on our reportable segments.

Refining Operating Data

Our refinery operations include the El Dorado, Tulsa, Navajo, Cheyenne and Woods Cross Refineries.The following tables set forth information, including non-GAAP performance measures, about our consolidated refinery operations. The cost of products and refinery gross and net operating margins do not include the non-cash effects of lower of cost or market inventory valuation adjustments and depreciation and amortization. Reconciliations to amounts reported under GAAP are provided under "Reconciliations to Amounts Reported Under Generally Accepted Accounting Principles" following Item 3 of Part I of this Form 10-Q.

	Three Months Ended March 31,	
	2017	2016
Mid-Continent Region (El Dorado and Tulsa Refineries)		
Crude charge (BPD) [1]	221,890	233,540
Refinery throughput (BPD) [2]	242,120	252,160
Refinery production (BPD) [3]	232,580	242,100
Sales of produced refined products (BPD)	227,700	233,350
Sales of refined products (BPD) [4]	255,370	262,210
Refinery utilization [5]	85.3%	89.8%
Average per produced barrel [6]		
Net sales	$ 66.71	$ 46.69
Cost of products [7]	60.04	38.85
Refinery gross margin [8]	6.67	7.84
Refinery operating expenses [9]	6.12	5.40
Net operating margin [8]	$ 0.55	$ 2.44
Refinery operating expenses per throughput barrel [10]	$ 5.76	$ 5.00
Feedstocks:		
Sweet crude oil	58%	52%
Sour crude oil	19%	21%
Heavy sour crude oil	15%	20%
Other feedstocks and blends	8%	7%
Total	100%	100%
Sales of produced refined products:		
Gasolines	50%	48%
Diesel fuels	31%	34%
Jet fuels	9%	7%
Fuel oil	1%	1%
Asphalt	2%	2%
Lubricants	5%	5%
LPG and other	2%	3%
Total	100%	100%

	Three Months Ended March 31,	
	2017	2016
Southwest Region (Navajo Refinery)		
Crude charge (BPD) [1]	74,470	98,130
Refinery throughput (BPD) [2]	79,490	109,120
Refinery production (BPD) [3]	78,110	107,510
Sales of produced refined products (BPD)	76,340	113,370
Sales of refined products (BPD) [4]	90,700	113,750
Refinery utilization [5]	74.5%	98.1%
Average per produced barrel [6]		
Net sales	$ 67.16	$ 45.70
Cost of products [7]	58.76	38.77
Refinery gross margin [8]	8.40	6.93
Refinery operating expenses [9]	6.90	4.24
Net operating margin [8]	$ 1.50	$ 2.69
Refinery operating expenses per throughput barrel [10]	$ 6.63	$ 4.41
Feedstocks:		
Sweet crude oil	18%	33%
Sour crude oil	76%	57%
Other feedstocks and blends	6%	10%
Total	100%	100%
Sales of produced refined products:		
Gasolines	53%	56%
Diesel fuels	39%	38%
Fuel oil	4%	2%
Asphalt	1%	1%
LPG and other	3%	3%
Total	100%	100%
Rocky Mountain Region (Cheyenne and Woods Cross Refineries)		
Crude charge (BPD) [1]	74,710	59,430
Refinery throughput (BPD) [2]	83,750	69,230
Refinery production (BPD) [3]	81,150	66,240
Sales of produced refined products (BPD)	80,780	66,640
Sales of refined products (BPD) [4]	81,450	69,970
Refinery utilization [5]	77.0%	71.6%

	Three Months Ended March 31,	
	2017	2016
Rocky Mountain Region (Cheyenne and Woods Cross Refineries)		
Average per produced barrel [6]		
Net sales	$ 65.83	$ 46.79
Cost of products [7]	55.72	39.00
Refinery gross margin [8]	10.11	7.79
Refinery operating expenses [9]	10.08	9.68
Net operating margin [8]	$ 0.03	$ (1.89)
Refinery operating expenses per throughput barrel [10]	$ 9.72	$ 9.32
Feedstocks:		
Sweet crude oil	38%	39%
Heavy sour crude oil	31%	32%
Black wax crude oil	20%	15%
Other feedstocks and blends	11%	14%
Total	100%	100%
Sales of produced refined products:		
Gasolines	58%	62%
Diesel fuels	33%	32%
Fuel oil	2%	3%
Asphalt	5%	1%
LPG and other	2%	2%
Total	100%	100%
Consolidated		
Crude charge (BPD) [1]	371,070	391,100
Refinery throughput (BPD) [2]	405,360	430,510
Refinery production (BPD) [3]	391,840	415,850
Sales of produced refined products (BPD)	384,820	413,360
Sales of refined products (BPD) [4]	427,520	445,930
Refinery utilization [5]	81.2%	88.3%
Average per produced barrel [6]		
Net sales	$ 66.62	$ 46.44
Cost of products [7]	58.88	38.85
Refinery gross margin [8]	7.74	7.59
Refinery operating expenses [9]	7.11	5.77
Net operating margin [8]	$ 0.63	$ 1.82
Refinery operating expenses per throughput barrel [10]	$ 6.75	$ 5.54
Feedstocks:		
Sweet crude oil	46%	45%
Sour crude oil	26%	27%
Heavy sour crude oil	15%	17%
Black wax crude oil	4%	2%
Other feedstocks and blends	9%	9%
Total	100%	100%

	Three Months Ended March 31,	
	2017	2016
Consolidated		
Sales of produced refined products:		
Gasolines	52%	53%
Diesel fuels	33%	35%
Jet fuels	5%	4%
Fuel oil	2%	2%
Asphalt	3%	1%
Lubricants	3%	2%
LPG and other	2%	3%
Total	100%	100%

(1) Crude charge represents the barrels per day of crude oil processed at our refineries.
(2) Refinery throughput represents the barrels per day of crude and other refinery feedstocks input to the crude units and other conversion units at our refineries.
(3) Refinery production represents the barrels per day of refined products yielded from processing crude and other refinery feedstocks through the crude units and other conversion units at our refineries.
(4) Includes refined products purchased for resale.
(5) Represents crude charge divided by total crude capacity (BPSD). Effective July 1, 2016, our consolidated crude capacity increased from 443,000 BPSD to 457,000 BPSD upon completion of our Woods Cross Refinery expansion project.
(6) Represents average per barrel amount for produced refined products sold, which is a non-GAAP measure. Reconciliations to amounts reported under GAAP are provided under "Reconciliations to Amounts Reported Under Generally Accepted Accounting Principles" following Item 3 of Part I of this Form 10-Q.
(7) Transportation, terminal and refinery storage costs billed from HEP are included in cost of products.
(8) Excludes lower of cost or market inventory valuation adjustments that decreased gross margin by $11.8 million and increased gross margins by $56.1 million for the three months ended March 31, 2017 and 2016 , respectively.
(9) Represents operating expenses of our refineries, exclusive of depreciation and amortization
(10) Represents refinery operating expenses, exclusive of depreciation and amortization, divided by refinery throughput.

PCLI Operating Data

The following table sets forth information about our our PCLI operations for the period from February 1, 2017 (date of acquisition) through March 31, 2017.

	Period From February 1, 2017 Through March 31, 2017
PCLI	
Throughput (BPD) [(1)]	22,170
Production (BPD) [(2)]	21,760
Sales of produced refined products (BPD)	24,140

(1) Throughput represents the barrels per day of feedstocks (principally vacuum gas oil and hydrocracker bottoms) input into our PCLI production facilities.
(2) Production represents the barrels per day of products yielded from our PCLI production facilities.

Results of Operations – Three Months Ended March 31, 2017 Compared to Three Months Ended March 31, 2016

Summary

Net loss attributable to HollyFrontier stockholders for the three months ended March 31, 2017 was $(45.5) million ($(0.26) per basic and diluted share), a $66.7 million decrease compared to net income attributable to HollyFrontier stockholders of $21.3 million ($0.12 per basic and diluted share) for the three months ended March 31, 2016 . Net income decreased due principally to a year-over-year decrease in refining segment sales volumes of refined product, net of $8.4 million in earnings attributable to our recently acquired PCLI operations. For the three months ended March 31, 2017 , lower of cost or market inventory reserve adjustments decreased pre-tax earnings by $11.8 million compared to increased pre-tax earnings of $56.1 million for the three months ended March 31, 2016 . Refinery gross margins for the three months ended March 31, 2017 increased to $7.74 per produced barrel from $7.59 for the three months ended March 31, 2016 .

Sales and Other Revenues

Sales and other revenues increased 53% from $2,018.7 million for the three months ended March 31, 2016 to $3,080.5 million for the three months ended March 31, 2017 due to a year-over-year increase in first quarter sales prices offset by lower refined product sales volumes. The average sales price we received per produced barrel sold was $46.44 for the three months ended March 31, 2016 compared to $66.62 for the three months ended March 31, 2017 . Sales and other revenues for the three months ended March 31, 2017 and 2016 include $16.6 million and $19.2 million , respectively, in HEP revenues attributable to pipeline and transportation services provided to unaffiliated parties. PCLI contributed $201.9 million in sales and other revenues for the three months ended March 31, 2017 .

Cost of Products Sold

Total cost of products sold increased 69% from $1,569.0 million for the three months ended March 31, 2016 to $2,653.0 million for the three months ended March 31, 2017 , due principally to higher crude oil costs offset by lower sales volumes of refined products. Additionally during first quarter of 2017 , we recognized an $11.8 million lower of cost or market inventory valuation charge, a $67.9 million increase compared to a benefit of $56.1 million for the same period of 2016 , resulting in a new $344.3 million inventory reserve at March 31, 2017 . The reserve at March 31, 2017 is based on market conditions and prices at that time. Excluding this non-cash adjustment, the average price we paid per barrel for crude oil and feedstocks and the transportation costs of moving finished products to market increased 52% from $38.85 for the three months ended March 31, 2016 to $58.88 for the three months ended March 31, 2017 . Cost of products sold includes $136.3 million in costs attributable to our PCLI operations.

