PQ Corporation

INVESTOR DAY | APRIL 8, 2021 | 10am EST

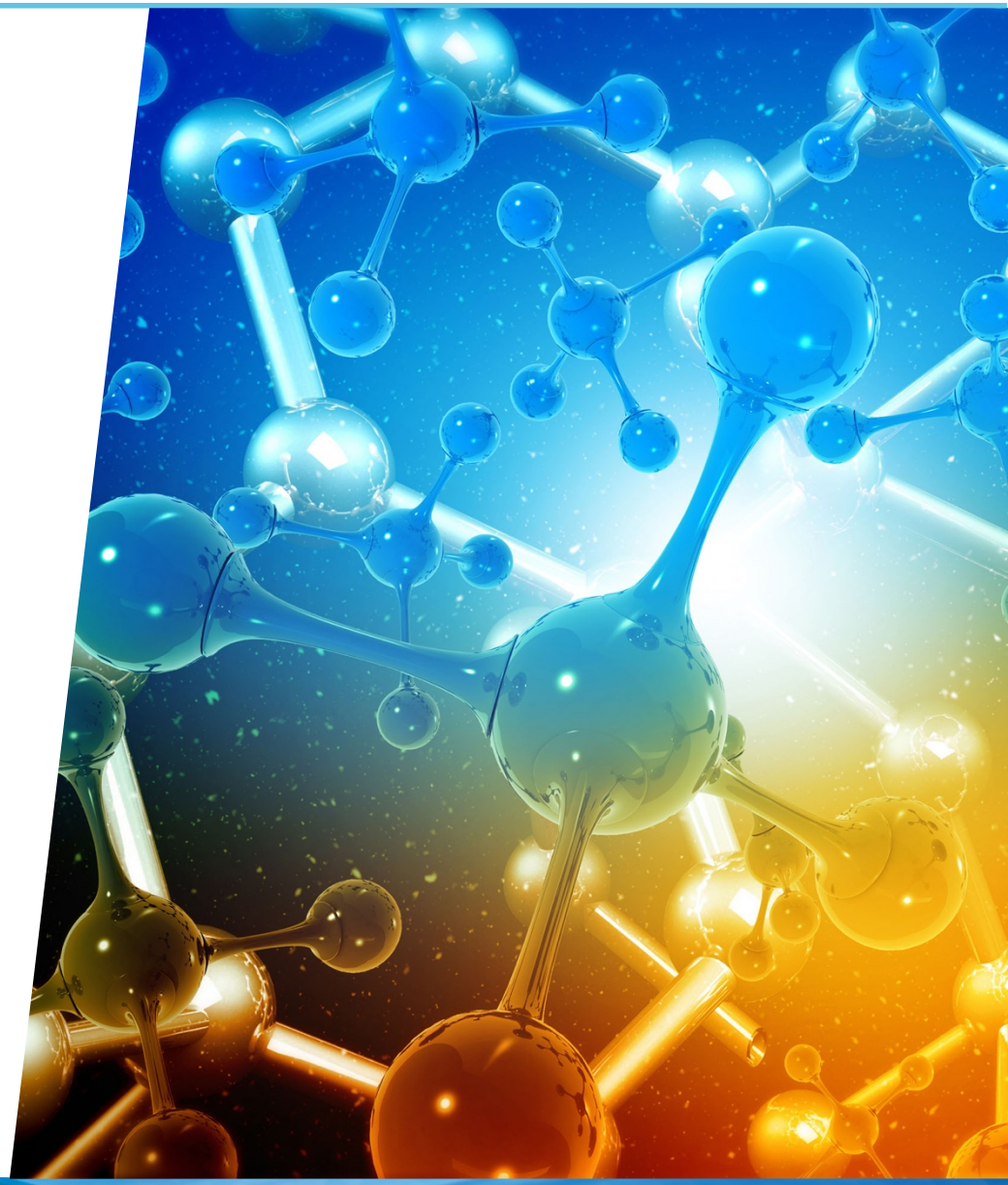
Welcome

Nahla Azmy
Vice President, Investor Relations and
Financial Communications

PQ Corporation

Agenda for Target PQ Virtual Investor Conference

10:00-10:01	**Welcome & Legal**	Nahla Azmy – VP, Investor Relations and Financial Communications
10:01-10:20	**Opening Remarks and Strategy Overview**	Belgacem Chariag – Chairman, President and Chief Executive Officer
10:20-10:30	**Refining Services Overview**	Kurt Bitting – President, Refining Services
10:30-10:45	**Catalysts Overview**	Tom Schneberger – President, Catalyst Technologies
10:45-10:55	**10 min Break**	
10:55- 11:05	**Innovation Overview**	Dr. Ray Kolberg – VP, Technology and Business Development
11:05-11:12	**Financial Performance & Goals Overview**	Mike Crews – EVP and Chief Financial Officer Mike Feehan – VP, Finance and Treasurer
11:12-11:15	**Closing Remarks**	Belgacem Chariag – Chairman, President and Chief Executive Officer
11:15-11:20	**5 min Break**	
11:20	**Q&A**	



PQ Corporation

Legal Disclaimer

Continuing Operations
Financial results are on a continuing operations basis, which excludes the Performance Materials business from all quarterly and yearly results presented, unless otherwise indicated. Financial results are also presented to exclude the Performance Chemicals business, which is subject to a pending sale which the Company previously announced on March 1, 2021, but financial results do not reflect pro forma financial information presented pursuant to Article 11 of Regulation S-X.

Forward-Looking Statements
Some of the information contained in this presentation, the conference call during which this presentation is reviewed 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 the sale of the Performance Chemicals business segment, including the intended uses of proceeds therefrom, our future results of operations, financial condition, liquidity, prospects, growth, strategies, capital allocation programs, product and service offerings and end use demand trends, and 2025 goals. 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, our ability to close on the sale of the Performance Chemicals business segment on our anticipated timeline, or at all, our ability to successfully integrate Chem32, 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, the conference call during which this presentation is reviewed 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, cash conversion, total ecovyst sales, ecovyst sales, total ecovyst segment adjusted EBITDA, total ecovyst adjusted EBITDA, total ecovyst adjusted EBITDA margin, free cash flow and net debt and target total sales, 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 forward-looking non-GAAP financial information 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 ascertain 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. The Company is also not able to provide a reconciliation of total ecovyst segment adjusted EBITDA to ecovyst net income (loss) without unreasonable effort due to certain GAAP measures that are not currently calculable.

Zeolyst Joint Venture
Zeolyst International and Zeolyst C.V. (our 50% owned joint ventures that we refer to collectively as our "Zeolyst Joint Venture") are accounted for as an equity method investment in accordance with GAAP. The presentation of our Zeolyst Joint Venture's sales in this presentation represents 50% of the sales of our Zeolyst Joint Venture. We do not record sales by our 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 our 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 our Zeolyst Joint Venture for the relevant periods in the denominator.

Opening Remarks & Strategy Overview

Belgacem Chariag
Chairman, President, and Chief Executive Officer

PQ Corporation

Transition Nearly Complete

Simpler + **Stronger**

2019
Evaluation & Positioning

- Delayered organization
- Improved commercial and operational performance; reduced capital intensity
- Divested non-core assets

2020–2021
Transformation

- Divested Performance Materials & Performance Chemicals*
- Acquired niche catalyst activation business to create a platform for growth

FUTURE
ecovyst

Innovative catalyst products and services

PQ Corporation ecovyst

*Anticipated closing in 2021

ecovyst Is…

Simpler & Stronger

Leaner

Nimbler

Innovative

Sustainability Focused

Growing & Greening

ecovyst Business Proposition…

1. Proven operational and commercial execution
2. High single-digit top-line growth plus additional inorganic growth opportunities with strong and sustainable margins rivaling best-in-class companies
3. Strong cash flows and high revenue visibility from customer collaborations, specified products and long-term contracts
4. Focused on developing catalysts, solutions and services for improving environmental sustainability and enabling transition
5. Innovative and proprietary technologies and processes driving disruption in the catalyst business

We Are a Focused Pure-Play

ecovyst

YOUR CATALYST FOR POSITIVE CHANGE

Our technologies support ecological health. We are well positioned and confident in Vying for, and propelling customers' expansion and growth. We are a catalyst for positive change

Note: PQ Group Holdings Inc. intends to change its name to Ecovyst Inc. in connection with the completion of the pending sale of its Performance Chemicals business, which it previously announced on March 1, 2021.

Ecoservices

Catalyst Technologies

Ecoservices

We partner with our customers to help them meet increasingly stringent standards for clean fuels, vehicle fuel economy, and lower emissions

North American Leader in Sulfuric Acid Recycling and Related Services

Regeneration Services

Specialty Grade High Purity Virgin Sulfuric Acid

Offsite Catalyst and Related Processing Services

Business Represents[1]

- 64% Of total ecovyst sales[2,3,5]
- 68% Of total ecovyst Segment Adjusted EBITDA[3,5]
- 39% Average Adjusted EBITDA margins last 4 years[4,5]

Businesss Advantages

- ☑ Deep expertise
- ☑ Growing customer demand
- ☑ Focused innovation on sustainability
- ☑ Secure revenue streams

1 Represents the Refining Services segment in historical financial statements
2 Includes 50% portion of the Zeolyst Joint Venture
3 2020
4 2017-2020
5 See GAAP reconciliations.

Catalyst Technologies

We partner with our customers to help improve the performance, durability and environmental profile of their products. Our products are required to meet the evolving standards of cleaner fuels, reduced waste and emission control.

Leader in Tailored Solutions for Specialty and Emission Control Catalysts

Polyethylene

Fuels & Emission Control

Niche Custom Catalysts

Business Represents[1]

- 36% Of total ecovyst sales[2,3,5]
- 32% Of total ecovyst Segment Adjusted EBITDA[3,5]
- 38% Average Adjusted EBITDA margins last 4 years[4,5]

Business Advantages

- ☑ Collaborative customer partnerships
- ☑ Focused innovation on sustainability
- ☑ Positioned to grow faster than market
- ☑ Expected margin expansion

1 Represents the Catalysts segment in historical financial statements
2 Includes 50% portion of the Zeolyst Joint Venture
3 2020
4 2017-2020
5 See GAAP reconciliations.

ecovyst Businesses Are Complementary and Well Positioned to Enable Change

Catalyst Technologies

Ecoservices

Coordinated Sales & R&D Strategies

- Growth in Emission Control offerings
- Accelerated growth in polymer catalysts & introduction of catalysts to support circular economy
- Catalysts for renewable fuels & materials
- Growth in custom catalysts for novel chemical processes
- Growth in clean fuels, fuel additives & catalyst related services
- Expansion of Treatment Services offering
- Expansion in virgin acid applications to support secular demand growth

Change Is Accelerating in the Industries We Serve, and Our Customers Must Adapt

Increased environmental and sustainability focus

- Manufacturing processes are expected to make measurable improvement in their environmental profile

Transportation and energy products are changing

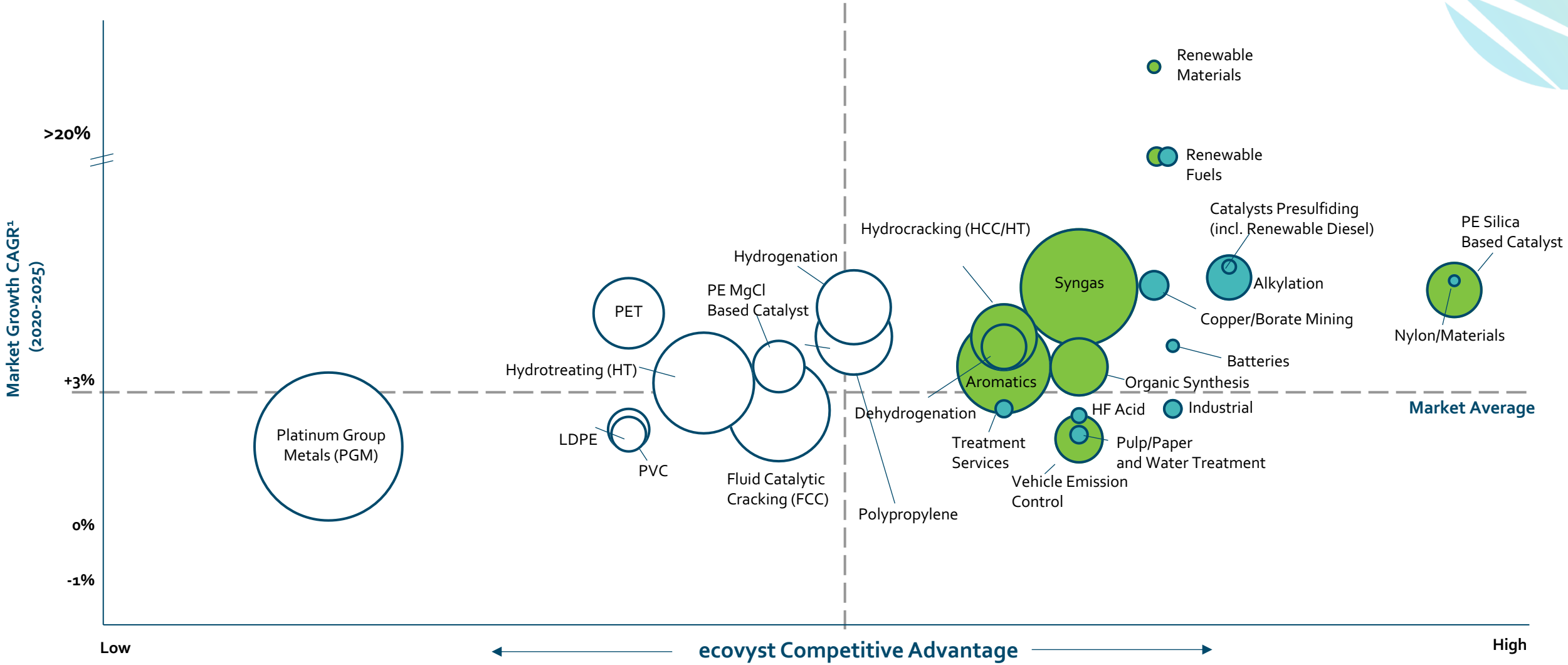
- Existing fuels must get cleaner and more efficient to support installed fleet

