INVESTOR PRESENTATION

September 2020

PQ Corporation

LEGAL DISCLAIMER

Forward-Looking Statements

Some of the information contained in this presentation and any discussions that follow constitutes “forward-looking statements”. Forward-looking statements can be identified by words such as “anticipates,” “intends,” “plans,” “seeks,” “believes,” “estimates,” “expects,” “projects” and similar references to future periods. Forward-looking statements are based on our current expectations and assumptions regarding our business, the economy and other future conditions. Because forward-looking statements relate to the future, they are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict. Examples of forward looking statements include, but are not limited to, statements regarding our future results of operations, financial condition, liquidity, prospects, growth, strategies, product and service offerings and end use demand trends, including the impact of the COVID-19 pandemic on such items and financial 2020 outlook. Our actual results may differ materially from those contemplated by the forward-looking statements. We caution you, therefore, against relying on any of these forward-looking statements. They are neither statements of historical fact nor guarantees or assurances of future performance. Important factors that could cause actual results to differ materially from those in the forward-looking statements include, but are not limited to, regional, national or global political, economic, business, competitive, market and regulatory conditions, including the ongoing COVID-19 pandemic, tariffs, and trade disputes, currency exchange rates and other factors, including those described in the sections titled “Risk Factors” and “Management Discussion & Analysis of Financial Condition and Results of Operations” in our filings with the SEC, which are available on the SEC’s website at www.sec.gov. Any forward-looking statement made by us in this presentation and any discussions that follow speaks only as of the date on which it is made. Factors or events that could cause our actual results to differ may emerge from time to time, and it is not possible for us to predict all of them. We undertake no obligation to update any forward-looking statement, whether as a result of new information, future developments or otherwise, except as may be required by applicable law.

Non-GAAP Financial Measures

This presentation includes certain non-GAAP financial measures, including adjusted EBITDA, adjusted EBITDA margin and adjusted free cash flow, which are provided to assist in an understanding of our business and its performance. These non-GAAP financial measures should be considered only as supplemental to, and not as superior to, financial measures prepared in accordance with GAAP. Non-GAAP financial measures should be read only in conjunction with consolidated financials prepared in accordance with GAAP. Reconciliations of non-GAAP measures to the relevant GAAP measures are provided in the appendix of this presentation.

The Company is not able to provide a reconciliation of the Company’s non-GAAP financial guidance to the corresponding GAAP measures without unreasonable effort because of the inherent difficulty in forecasting and quantifying certain amounts necessary for such a reconciliation such as certain non-cash, nonrecurring or other items that are included in net income and EBITDA as well as the related tax impacts of these items and asset dispositions / acquisitions and changes in foreign currency exchange rates that are included in cash flow, due to the uncertainty and variability of the nature and amount of these future charges and costs.

Non-GAAP Financial Measures – Business Combination

On May 4, 2016, we consummated a series of transactions (the "Business Combination") to reorganize and combine the businesses of PQ Holdings Inc. and Eco Services Operations LLC under a new holding company, PQ Group Holdings Inc. In this presentation, we present pro forma information for the years ended December 31, 2016 and 2015, which gives effect to the Business Combination and the related financing transactions as if they occurred on January 1, 2015. Such information is illustrative and not intended to represent what our results of operations would have been had the Business Combination and related financing transactions occurred at any time prior to May 4, 2016 or to project our results of operations for any future period. Such information may not be comparable to, or indicative of, future performance.

Zeolyst Joint Venture

Zeolyst International and Zeolyst C.V. (our 50% owned joint ventures that we refer to collectively as the “Zeolyst Joint Venture”), are accounted for as an equity method investment in accordance with GAAP. The presentation of the Zeolyst Joint Venture’s sales in this presentation represents 50% of the sales of the Zeolyst Joint Venture. We do not record sales by the Zeolyst Joint Venture as revenue and such sales are not consolidated within our results of operations. However, our adjusted EBITDA reflects our share of the earnings of the Zeolyst Joint Venture that have been recorded as equity in net income from affiliated companies in our consolidated statements of income for such periods and includes Zeolyst Joint Venture adjustments on a proportionate basis based on our 50% ownership interest. Accordingly, our adjusted EBITDA margins are calculated including 50% of the sales of the Zeolyst Joint Venture for the relevant periods in the denominator.

PQ CORPORATION OVERVIEW

OUR COMPANY

BY THE NUMBERS

6 continents

~200 years in business

~4,000 global customers

~3,300 employees

~70 manufacturing facilities

Long History: Founded in 1831

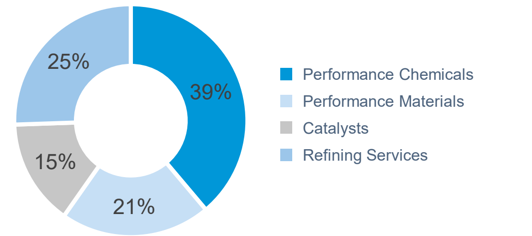
- Differentiated Specialty Businesses
- Innovation Culture
- Sustainable Products
- Track Record of Financial Stability

2019 FINANCIAL HIGHLIGHTS

- Revenues[1]: ~ $1.6 Billion
- Adjusted EBITDA: ~$474 Million
- Adjusted EBITDA Margin: ~ 27%
- Cash from Operations: ~ $268 Million

2019 SALES AND ZEOLYST JV SALES[2]

SEGMENT[3]



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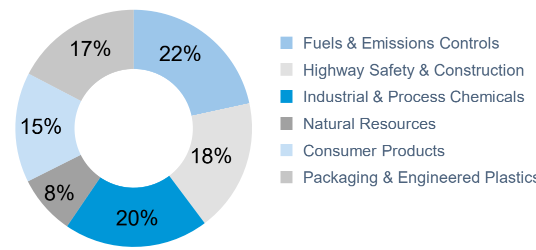
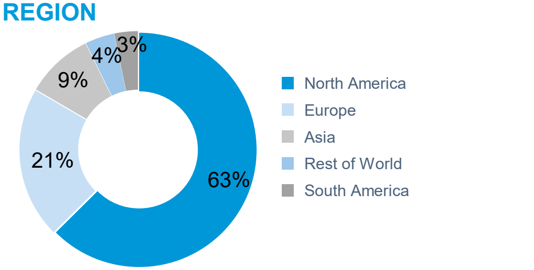