Gross Refinery Margins

Gross refinery margin per produced barrel increased 2% from $7.59 for the three months ended March 31, 2016 to $7.74 for the three months ended March 31, 2017 . This was due to the effects of an increase in the average per barrel sales price for refined products sold, partially offset by increased crude oil and feedstock prices during the current year quarter. Gross refinery margin does not include the non-cash effects of lower of cost or market inventory valuation adjustments or depreciation and amortization. See “Reconciliations to Amounts Reported Under Generally Accepted Accounting Principles” following Item 3 of Part I of this Form 10-Q for a reconciliation to the income statement of prices of refined products sold and cost of products purchased.

Operating Expenses

Operating expenses, exclusive of depreciation and amortization increased 22% from $252.6 million for the three months ended March 31, 2016 to $307.1 million for the three months ended March 31, 2017 . This increase is principally due to higher maintenance costs compared to the same period of 2016 . Operating expenses include $36.0 million in costs attributable to our PCLI operations.

General and Administrative Expenses

General and administrative expenses increased 123% from $25.6 million for the three months ended March 31, 2016 to $57.1 million for the three months ended March 31, 2017 due principally to $15.6 million in incremental direct acquisition and integration costs of our recently acquired PCLI business. Additionally, general and administrative expenses include $12.1 million in costs attributable to our PCLI operations.

Depreciation and Amortization Expenses

Depreciation and amortization increased 9% from $87.9 million for the three months ended March 31, 2016 to $96.0 million for the three months ended March 31, 2017 . This increase was due principally to depreciation and amortization attributable to capitalized improvement projects and capitalized refinery turnaround costs. Depreciation and amortization expenses include $5.1 million in costs attributable to our PCLI operations.

Interest Income
Interest income for the three months ended March 31, 2017 was $0.8 million compared to $0.1 million for the three months ended March 31, 2016 . This increase was due to higher investment levels in marketable debt securities during the current year quarter.

Interest Expense
Interest expense was $27.2 million for the three months ended March 31, 2017 compared to $12.1 million for the three months ended March 31, 2016 . This increase is due to interest attributable to higher debt levels during the current year quarter relative to the same period of 2016 . For the three months ended March 31, 2017 and 2016 , interest expense included $13.5 million and $10.5 million , respectively, in interest costs attributable to limited recourse debt that finances HEP operations.

Loss on Early Extinguishment of Debt
For the three months ended March 31, 2017 , a $12.2 million loss was recorded upon HEP's redemption of its $300 million aggregate principal amount of 6.5% senior notes maturing March 2020 at a cost of $309.8 million .

For the three months ended March 31, 2016 , we recognized an $8.7 million loss on the early retirement of a financing obligation, a component of outstanding debt, upon HEP's purchase of crude oil tanks from an affiliate of Plains All American Pipeline L.P. See Note 10 "Debt" in the Notes to Consolidated Financial Statements for additional information on this financing obligation.

Income Taxes
For the three months ended March 31, 2017 , we recorded an income tax benefit of $16.8 million compared to income tax expense of $22.3 million for the three months ended March 31, 2016 . This decrease was due principally to lower pre-tax earnings during the three months ended March 31, 2017 compared to the same period of 2016 . Our effective tax rates, before consideration of earnings attributable to the noncontrolling interest, were 30.8% and 34.0% for the three months ended March 31, 2017 and 2016 , respectively.

LIQUIDITY AND CAPITAL RESOURCES

HollyFrontier Credit Agreement
In February 2017, we amended our senior unsecured revolving credit facility, increasing the size of the facility from $1 billion to $1.35 billion and extending the maturity to February 2022 (the "HollyFrontier Credit Agreement"). The HollyFrontier Credit Agreement may be used for revolving credit loans and letters of credit from time to time and is available to fund general corporate purposes. During the three months ended March 31, 2017 , we received advances totaling $26.0 million and repaid $26.0 million under the HollyFrontier Credit Agreement. At March 31, 2017 , we were in compliance with all covenants, had no outstanding borrowings and had outstanding letters of credit totaling $3.3 million under the HollyFrontier Credit Agreement.

HEP Credit Agreement
HEP has a $1.2 billion senior secured revolving credit facility maturing in November 2018 (the "HEP Credit Agreement") which may be used to fund capital expenditures, investments, acquisitions, distribution payments and working capital and for general partnership purposes. It is also available to fund letters of credit up to a $50 million sub-limit. During the three months ended March 31, 2017 , HEP received advances totaling $380.0 million and repaid $86.0 million under the HEP Credit Agreement. At March 31, 2017 , HEP was in compliance with all of its covenants, had outstanding borrowings of $847.0 million and no outstanding letters of credit under the HEP Credit Agreement.

HEP Senior Notes
In January 2017, HEP redeemed its $300 million aggregate principal amount of 6.5% senior notes maturing March 2020 at a redemption cost of $309.8 million , at which time HEP recognized a $12.2 million early extinguishment loss consisting of a $9.8 million debt redemption premium and unamortized discount and financing costs of $2.4 million . HEP funded the redemption with borrowings under the HEP Credit Agreement.

See Note 10 "Debt" in the Notes to Consolidated Financial Statements for additional information on our debt instruments.

HEP Common Unit Continuous Offering Program

In May 2016, HEP established a continuous offering program under which HEP may issue and sell common units from time to time, representing limited partner interests, up to an aggregate gross sales amount of $200 million. During the three months ended March 31, 2017 , HEP issued 1,142,358 units under this program, providing $39.5 million in net proceeds. In connection with this program and to maintain the 2% general partner interest, we made capital contributions totaling $0.8 million during the three months ended March 31, 2017 . As of March 31, 2017 , HEP has issued 1,845,813 units with an aggregate gross sales amount of $63.8 million .

HEP intends to use the net proceeds for general partnership purposes, which may include funding working capital, repayment of debt, acquisitions and capital expenditures. Amounts repaid under HEP's credit facility may be reborrowed from time to time.

Liquidity

We believe our current cash and cash equivalents, along with future internally generated cash flow and funds available under our credit facilities, will provide sufficient resources to fund currently planned capital projects and our liquidity needs for the foreseeable future. In addition, components of our growth strategy include construction of new refinery processing units and the expansion of existing units at our facilities and selective acquisition of complementary assets for our refining operations intended to increase earnings and cash flow.

As of March 31, 2017 , our cash and cash equivalents totaled $129.5 million . We consider all highly-liquid instruments with a maturity of three months or less at the time of purchase to be cash equivalents. Cash equivalents are stated at cost, which approximates market value. These primarily consist of investments in conservative, highly-rated instruments issued by financial institutions, government and corporate entities with strong credit standings and money market funds.

On October 29, 2016, our wholly-owned subsidiary, 9952110 Canada Inc., entered into a share purchase agreement with Suncor to acquire 100% of the outstanding capital stock of PCLI that closed on February 1, 2017. Cash consideration paid was $862.0 million , or $1.125 billion in Canadian dollars.

In May 2015, our Board of Directors approved a $1 billion share repurchase program, which replaced all existing share repurchase programs, authorizing us to repurchase common stock in the open market or through privately negotiated transactions. The timing and amount of stock repurchases will depend on market conditions and corporate, regulatory and other relevant considerations. This program may be discontinued at any time by the Board of Directors. As of March 31, 2017 , we had remaining authorization to repurchase up to $178.8 million under this stock repurchase program. In addition, we are authorized by our Board of Directors to repurchase shares in an amount sufficient to offset shares issued under our compensation programs.

Cash and cash equivalents decreased $581.1 million for the three months ended March 31, 2017 . Working capital decreased by $740.6 million during the three months ended March 31, 2017 , which is principally due to our cash purchase of PCLI, net of working capital acquired.

Cash Flows – Operating Activities

Three Months Ended March 31, 2017 Compared to Three Months Ended March 31, 2016

Net cash flows used for operating activities were $39.4 million for the three months ended March 31, 2017 compared to $6.6 million provided by operating activities for the three months ended March 31, 2016 , a decrease of $46.0 million . Net loss for the three months ended March 31, 2017 was $37.8 million , a decrease of $81.2 million compared to net income of $43.4 million for the three months ended March 31, 2016 . Non-cash adjustments to net income consisting of depreciation and amortization, lower of cost or market inventory valuation adjustment, earnings of equity method investments, inclusive of distributions, gain on sale of assets, loss on extinguishment of debt, deferred income taxes, equity-based compensation expense and fair value changes to derivative instruments totaled $120.1 million for the three months ended March 31, 2017 compared to $93.3 million for the same period in 2016 . Changes in working capital items decreased cash flows by $87.9 million and $93.5 million for the three months ended March 31, 2017 and 2016 , respectively. Additionally, for the three months ended March 31, 2017 , turnaround expenditures increased to $48.0 million from $37.0 million for the same period of 2016 .

Cash Flows – Investing Activities and Planned Capital Expenditures

Three Months Ended March 31, 2017 Compared to Three Months Ended March 31, 2016

Net cash flows used for investing activities were $473.0 million for the three months ended March 31, 2017 compared to $5.2 million for the three months ended March 31, 2016 , an increase of $467.8 million . Current year investing activities reflect a net cash outflow of $840.4 million upon the acquisition of PCLI. Cash expenditures for properties, plants and equipment for the first three months of 2017 decreased to $59.8 million from $149.6 million for the same period in 2016 . These include HEP capital expenditures of $8.3 million and $42.2 million for the three months ended March 31, 2017 and 2016 , respectively. Also for the three months ended March 31, 2017 and 2016 , we invested $41.6 million and $4.1 million , respectively, in marketable securities and received proceeds of $465.7 million and $148.2 million , respectively, from the sale or maturity of marketable securities.

Planned Capital Expenditures

HollyFrontier Corporation

Each year our Board of Directors approves our annual capital budget, which includes specific projects that management is authorized to undertake. Additionally, when conditions warrant or as new opportunities arise, additional projects may be approved. The funds appropriated for a particular capital project may be expended over a period of several years, depending on the time required to complete the project. Therefore, our planned capital expenditures for a given year consist of expenditures appropriated in that year's capital budget plus expenditures for projects appropriated in prior years which have not yet been completed. During 2017 , we expect to spend approximately $225.0 million to $275.0 million in cash for capital projects appropriated in 2017 and prior years. In addition, we expect to spend approximately $135.0 million to $150.0 million on refinery turnarounds. Refinery turnaround spending is amortized over the useful life of the turnaround.