Growing need for environmentally friendly polymers and light-weighting of products

- Increasing investment in plastics recycling

We partner with our customers in novel, chemistry-based technologies to address the increasing demand for high performing, sustainable products

ecovyst Selects High-Growth, High-Margin Segments



1 Sources: TCGR, IHS and Management estimates

Portfolio Serving Long-Term Sustainable Trends

- Very low environmental footprint compared to published peer data
- Gaining momentum in our journey to achieve sustainability improvements

Recyclability

Efficient Energy Usage

Emissions

Innovation

ECOSERVICES

- Largest North American recycler of spent sulfuric acid, avoiding 1.5 million tons per year of landfill or deep well disposal
- One of the largest consumers of refinery spent sulfur, converting for other uses
- Converts by-product steam into 17MW/h of electricity used internally, with excess exported to grid
- World class low SO_2 emissions

CATALYST TECHNOLOGIES

- Removes sulfur from diesel fuel for land and marine transportation
- Provides active component for > 90% reduction of NOx emissions from diesel engines
- Provides technology to support chemical recycling of polyethylene
- 80% of 2020 R&D investment in product innovation linked to sustainability

CLEAN ENERGY TRANSITION: Evolving Fuels, Emission Reductions & Energy Storage

CIRCULAR PLASTICS ECONOMY: Lightweighting, Strengthening & Recycling

We Are Committed and Acting on Key Sustainability Goals

	Greenhouse Gas (GHG) Emissions	Waste Management	Product Sustainability	Certifications
2025	Complete decarbonization plans;-15% GHG Intensity ($mtCO_2e$-/mt)	-40% hazardous waste (mt);-15% non-recyclable waste (mt)	90% of R&D innovation investment linked to sustainability	ISO 50001 energy plans implemented
2030	-25% GHG Intensity ($mtCO_2e$-/mt)	-25% non-recyclable waste (mt)	95% of R&D innovation investment linked to sustainability	100% ISO 50001 Certified

The above is only a sample from our comprehensive program

Innovation Continues to Be Integral to Future Growth

Sustainability Focused

Growth through balanced innovation

~80%

of innovation pipeline is focused on customer sustainability solutions

Inorganic Growth Is Integral to the Strategy

M&A targets

1

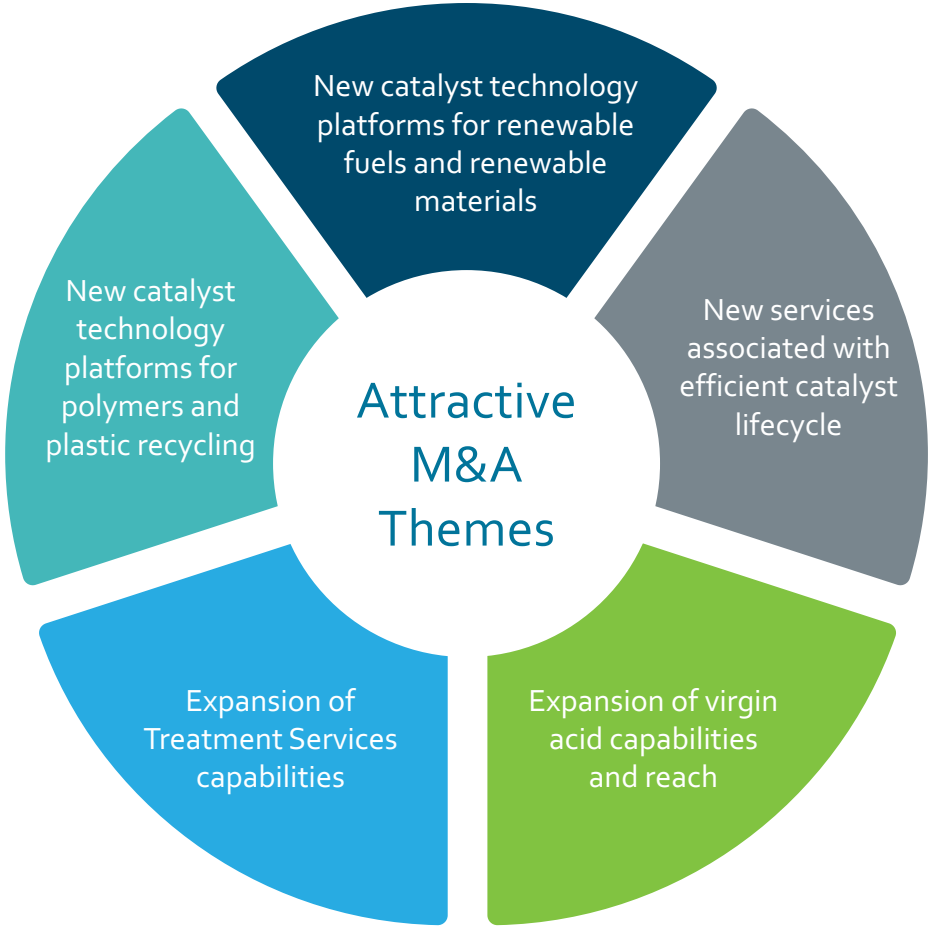
A blend of **accretive** and/or **strategic** acquisitions

3

Diversification of technologies and customers tracking the transforming industry

2

Acceleration of top line growth while adding capabilities



ecovyst – a Growing Pure-Play Catalyst and Services Company

Leading in Sustainable Products and Tailored Customer Solutions

Target : 2025

> $ 1.0 B total Sales* with Inorganic Contribution

High 30's Adjusted EBITDA margins

Cash Conversion > 80%

Future Goals: 2020-2025

High Single-digit Organic Growth

Mid-to-high 30's Average Adjusted EBITDA margins

Cash Conversion > 75%

Demonstrated

Organic Growth

Sustainable margins

Value fit

Simpler + STRONGER S^2

Growing + GREENING G^2

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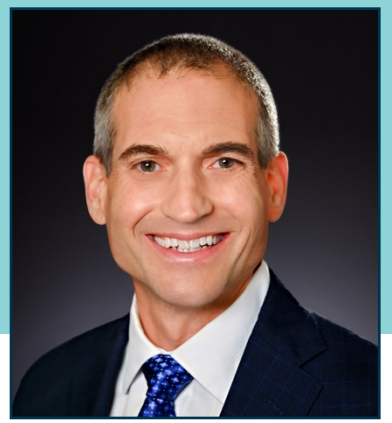
* Target total sales represents ecovyst, 50% share in Zeolyst Joint Venture and 10% projected inorganic growth

ecovyst Team Here Today

Belgacem Chariag
Chairman, President, and Chief Executive Officer

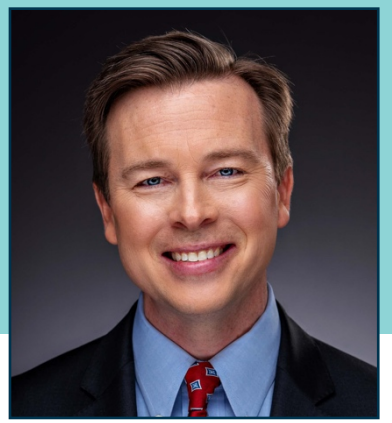
Kurt Bitting
President
Ecoservices



Tom Schneberger
President
Catalyst Technologies

Dr. Ray Kolberg
Vice President of Technology & Business Development

Mike Crews
Executive Vice President and Chief Financial Officer



Mike Feehan
Vice President of Finance and Treasurer*

*Vice President and Chief Financial Officer, ecovyst as of September 2021

Ecoservices Overview

Kurt Bitting
President, Ecoservices

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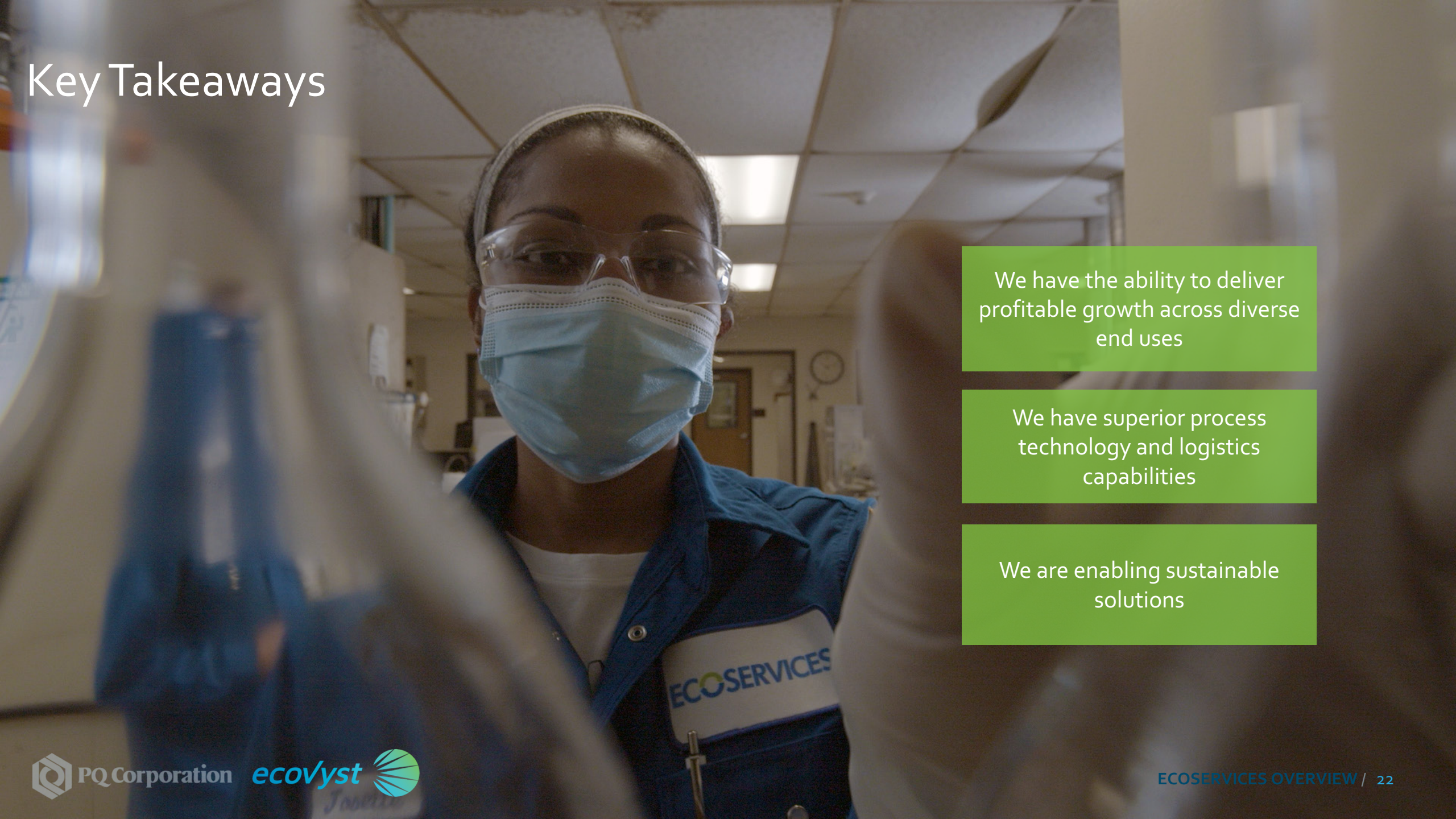
YOUR CATALYST FOR POSITIVE CHANGE