REGION



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(1) GAAP Sales; Excludes proportionate 50% share of sales from the Zeolyst JV Sales of ~$170 million
(2) Sales include proportionate 50% share of sales from the Zeolyst Joint venture
(3) Excludes inter-segment sales eliminations of ~$14 million

OUR DIVERSIFIED SPECIALTY BUSINESSES

REFINING SERVICES

CATALYSTS[1]

PERFORMANCE MATERIALS

PERFORMANCE CHEMICALS

COMPETITIVE STRENGTHS

Refining Services
- Supplier to largest North America refineries
- Largest integrated supply network
- Favorable long-term contracts

Catalysts
- Key supplier for global refineries
- Leader in zeolite technology for heavy duty diesel
- Specified with top polyethylene and methyl methacrylate producers

Performance Materials
- Transportation safety lead bead supplier
- Extensive global supply network
- Co-production for industrial applications

Performance Chemicals
- Strategic global infrastructure
- Vertically integrated silicate expertise
- 50+ years customer relationships

2017 – 2019 PERFORMANCE

Refining Services

Sales CAGR	5.9%
Adjusted EBITDA CAGR	6.7%
Adjusted EBITDA Margin	*~39%*

Catalysts

Sales CAGR[1]	8.1%
Adjusted EBITDA CAGR[1]	9.8%
Adjusted EBITDA Margin[2]	*~39%*

Performance Materials

Sales CAGR	5.8%
Adjusted EBITDA CAGR	4.9%
Adjusted EBITDA Margin	*~21%*

Performance Chemicals

Sales CAGR	-0.2%
Adjusted EBITDA CAGR	-4.9%
Adjusted EBITDA Margin	*~24%*

LONG TERM GROWTH DRIVERS

Refining Services
- Demand for higher octane gasoline
- Rising gasoline exports

Catalysts
- Broader adoption of emissions standards
- Tightening vehicle emission standards
- Trend for lighter and stronger plastics

Performance Materials
- Steady highway demand
- Higher safety regulations
- Lightweighting & materials substitution

Performance Chemicals
- Shifting consumer preferences
- Regulation driven substitution
- Higher performance standards

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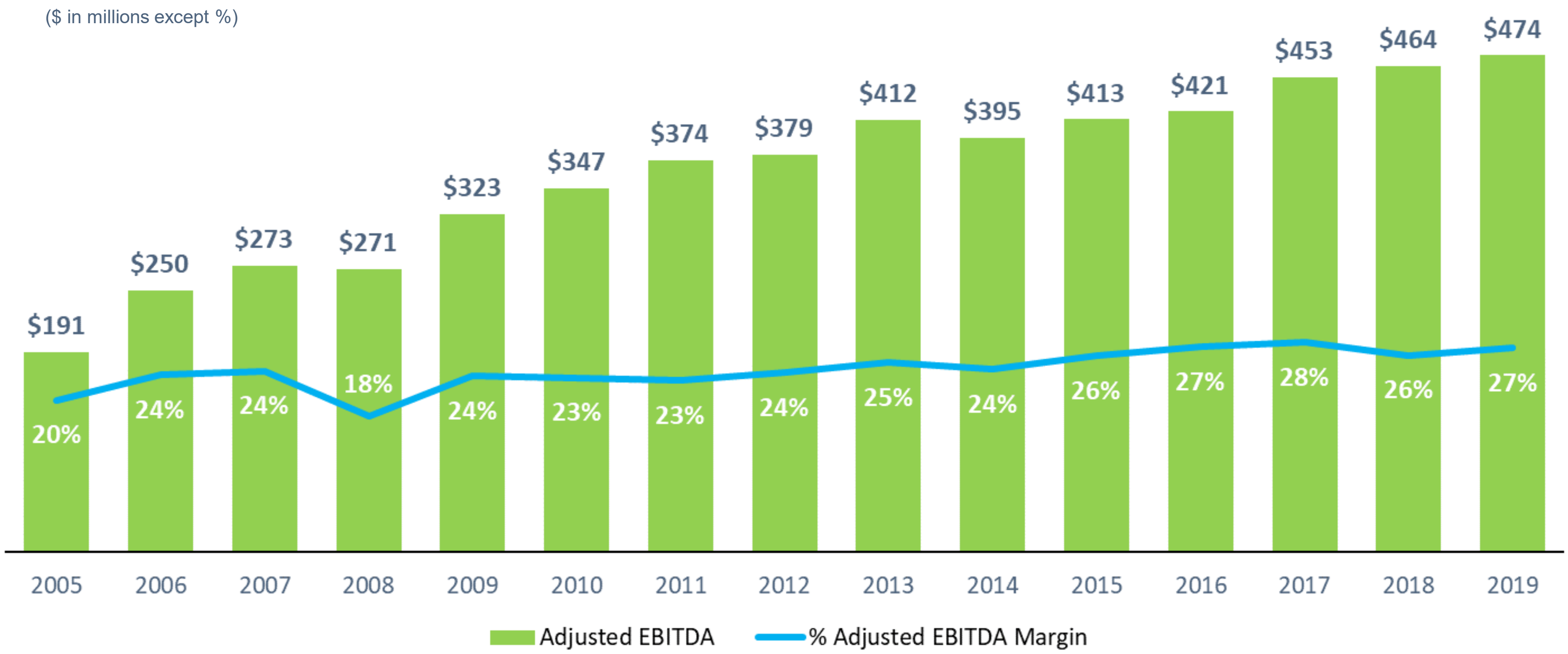
(1) Includes Silica Catalysts and Zeolyst Joint Venture
(2) Adjusted EBITDA margin includes proportionate 50% share of sales from Zeolyst Joint Venture

FINANCIAL PERFORMANCE IN MACROECONOMIC CYCLES

Adjusted EBITDA and Adjusted EBITDA Margin (%)[1,2,3]