The refining industry is capital intensive and requires on-going investments to sustain our refining operations. This includes replacement of, or rebuilding, refinery units and components that extend the useful life. We also invest in projects that improve operational reliability and profitability via enhancements that improve refinery processing capabilities as well as production yield and flexibility. Our capital expenditures also include projects related to environmental, health and safety compliance and include initiatives as a result of federal and state mandates.

A significant portion of our current capital spending is associated with compliance-oriented capital improvements. This spending is required due to existing consent decrees (for projects including FCC unit flue gas scrubbers and tail gas treatment units), federal fuels regulations (particularly Tier3, which mandates a reduction in the sulfur content of blended gasoline), refinery waste water treatment improvements and other similar initiatives. Our refinery operations and related emissions are highly regulated at both federal and state levels, and we invest in our facilities as needed to remain in compliance with these standards. Additionally, when faced with new emissions or fuels standards, we seek to execute projects that facilitate compliance and also improve the operating costs and / or yields of associated refining processes.

We have completed construction on our existing Woods Cross expansion project, increasing crude processing capacity to 45,000 BPSD, and providing greater crude slate flexibility, which we believe will increase capacity utilization and improve overall economic returns during periods when wax crudes are in short supply. The project also included construction of new refining facilities and a new rail loading rack for intermediates and finished products associated with refining waxy crude oil.

On November 18, 2013, the Utah Division of Air Quality issued a revised air quality permit (the "Approval Order") authorizing the expansion. On December 18, 2013, two local environmental groups filed an administrative appeal challenging the issuance of the Approval Order and seeking a stay of the Approval Order. Following an extended appeal process, the Executive Director of the Utah Department of Environmental Quality issued a final order in favor of Woods Cross on all claims on March 31, 2015, and dismissed the project opponents' arguments with prejudice. On April 27, 2015, the opponents filed a petition for review and notice of appeal with the Utah Court of Appeals challenging the agency's decision to uphold the permit and dismiss the project opponents' arguments. On August 4, 2016, the Utah Court of Appeals transferred the case to the Utah Supreme Court. The Utah Supreme Court established a supplemental briefing schedule, which ran through October 2016. Oral argument took place on December 14, 2016 and focused primarily on alleged procedural defects in the Petitioner's appeal. The Court took the matter under advisement and will issue a written decision. Our continued use of the expansion project facilities is subject to the Woods Cross Refinery successfully defending the Approval Order on appeal at the Utah Court of Appeals.

HEP

Each year the Holly Logistic Services, L.L.C. board of directors approves HEP's annual capital budget, which specifies capital projects that HEP management is authorized to undertake. Additionally, at times when conditions warrant or as new opportunities arise, special projects may be approved. The funds allocated for a particular capital project may be expended over a period of several years, depending on the time required to complete the project. Therefore, HEP's planned capital expenditures for a given year consist of expenditures approved for capital projects included in its current year capital budget as well as, in certain cases, expenditures approved for capital projects in capital budgets for prior years. The 2017 HEP capital budget is comprised of $9.0 million for maintenance capital expenditures and $30.0 million for expansion capital expenditures.

Cash Flows – Financing Activities

Three Months Ended March 31, 2017 Compared to Three Months Ended March 31, 2016

Net cash flows used for financing activities were $68.4 million for the three months ended March 31, 2017 compared to cash flows provided by financing activities of $43.0 million for the three months ended March 31, 2016 , an decrease of $111.4 million . During the three months ended March 31, 2017 , we received $26.0 million and repaid $26.0 million under the Holly Frontier Credit Agreement and paid $59.0 million in dividends. Also during this period, HEP received $380.0 million and repaid $86.0 million under the HEP Credit Agreement, paid $309.8 million upon the redemption of HEP's 6.5% senior notes, received $37.6 million in net proceeds from the issuance of its common units and paid distributions of $26.5 million to noncontrolling interests. During the three months ended March 31, 2016 , we received $246.7 million in net proceeds upon issuance of our 5.875% senior notes, received $315.0 million and repaid $315.0 million under the HollyFrontier Credit Agreement, purchased $133.4 million in common stock and paid $58.6 million in dividends. In addition, we extinguished our financing obligation with Plains for $39.5 million . Also, during this period, HEP received $522.0 million and repaid $469.0 million under the HEP Credit Agreement and paid distributions of $21.7 million to noncontrolling interests.

Contractual Obligations and Commitments

HollyFrontier Corporation

In February 2017, we amended the HollyFrontier Credit Agreement, increasing the size of the credit facility from $1.0 billion to $1.35 billion and extended the maturity to February 2022.

There were no other significant changes to our long-term contractual obligations during the three months ended March 31, 2017 .

HEP

In January 2017, HEP redeemed its $300 million aggregate principal amount of 6.5% senior notes maturing March 2020 . During the three months ended March 31, 2017 , HEP received net borrowings of $294.0 million resulting in $847.0 million of outstanding borrowings in the HEP Credit Agreement at March 31, 2017 .

There were no other significant changes to HEP's long-term contractual obligations during this period.

CRITICAL ACCOUNTING POLICIES

Our discussion and analysis of our financial condition and results of operations are based upon our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities as of the date of the financial statements. Actual results may differ from these estimates under different assumptions or conditions.

Our significant accounting policies are described in "Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations – Critical Accounting Policies" in our Annual Report on Form 10-K for the year ended December 31, 2016 . Certain critical accounting policies that materially affect the amounts recorded in our consolidated financial statements include the assessment and consolidation of variable interest entities, the use of the last-in, first-out ("LIFO") method of valuing certain inventories, the amortization of deferred costs for regular major maintenance and repairs at our refineries, assessing the possible impairment of certain long-lived assets and goodwill, accounting for derivative instruments and assessing contingent liabilities for probable losses.

Inventory Valuation: Inventories related to our refining operations are stated at the lower of cost, using the LIFO method for crude oil and unfinished and finished refined products, or market. In periods of rapidly declining prices, LIFO inventories may have to be written down to market value due to the higher costs assigned to LIFO layers in prior periods. In addition, the use of the LIFO inventory method may result in increases or decreases to cost of sales in years that inventory volumes decline as the result of charging cost of sales with LIFO inventory costs generated in prior periods. An actual valuation of inventory under the LIFO method is made at the end of each year based on the inventory levels at that time. Accordingly, interim LIFO calculations are based on management's estimates of expected year-end inventory levels and are subject to the final year-end LIFO inventory valuation.

At March 31, 2017 , our lower of cost or market inventory valuation reserve was $344.3 million . This amount, or a portion thereof, is subject to reversal as a reduction to cost of products sold in subsequent periods as inventories giving rise to the reserve are sold, and a new reserve is established. Such a reduction to cost of products sold could be significant if inventory values return to historical cost price levels. Additionally, further decreases in overall inventory values could result in additional charges to cost of products sold should the lower of cost or market inventory valuation reserve be increased.

Inventories consisting of process chemicals, materials and maintenance supplies and RINs are stated at the lower of weighted-average cost or net realizable value. Inventories of our PCLI operations are stated at the lower of cost, using the FIFO method, or net realizable value.

Goodwill and Long-lived Assets: As of March 31, 2017 , our goodwill balance was $2.2 billion , with goodwill assigned to our refining, PCLI and HEP segments of $1.7 billion , $0.2 billion and $0.3 billion , respectively. Goodwill represents the excess of the cost of an acquired entity over the fair value of the assets acquired and liabilities assumed. Goodwill is not subject to amortization and is tested annually or more frequently if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying amount. Our goodwill impairment testing first entails a comparison of our reporting unit fair values relative to their respective carrying values. If carrying value exceeds fair value for a reporting unit, we measure goodwill impairment as the excess of the carrying amount of reporting unit goodwill over the implied fair value of that goodwill based on estimates of the fair value of all assets and liabilities in the reporting unit.

Our long-lived assets principally consist of our refining assets that are organized as refining asset groups and our PCLI business. The refinery asset groups also constitute our individual refinery reporting units that are used for testing and measuring goodwill impairments. Our long-lived assets are evaluated for impairment by identifying whether indicators of impairment exist and if so, assessing whether the long-lived assets are recoverable from estimated future undiscounted cash flows. The actual amount of impairment loss measured, if any, is equal to the amount by which the asset group's carrying value exceeds its fair value.

We performed our annual goodwill impairment testing as of July 1, 2016 and determined the fair value of our El Dorado reporting unit exceeded its carrying value by approximately 4%. The market outlook for future crack spreads has since improved and based on subsequent testing, the fair value of the El Dorado reporting unit exceeded its carrying value by approximately 10% at March 31, 2017 . A reasonable expectation exists that further deterioration in gross margins could result in an impairment of goodwill and the long-lived assets of the El Dorado reporting unit at some point in the future and such impairment charges could be material.

RISK MANAGEMENT

We use certain strategies to reduce some commodity price and operational risks. We do not attempt to eliminate all market risk exposures when we believe that the exposure relating to such risk would not be significant to our future earnings, financial position, capital resources or liquidity or that the cost of eliminating the exposure would outweigh the benefit.

Commodity Price Risk Management

Our primary market risk is commodity price risk. We are exposed to market risks related to the volatility in crude oil and refined products, as well as volatility in the price of natural gas used in our refining operations. We periodically enter into derivative contracts in the form of commodity price swaps and futures contracts to mitigate price exposure with respect to:

- our inventory positions;
- natural gas purchases;
- costs of crude oil and related grade differentials;
- prices of refined products; and
- our refining margins.