Key Takeaways



We have the ability to deliver profitable growth across diverse end uses

We have superior process technology and logistics capabilities

We are enabling sustainable solutions

Ecoservices Product Lines

1 Regeneration

- Regeneration for Refinery Alkylation Units
- Chemical spent regeneration
- Industry leader
- 35% expansion of Gulf Coast capacity since 2016

2 Virgin Sulfuric Acid & Sulfur Products

- North American leading producer (virgin acid)
- Oleum
- Electrolyte grades
- Dilute Acid
- Sulfur CoProducts

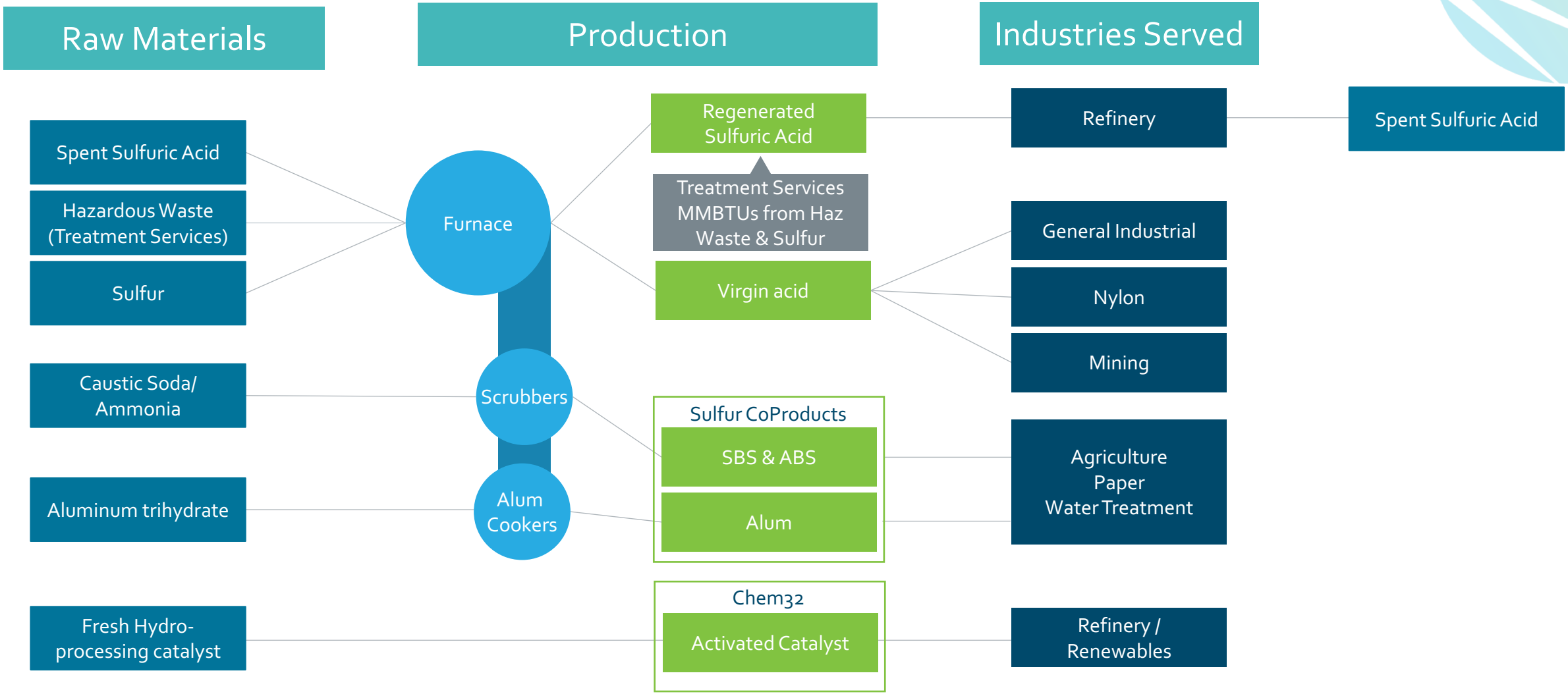
4 Chem32

- Leading Ex-Situ Catalyst Activation Provider
- Hydro-processing
- International sales
- Renewable fuels

3 Treatment Services

- Converts waste into energy
- Hazardous / Non-Hazardous
- Primary Gulf Coast

Where Do We Play? Markets and End Uses Served



Business Snapshot

Refining Services

Leader
in providing sulfuric acid recycling for North American Alkylate production

Leader
in North American producer of merchant virgin sulfuric acid

Key Products

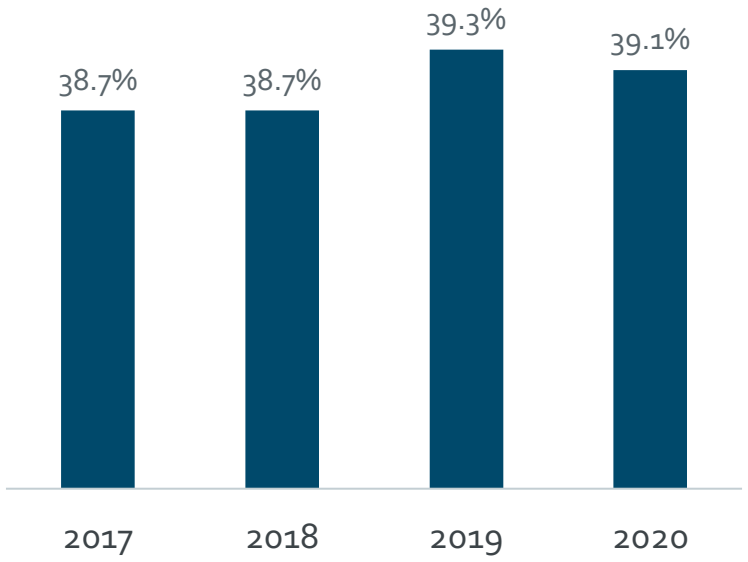
Regeneration for Fuel Catalyst Recycling

~53%
Of 2020 total sales

Virgin Sulfuric Acid for Automotive, Electronics & Industrial

~30%
Of 2020 total sales

Sustainable Adjusted EBITDA Margins



Key Stats[1]

50-55%
supplier of US regeneration demand

~90%
cost pass-through on quarterly basis

~95%
of supply under 5-10 year take-or-pay contracts

~58%
Chem 32 sales international[2]

1. 2020
2. Closed on Chem 32 in March 2021

ecovyst Advantages

- ☑ Deep expertise
- ☑ Growing customer demand
- ☑ Focused innovation on sustainability
- ☑ Secure revenue streams

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Where We Operate

Ecoservices:

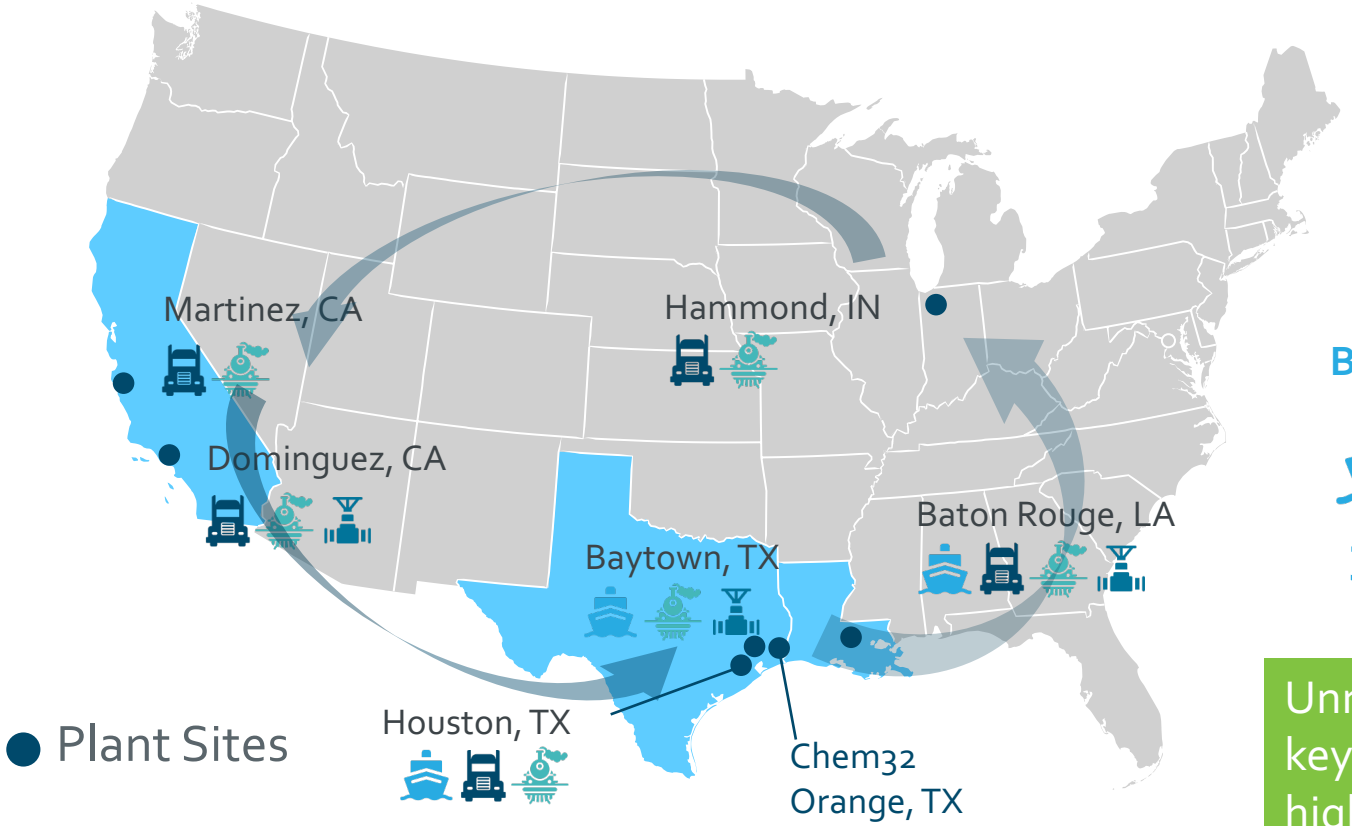
Supply Infrastructure

Leading supplier with key competitive positions in the Gulf and California

~40
Refineries using Sulfuric Acid Alkylation

>65%
Of alky capacity located in West Coast and Gulf Coast regions

Source: 2020 AFPM



Supply Chain & Customer Inventories Managed by Ecoservices

BARGE	TRUCK	RAIL	PIPELINE
33%	27%	20%	20%

Unrivaled production redundancy in key refining locations enables the highest degree of reliability

Virgin Sulfuric Acid Sources

Metals Smelting

- Only one strength and lowest quality
- Primarily rail shipments
- Long distance from consumers

Captive – Fertilizer

- No merchant sales
- Sulfur Derived
- Only one strength and quality
- Consume merchant Sulfuric Acid

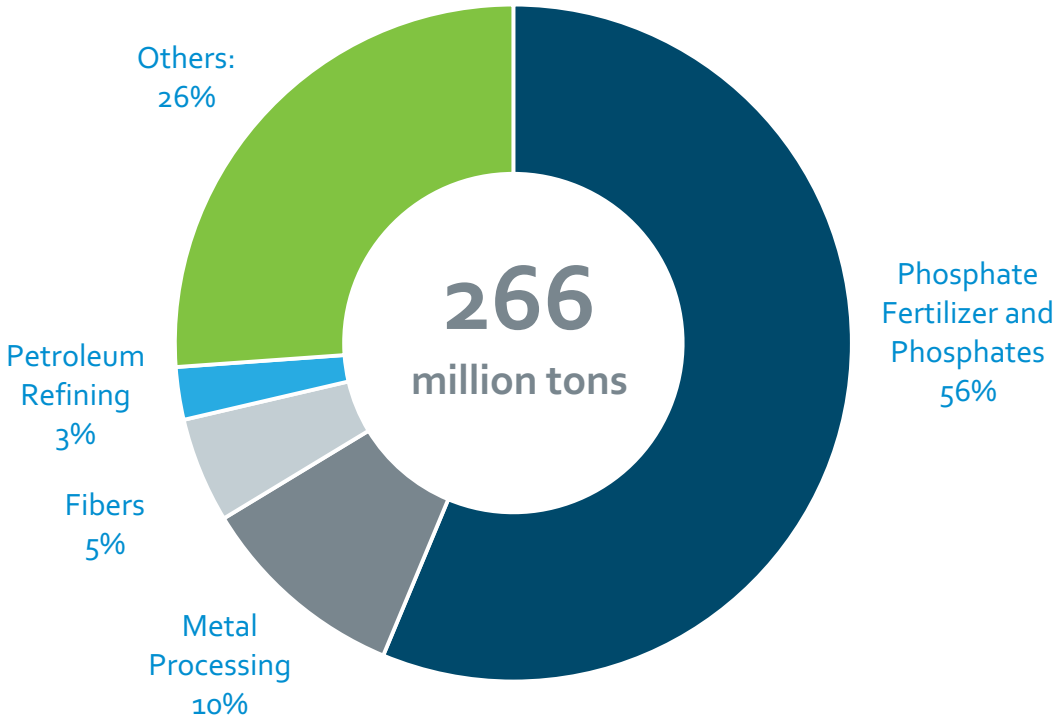
Ecoservices

Merchant Sulfur Produced

- Numerous grades
- High quality
- Most reliable

We Play in a Large Market That Supports an Important Service Across the Globe

Global Sulfuric by End Use



Sources: 2017 CRU; 2018 Essential Chemistry Market Projections

Differentiated Service/Advantages

- Sulfuric Acid is the most widely used commodity chemical in the world
- Ecoservices focuses on servicing the refinery, other metals, and fibers industries
- These segments require a high degree of service, quality, and reliability
- Plant locations are also ideal for serving these sectors