(1) Adjusted EBITDA for the period from 2005 to 2014 represents Legacy Eco Adjusted EBITDA and Legacy PQ Adjusted EBITDA prior to the Business Combination. Adjusted EBITDA for 2015 and 2016 is presented on a pro forma basis to give effect to the Business Combination as further described in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2017
(2) See Reconciliations for additional information regarding Adjusted EBITDA, including a reconciliation of the amounts to net income (loss) for each of the periods presented as well as information regarding the Legacy Eco and Legacy PQ financial information included in such amounts
(3) Adjusted EBITDA margin calculation includes proportionate 50% share of sales from Zeolyst Joint Venture

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DEMAND TRENDS: RECOVERY PATH VARIES BY END USE

BUSINESS	END USE	KEY PRODUCTS	2019 % TOTAL SALES[1]	DEMAND TREND Q2 | 2H 2020	2H 2020 EXPECTED DEMAND DRIVERS
Refining Services[2]		Regeneration for Gasoline Refining	15%		US gasoline demand improved ~ 70% by June from its low point in early April. Return to >90% of 2019 demand expected in 2H 2019
		Virgin sulfuric acid for Automotive & Industrial	11%		Demand increasing from May low point as automotive restart complements stable demand for mining and water treatment
Performance Materials[3]		Highway Striping	13%		North American highway demand continues to be strong and European highway striping is increasing
		Engineered Glass Materials	7%		Metal finishing and polymer additive demand remain depressed. Orders improving as industrial activity slowly increases
Catalysts[4]		Packaging and Engineered Plastics	8%		Increased demand for polyethylene packaging normalized during Q2. Consumer discretionary demand beginning to recover
		Refining & Emission Control	7%		2H 2020 catalyst change-outs by refineries deferred to 2021. Heavy duty diesel truck production remains >30% below 2H 2019
Performance Chemicals[5]		Personal Care / Detergents	15%		Personal care remains strong. Elevated detergent demand normalized in Q2. 2H demand decline expected
		Industrial	24%		Construction, automotive and tire demand all improving gradually

Fuels & Emission Controls

Industrial & Process Chemicals

Highway Safety & Construction

Packaging & Engineered Plastics

Consumer Products

END USE DEMAND IMPACT

<= 10% decline vs 2019 demand

>=15% decline vs 2019 demand

Note: Demand trends and drivers as of second quarter 2020 earnings call held on July 30, 2020
(1) Sales percentage includes proportionate 50% share of sales from Zeolyst JV
(2) Refining Services reflects its two largest end uses with an aggregation of smaller end uses of natural resources and packaging & engineered plastics into industrial & process chemicals. Major product lines, regeneration services and virgin sulfuric acid are aligned to these summarized end uses
(3) Performance Materials reflects its two largest end uses with an aggregation of smaller end uses of natural resources and packaging & engineered plastics into industrial & process chemicals. Major product lines, highway safety and engineered glass materials are aligned to these summarized end uses
(4) Catalysts sales includes proportionate 50% share of sales from Zeolyst JV, which serves packaging & engineered plastics and fuels & emission controls end uses
(5) Performance Chemicals reflects its two largest end uses with an aggregation of smaller end uses of highway safety & construction, natural resources and packaging & engineered plastics into industrial & process chemicals
Source: U.S. Energy Information Administration; Rhein Associates; PQ Estimates

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2020 EXECUTION, ACTIONS AND OUTLOOK

Rapid COVID-19 response

- Ensured health and safety of our employees
- Maintained operations with minor disruptions
- Adapted to customer demand
- Refinanced debt at lower costs with extended maturities

1H 2020 Execution

Solid performance across multiple fronts

- Achieved top-quartile safety performance
- Drove cost management and capital discipline
- Delivered robust Adjusted EBITDA margin of ~27%
- Executed portfolio actions resulting in ~$30 million[1] in cash proceeds
- Completed multiple refinancings for lower interests costs and cost of capital and extended maturities

Reinitiated 2020 Outlook

Full Year Guidance[2]

- Sales of $1.43 – $1.46[3] billion
- Adjusted EBITDA of $410 – $425 million
- Adjusted EBITDA margin of ~27%
- Adjusted diluted EPS of $0.67 – $0.86
- Raised Adjusted free cash flow target to $145 – $155 million[4]

Additional 2020 Actions

Free cash flow benefits[2]

- ~$35 million capital reduction from original guidance
- Additional cash savings from operational and SG&A initiatives
- ~$19 million lower annual cash interest from recent refinancings
- CARES Act tax deferrals

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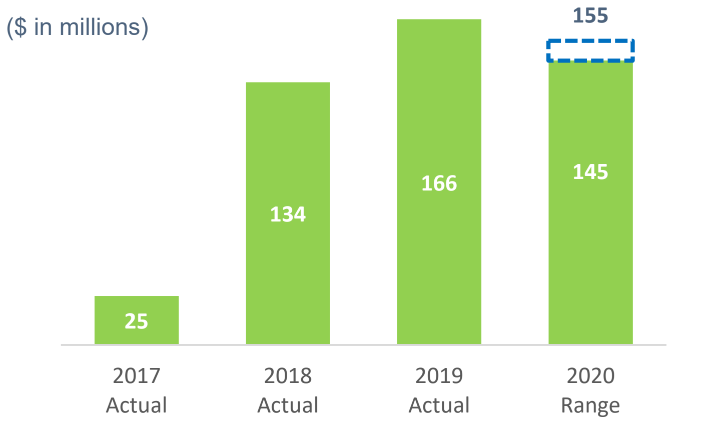
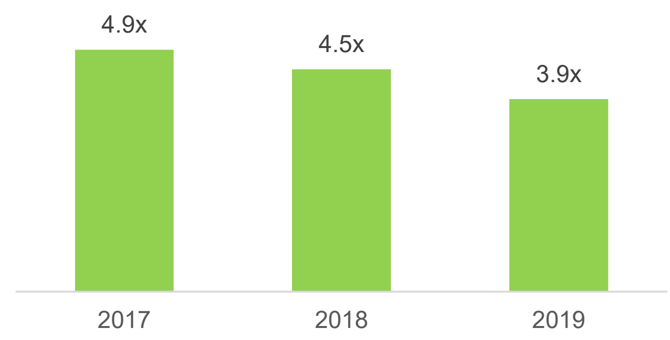
(1) Includes $18 million in cash proceeds from the close of a non-core product line sale on July 1, 2020 in Performance Chemicals
(2) Guidance as of second quarter 2020 earnings call held on July 30, 2020
(3) GAAP sales only; Excludes proportionate 50% share of Zeolyst Joint Venture sales target of $120 to $130 million versus $170 million in 2019
(4) Excludes $18 million in cash proceeds from the close of a non-core product line sale on July 1, 2020 in Performance Chemicals