As of March 31, 2017 , we have the following notional contract volumes related to all outstanding derivative contracts used to mitigate commodity price risk:

		Notional Contract Volumes by Year of Maturity					
Contract Description	**Total Outstanding Notional**	**2017**	**2018**	**2019**	**2020**	**2021**	**Unit of Measure**
Natural gas price swaps - long	21,600,000	14,400,000	1,800,000	1,800,000	1,800,000	1,800,000	MMBTU
Natural gas price swaps - short	7,200,000	7,200,000	—	—	—	—	MMBTU
Natural gas price swaps (basis spread) - long	7,731,000	7,731,000	—	—	—	—	MMBTU
Crude price swaps (basis spread) - long	2,745,000	2,745,000	—	—	—	—	Barrels
NYMEX futures (WTI) - short	620,000	620,000	—	—	—	—	Barrels
Forward gasoline and diesel contracts - long	550,000	550,000	—	—	—	—	Barrels
Forward gasoline and diesel contracts - short	975,000	975,000	—	—			Barrels
Physical crude contracts -short	150,000	150,000	—	—	—	—	Barrels

The following sensitivity analysis provides the hypothetical effects of market price fluctuations to the commodity positions hedged under our derivative contracts:

	Estimated Change in Fair Value at March 31,	
Commodity-based Derivative Contracts	**2017**	**2016**
	(In thousands)	
Hypothetical 10% change in underlying commodity prices	$ 3,249	$ 20,353

Interest Rate Risk Management

HEP uses interest rate swaps to manage its exposure to interest rate risk.

As of March 31, 2017 , HEP had two interest rate swap contracts with identical terms that hedge its exposure to the cash flow risk caused by the effects of LIBOR changes on $150.0 million in credit agreement advances. The swaps effectively convert $150.0 million of LIBOR based debt to fixed-rate debt having an interest rate of 0.74% plus an applicable margin of 2.25% as of March 31, 2017 , which equaled an effective interest rate of 2.99% . Both of these swap contracts mature in July 2017. These swap contracts have been designated as cash flow hedges.

The market risk inherent in our fixed-rate debt is the potential change arising from increases or decreases in interest rates as discussed below.

For the fixed rate HollyFrontier Senior Notes and HEP Senior Notes, changes in interest rates will generally affect fair value of the debt, but not earnings or cash flows. The outstanding principal, estimated fair value and estimated change in fair value (assuming a hypothetical 10% change in the yield-to-maturity rates) for this debt as of March 31, 2017 is presented below:

	Outstanding Principal	**Estimated Fair Value**	**Estimated Change in Fair Value**
		(In thousands)	
HollyFrontier Senior Notes	$ 1,000,000	$ 1,065,320	$ 36,926
HEP Senior Notes	$ 400,000	$ 422,288	$ 12,758

For the variable rate HEP Credit Agreement, changes in interest rates would affect cash flows, but not the fair value. At March 31, 2017 , outstanding borrowings under the HEP Credit Agreement were $847.0 million . By means of its cash flow hedges, HEP has effectively converted the variable rate on $150.0 million of outstanding principal to a weighted average fixed rate of 2.99% . For the remaining unhedged HEP Credit Agreement borrowings of $697.0 million , a hypothetical 10% change in applicable interest rates would not materially affect cash flows.

Our operations are subject to hazards of petroleum processing operations, including fire, explosion and weather-related perils. We maintain various insurance coverages, including business interruption insurance, subject to certain deductibles. We are not fully insured against certain risks because such risks are not fully insurable, coverage is unavailable, or premium costs, in our judgment, do not justify such expenditures.

Financial information is reviewed on the counterparties in order to review and monitor their financial stability and assess their ongoing ability to honor their commitments under the derivative contracts. We have not experienced, nor do we expect to experience, any difficulty in the counterparties honoring their commitments.

We have a risk management oversight committee consisting of members from our senior management. This committee oversees our risk enterprise program, monitors our risk environment and provides direction for activities to mitigate identified risks that may adversely affect the achievement of our goals.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

See "Risk Management" under "Management's Discussion and Analysis of Financial Condition and Results of Operations."

Reconciliations to Amounts Reported Under Generally Accepted Accounting Principles

Reconciliations of earnings before interest, taxes, depreciation and amortization ("EBITDA") to amounts reported under generally accepted accounting principles in the United States ("GAAP") in financial statements.

Earnings before interest, taxes, depreciation and amortization, which we refer to as EBITDA, is calculated as net income (loss) attributable to HollyFrontier stockholders plus (i) interest expense, net of interest income, (ii) income tax provision, and (iii) depreciation and amortization. EBITDA is not a calculation provided for under GAAP; however, the amounts included in these calculations are derived from amounts included in our consolidated financial statements. EBITDA should not be considered as an alternative to net income or operating income as an indication of our operating performance or as an alternative to operating cash flow as a measure of liquidity. EBITDA is not necessarily comparable to similarly titled measures of other companies. EBITDA is presented here because it is a widely used financial indicator used by investors and analysts to measure performance. EBITDA is also used by our management for internal analysis.

Set forth below is our calculation of EBITDA and adjusted EBITDA.

	Three Months Ended March 31,	
	2017	2016
	(In thousands)	
Net income (loss) attributable to HollyFrontier stockholders	$ (45,468)	$ 21,253
Add (subtract) income tax expense (benefit)	(16,789)	22,308
Add interest expense (1)	39,383	20,805
Subtract interest income	(819)	(75)
Add depreciation and amortization	96,040	87,880
EBITDA	$ 72,347	$ 152,171

(1) Includes loss on early extinguishment of debt of $12.2 million and $8.7 million for the three months ended March 31, 2017 and 2016 , respectively.

Reconciliations of refinery operating information (non-GAAP performance measures) to amounts reported under generally accepted accounting principles in financial statements.

Refinery gross margin and net operating margin are non-GAAP performance measures that are used by our management and others to compare our refining performance to that of other companies in our industry. We believe these margin measures are helpful to investors in evaluating our refining performance on a relative and absolute basis.

Refinery gross margin per barrel is the difference between average net sales price and average cost of products per barrel of produced refined products. Net operating margin per barrel is the difference between refinery gross margin and refinery operating expenses per barrel of produced refined products. These two margins do not include the non-cash effects of lower of cost or market inventory valuation adjustments or depreciation and amortization. Each of these component performance measures can be reconciled directly to our consolidated statements of income. Other companies in our industry may not calculate these performance measures in the same manner.

Refinery Gross and Net Operating Margins

Below are reconciliations to our consolidated statements of income for (i) net sales, cost of products (exclusive of lower of cost or market inventory valuation adjustment) and operating expenses, in each case averaged per produced barrel sold, and (ii) net operating margin and refinery gross margin. Due to rounding of reported numbers, some amounts may not calculate exactly.

Reconciliation of produced product sales to total sales and other revenues

	Three Months Ended March 31,	
	2017	**2016**
	(Dollars in thousands, except per barrel amounts)	
Consolidated		
Average sales price per produced barrel sold	$ 66.62	$ 46.44
Times sales of produced refined products (BPD)	384,820	413,360
Times number of days in period	90	91
Produced refined product sales	$ 2,307,304	$ 1,746,876
Total produced refined products sales	$ 2,307,304	$ 1,746,876
Add refined product sales from purchased products and rounding (1)	260,940	131,408
Total refined product sales	2,568,244	1,878,284
Add direct sales of excess crude oil (2)	258,741	90,918
Add other refining segment revenue (3)	35,091	30,385
Total refining segment revenue	2,862,076	1,999,587
Add PCLI segment sales and other revenues	201,940	—
Add HEP segment sales and other revenues	105,634	102,010
Add corporate and other revenues	27	110
Subtract consolidations and eliminations	(89,194)	(82,983)
Sales and other revenues	$ 3,080,483	$ 2,018,724

Reconciliation of average cost of products per produced barrel sold to total cost of products sold (exclusive of lower of cost or market inventory valuation adjustment)

	Three Months Ended March 31,	
	2017	2016
	(Dollars in thousands, except per barrel amounts)	
Consolidated		
Average cost of products per produced barrel sold	$ 58.88	$ 38.85
Times sales of produced refined products (BPD)	384,820	413,360
Times number of days in period	90	91
Cost of products for produced products sold	$ 2,039,238	$ 1,461,372
Total cost of products for produced products sold	$ 2,039,238	$ 1,461,372
Add refined product costs from purchased products and rounding (1)	260,838	138,374
Total cost of refined products sold	2,300,076	1,599,746
Add crude oil cost of direct sales of excess crude oil (2)	259,830	91,588
Add other refining segment cost of products sold (4)	13,819	11,734
Total refining segment cost of products sold	2,573,725	1,703,068
Add PCLI segment cost of products sold	136,304	—
Subtract consolidations and eliminations	(68,872)	(77,905)
Costs of products sold (exclusive of lower of cost or market inventory valuation adjustment and depreciation and amortization)	$ 2,641,157	$ 1,625,163

Reconciliation of average refinery operating expenses per produced barrel sold to total operating expenses

	Three Months Ended March 31,	
	2017	2016
	(Dollars in thousands, except per barrel amounts)	
Consolidated		
Average refinery operating expenses per produced barrel sold	$ 7.11	$ 5.77
Times sales of produced refined products (BPD)	384,820	413,360
Times number of days in period	90	91
Refinery operating expenses for produced products sold	$ 246,246	$ 217,043
Total refinery operating expenses for produced products sold	$ 246,246	$ 217,043
Add other refining segment operating expenses and rounding (5)	10,869	11,719
Total refining segment operating expenses	257,115	228,762
Add PCLI segment operating expenses	36,029	—
Add HEP segment operating expenses	32,489	26,823
Add corporate and other costs	1,013	1,255
Subtract consolidations and eliminations	(19,529)	(4,257)
Operating expenses (exclusive of depreciation and amortization)	$ 307,117	$ 252,583

Reconciliation of net operating margin per barrel to refinery gross margin per barrel to total sales and other revenues