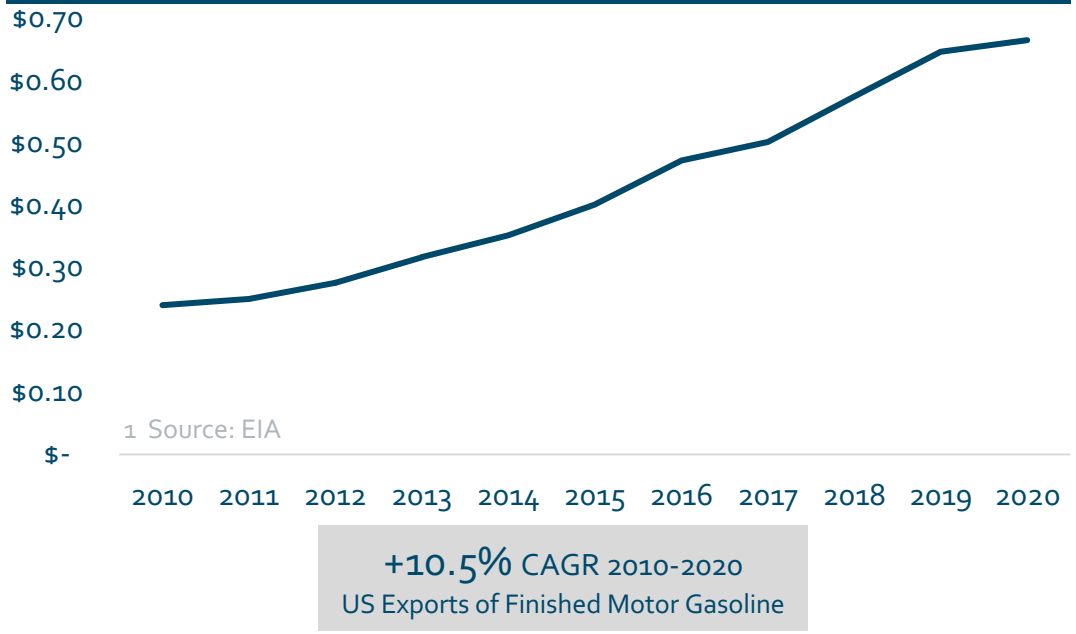
Macro Environment – What's Going to Drive Future Trends

Tighter fuel economy and emissions regulations driving robust growth for high octanes and other transportation fuels

Alkylate is the most desirable blending component because it increases octane while keeping other clean fuel parameters in specification.

	Alkylate	FCC / Coker Naphtha	Butane/ Butene	Reformate	Naphtha Isomerate	Ethanol
Olefins	√	X	--	√	√	√
Aromatics	√	X	√	X	√	√
RON/MON	√	X	√	X	√	X
Octane	√	--	√	√	--	√
Sulfur	√	--	X	√	√	√
Vapor Pressure	√	√	X	√	X	X

Spread Between Retail Premium and Regular Gasoline[1]



1 Source: EIA

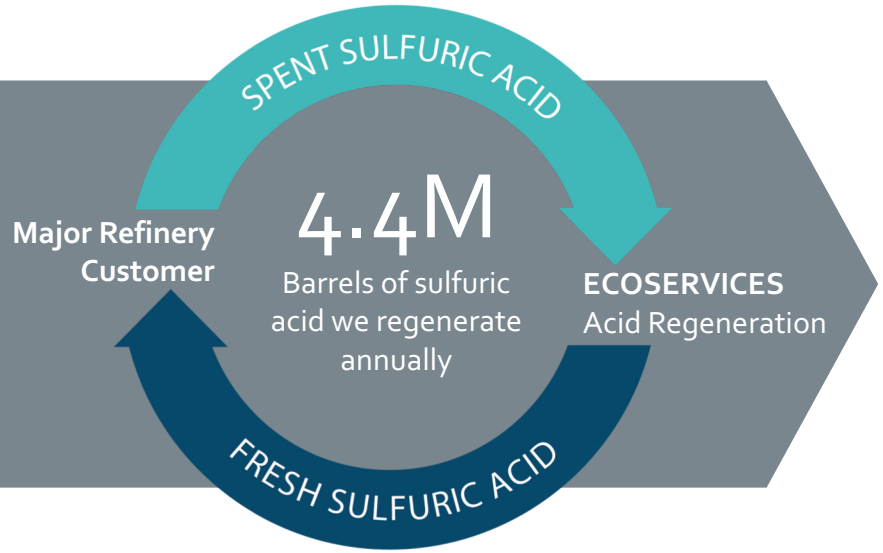
+10.5% CAGR 2010-2020
US Exports of Finished Motor Gasoline

Sulfuric Acid Alkylation continues to rise due to:

- Tightening gasoline regulations
  - Sulfur Standards
  - Vapor Pressure
- Increasing number of turbo charged engines for fuel economy
- Growing Gulf Coast gasoline exports encouraging more alkylate production

Regeneration

Sulfuric Acid is a catalyst used in the production of Alkylate, a high-value, gasoline-blending component



Contract Advantages

- 100% of customer requirements
- Long-term
- Cost pass-through
- Take-or-pay and capacity reservation fees

ecovyst Advantages

- Acid regeneration industry operates at >90% utilization, incentivizing customers to contract with Ecoservices for long-term reliable service
- Debottlenecked our Gulf Coast plants regeneration capacity by 35% since 2016, meeting increasing demand
- Currently installing a logistics expansion in Houston to service a new refining customer in late 2021
- Our expansions and partnership with key refineries enable us to growth faster than the market

Virgin Acid – Differentiated by Strength, Quality and Reliability

Sulfuric Acid Product	**Oleum**	**High Strength**	**Electrolyte**
Segment	Nylon	Mining	Industrial
End Use	• Vehicle lightweighting • Construction • Coatings and Packaging	• Electrification • Construction/Infrastructure • Personal Devices	• Pet Chem and Chemical • Lead Acid Batteries • Water Treatment • Semiconductors
			
ecovyst Advantages	Largest producer of Oleum, a super saturated sulfuric acid primarily used for Nylon production	High strength acid is used in mining applications for copper leaching and Borate production (electric vehicles, tech devices, and construction)	High purity acid is used for Lead Acid Batteries, water treatment, and other growing industrial segments including pet chem and semiconductors

Treatment Services – Safely Converting Hazardous Waste to Energy

Benefits

- Regional niche waste incineration
- Highly complementary to the regeneration business.
  - Provides fuel and sulfur

Demand Drivers

- Preferable to other waste treatment methods
  - Landfill
  - Deep well

Growth Opportunities

- Only NA producer that processes RCRA hazardous wastes, providing for additional opportunities
- Growing chemical production in Gulf Coast will increase waste generated

Chem32: Pre-Activation Services

Benefits

- International
- Renewable Fuels
- Leverage our refining relationships and sulfur knowhow

Demand Drivers

- Enables refineries to outsource difficult task of sulfiding
- Quicker reactor startups
- Growth in renewables

Growth Opportunities

- Strong existing relationships with producers

How We Support Our Customers Through Sustainability

Regeneration

- Recover 99% of Sulfuric Acid in the regeneration process
- Efficient transportation
  - Back Haul
  - Barge / Pipeline
- Alkylation promotes cleaner fuels

Virgin Acid

- Virgin Acid production enables lower natural gas usage and GHG emissions
- Sulfuric Acid made from by product Sulfur
- 17MWh of electricity produced with process steam
- Sulfur co-products recycled for used in water treatment and agriculture

Treatment Services

- Treatment services provides fuel source
- Avoids Deep Wells / Land Fills

Chem 32

- Activated catalysts used to remove contaminants
  - Sulfur
  - Mercury
- Renewable Fuels catalysts
- Reduces on-site HSE risks

Strong Margins With Additional Room for Improvement

Optimization Initiatives

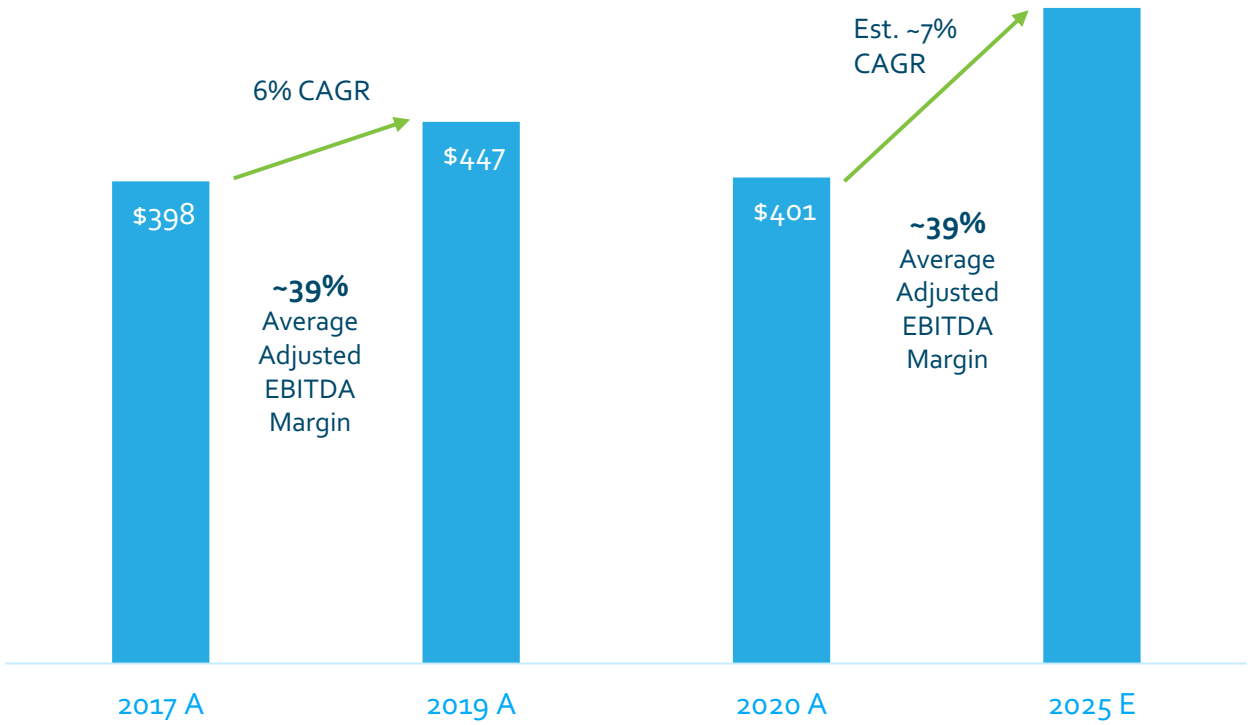
1. Increased steam capture for additional power sales
2. Additional sulfur processing and virgin acid logistics capacity
3. Expanded treatment services capacity
4. Water treatment and consumption optimization
5. Continued improvement on variable cost consumption through asset optimization software