FINANCIAL FLEXIBILITY

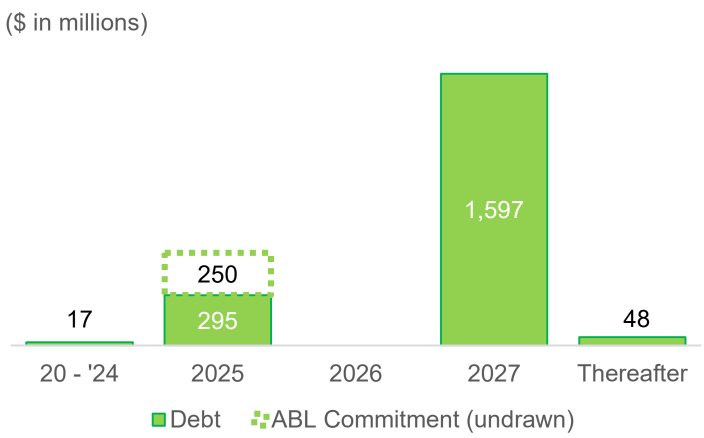
ADJUSTED FREE CASH FLOW[1]



NET DEBT / ADJUSTED EBITDA



DEBT MATURITY SCHEDULE



FINANCIAL FLEXIBILITY

- ~$285 million[2] total available liquidity
  - Cash on hand of ~90 million[2]
- No material financial covenants required to maintain a leverage ratio below a particular level
- Expected 2020 year-end leverage of ~4x

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(1) 2020 outlook as of guidance on second quarter 2020 earnings call on July 30, 2020 and excludes $18 million sale proceeds from product line sale in Performance Chemicals; Adjusted free cash flow defined as net cash provided by operating activities less purchases of property, plant and equipment, adjusted for proceeds from sale of assets and net interest proceeds on swaps designated as net investment hedges

(2) Balances presented as of June 30, 2020

CONTINUING TO ACTIVELY REPOSITION PQ'S PORTFOLIO FOR HIGHER VALUE

Key Portfolio Priorities

- Reshape for higher growth while maintaining strong margins
- Reduce non-core assets; Use cash to lower leverage to target range

~$30 million[1] of cash generated from actions in 1H 2020:

	Cash Generation / Capital Avoidance	Resource Reallocation for Future Growth
PERFORMANCE MATERIALS		
• Swap of ThermoDrop® product line for glass bead production and long-term supply agreement		
• Sale of idle property		
PERFORMANCE CHEMICALS		
• Sale of small product line		
• JV Exit in South Africa		
• Sale of idle property		
REFINING SERVICES		
• Sale of idle property		



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(1) Includes $18 million in cash proceeds from the close of a non-core product line sale on July 1, 2020 in Performance Chemicals; Performance Materials swap was a non-cash transaction

WHY PQ's SPECIALTY CHEMICAL PORTFOLIO?

- #1 and #2 positions in nearly all product lines
- Sustainable growth from diverse underlying secular macro trends
- Strategic and extensive global manufacturing network
- Input cost small as percentage of customer total product cost
- Track record of innovation and customer collaboration
- Environmentally friendly end use applications and solutions
- Stable, high-margins drive strong sustainable free cash flow

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SUPPLEMENTAL INFORMATION

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PQ's PRODUCTS FOR A SUSTAINABLE FUTURE

Inorganic Materials Drive ~ 75% of our Sales[1]

REFINING SERVICES

- Largest North America recycler of spent sulfuric acid, avoiding 1.5 million tons of landfill or deep well disposal annually
- One of the largest consumers of refinery by-product sulfur, converting for other applications
- World class low SO_2 emissions

CATALYSTS

- Remove sulfur from diesel fuel for land and marine transportation
- Provide active component for > 90% reduction of NOx emissions from diesel engines
- Improve fuel economy by reducing friction in lubricants

PERFORMANCE MATERIALS

- Recycle > 1 billion pounds of glass per year, avoiding landfill disposal
- Improve safety and save lives through superior road and airport marking technologies
- Glass bead applications provide alternative to petroleum-based solvents for industrial cleaning and surface finishing applications

PERFORMANCE CHEMICALS

- Silica-based sensory particles for personal care products replace plastic spheres
- Specialty silicas for use in environmentally-friendly low VOC coatings
- Sodium silicate used in production of silica to replace carbon black in fuel efficient "green tires"
- Sodium silicates inhibit corrosion in municipal water treatment pipelines

Safety Conscious	Emissions	Recyclability
Environmentally Friendly	Efficient Energy Usage	Innovative Green Solution

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(1) Based on 2019 Sales

PERFORMANCE CHEMICALS TRANSFORMATION

Simpler + STRONGER

DRIVERS:

- Commercial effectiveness
- Productivity and sustainability improvements
- Capital efficiency

MANUFACTURING EXCELLENCE:
Accelerate productivity and throughput

NETWORK OPTIMIZATION:
Align footprint with growth opportunities

ENHANCE CUSTOMER EXPERIENCE

INTEGRATED BUSINESS MANAGEMENT:
Step change in supply/demand planning

COMMERCIAL DISCIPLINE:
Enhance customer account management

EXPECTED BENEFIT:

- $10 million to $15 million Adjusted EBITDA on annualized basis

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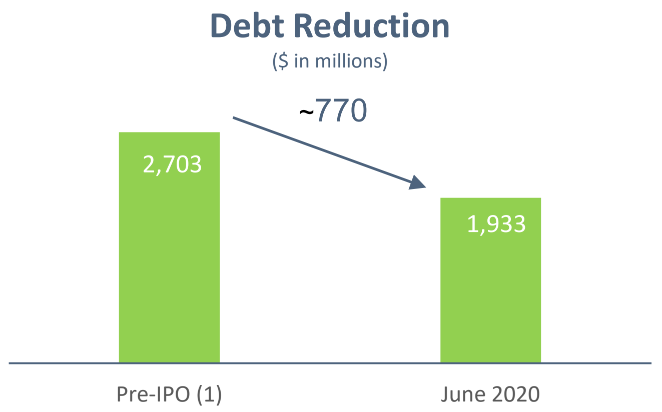
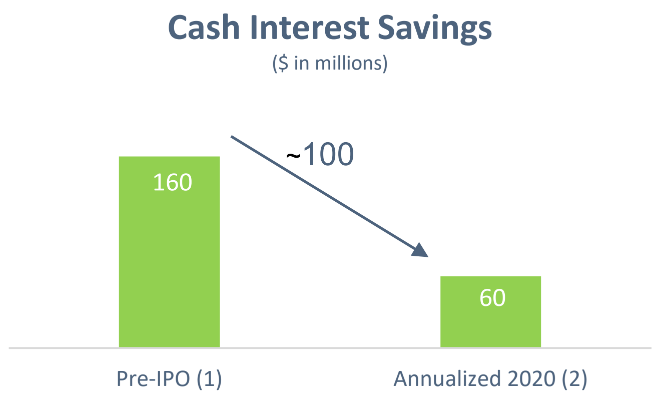
ENHANCED FINANCIAL FLEXIBLITY WITH ADDITIONAL REFINANCINGS

2020 Refinancing Actions

- Term Loan – 25 bps reduction
- ABL – 25 bps reduction, $50 million upsize
- Senior Secured Notes – New $650 million Term Loan, 275 bps reduction
- Combined interest savings ~$19 million per year

Improvement Since IPO





~$770 million of total debt reduction and ~$100 million lower annualized cash interest since IPO

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(1) Pre-IPO represents figures as of September 30, 2017
(2) Annualized run rate, reflecting the impact of the 2020 refinancing actions, including the new $650 million Term Loan closed on July 22, 2020

ADJUSTED FREE CASH FLOW

($ in millions)	Full Year 2019	Full Year 2018	Full Year 2017
Cash Flow from Operations before interest and tax	**401.9**	**377.5**	**364.5**
Less:			
Cash paid for taxes	17.4	23.8	29.2
Cash paid for interest[1]	116.8	105.1	170.1
Cash Flow from Operations	**267.7**	**248.6**	**165.2**
Less: Purchases of property, plant and equipment[2]	127.6	131.7	140.5
Free Cash Flow	**140.1**	**116.9**	**24.7**
Plus: Proceeds from sale of assets	17.6	12.4	-
Plus: Net interest proceeds on currency swaps	8.5	4.9	-
Adjusted Free Cash Flow	**166.2**	**134.2**	**24.7**

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(1) Excludes net interest proceeds on swaps designated as net investment hedges
(2) Excludes the Company's proportionate 50% share of capital expenditures from the Zeolyst Joint Venture

QUARTERLY SEGMENT SALES, ADJUSTED EBITDA AND MARGINS

First Half 2020 and Year 2019

	Three Months Ended		Six Months Ended	Three Months Ended				Year Ended
($ in millions except %, unaudited)	March 31, 2020	June 30, 2020	June 30, 2020	March 31, 2019	June 30, 2019	September 30, 2019	December 31, 2019	December 31, 2019
Sales:								
Refining Services	100.7	90.4	191.1	105.8	117.3	118.3	105.7	447.1
Silica Catalysts	24.9	25.2	50.1	15.9	20.9	25.6	23.3	85.7
Performance Materials	65.5	104.3	169.8	61.1	118.9	115.1	67.9	363.0
Performance Chemicals	174.3	142.6	316.9	180.5	177.8	167.9	158.9	685.1
Eliminations	(3.8)	(3.0)	(6.8)	(4.1)	(3.2)	(3.1)	(3.4)	(13.8)
Total sales	361.6	359.5	721.1	359.2	431.7	423.8	352.4	1,567.1
Zeolyst joint venture sales	32.3	41.0	73.0	29.5	39.1	54.4	47.3	170.3
Adjusted EBITDA:								
Refining Services	37.2	35.0	72.2	39.7	42.8	51.2	41.9	175.6
Catalysts	22.7	25.3	48.0	18.1	29.6	31.6	28.5	107.8
Performance Materials	13.5	27.3	40.8	10.5	29.2	25.8	11.2	76.7
Performance Chemicals	40.5	34.0	74.5	42.7	41.2	36.8	33.6	154.3
Total Segment Adjusted EBITDA	113.8	121.6	235.5	111.0	142.8	145.4	115.2	514.4
Corporate	(10.7)	(8.6)	(19.3)	(10.0)	(10.3)	(7.7)	(12.1)	(40.1)
Total Adjusted EBITDA	103.1	113.0	216.2	101.0	132.5	137.7	103.1	474.3
Adjusted EBITDA Margin:								
Refining Services	36.9%	38.7%	37.8%	37.5%	36.5%	43.3%	39.6%	39.3%
Catalysts[1]	39.7%	38.2%	39.0%	40.0%	49.4%	39.5%	40.4%	42.1%
Performance Materials	20.6%	26.2%	24.0%	17.2%	24.6%	22.4%	16.5%	21.1%
Performance Chemicals	23.2%	23.8%	23.5%	23.7%	23.1%	21.9%	21.1%	22.5%
Total Adjusted EBITDA Margin[1]	26.2%	28.2%	27.2%	26.0%	28.1%	28.8%	25.8%	27.3%

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(1) Adjusted EBITDA margin calculation includes proportionate 50% share of net sales from Zeolyst Joint Venture

* Rounding discrepancies may arise when rounding results from dollars (in thousands) to dollars (in millions)