	Three Months Ended March 31,	
	2017	2016
	(Dollars in thousands, except per barrel amounts)	
Consolidated		
Net operating margin per barrel	$ 0.63	$ 1.82
Add average refinery operating expenses per produced barrel	7.11	5.77
Refinery gross margin per barrel	7.74	7.59
Add average cost of products per produced barrel sold	58.88	38.85
Average sales price per produced barrel sold	$ 66.62	$ 46.44
Times sales of produced refined products (BPD)	384,820	413,360
Times number of days in period	90	91
Produced refined products sales	$ 2,307,304	$ 1,746,876
Total produced refined products sales	$ 2,307,304	$ 1,746,876
Add refined product sales from purchased products and rounding (1)	260,940	131,408
Total refined product sales	2,568,244	1,878,284
Add direct sales of excess crude oil (2)	258,741	90,918
Add other refining segment revenue (3)	35,091	30,385
Total refining segment revenue	2,862,076	1,999,587
Add PCLI segment sales and other revenues	201,940	—
Add HEP segment sales and other revenues	105,634	102,010
Add corporate and other revenues	27	110
Subtract consolidations and eliminations	(89,194)	(82,983)
Sales and other revenues	$ 3,080,483	$ 2,018,724

(1) We purchase finished products to facilitate delivery to certain locations or to meet delivery commitments.
(2) We purchase crude oil that at times exceeds the supply needs of our refineries. Quantities in excess of our needs are sold at market prices to purchasers of crude oil that are recorded on a gross basis with the sales price recorded as revenues and the corresponding acquisition cost as inventory and then upon sale as cost of products sold. Additionally, at times we enter into buy/sell exchanges of crude oil with certain parties to facilitate the delivery of quantities to certain locations that are netted at cost.
(3) Other refining segment revenue includes the incremental revenues associated with HFC Asphalt, product purchased and sold forward for profit as market conditions and available storage capacity allows and miscellaneous revenue.
(4) Other refining segment cost of products sold includes the incremental cost of products for HFC Asphalt, the incremental cost associated with storing product purchased and sold forward as market conditions and available storage capacity allows and miscellaneous costs.
(5) Other refining segment operating expenses include the marketing costs associated with our refining segment and the operating expenses of HFC Asphalt.

Item 4. Controls and Procedures

Evaluation of disclosure controls and procedures. Our principal executive officer and principal financial officer have evaluated, as required by Rule 13a-15(b) under the Securities Exchange Act of 1934 (the "Exchange Act"), our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this Quarterly Report on Form 10-Q. Our disclosure controls and procedures are designed to provide reasonable assurance that the information we are required to disclose in the reports that we file or submit under the Exchange Act is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure and is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms. Based upon the evaluation, our principal executive officer and principal financial officer have concluded that our disclosure controls and procedures were effective at the reasonable assurance level as of March 31, 2017 .

Changes in internal control over financial reporting. We acquired PCLI from Suncor effective February 1, 2017 and have included PCLI's operating results, assets and liabilities in our consolidated financial statements as of March 31, 2017 and for the two months then ended. Pursuant to a Transition Service Agreement with Suncor, Suncor provides accounting support services for PCLI including month end close process and other accounting services. Other than internal controls for PCLI, there have been no changes in our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) that occurred during our last fiscal quarter that have materially affected or are reasonably likely to materially affect our internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

Commitment and Contingency Reserves

We periodically establish reserves for certain legal proceedings. The establishment of a reserve involves an estimation process that includes the advice of legal counsel and subjective judgment of management. While management believes these reserves to be adequate, future changes in the facts and circumstances could result in the actual liability exceeding the estimated ranges of loss and amounts accrued.

While the outcome and impact on us cannot be predicted with certainty, based on advice of counsel, management believes that the resolution of these proceedings through settlement or adverse judgment will not either individually or in the aggregate have a material adverse effect on our financial condition, results of operations or cash flows.

Environmental Matters

We are reporting the following proceedings to comply with SEC regulations which require us to disclose proceedings arising under federal, state or local provisions regulating the discharge of materials into the environment or protecting the environment if we reasonably believe that such proceedings may result in monetary sanctions of $100,000 or more. Our respective subsidiaries have or will develop corrective action plans regarding these disclosures that will be implemented in consultation with the respective federal and state agencies. It is not possible to predict the ultimate outcome of these proceedings, although none are currently expected to have a material effect on our financial condition, results of operations or cash flows.

Cheyenne

HollyFrontier Cheyenne Refining LLC (“HFCR”), our wholly-owned subsidiary, completed certain environmental audits at the Cheyenne Refinery regarding compliance with federal and state environmental requirements. By letters dated October 5, 2012, November 7, 2012, and January 10, 2013, and pursuant to the EPA's audit policy to the extent applicable, HFCR submitted reports to the EPA voluntarily disclosing non-compliance with certain emission limitations, reporting requirements, and provisions of a 2009 federal consent decree. By letters dated October 31, 2012; February 6, 2013; June 21, 2013; July 9, 2013 and July 25, 2013, and pursuant to applicable Wyoming audit statutes, HFCR submitted environmental audit reports to the Wyoming Department of Environmental Quality (“WDEQ”) voluntarily disclosing non-compliance with certain notification, reporting, and other provisions of the refinery's state air permit and other environmental regulatory requirements. No further action has been taken by either agency at this time.

El Dorado

The El Dorado Refinery has been engaged in discussions with the EPA regarding potential Clean Air Act violations relating to flaring devices at the refinery as well as other equipment. The El Dorado Refinery has responded to two separate information requests covering air emissions for a time frame from January 1, 2009 through May 31, 2014. The EPA also conducted an on-site Clean Air Act - Sec. 112r Risk Management Program (“RMP”) compliance audit at the El Dorado Refinery and notified the El Dorado Refinery of 20 alleged “deficiencies” related to that inspection. Although no Notice or Finding of Violation has been issued by the EPA in connection with either the Clean Air Act inquiry or the 112r inspection, the EPA and the U.S. Department of Justice have indicated that the federal government believes it has claims for civil penalties relating to the information provided in response to the information requests and the RMP inspection. We have had a preliminary discussion with the government parties, are continuing to evaluate the relevant law and facts and will continue to work with the EPA regarding these matters.

Tulsa

HollyFrontier Tulsa Refining LLC (“HFTR”) manufactures paraffin and hydrocarbon waxes at its Tulsa West facility. On March 11, 2014, the EPA issued a notice to HFTR of possible violations of certain provisions of the federal Toxic Substances Control Act in connection with the manufacture of certain of these products. HFTR and the EPA met and are working productively towards a settlement of this matter.

Other

We are a party to various other litigation and proceedings that we believe, based on advice of counsel, will not either individually or in the aggregate have a materially adverse impact on our financial condition, results of operations or cash flows.

Item 1A. Risk Factors

Except for the additional risk factor information described below, there have been no material changes in our risk factors as previously disclosed in Part 1, "Item 1A. Risk Factors" of our Annual Report on Form 10-K for the fiscal year ended December 31, 2016 . You should carefully consider the risk factors discussed in our 2016 Form 10-K, which could materially affect our business, financial condition or future results. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition or future results.

Movements in foreign exchange rates could significantly impact our profitability and adversely affect our financial position, results of operations and cash flows.

On February 1, 2017 we acquired Petro-Canada Lubricants Inc., a Canadian-based producer of base-oils and other specialized lubricant products, with foreign operations. The functional currencies of PCLI's operations include the Canadian dollar, the euro and the Chinese renminbi that are translated into U.S. dollars in our reported financial results and condition. Volatility in exchange rates could adversely affect our financial position, results of operations and cash flows.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

(c) Common Stock Repurchases Made in the Quarter

Under our common stock repurchase programs, repurchases are being made from time to time in the open market or privately negotiated transactions based on market conditions, securities law limitations and other factors. The following table includes repurchases made under these programs during the first quarter of 2017 .

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs
January 2017	—	$ —	—	$ 178,811,213
February 2017	—	$ —	—	$ 178,811,213
March 2017	—	$ —	—	$ 178,811,213
Total for January to March 2017	—		—	

Item 6. Exhibits

The Exhibit Index on page 55 of this Quarterly Report on Form 10-Q lists the exhibits that are filed or furnished, as applicable, as part of the Quarterly Report on Form 10-Q.

SIGNATURES

Pursuant to the requirements of the Securities and Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

	HOLLYFRONTIER CORPORATION
	(Registrant)
Date: May 4, 2017	/s/ Richard L. Voliva III
	Richard L.Voliva III Executive Vice President and Chief Financial Officer (Principal Financial Officer)
Date: May 4, 2017	/s/ J. W. Gann, Jr.
	J. W. Gann, Jr. Vice President, Controller and Chief Accounting Officer (Principal Accounting Officer)