Organic Growth Projections

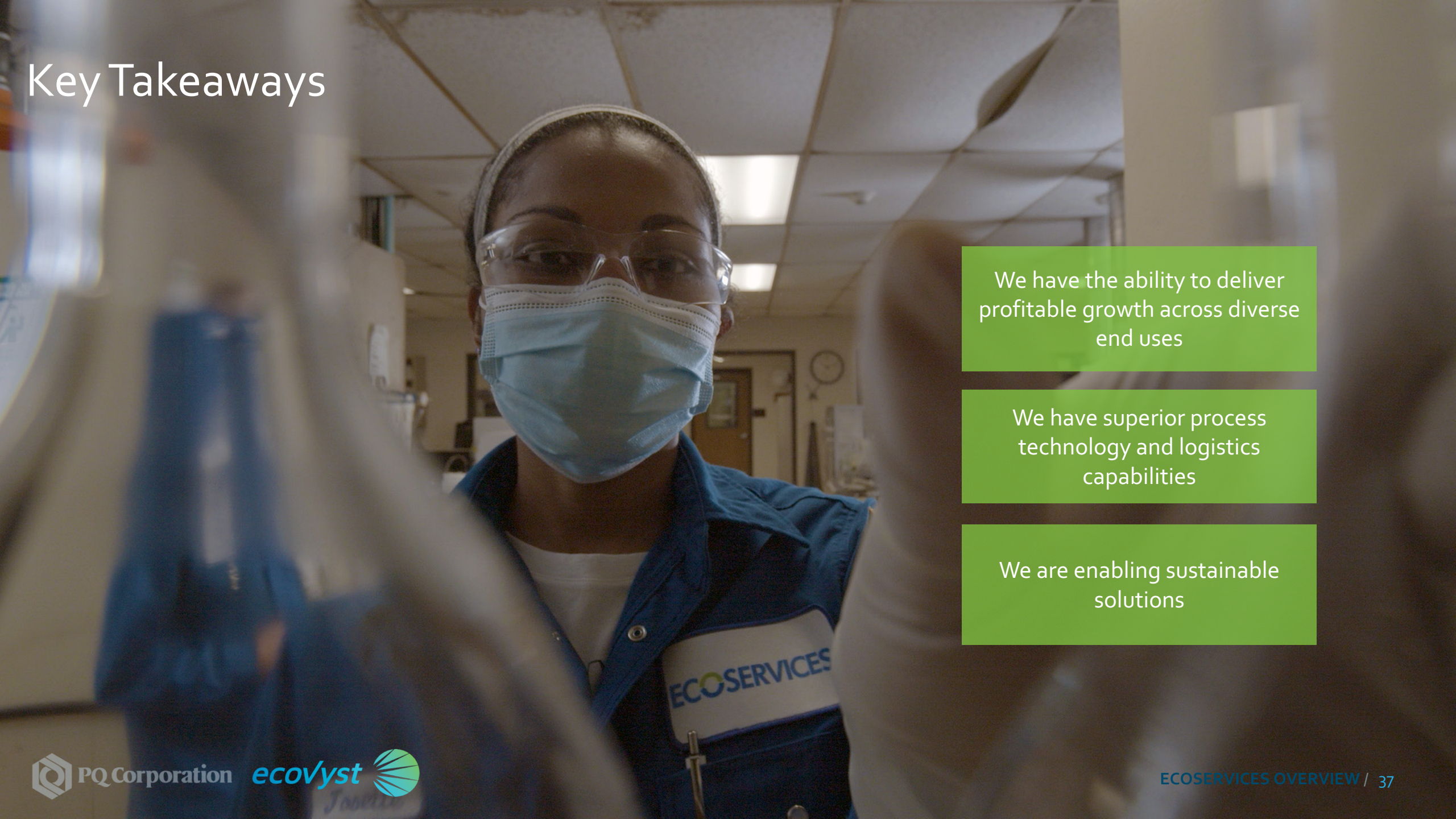
Growth Drivers

1. New major refinery customer 2021 (long-term contract)
2. Favorable alkylate fundamentals
3. Growing virgin acid end uses
4. Treatment Services debottlenecking
5. Chem32 growth from further outsourcing and rapidly growing renewable fuels

Organic Sales Growth Outlook



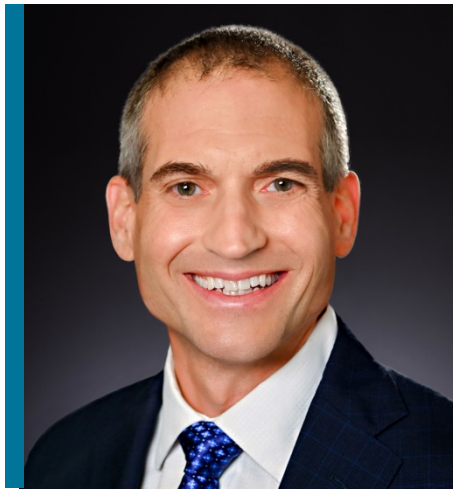
Key Takeaways



We have the ability to deliver profitable growth across diverse end uses

We have superior process technology and logistics capabilities

We are enabling sustainable solutions



Catalyst Technologies

Tom Schneberger
President, Catalyst Technologies

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YOUR CATALYST FOR POSITIVE CHANGE

Key Takeaways

We provide innovative technologies in growing markets

We selectively invest where we can grow faster than the market

Customers rely on our customized offerings resulting in predictable growth and strong margins

Catalyst Technologies Business Structure

Catalyst Technologies

Silica Catalysts
(100% ownership)

- **Leading global supplier of silica catalysts and catalyst supports used to produce:**
  - High density polyethylene (HDPE)
  - Linear low-density polyethylene (LLDPE)
  - Polyethylene anti blocking agents
  - Methyl Methacrylate (MMA)
- **Custom catalyst products and supports developed for:**
  - Chemical production processes
  - Polymer production processes
  - Renewable materials
  - Metal recovery

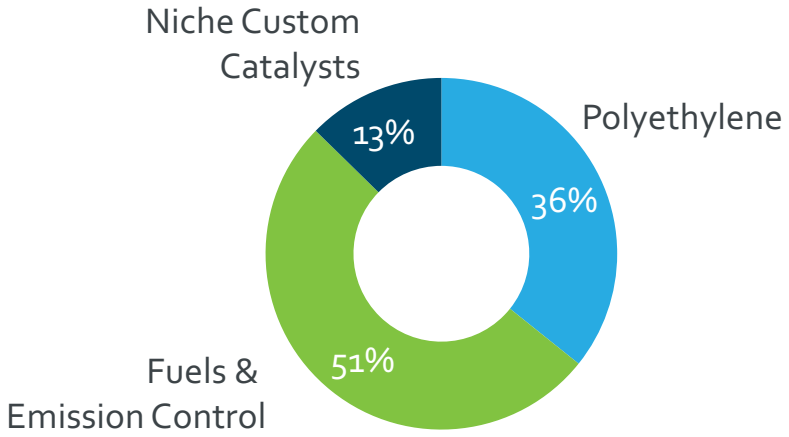
Zeolyst International
(50% ownership with Shell Catalysts & Technologies - est. 1988)

- **Leading global supplier of synthetic specialty zeolite catalysts and supports for:**
  - Hydroprocessing of traditional fuels
  - Yield and cold flow improvement of traditional fuels
  - Production of renewable fuels
  - Emission control technologies
- **Custom catalyst products and supports developed for:**
  - Chemical & fuel production processes
  - Syngas synthesis
  - Emission control
  - Pyrolysis processes for polymer (plastic) recycling

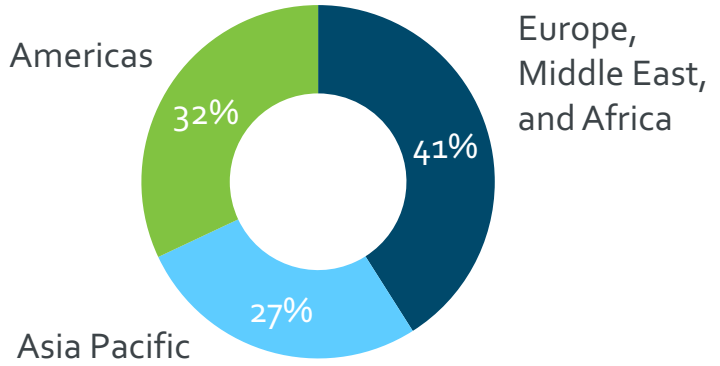
Business Snapshot – Catalyst Technologies

We partner with our customers to help improve the performance, durability and environmental profile of their products. Our products are required to meet the evolving standards of cleaner fuels, reduced waste and emission control.

Sales by End Use Segments[1]



Sales by Region[1]

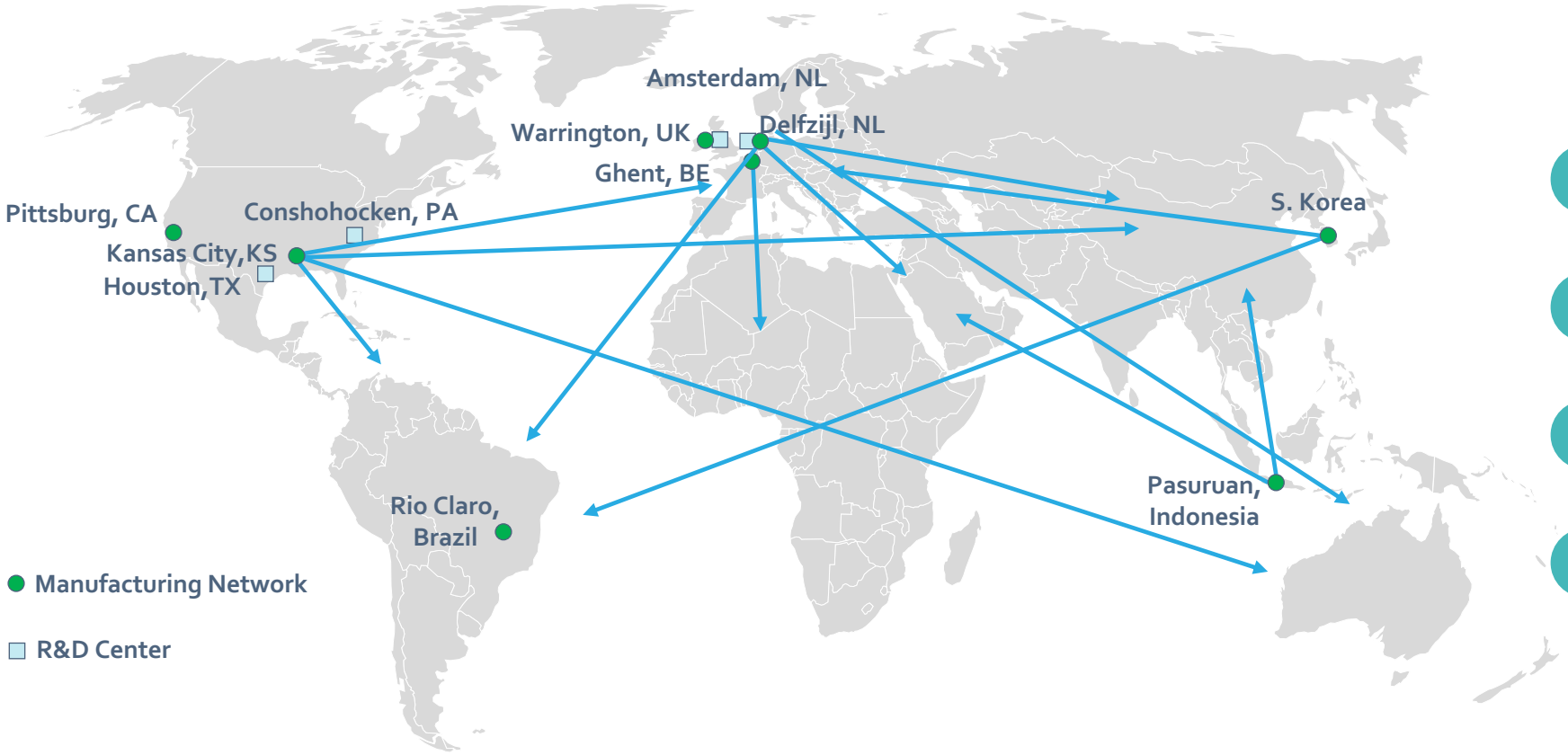


ecovyst Advantages

- ☑ Collaborative customer partnerships
- ☑ Focused innovation on sustainability
- ☑ Positioned to grow faster than market
- ☑ Expected margin expansion

1. As of 2020; Includes 50% portion of the ZI Joint Venture

We Innovate With Customers and Manufacture Strategically to Meet Their Global Needs



1. R&D and pilot plant capabilities in multiple regions
2. Flexible manufacturing network
3. Global sales force deep in catalyst technology
4. Product performance is monitored and improved in collaboration with customers

Note: Slide is illustrative and does not represent all sales

We Enable Our Customers to Address the Sustainability of Their Products

Polyethylene

- Strengthening and lightweighting
- Increasingly efficient production processes
- Recycling of polymers