RECONCILIATION OF SALES AND ADJUSTED EBITDA

($ in millions)	Year Ended December 31, 2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015 Pro forma [3]	2016 Pro forma [3]	2017	2018	2019
Reconciliation of sales and adjusted EBITDA															
Legacy PQ Sales [1]	635.3	708.6	775.0	977.0	1,009.9	1,087.9	1,115.0	1,084.8	1,085.0	1,114.9					
Legacy Eco Services Sales [2,5]	260.2	288.7	289.4	449.4	293.9	331.0	415.4	410.4	390.8	397.4					
Total Sales	**895.5**	**997.3**	**1,064.4**	**1,426.4**	**1,303.8**	**1,418.9**	**1,530.4**	**1,495.2**	**1,475.8**	**1,512.3**	**1,413.2**	**1,403.0**	**1,472.1**	**1,608.2**	**1,567.1**
Zeolyst Joint Venture total net sales	**45.6**	**60.4**	**63.8**	**69.4**	**63.2**	**69.9**	**99.0**	**87.3**	**148.5**	**106.7**	**159.8**	**131.3**	**143.8**	**156.7**	**170.3**
Legacy PQ Adjusted EBITDA[1]	119.6	151.2	177.3	164.3	225.4	253.8	274.6	268.7	306.8	288.1					
Legacy Eco Services Adjusted EBITDA [2]	71.5	99.0	96.0	106.4	97.5	93.6	99.8	110.8	105.5	107.2					
Total Adjusted EBITDA	**191.1**	**250.2**	**273.3**	**270.7**	**322.9**	**347.4**	**374.4**	**379.5**	**412.3**	**395.3**	**413.2**	**420.8**	**453.3**	**464.0**	**474.3**
% Adjusted EBITDA Margin[4]	**20.3%**	**23.7%**	**24.2%**	**18.1%**	**23.6%**	**23.3%**	**23.0%**	**24.0%**	**25.4%**	**24.4%**	**26.3%**	**27.4%**	**28.1%**	**26.3%**	**27.3%**

(1) Legacy PQ is the results of PQ Holdings Inc. prior to the Business Combination in May 2016
(2) Legacy Eco Services is the results of Eco Services which prior to December 1, 2014 was part of Solvay / Rhodia. Information for 2005 through 2010 is derived from financial information obtained in connection with the acquisition of Legacy Eco and is unaudited and, in some cases, is based upon management estimates
(3) Reflects unaudited pro forma results which gives effect to the Business Combination as further described in the company's annual report on Form 10-K for the year ended December 31, 2017
(4) Adjusted EBITDA margin calculation includes proportionate 50% share of sales from Zeolyst Joint Venture
(5) Amounts presented for Legacy Eco Services in 2014 includes $361.8 and $35.5 of sales and $98.1 and $9.1 of Adjusted EBITDA for the predecessor and successor periods, respectively. Refer to reconciliations for additional details.

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RECONCILIATIONS FOR ADJUSTED EBITDA

Years 2005 – 2014 Legacy PQ[1] Net Income (Loss) to Adjusted EBITDA

	Year Ended December 31,									
($ in millions)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Reconciliation of net income (loss) attributable to Legacy PQ to Adjusted EBITDA										
Net income (loss) attributable to Legacy PQ	(41.9)	14.2	(64.7)	(168.2)	(10.6)	11.5	(65.4)	5.2	26.7	(3.6)
Provision for (benefit from) income taxes	(2.2)	14.0	(29.5)	(28.7)	(12.1)	(4.7)	(0.4)	18.9	10.6	7.5
Interest expense	38.3	51.9	79.5	119.2	117.8	112.9	121.2	111.2	120.3	111.6
Depreciation and amortization	44.6	46.8	57.1	88.6	99.6	96.1	98.0	93.4	89.4	91.3
EBITDA	**38.8**	**126.9**	**42.4**	**10.9**	**194.7**	**215.8**	**153.4**	**228.7**	**247.0**	**206.8**
Joint venture depreciation, amortization and interest	2.4	2.1	2.1	2.3	2.1	2.5	3.2	3.3	6.1	6.9
Amortization of investment in affiliate step-up	6.1	1.2	24.7	4.0	2.7	2.7	2.7	2.6	2.4	2.4
Amortization of inventory step-up	32.7	14.0	22.2	28.3	—	—	—	—	—	—
Impairment of long-lived and intangible assets	—	—	—	—	0.3	4.2	67.0	—	0.9	—
Debt extinguishment costs	—	—	32.6	—	—	—	2.3	20.1	20.3	2.5
Net loss on asset disposals	0.3	0.2	0.7	0.1	1.0	(1.1)	2.2	0.8	0.7	0.7
Foreign currency exchange loss (gain)	—	—	1.2	77.0	(26.9)	13.9	5.6	(1.9)	4.4	23.4
Non-cash revaluation of inventory, including LIFO	(0.8)	—	1.7	1.1	7.6	(1.5)	1.5	0.3	1.2	0.8
Management advisory fees	—	2.0	2.0	3.5	5.0	5.0	7.0	7.5	5.0	5.0
Transaction related costs	29.9	0.5	35.8	11.5	0.5	5.5	7.9	0.5	5.6	24.4
Equity-based and other non-cash compensation	0.1	0.1	0.3	0.7	0.2	1.0	0.3	—	1.0	—
Restructuring, integration and business optimization expenses	12.6	4.4	7.3	7.3	11.7	2.6	5.9	5.6	5.4	4.6
Defined benefit plan pension cost (benefit)	—	—	—	0.6	(0.1)	—	—	0.5	3.6	1.8
Other	(2.5)	(0.2)	4.3	17.0	26.6	3.2	15.6	0.7	3.2	8.8
Adjusted EBITDA	**119.6**	**151.2**	**177.3**	**164.3**	**225.4**	**253.8**	**274.6**	**268.7**	**306.8**	**288.1**

PQ Corporation

(1) Legacy PQ is the results of PQ Holdings Inc. prior to the Business Combination in May 2016

RECONCILIATIONS FOR ADJUSTED EBITDA

2005 – 2014 Legacy Eco Services[1] Net Income (Loss) to Adjusted EBITDA Reconciliation