Exhibit Index

Exhibit Number	Description
3.1	Amended and Restated Certificate of Incorporation of HollyFrontier Corporation (incorporated by reference to Exhibit 3.1 of Registrant's Current Report on Form 8-K filed July 8, 2011, File No. 1-03876).
3.2	Amended and Restated By-Laws of HollyFrontier Corporation (incorporated by reference to Exhibit 3.1 of Registrant's Current Report on Form 8-K filed February 20, 2014, File No. 1-03876).
10.1	Seventeenth Amended and Restated Omnibus Agreement, dated January 18, 2017, effective January 1, 2017, by and among HollyFrontier Corporation, Holly Energy Partners, L.P. and certain of their respective subsidiaries (incorporated by reference to Exhibit 10.11 of Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2016, File No. 1-03876).
10.2	First Amendment to Senior Unsecured 5-Year Revolving Credit Agreement, dated as of February 16, 2017, among HollyFrontier Corporation, as borrower, The Bank of Tokyo-Mitsubishi UFJ, Ltd., as administrative agent, and the lenders party thereto (incorporated by reference to Exhibit 10.1 of Registrant's Current Report on Form 8-K filed February 21, 2017, File No. 1-03876).
10.3	Amended and Restated Unloading and Blending Services Agreement, dated January 18, 2017, effective September 16, 2016, by and between HollyFrontier Refining & Marketing LLC, Holly Energy Partners - Operating, L.P. and HEP Refining L.L.C. (incorporated by reference to Exhibit 10.26 of Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2016, File No. 1-03876).
10.4	Third Amended and Restated Master Throughput Agreement, dated January 18, 2017, effective January 1, 2017, by and between HollyFrontier Refining & Marketing LLC and Holly Energy Partners - Operating, L.P. (incorporated by reference to Exhibit 10.27 of Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2016, File No. 1-03876).
10.5	Fourth Amended and Restated Master Lease and Access Agreement, dated January 18, 2017, effective January 1, 2017, by and among certain subsidiaries of Holly Energy Partners, L.P. and certain subsidiaries of HollyFrontier Corporation. (incorporated by reference to Exhibit 10.30 of Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2016, File No. 1-03876).
10.6*	Amendment to Amended and Restated Master Tolling Agreement (Operating Assets), dated effective January 1, 2017, by and among HollyFrontier El Dorado Refining LLC, HollyFrontier Woods Cross Refining LLC, and Holly Energy Partners-Operating, L.P.
10.7*	Amendment to Master Tolling Agreement (Refinery Assets), dated effective January 1, 2017, by and among HollyFrontier El Dorado Refining LLC, HollyFrontier Woods Cross Refining LLC, and Holly Energy Partners-Operating, L.P.
10.8+	HollyFrontier Corporation Long-Term Incentive Plan UK Sub-Plan, effective February 14, 2017. (incorporated by reference to Exhibit 10.44 of Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2016, File No. 1-03876).
10.9+	Retirement Agreement, dated January 13, 2017, between HollyFrontier Corporation and Douglas S. Aron (incorporated by reference to Exhibit 10.1 of Registrant's Current Report on Form 8-K filed January 13, 2017, File No. 1-03876).
10.10+	Holly Corporation Employee Form of Change in Control Agreement (incorporated by reference to Exhibit 10.46 of Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2016, File No. 1-03876).
10.11+	Form of Restricted Stock Agreement (time-based vesting) (incorporated by reference to Exhibit 10.49 of Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2016, File No. 1-03876).
10.12+	Form of Notice of Grant of Restricted Stock (incorporated by reference to Exhibit 10.50 of Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2016, File No. 1-03876).
31.1*	Certification of Chief Executive Officer under Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification of Chief Financial Officer under Section 302 of the Sarbanes-Oxley Act of 2002.
32.1**	Certification of Chief Executive Officer under Section 906 of the Sarbanes-Oxley Act of 2002.
32.2**	Certification of Chief Financial Officer under Section 906 of the Sarbanes-Oxley Act of 2002.

Exhibit Number	Description
101++	The following financial information from HollyFrontier Corporation’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2017, formatted in XBRL (Extensible Business Reporting Language): (i) Consolidated Balance Sheets, (ii) Consolidated Statements of Income, (iii) Consolidated Statements of Comprehensive Income, (iv) Consolidated Statements of Cash Flows, and (v) Notes to the Consolidated Financial Statements.

* Filed herewith.
** Furnished herewith.
+ Constitutes management contracts or compensatory plans or arrangements.
++ Filed electronically herewith.

Exhibit 10.6

AMENDMENT
TO
AMENDED AND RESTATED MASTER TOLLING AGREEMENT
(Operating Assets)

THIS AMENDMENT TO AMENDED AND RESTATED MASTER TOLLING AGREEMENT (Operating Assets) (this " Amendment ") is entered into as of January 1, 2017 by and among the Persons set forth on Exhibit A (each hereinafter sometimes referred to as a " Party " and sometimes collectively referred to as the " Parties ").

RECITALS:

A. Effective as of October 1, 2016, the Parties entered into a certain Amended and Restated Master Tolling Agreement (Operating Assets) (the " Amended and Restated Master Tolling Agreement "). Capitalized terms used but not otherwise defined in this Amendment have the meanings ascribed to such terms in the Amended and Restated Master Tolling Agreement.

B. Exhibit C to the Amended and Restated Master Tolling Agreement provides for the adjustment of the Tolling Fee based on the OPEX and CAPEX actually incurred during the initial four (4) Contract Quarters of the Term.

C. The Parties desire to adjust the Tolling Fee for the El Dorado Naphtha Fractionation Unit as provided in Exhibit C attached to the Amended and Restated Master Tolling Agreement, on the terms and conditions set forth herein.

AGREEMENT:

NOW, THEREFORE, in consideration of the premises and the covenants and agreements set forth herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby amend the Amended and Restated Master Tolling Agreement as follows:

1. Incorporation of Recitals . The recitals for this Amendment are fully incorporated herein by the reference thereto with the same force and effect as though recited herein.

2. Amendment to Exhibit C . Effective as of 12:01 a.m. Central Time on January 1, 2017, Exhibit C attached to the Amended and Restated Master Tolling Agreement is hereby deleted and replaced, in its entirety, with Exhibit C-1 attached to this Amendment.

3. Counterparts . This Amendment may be executed in counterparts each of which shall be deemed an original. An executed counterpart of this Amendment transmitted by facsimile shall be equally as effective as a manually executed counterpart.

4. Successors and Assigns . This Amendment shall inure for the benefit of and shall be binding on each of the Parties and their respective successors and/or assigns.

5. Entire Agreement . This Amendment contains the entire agreement between the Parties as to the subject matter hereof and, except as provided for in this Amendment, the terms and provisions of the Amended and Restated Master Tolling Agreement shall remain in full force and effect.

[Signature page follows]

IN WITNESS WHEREOF, the Parties have caused this Amendment to be executed by their duly authorized officers to be effective as of the date first set forth above.

HEP OPERATING:

Holly Energy Partners-Operating, L.P.

By: ___/s/ Richard L. Voliva III_________
Richard L. Voliva III
Executive Vice President and CFO

APPLICABLE REFINERY OWNER:

HollyFrontier El Dorado Refining LLC
HollyFrontier Woods Cross Refining LLC

By: ___/s/ Thomas G. Creery_________
Thomas G. Creery
Senior Vice President, Commercial

<u>Exhibit A</u>
to
Amended and Restated Master Tolling Agreement

Parties:

HollyFrontier El Dorado and HEP Operating, as to the El Dorado Assets.

HollyFrontier Woods Cross and HEP Operating, as to the Woods Cross Assets.

<u>Exhibit C-1</u>
to
Amended and Restated Master Tolling Agreement

Applicable Assets; Minimum Throughput Commitment; Tolling Fees and Adjustments; Applicable Term

Applicable Assets	Type of Applicable Asset	Products	Minimum Throughput Commitment (on a BPD basis)	Tolling Fee	Tolling Fee Adjustment	PPI Adjustment Minimum/ Cap	Fee Adjustment Commencement Date	Assumed OPEX	Purchase Price	Accrued Turnaround Cost	Assumed Fuel Gas Cost	Initial Term (all times are Dallas, TX time)	Extension Term (all times are Dallas, TX time)
El Dorado Assets	Naphtha Fractionation Unit	[1] Feed Naphtha: Isopentane ISOM Int. Reformer Feed	48,750 BPD	$0.3840/ BBL [2]	PPI/HFC Merit Comp Adjustment [3] Turnaround Surcharge [6] Fuel Gas Surcharge [7]	Subject to 1% Minimum/ 3% Cap [3]	July 1, 2017	--	$25,936,371	$1.6M [6]	$73,610 [7]	12:01 a.m. on November 1, 2015 (the "Effective Time") to 12:00 midnight on October 31, 2030	The Applicable Refinery Owner shall have the option to extend the Applicable Term beyond the Initial Term for one additional five (5) year period beginning at 12:01 am on November 1, 2030 and ending at 12:00 midnight on October 31, 2035 on the same terms and conditions as in existence for the Initial Term.

Appli-cable Assets	Type of Applicable Asset	Products	Minimum Throughput Commit-ment (on a BPD basis)	Tolling Fee	Tolling Fee Adjustment	PPI Adjust-ment Minimum/ Cap	Fee Adjustment Commence-ment Date	Assumed OPEX	Purchase Price	Accrued Turn-around Cost	Assumed Fuel Gas Cost	Initial Term (all times are Dallas, TX time)	Extension Term (all times are Dallas, TX time)
Woods Cross Assets	Crude Unit 2	Naphtha Diesel tower bottoms	14,625 BPD [8]	$2.56/ BBL [10]	PPI/WX Union Annual Increase [9] OPEX Adjust-ment [4] CAPEX Adjust-ment [5] Turn-around Surcharge [6] Fuel Gas Surcharge (excluding Polymeri-zation Unit) [7]	None	July 1, 2017	$4.0M [4]	$64.75M	$8.7M [6]	$11,871	12:01 a.m. on October 1, 2016 (the “Effec-tive Time”) to 12:00 midnight on September 30, 2031	The Applicable Refinery Owner shall have the option to extend the Applic-able Term beyond the Initial Term for one additional five (5) year period beginning at 12:01 am on October 1, 2031 and ending at 12:00 midnight on Septem-ber 30, 2036 on the same terms and condi-tions as in existence for the Initial Term.
	FCC Unit 2	Gasoline Light Cycle Oil Olefins Slurry	7,600 BPD [8]	$12.39 /BBL [10]				$11.8M [4]	$176.25M	$7.8M [6]	$11,566		
	Polymeriza-tion Unit	Gasoline Butane Propane	2,438 BPD [8]	$9.72/ BBL [10]				$3.6M [4]	$37.0M	$3.2M [6]	-		