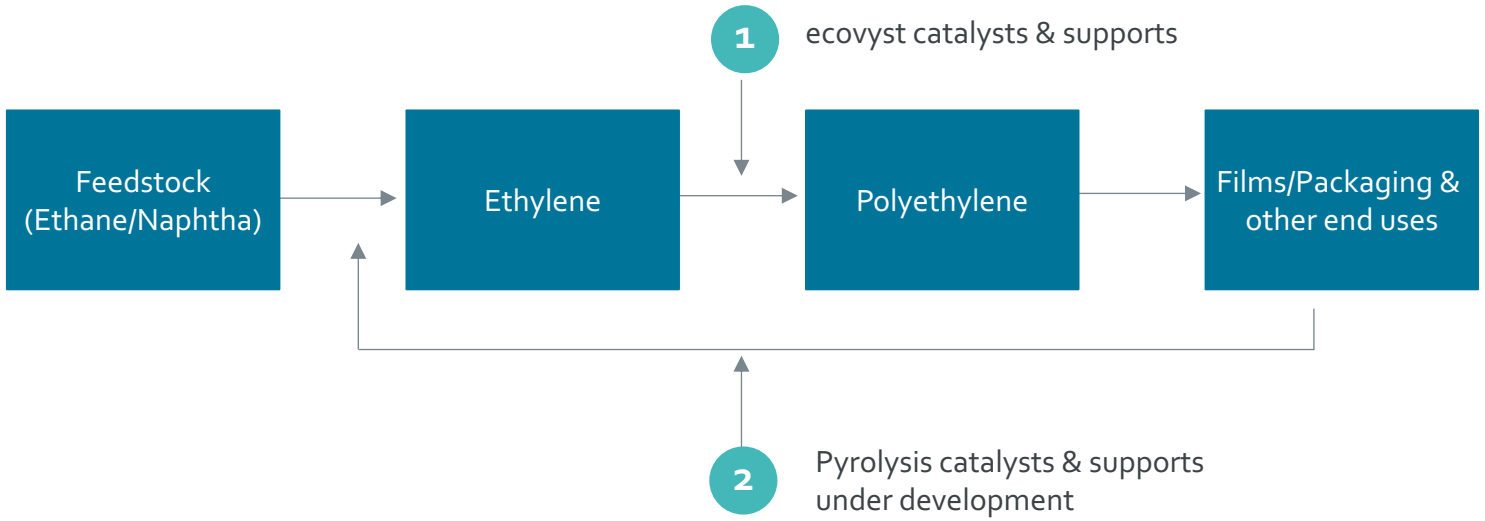
Fuels & Emission Control

- Increasingly efficient and cleaner fuels
- Increasingly efficient production processes
- Renewable fuels

Niche Custom Catalysts

- Novel production processes with increased efficiencies
- Inherently safer and cleaner processes
- Renewable materials

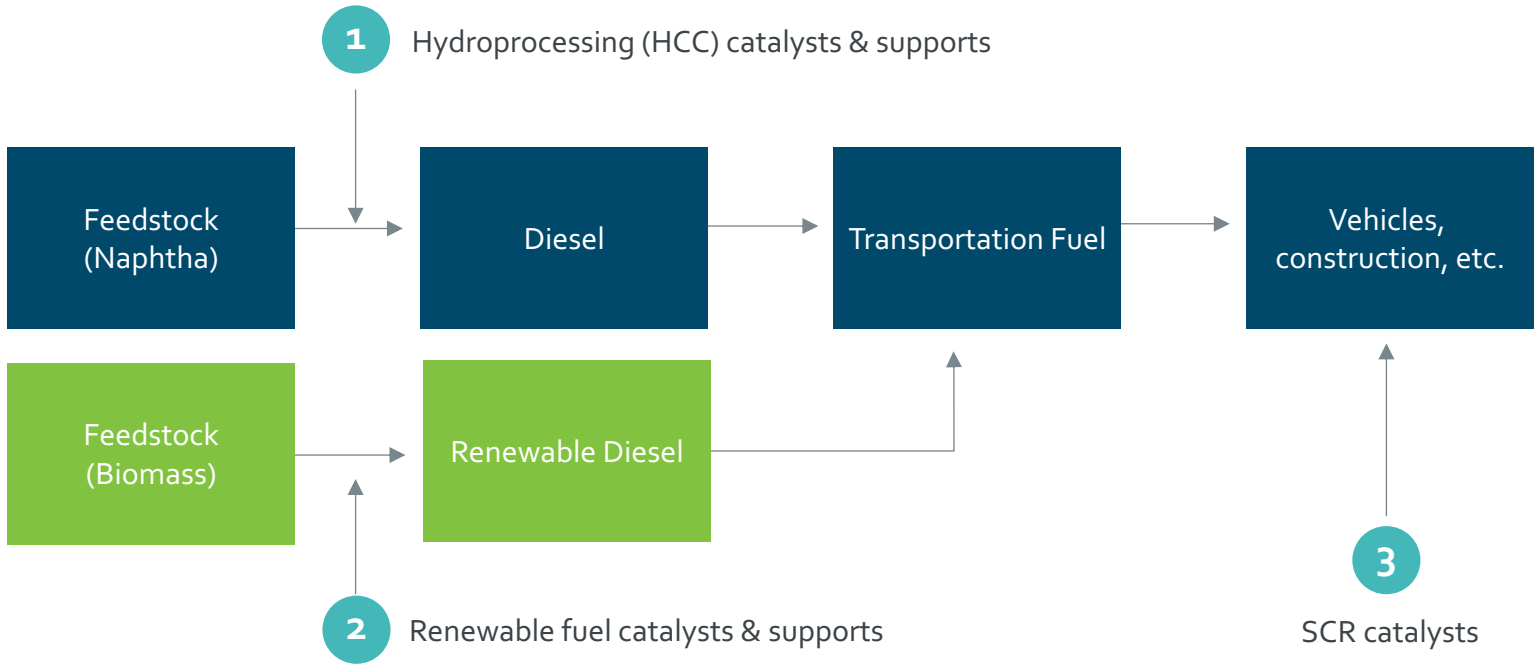
We Play a Critical Role in the Polyethylene Value Chain



Critical Functionality of ecovyst Catalysts

- Production of stronger and lighter weight polyethylene
- Production of clear and strong polyethylene films
- Reduces production cost
- Improves product quality

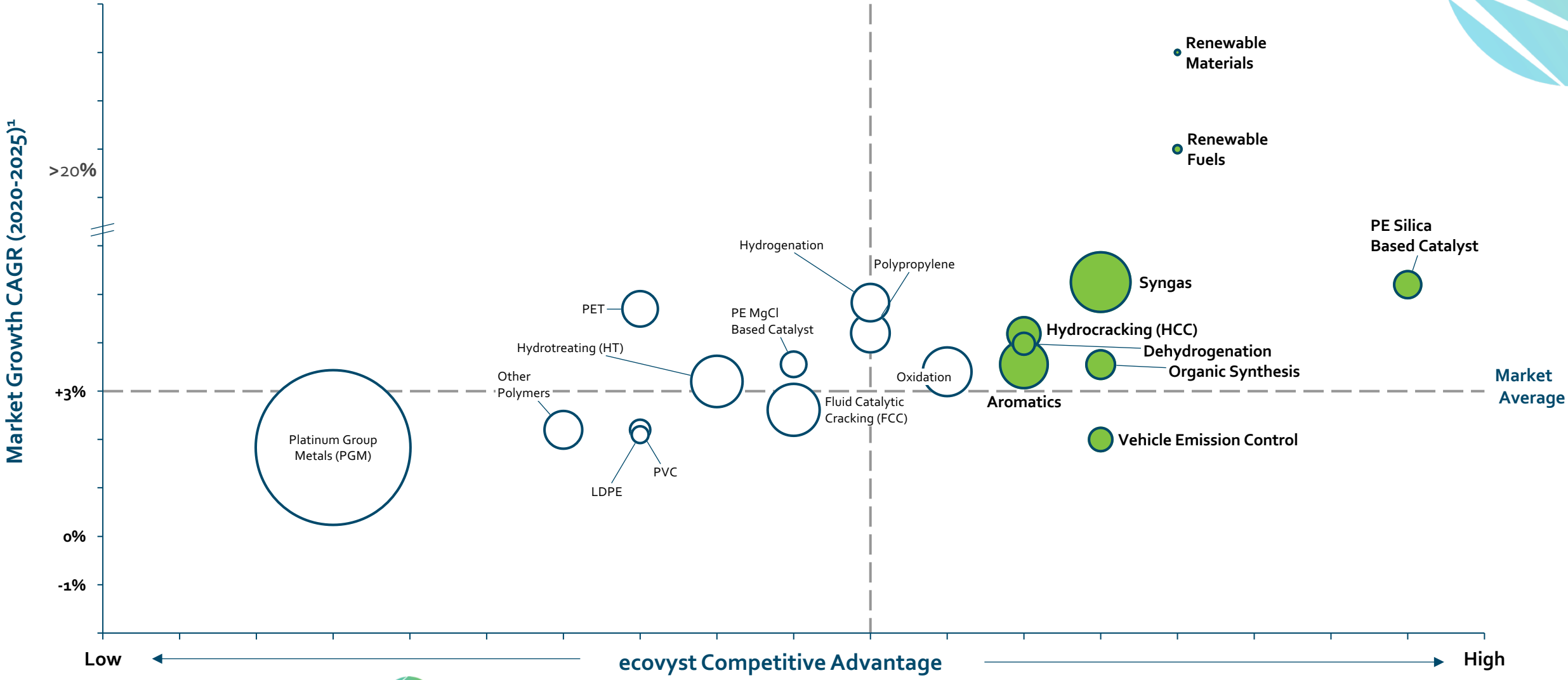
We Are Integral to Clean Fuels and Emission Control



Critical Functionality of ecovyst Catalysts

- Converts heavy oil to more efficient fuels
- Reduces production cost
- Removes sulfur to improve fuel emissions
- Cost effective production of renewable fuels
- NOx reduction to meet increasingly strict emission standards

We Focus on Higher Growth Segments Where We Have Technology Advantages



Catalyst Technologies Focus Segments >$6B

Non-focus Segments

1 Sources: TCGR, IHS and Management estimates

Polyethylene Demand Is Growing With Increasing Product Performance Requirements

>$1B
Size

~4%
Demand CAGR
2020 – 2025

Demand Growth & Performance Requirements Driven by

1. Increasing use of polyethylene per capita among growing middle class
2. Health & Hygiene trend driving sterile packaging for food and other consumables
3. E-commerce trend driving increasing need for packaging materials
4. Lightweighting of materials for transportation and transported packaging
5. Increasing capability to recycle polymers

Source: 2020 TCGR, IHS, Management estimates

Fuel & Emission Control Customers Will Require More and Tailored Catalysts

Segment	Size	CAGR[1]
Hydrocracking	~$750M	~4%
Vehicle Emissions	~$400M	~2%
Renewable Fuels	>$100M	>20%

Demand Growth & Performance Requirements Driven by

1. Growing global energy requirements
2. Tightening requirements for more efficient and cleaner fuels
3. New catalysts for renewable fuels

1: 2020 – 2025 CAGR

Source: 2020 TCGR, IHS and Management Estimates

There Is Increasing Demand for Custom Catalysts in Niche Applications

Renewable Materials

Chemical Synthesis

Syngas Derivatives

ecovyst continues to innovate custom catalysts to enable:

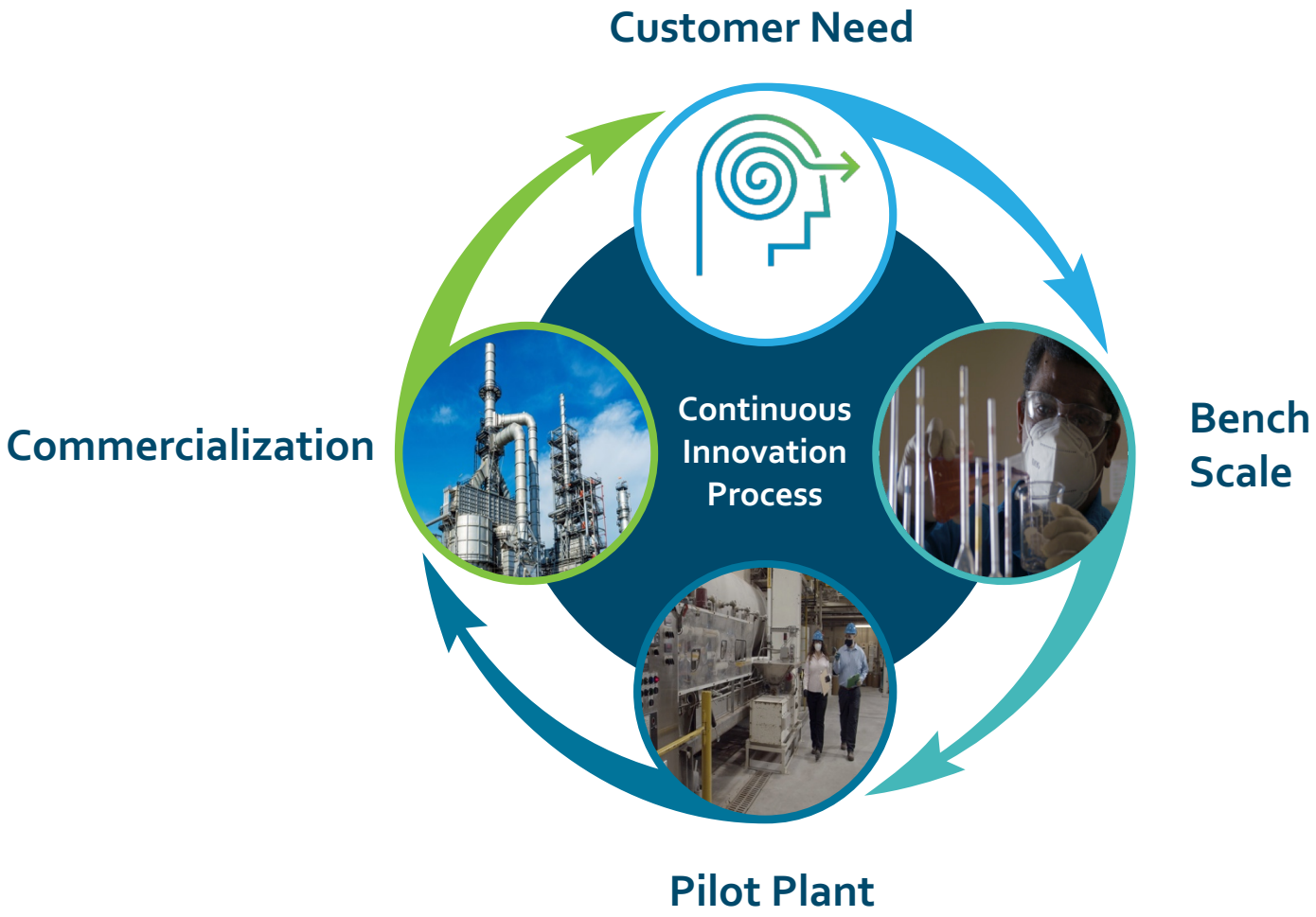
Lower energy intensity and production costs of current materials