($ in millions)	Year Ended December 31, 2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 Successor	2014 Predecessor
Reconciliation of net income (loss) attributable to Legacy Eco Services to Adjusted EBITDA											
Net income (loss) attributable to Legacy Eco Services	45.4	73.0	73.8	86.0	73.4	65.4	35.8	48.5	39.3	(22.1)	30.5
Provision for income taxes	—	—	—	—	—	—	20.5	26.3	21.4	—	14.6
Interest expense	—	—	—	—	—	—	0.2	0.2	0.1	8.5	0.1
Depreciation and amortization	26.1	26.0	22.2	20.4	24.1	27.5	30.7	38.8	43.5	3.0	42.5
EBITDA	**71.5**	**99.0**	**96.0**	**106.4**	**97.5**	**92.9**	**87.2**	**113.8**	**104.3**	**(10.6)**	**87.7**
Amortization of inventory step-up	—	—	—	—	—	—	2.1	—	—	3.5	—
Transaction related costs	—	—	—	—	—	—	—	—	—	15.5	—
Equity-based and other non-cash compensation	—	—	—	—	—	—	0.4	0.6	0.7	—	0.5
Restructuring, integration and business optimization expenses	—	—	—	—	—	—	—	—	—	0.2	—
Other	—	—	—	—	—	0.7	10.1	(3.6)	0.5	0.5	9.9
Adjusted EBITDA	**71.5**	**99.0**	**96.0**	**106.4**	**97.5**	**93.6**	**99.8**	**110.8**	**105.5**	**9.1**	**98.1**

PQ Corporation

(1) Legacy Eco Services is the results of Eco Services which prior to December 1, 2014 was part of Solvay / Rhodia. Information for 2005 through 2010 is derived from financial information obtained in connection with the acquisition of Legacy Eco and is unaudited and, in some cases, is based upon management estimates.

RECONCILIATIONS FOR ADJUSTED EBITDA

Years 2015 – 2019 Post-Business Combination PQ Net Income (Loss) to Adjusted EBITDA

($ in millions)	Year Ended December 31, 2015 Pro forma [1]	2016 Pro forma [1]	2017	2018	2019
Reconciliation of net income (loss) attributable to PQ Group Holdings Inc. to Adjusted EBITDA					
Net income (loss) attributable to PQ Group Holdings Inc.	(26.9)	(59.0)	57.6	58.3	79.5
Provision for (benefit from) income taxes	1.2	58.0	(119.2)	29.0	40.7
Interest expense	199.6	187.9	179.0	113.7	111.5
Depreciation and amortization	152.2	165.8	177.1	185.2	182.1
EBITDA	**326.1**	**352.7**	**294.5**	**386.2**	**413.8**
Joint venture depreciation, amortization and interest [a]	7.9	10.3	11.1	12.6	14.7
Amortization of investment in affiliate step-up [b]	6.6	5.8	8.6	6.6	7.5
Amortization of inventory step-up [c]	—	4.9	0.9	1.6	—
Impairment of long-lived and intangible assets	0.4	6.9	—	—	1.6
Debt extinguishment costs	—	1.8	61.9	7.8	3.4
Net loss on asset disposals [d]	5.5	4.8	5.8	6.6	(13.1)
Foreign currency exchange loss (gain) [e]	21.1	(9.0)	25.8	13.8	2.8
LIFO expense [f]	(2.1)	1.3	3.7	8.4	11.1
Management advisory fees [g]	5.6	5.3	3.8	—	—
Transaction and other related costs [h]	13.2	2.6	7.4	0.9	3.6
Equity-based and other non-cash compensation	4.2	6.5	8.8	19.5	18.2
Restructuring, integration and business optimization expenses [i]	8.6	17.9	13.2	14.0	4.1
Defined benefit plan pension cost (benefit) [j]	6.1	2.8	2.9	(0.8)	3.1
Transition services	4.9	—	—	—	—
Gain on contract termination [k]	—	—	—	(20.6)	—
Other [l]	5.1	6.2	4.9	7.4	3.5
Adjusted EBITDA	**413.2**	**420.8**	**453.3**	**464.0**	**474.3**

PQ Corporation

(1) Reflects unaudited pro forma results which gives effect to the Business Combination as further described in the company's annual report on Form 10-K for the year ended December 31, 2017