1. The “Feedstock” for the El Dorado Assets is light naphtha and heavy naphtha. The “Feedstock” for the Woods Cross Assets is as follows: Crude Unit 2 – crude oil; FCC Unit 2 – crude tower bottoms and outside gas oil; Poly Unit – olefins.
2. El Dorado Only: The Tolling Fee shall never be less than $.36 per BBL of Feedstock, subject to a one-time potential reduction in the Tolling Fee for the adjustment in paragraph 4 below. If as a result of a reduction to the Tolling Fee or Minimum Throughput Commitment for a Contract Quarter pursuant to Section 2.2(d) of the Agreement, the Applicable Refinery Owner has overpaid its Tolling Fees for a Contract Quarter, the Applicable Refinery Owner shall receive a credit against its Tolling Fees due for the following Contract Quarter in the amount of such overpayment.
3. El Dorado Only: The Tolling Fee, as previously adjusted on a cumulative basis, shall be adjusted on July 1 of each calendar year, commencing July 1, 2017, by an amount equal to a percentage calculated as follows: (A) 0.75 x the change in the PPI as described below, plus (B) 0.25 x the annual HollyFrontier Merit Compensation Adjustment (positive or negative) for such calendar year. The change in the PPI is the upper change in the annual change rounded to four decimal places of the Producers Price Index-Commodities-Finished Goods, (PPI), et al. (“PPI”), produced by the U.S. Department of Labor, Bureaus of Labor Statistics. The series ID is WPUFD49207– located at http://www.bls.gov/data/ . The change in PPI for each year shall be calculated as follows: annual PPI index (most current year) less annual PPI index (most current year minus 1) divided by annual PPI index (most current year minus 1); provided that the change in PPI in any year shall not be less than one percent (1%) or more than three percent (3%). For the avoidance of doubt, if the change in PPI in any year is less than one percent (1%) (including if the change in the PPI is negative) it will be rounded up to one percent (1%) and if the change in PPI in any year is greater than three percent (3%) it will be rounded down to three percent (3%). If either index is no longer published, the Parties shall negotiate in good faith to agree on a new index (as applicable) that gives comparable protection against inflation or deflation, and the same method of adjustment for increases or decreases in

the new index shall be used to calculate increases or decreases in the Tolling Fee. If the Parties are unable to agree on a new index, a new index will be determined in accordance with the dispute resolution provisions set forth in the Article VIII of Omnibus Agreement, and the same method of adjustment for increases or decreases in the new index shall be used to calculate increases or decreases in the Tolling Fee. The annual HollyFrontier Merit Compensation Adjustment is the company-wide increase (or decrease) in salary for the year in which the adjustment occurs as determined by the HollyFrontier Chief Executive Officer and Vice President, Human Resources (excluding merit compensation adjustments for executive officers that are determined by the HollyFrontier Board of Directors (or a committee thereof) and excluding any annual increases for union employees). Examples of the annual Tolling Fee adjustment under various scenarios are as follows:

(1) if the change in PPI is 0% and the HFC Merit Compensation Adjustment is 3.5%, the Tolling Fee adjustment would be (0.75 x 1%) + (0.25 x 3.5%) = 1.625%

(2) if the change in PPI is 2% and the HFC Merit Compensation Adjustment is 2%, the Tolling Fee adjustment would be (0.75 x 2%) + (0.25 x 2%) = 2%

(3) if the change in PPI is 5% and the HFC Merit Compensation Adjustment is 2%, the Tolling Fee adjustment would be (0.75 x 3%) + (0.25 x 2%) = 2.75%

(4) if the change in PPI is 0% and the HFC Merit Compensation Adjustment is -2%, the Tolling Fee adjustment would be (0.75 x 1%) + (0.25 x (-2%)) = 0.25%

4. At the end of the first four (4) Contract Quarters during the Applicable Term, HEP Operating shall calculate the aggregate operating expenses incurred in the operation of the Applicable Asset (but such calculation shall not include turnaround accruals, capitalized catalyst costs, fuel gas costs and extraordinary and non-recurring items of expense that are not reasonably expected to recur in future periods during the Applicable Term) (“OPEX”). In the event that such aggregate OPEX exceed the Assumed OPEX set forth above, (A) the Applicable Refinery Owner shall, within ten (10) days of receiving an invoice from HEP Operating, reimburse HEP Operating for such OPEX incurred during such initial four (4) Contract Quarters in excess of the Assumed OPEX, and (B) from and after the first four (4) Contract Quarters during the Applicable Term, HEP Operating shall increase the Tolling Fee for processing with the Applicable Asset by the amount necessary to recover such aggregate OPEX in excess of the Assumed OPEX for the remainder of the Applicable Term, and the Parties shall execute an amended, modified, revised or updated Exhibit C reflecting such aggregate OPEX as the new Assumed OPEX. In the event that such aggregate OPEX is less than the Assumed OPEX, HEP Operating shall decrease the Tolling Fee by the amount necessary to account for the difference between the Assumed OPEX and such actual OPEX for the remainder of the Applicable Term, and the Parties shall execute an amended, modified, revised or updated Exhibit C reflecting such aggregate OPEX as the new Assumed OPEX.

5. At the end of the first four (4) Contract Quarters during the Applicable Term, HEP Operating shall determine its aggregate capital expenditures relating to the construction and start-up of the Applicable Asset (“CAPEX”). HEP Operating shall amend and increase the Tolling Fee for the remainder of the Initial Term by the following formulae: (aggregate CAPEX/8.5) ¸ (Minimum Throughput (on a BPD basis) x 365.25).

6. After the first turnaround on the Applicable Asset during the Applicable Term, HEP Operating will calculate its aggregate Turnaround Costs incurred in connection therewith. In the event such aggregate Turnaround Costs for the Applicable Asset exceeds the Accrued Turnaround Cost set forth above then (A) a turnaround surcharge (the “Turnaround Surcharge”) will be added to the Tolling Fee based on each BBL of Feedstock (using the Minimum Throughput Commitment) in order to allow HEP Operating to recover (i) such Turnaround Costs in excess of the Accrued Turnaround Cost plus (ii) a ten percent (10%) return on such excess (the aggregate amount specified in clauses (i) and (ii), the “Turnaround Payment”). Such Turnaround Surcharge shall be paid by the Applicable Refinery Owner to HEP Operating on each BBL of Feedstock processed through the Applicable Asset until the earlier to occur of (i) the expiration of the Applicable Term or (ii) the recovery by HEP Operating of the Turnaround Payment. In addition, the Tolling Fee will be adjusted by the amount necessary to recover the new estimated turnaround expense for the remainder of the Applicable Term (based on the Minimum Throughput Commitment).

7. If at the end of any calendar month during the Applicable Term the aggregate cost of gas incurred by HEP Operating in connection with the operation of the Applicable Assets exceeds the Assumed Fuel Gas Cost, the Applicable Refinery Owner shall promptly pay to HEP Operating an amount equal to the positive difference, if any, of (i) the aggregate cost of fuel gas incurred by HEP Operating in connection with the operation of the Applicable Assets during such calendar month less (ii) the Assumed Fuel Gas Cost.

8. Determined on a Contract Quarter basis.

9. Woods Cross Only: The Tolling Fee, as previously adjusted on a cumulative basis, shall be adjusted on July 1 of each calendar year, commencing July 1, 2017, by an amount equal to a percentage calculated as follows: (A) 0. 5 x the change in the PPI as described below, plus (B) 0.5 x the annual increase under the then current Woods Cross union contract. The change in the PPI is the upper change in the annual change rounded to four decimal places of the Producers Price Index-Commodities-Finished Goods, (PPI), et al. (“PPI”), produced by the U.S. Department of Labor, Bureaus of Labor Statistics. The series ID is WPUFD49207– located at http://www.bls.gov/data/ . The change in PPI for each year shall be calculated as follows: annual PPI index (most current year) less annual PPI index (most current year minus 1) divided by annual PPI index (most current year minus 1). If either index is no longer published, the Parties shall negotiate in good faith to agree on a new index (as applicable) that gives comparable protection against inflation

or deflation, and the same method of adjustment for increases or decreases in the new index shall be used to calculate increases or decreases in the Tolling Fee. If the Parties are unable to agree on a new index, a new index will be determined in accordance with the dispute resolution provisions set forth in the Article VIII of Omnibus Agreement, and the same method of adjustment for increases or decreases in the new index shall be used to calculate increases or decreases in the Tolling Fee. The annual increase under the then current Woods Cross union contract is the annual base pay increase given to union employees at Woods Cross, currently on or about February 1 of each year. Examples of the annual Tolling Fee adjustment under various scenarios are as follows:

(1) if the change in PPI is 0% and the annual increase under the then current Woods Cross union contract is 3.5%, the Tolling Fee adjustment would be (0.5 x 0%) + (0.5 x 3.5%) = 1.75%

(2) if the change in PPI is 2% and the annual increase under the then current Woods Cross union contract is 2%, the Tolling Fee adjustment would be (0.5 x 2%) + (0.5 x 2%) = 2%

(3) if the change in PPI is 5% and the annual increase under the then current Woods Cross union contract is 2%, the Tolling Fee adjustment would be (0.5 x 5%) + (0.5 x 2%) = 3.5%10.

(4) if the change in PPI is -1% and the annual increase under the then current Woods Cross union contract is 2%, the Tolling Fee adjustment would be (0.5 x -1%) + (0.5 x 2%) = 0.5%.

10. Woods Cross Only: If the Applicable Refinery Owner has overpaid its monthly Tolling Fees after adjustments to Tolling Fees or Minimum Throughput Commitments for a Contract Quarter pursuant to Section 2.2(d) of the Agreement, the Applicable Refinery Owner shall be entitled to apply any such overpayment as a credit against Tolling Fees within the succeeding twelve months for volumes of Feedstock delivered to HEP Operating in excess of the Minimum Throughput Commitment for any of the Applicable Assets. If any such overpayment has not been credited within twelve months of the overpayment, such overpayment shall be credited against Tolling Fees due with respect to any Minimum Throughput Commitment for any of the Applicable Assets, or if there are no such Tolling Fees due, such overpayment shall be credited against any other obligations owed by the Applicable Refinery Owner, or its Affiliates, to HEP Operating.

Exhibit 10.7

AMENDMENT
TO
MASTER TOLLING AGREEMENT
(Refinery Assets)

THIS AMENDMENT TO MASTER TOLLING AGREEMENT (Refinery Assets) (this " Amendment ") is entered into as of January 1, 2017 by and among the Persons set forth on Exhibit A (each hereinafter sometimes referred to as a " Party " and sometimes collectively referred to as the " Parties ").

RECITALS:

A. Effective as of November 1, 2015, the Parties entered into a certain Master Tolling Agreement (Refinery Assets) (the " Master Tolling Agreement "). Capitalized terms used but not otherwise defined in this Amendment have the meanings ascribed to such terms in the Master Tolling Agreement.