The development of renewable materials

The creation of novel processes that use syngas or waste to produce valuable chemical products

The ability to recover valuable metals from waste streams

Our Innovation Model is Driven by Customer Collaboration



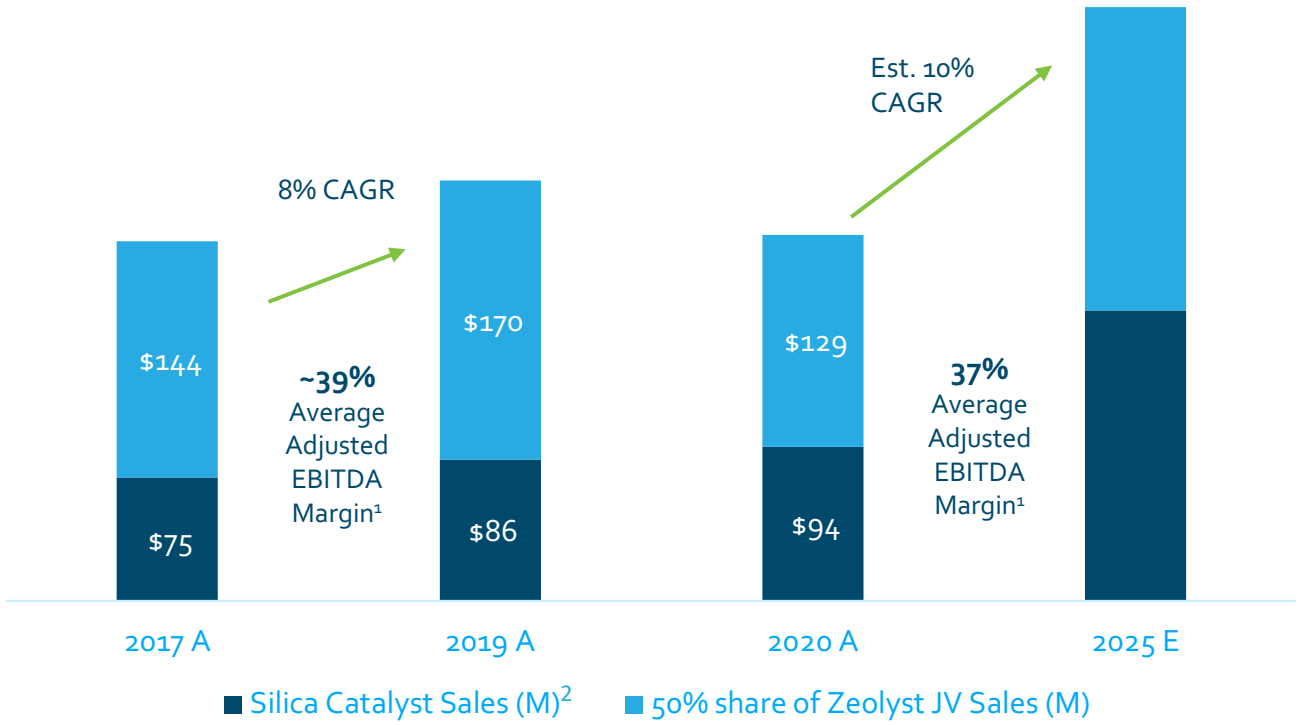
1. We enable our customers to develop and produce sustainable products
2. We provide technical support to customers from R&D through production
3. We are an operating and supply partner for our customers

Organic Growth Outlook

Growth Drivers

1. Preferred technology and increasing product offerings projected to drive >8% sales CAGR in each of our three segments through 2025
2. Restored manufacturing network efficiencies following 2020/2021 disruption expected to result in projected 15% Adjusted EBITDA CAGR through 2025
3. Upside potential from innovation pipeline and potential M&A

Organic Sales Growth Outlook



1 Adjusted EBITDA margin calculation includes proportionate 50% share of Zeolyst Joint Venture
2 Historically the Catalysts segment

Key Takeaways

We provide innovative technologies in growing markets

We selectively invest where we can grow faster than the market

Customers rely on our customized offerings resulting in predictable growth and strong margins

Innovation Overview

Dr. Ray Kolberg
Vice President, Technology & Business Development

PQ Corporation ecovyst

YOUR CATALYST FOR POSITIVE CHANGE

Key Takeaways

We collaborate with customers to develop and produce sustainable products

We innovate and support customers from lab to production scale

We take a structured approach to innovation with a rich and relevant pipeline

Innovation Ecosystem

1. Depth in product development and science competency
2. Significant expertise in silica, zeolites, and catalyst technologies
3. Expertise to tailor and scale specialty grades to meet changing demands
4. Disciplined innovation process to reduce time to market
5. Rich and relevant product development pipeline to drive new growth

Extensive Capabilities Driving Growth

Conshohocken, PA
R&D Center & Pilot Plant

Novel Catalysts Development for Finished Catalysts & Supports

Houston, TX
Shell R&D Center

Refining Catalysts Development for the Zeolyst JV with Shell

Strengths of ecovyst R&D

Strong customer technical service support

Global collaboration between R&D centers

Amsterdam, NL
Shell R&D Center

Refining Catalysts Development for the Zeolyst JV with Shell

Warrington, UK
R&D Center

Novel Catalysts Development for Finished Catalysts & Supports

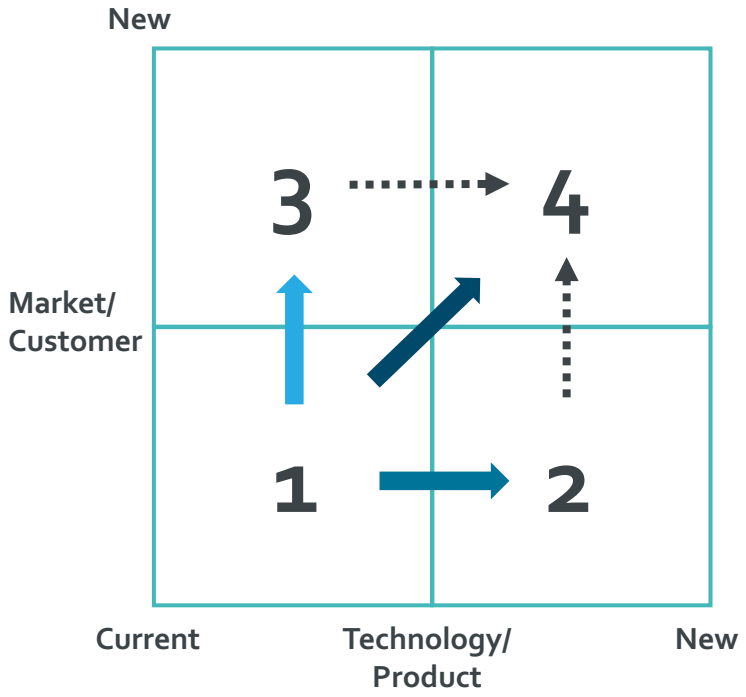
Houston, TX
Ecoservices Houston Site

Analytical and Development Center

Fit for purpose product development with close collaboration with customers

Pilot plant set up to speed time to market

Balanced Development Portfolio Approach



Market Focus

1 → 3

- Silica-based product for particulate matter reduction
- Zeolite-based diesel emission control catalysts for new applications
- Sulfuric acid for electronics industry

Technology Focus

1 → 2

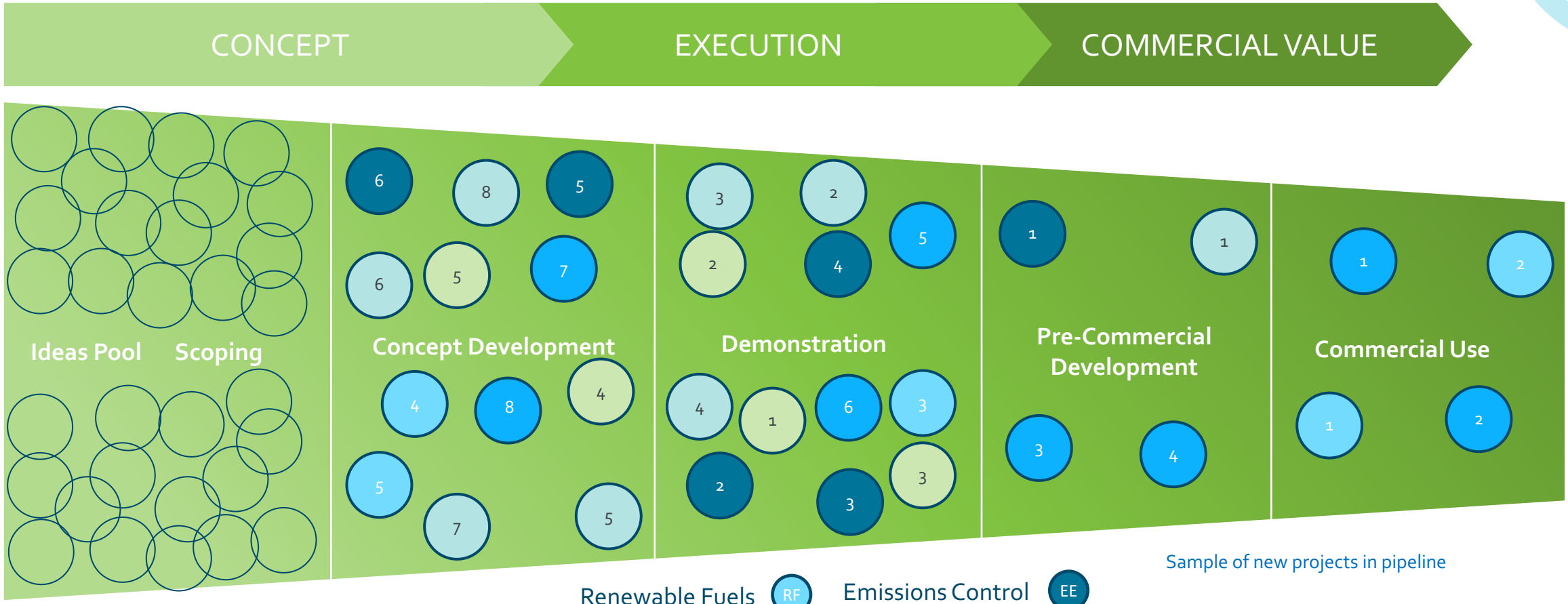
- Next generation custom chemical catalysts
- Next generation zeolite based dewaxing catalysts
- Process development for improved efficiencies and reduced waste

Step-Out Business Focus

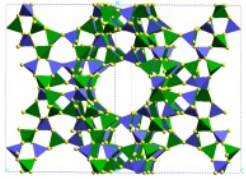
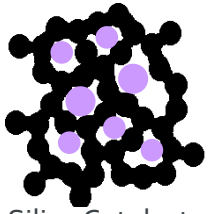
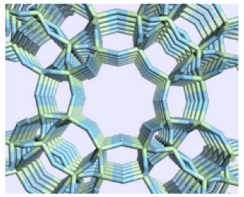
1 → 4

- Advanced ion exchange for metals removal & recovery
- Customized zeolite-based catalysts for large refinery customers
- Enhanced refinery offerings utilizing sulfur competency

Rich and Relevant Pipeline



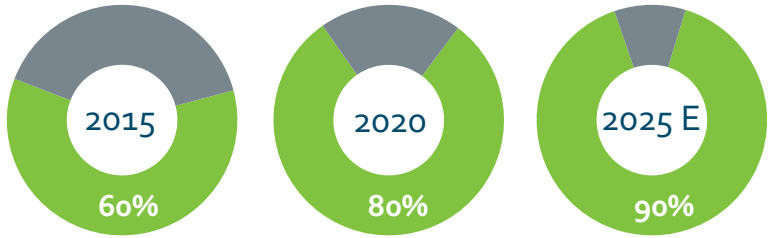
A Peek Into Some Active Innovation Projects

Project	Approach	Catalyst Base	Description
Custom Catalysts for Plastics Chemical Recycling (Demonstration)	Developing novel catalysts that enable chemical recycling of mixed plastics waste through pyrolysis	 Zeolite	Zeolite-based catalysts are used in the pyrolysis process for the chemical recycling of plastics waste. The catalyst allows for conversion to higher value hydrocarbons of shorter length while reducing temperature and allowing for lower energy consumption in the process.
Renewable Fuels (Pre-Commercial)	Collaborating with a customer to develop a novel catalyst for converting biomass into aviation fuel	 Silica Catalysts	This customized finished Silica Catalyst enables processes like Fischer Tropsch that are essential in the production of sustainable aviation fuel (SAF) allowing the aviation industry to reduce its carbon footprint.
Emission Control (Pre-Commercial)	Launching a new SCR zeolite formulation that meets the new emissions regulations for China VI with improved processability	 Zeolite	This Zeolite catalyst is used in Selective Catalytic Reduction (SCR) for the conversion of NOx to Nitrogen from diesel emissions. Zeolite performs over a wider operating temperature range of the engine exhaust system to meet stricter regulations.