RECONCILIATION OF NET INCOME TO SEGMENT ADJUSTED EBITDA

First Half 2020 and Year 2019

($ in millions)	Three Months Ended March 31, 2020	Three Months Ended June 30, 2020	Six Months Ended June 30, 2020	Three Months Ended March 31, 2019	Three Months Ended June 30, 2019	Three Months Ended September 30, 2019	Three Months Ended December 31, 2019	Year Ended December 31, 2019
Reconciliation of net income attributable to PQ Group Holdings Inc. to Segment Adjusted EBITDA								
Net income attributable to PQ Group Holdings Inc.	0.2	15.9	16.2	3.2	30.6	26.7	19.1	79.5
Provision for income taxes	1.4	16.3	17.7	2.4	20.3	16.7	1.2	40.7
Interest expense, net	24.5	22.3	46.7	28.6	28.5	27.7	26.7	111.5
Depreciation and amortization	45.7	44.8	90.5	45.9	45.1	44.2	46.9	182.1
EBITDA	**71.8**	**99.3**	**171.1**	**80.1**	**124.5**	**115.3**	**93.9**	**413.8**
Joint venture depreciation, amortization and interest [a]	3.8	3.7	7.5	3.8	3.7	3.7	3.5	14.7
Amortization of investment in affiliate step-up [b]	1.7	1.7	3.3	2.6	1.7	1.7	1.7	7.5
Impairment of fixed assets, intangibles, and goodwill	—	—	—	—	—	—	1.6	1.6
Debt extinguishment costs	2.5	—	2.5	—	—	1.8	1.6	3.4
Net loss (gain) on asset disposals [d]	9.4	(1.0)	8.4	0.8	(9.7)	1.1	(5.3)	(13.1)
Foreign currency exchange loss (gain) [e]	3.3	(0.9)	2.5	(2.7)	3.6	4.5	(2.6)	2.8
LIFO (benefit) expense [f]	(0.3)	(1.5)	(1.8)	10.2	0.1	0.5	0.3	11.1
Transaction and other related costs [h]	2.1	0.7	2.8	0.1	1.0	0.7	1.8	3.6
Equity-based and other non-cash compensation	5.9	6.4	12.3	3.4	5.4	4.8	4.6	18.2
Restructuring, integration and business optimization expenses [i]	2.0	3.6	5.6	0.7	—	0.7	2.7	4.1
Defined benefit pension plan (benefit) cost [j]	(0.2)	(0.3)	(0.5)	1.0	0.6	0.8	0.7	3.1
Other [l]	1.1	1.3	2.5	1.0	1.6	2.1	(1.4)	3.5
Adjusted EBITDA	**103.1**	**113.0**	**216.2**	**101.0**	**132.5**	**137.7**	**103.1**	**474.3**
Unallocated corporate costs	10.7	8.6	19.3	10.0	10.3	7.7	12.1	40.1
Total Segment Adjusted EBITDA[1]	**113.8**	**121.6**	**235.5**	**111.0**	**142.8**	**145.4**	**115.2**	**514.4**
EBITDA Adjustments by Line Item								
EBITDA	**71.8**	**99.3**	**171.1**	**80.1**	**124.5**	**115.3**	**93.9**	**413.8**
Cost of goods sold	0.4	(0.4)	0.1	10.8	0.4	0.9	0.9	13.0
Selling, general and administrative expenses	6.5	7.0	13.6	4.4	5.9	5.7	5.6	21.6
Other operating expense (income), net	13.4	3.5	16.9	1.8	(7.3)	6.5	(1.0)	—
Equity in net (income) from affiliated companies	1.7	1.7	3.3	2.6	1.7	1.7	1.7	7.7
Other expense (income), net [2]	5.5	(1.8)	3.7	(2.5)	3.6	3.9	(1.5)	3.5
Joint venture depreciation, amortization and interest [a]	3.8	3.7	7.5	3.8	3.7	3.7	3.5	14.7
Adjusted EBITDA	**103.1**	**113.0**	**216.2**	**101.0**	**132.5**	**137.7**	**103.1**	**474.3**

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(1) For additional information with respect to each adjustment, see "Reconciliation of Non-GAAP Financial Measures"
(2) Other expense (income), net includes debt extinguishment costs

* Rounding discrepancies may arise when rounding results from dollars (in thousands) to dollars (in millions)

RECONCILIATION OF NON-GAAP FINANCIAL MEASURES

Descriptions to PQ Non-GAAP Reconciliations

a) We use Adjusted EBITDA as a performance measure to evaluate our financial results. Because our Catalysts segment includes our 50% interest in the Zeolyst Joint venture, we include an adjustment for our 50% proportionate share of depreciation, amortization and interest expense of the Zeolyst Joint venture.

b) Represents the amortization of the fair value adjustments associated with the equity affiliate investment in the Zeolyst Joint venture as a result of the combination of the businesses of PQ Holdings Inc. and Eco Services Operations LLC in May 2016 (the “Business Combination”). We determined the fair value of the equity affiliate investment and the fair value step-up was then attributed to the underlying assets of the Zeolyst Joint venture. Amortization is primarily related to the fair value adjustments associated with inventory, fixed assets and intangible assets, including customer relationships and technical know-how.

c) As a result of the Sovitec acquisition and the Business Combination, there was a step-up in the fair value of inventory, which is amortized through cost of goods sold in the statements of income.

d) When asset disposals occur, we remove the impact of net gain/loss of the disposed asset because such impact primarily reflects the non-cash write-off of long-lived assets no longer in use. During the year ended December 31, 2019, the net gain on asset disposals includes the gains related to the sale of a non-core product line and sale of property.

e) Reflects the exclusion of the foreign currency transaction gains and losses in the statements of income primarily related to the non-permanent intercompany debt denominated in local currency translated to U.S. dollars and, during 2018 and 2017, the Euro denominated term loan (which was settled as part of the February 2018 term loan refinancing).

f) Represents non-cash adjustments to the Company’s LIFO reserves for certain inventories in the U.S. that are valued using the LIFO method, which we believe provides a means of comparison to other companies that may not use the same basis of accounting for inventories.

g) Reflects consulting fees paid to CCMP and affiliates of INEOS for consulting services that include certain financial advisory and management services. These consulting agreements were terminated upon completion of our initial public offering (“IPO”) on October 3, 2017.

h) Represents the costs related to several transactions that are completed, pending or abandoned and that we believe are not representative of our ongoing business operations.

i) Includes the impact of restructuring, integration and business optimization expenses which are incremental costs that are not representative of our ongoing business operations.

j) Represents adjustments for defined benefit pension plan costs in our statements of income. More than two-thirds of our defined benefit pension plan obligations are under defined benefit pension plans that are frozen, and the remaining obligations primarily relate to plans operated in certain of our non-U.S. locations that, pursuant to jurisdictional requirements, cannot be frozen. As such, we do not view such expenses as core to our ongoing business operations.

k) Represents a non-cash gain on the write-off of the remaining liability under a contractual supply arrangement. As part of the acquisition by Eco Services Operations LLC of substantially all of the assets of Solvay USA Inc.’s sulfuric acid refining business unit on December 1, 2014, we recognized a liability as part of business combination accounting related to our obligation to serve a customer under a pre-existing unfavorable supply agreement. In December 2018, the customer who was party to the agreement closed its facility, and as a result, we were relieved from our obligation to continue to supply the customer on the below market contract. Because the fair value of the unfavorable contract liability was recognized as part of the application of business combination accounting, and since the write-off of the remaining liability was non-cash in nature, we believe this gain is a special item that is not representative of our ongoing business operations.

l) Other costs consist of certain expenses that are not core to our ongoing business operations, including environmental remediation-related costs associated with the legacy operations of our business prior to the Business Combination, capital and franchise taxes, non-cash asset retirement obligation accretion and the initial implementation of procedures to comply with Section 404 of the Sarbanes-Oxley Act. Included in this line-item are rounding discrepancies that may arise from rounding from dollars (in thousands) to dollars (in millions).

Shaping
our path for a
sustainable
future

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