B. Exhibit C to the Master Tolling Agreement provides for the adjustment of the Tolling Fee based on the OPEX and CAPEX actually incurred during the initial four (4) Contract Quarters of the Term.

C. The Parties desire to adjust the Tolling Fee as provided in Exhibit C attached to the Master Tolling Agreement, on the terms and conditions set forth herein.

AGREEMENT:

NOW, THEREFORE, in consideration of the premises and the covenants and agreements set forth herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby amend the Master Tolling Agreement as follows:

1. Incorporation of Recitals . The recitals for this Amendment are fully incorporated herein by the reference thereto with the same force and effect as though recited herein.

2. Amendment to Exhibit C . Effective as of 12:01 a.m. Central Time on January 1, 2017, Exhibit C attached to the Master Tolling Agreement is hereby deleted and replaced, in its entirety, with Exhibit C-1 attached to this Amendment.

3. Counterparts . This Amendment may be executed in counterparts each of which shall be deemed an original. An executed counterpart of this Amendment transmitted by facsimile shall be equally as effective as a manually executed counterpart.

4. Successors and Assigns . This Amendment shall inure for the benefit of and shall be binding on each of the Parties and their respective successors and/or assigns.

5. Entire Agreement . This Amendment contains the entire agreement between the Parties as to the subject matter hereof and, except as provided for in this Amendment, the terms and provisions of the Master Tolling Agreement shall remain in full force and effect.

[Signature page follows]

IN WITNESS WHEREOF, the Parties have caused this Amendment to be executed by their duly authorized officers to be effective as of the date first set forth above.

HEP OPERATING:

Holly Energy Partners-Operating, L.P.

By: ___/s/ Richard L. Voliva III_________
Richard L. Voliva III
Executive Vice President and CFO

APPLICABLE REFINERY OWNER:

HollyFrontier El Dorado Refining LLC
HollyFrontier Woods Cross Refining LLC

By: ___/s/ Thomas G. Creery_________
Thomas G. Creery
Senior Vice President, Commercial

<u>Exhibit A</u>
to
Amendment to Master Tolling Agreement

Parties:

HollyFrontier El Dorado and HEP Operating, as to the El Dorado Assets.

HollyFrontier Woods Cross and HEP Operating, as to the Woods Cross Assets.

Exhibit C-1

to

Amendment to Master Tolling Agreement

Applicable Assets; Minimum Throughput Commitment; Tolling Fees and Adjustments; Applicable Term

Applicable Assets	Type of Applicable Asset	Products	Minimum Throughput Commitment (on a MSCFD basis)	Tolling Fee	Tolling Fee Adjustment	PPI Adjustment Minimum/ Cap	Fee Adjustment Commencement Date	Assumed OPEX	Purchase Price	Accrued Turnaround Cost	Assumed Fuel Gas Cost	Initial Term (all times are Dallas, TX time)	Extension Term (all times are Dallas, TX time)
El Dorado Assets	Hydrogen Generation Unit	[1] Hydrogen	5,948 MSCFD	$3.8121/ MSCF [2]	PPI/HFC Merit Comp Adjustment [3] Turnaround Surcharge [4] Fuel Gas Surcharge [5]	Subject to 1% Minimum/ 3% Cap [3]	July 1, 2017	—	$37,159,081	$2.3M [4]	$136,156 [5]	From 12:01 a.m. on November 1, 2015 (the "Effective Time") to 12:00 midnight on October 31, 2030	The Applicable Refinery Owner shall have the option to extend the Applicable Term beyond the Initial Term for one additional five (5) year period beginning at 12:01 am on November 1, 2030 and ending at 12:00 midnight on October 31, 2035 on the same terms and conditions as in existence for the Initial Term.

1. The "Feedstock" is fungible natural gas to be supplied via pipeline.
2. The Tolling Fee shall never be less than $4.07 per MSCF of Feedstock, subject to a one-time potential reduction in the Tolling Fee for the adjustment in paragraph 4 below.
3. The Tolling Fee, as previously adjusted on a cumulative basis, shall be adjusted on July 1 of each calendar year, commencing July 1, 2017, by an amount equal to a percentage calculated as follows: (A) 0.75 x the change in the PPI as described below, plus (B) 0.25 x the annual HollyFrontier Merit Compensation Adjustment (positive or negative) for such calendar year. The change in the PPI is the upper change in the annual change rounded to four decimal places of the Producers Price Index-Commodities-Finished Goods, (PPI), et al. ("PPI"), produced by the U.S. Department of Labor, Bureaus of Labor Statistics. The series ID is WPUSOP3000– located at http://www.bls.gov/data/ . The change in PPI for each year shall be calculated as follows: annual PPI index (most current year) less annual PPI index (most current year minus 1) divided by annual PPI index (most current year minus 1); provided that the change in PPI in any year shall not be less than one percent (1%) or more than three percent (3%). For the avoidance of doubt, if the change in PPI in any year is less than one percent (1%) it will be rounded up to one percent (1%) and if the change in PPI in any year is greater than three percent (3%) it will be rounded down to three percent (3%). If either index is no longer published, the Parties shall negotiate in good faith to agree on a new index (as applicable) that gives comparable protection against inflation or deflation, and the same method of adjustment for increases or decreases in the new index shall be used to calculate increases or decreases in the Tolling Fee. If the Parties are unable to agree on a new index, a new index

will be determined in accordance with the dispute resolution provisions set forth in the Article VIII of Omnibus Agreement, and the same method of adjustment for increases or decreases in the new index shall be used to calculate increases or decreases in the Tolling Fee. The annual HollyFrontier Merit Compensation Adjustment is the company-wide increase (or decrease) in salary for the year in which the adjustment occurs as determined by the HollyFrontier Board of Directors. Examples of the annual Tolling Fee adjustment under various scenarios are as follows:

(1) if the change in PPI is 0% and the HFC Merit Compensation Adjustment is 3.5%, the Tolling Fee adjustment would be (0.75 x 1%) + (0.25 x 3.5%) = 1.625%

(2) if the change in PPI is 2% and the HFC Merit Compensation Adjustment is 2%, the Tolling Fee adjustment would be (0.75 x 2%) + (0.25 x 2%) = 2%

(3) if the change in PPI is 5% and the HFC Merit Compensation Adjustment is 2%, the Tolling Fee adjustment would be (0.75 x 3%) + (0.25 x 2%) = 2.75%

(4) if the change in PPI is 0% and the HFC Merit Compensation Adjustment is -2%, the Tolling Fee adjustment would be (0.75 x 1%) + (0.25 x (-2%)) = 0.25%

4. After the first turnaround on the Applicable Asset during the Applicable Term, HEP Operating will calculate its aggregate Turnaround Costs incurred in connection therewith. In the event such aggregate Turnaround Costs for the Applicable Asset exceeds the Accrued Turnaround Cost set forth above then (A) a turnaround surcharge (the " Turnaround Surcharge ") will be added to the Tolling Fee based on each MSCFD of Feedstock (using the Minimum Throughput Commitment) in order to allow HEP Operating to recover (i) such Turnaround Costs in excess of the Accrued Turnaround Cost plus (ii) a ten percent (10%) return on such excess (the aggregate amount specified in clauses (i) and (ii), the " Turnaround Payment "). Such Turnaround Surcharge shall be paid by the Applicable Refinery Owner to HEP Operating on each MSCFD of Feedstock processed through the Applicable Asset until the earlier to occur of (i) the expiration of the Applicable Term or (ii) the recovery by HEP Operating of the Turnaround Payment. In addition, the Tolling Fee will be adjusted by the amount necessary to recover the new estimated turnaround expense for the remainder of the Applicable Term (based on the Minimum Throughput Commitment).

5. If at the end of any calendar month during the Applicable Term the aggregate cost of gas incurred by HEP Operating in connection with the operation of the Applicable Assets exceeds $136,156 (the " Assumed Fuel Gas Cost "), the Applicable Refinery Owner shall promptly pay to HEP Operating an amount equal to the positive difference, if any, of (i) the aggregate cost of fuel gas incurred by HEP Operating in connection with the operation of the Applicable Assets during such calendar month less (ii) the Assumed Fuel Gas Cost.

Exhibit 31.1

CERTIFICATION

I, George J. Damiris, certify that:

1. I have reviewed this quarterly report on Form 10-Q of HollyFrontier Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant’s other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
    a. designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
    b. designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
    c. evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
    d. disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and
5. The registrant’s other certifying officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of registrant’s board of directors (or persons performing the equivalent functions):
    a. all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and
    b. any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting

Date: May 4, 2017

/s/ George J. Damiris

George J. Damiris
Chief Executive Officer and President

Exhibit 31.2

CERTIFICATION

I, Richard L. Voliva III, certify that:

1. I have reviewed this quarterly report on Form 10-Q of HollyFrontier Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
    a. designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
    b. designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
    c. evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
    d. disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's most recent fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):
    a. all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
    b. any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 4, 2017

/s/ Richard L. Voliva III

Richard L. Voliva III

Executive Vice President and Chief Financial Officer

Exhibit 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER UNDER SECTION 906 OF THE SARBANES OXLEY ACT OF 2002, 18 U.S.C. § 1350

In connection with the accompanying report on Form 10-Q for the quarterly period ended March 31, 2017 and filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, George J. Damiris, Chief Executive Officer of HollyFrontier Corporation (the “Company”) hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 4, 2017

/s/ George J. Damiris

George J. Damiris

Chief Executive Officer and President

Exhibit 32.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER UNDER SECTION 906 OF THE SARBANES OXLEY ACT OF 2002, 18 U.S.C. § 1350

In connection with the accompanying report on Form 10-Q for the quarterly period ended March 31, 2017 and filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Richard L. Voliva III, Chief Financial Officer of HollyFrontier Corporation (the “Company”) hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 4, 2017

/s/ Richard L. Voliva III

Richard L. Voliva III

Executive Vice President and Chief Financial Officer