Impact on New Sustainable Solutions

Global Sustainability Trend	Our products provide solutions that…
Clean Air	…Remove sulfur in diesel …Remove NOx from emissions
Plastics Circularity	…Create more durable and lighter weight plastics …Enable chemical recycle and reuse of plastics
Renewable Fuels & Materials	…Enable higher alkylation for improved fuel economy …Help transform biomass into biofuels & synthetic rubber for green tires

Innovation Investment Ratio on New Sustainable Products



Key Takeaways

We collaborate with customers to develop and produce sustainable products

We innovate and support customers from lab to production scale

We take a structured approach to innovation with a rich and relevant pipeline

Financial Performance & Goals Overview

Mike Crews
Executive Vice President and Chief Financial Officer

PQ Corporation ecovyst

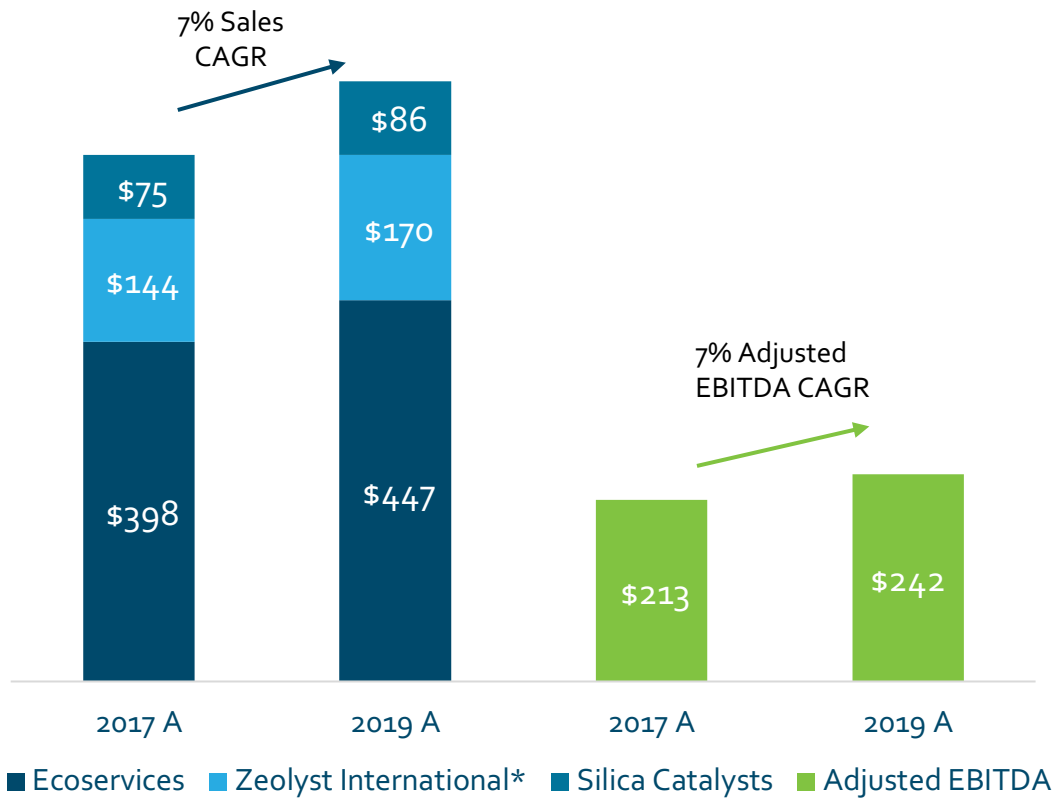
YOUR CATALYST FOR POSITIVE CHANGE

Key Takeaways

Proven topline growth	Strong and sustainable margins
Secure high free cash conversion	Superior metrics warrant expanded multiple

Solid Financial Performance and Sustainable Adjusted EBITDA Margins Exceeding Peers

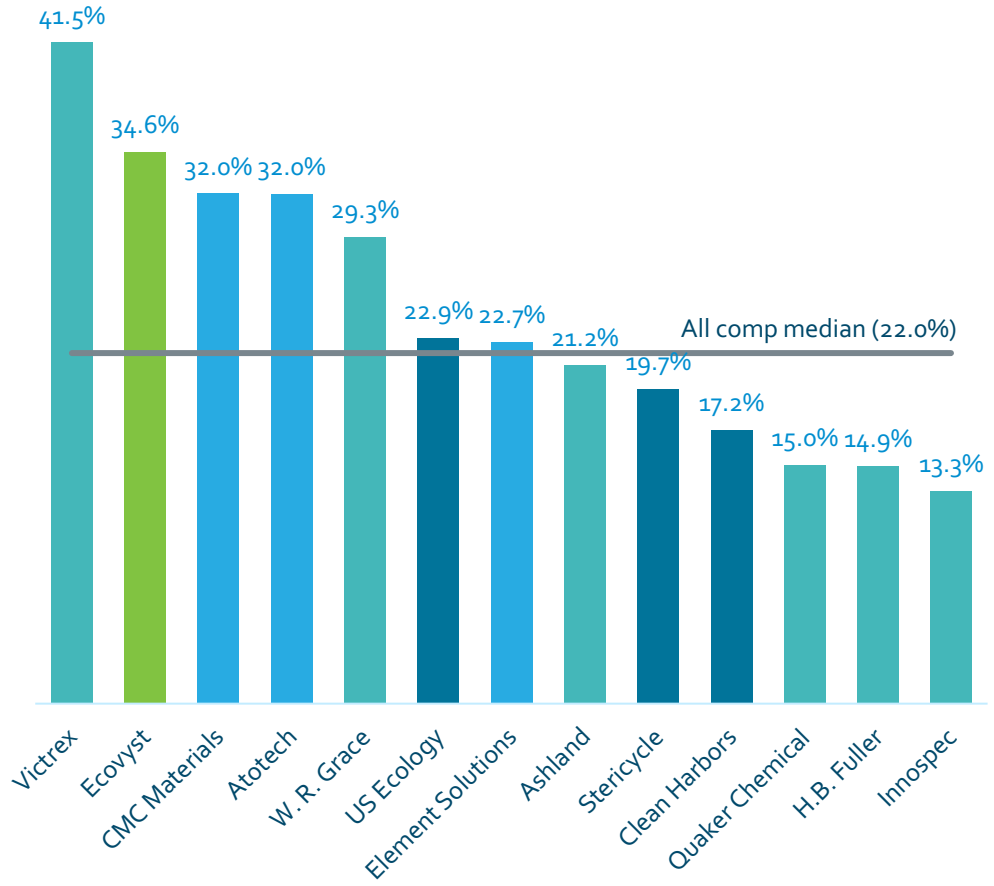
Historical Sales and Adjusted EBITDA Growth (in millions)[1]



*Represents 50% share of Zeolyst Joint Venture sales

1 Sales represent Total ecovyst Sales plus the 50% share of Zeolyst Joint Venture sales; Adjusted EBITDA represents Total ecovyst Adjusted EBITDA

2019 Adjusted EBITDA Margin[2] vs. Peers[3]



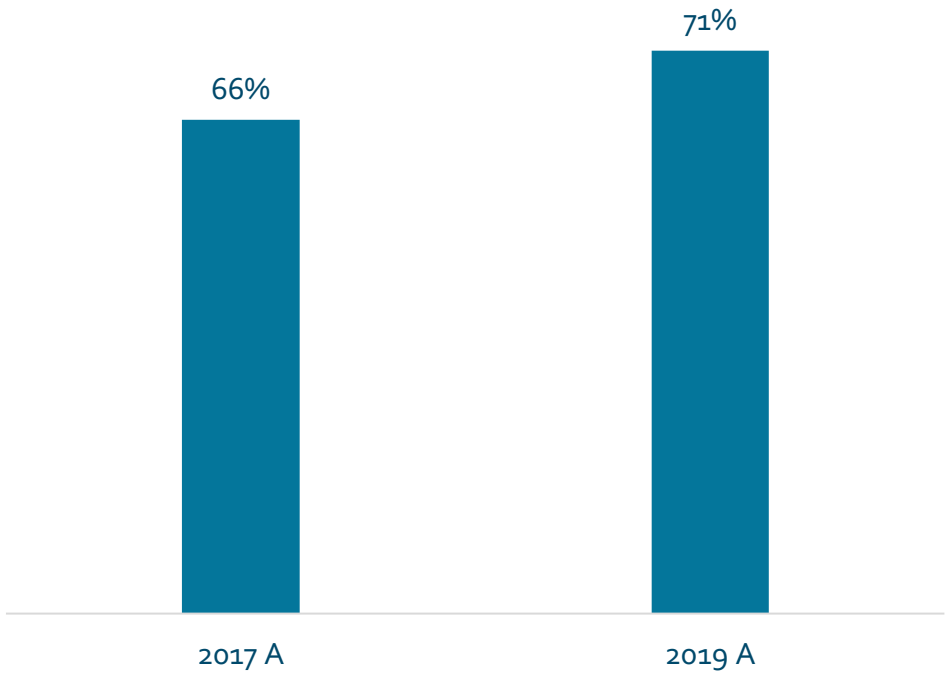
2 Adjusted EBITDA margin calculation includes 50% share of Zeolyst Joint Venture

3 PQ for historical data and select company filings, FactSet, for forecasted data. Market data as of 3/26/2021

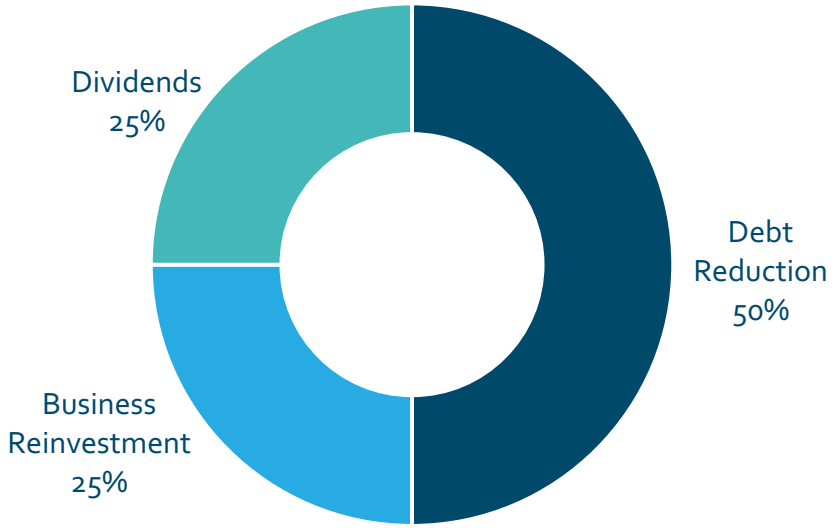
Robust Cash Conversion and Portfolio Actions Enabled Optimal Capital Allocation

Cash Conversion

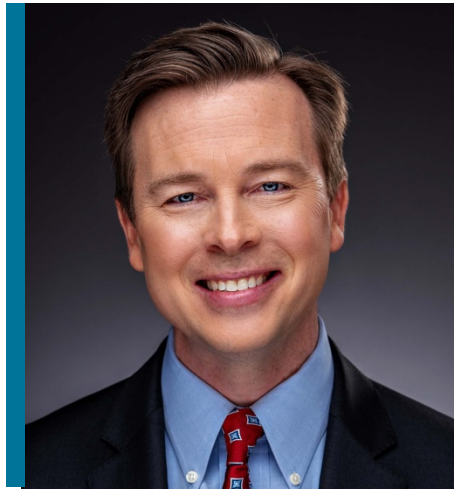
Cash Conversion = (Adjusted EBITDA[1] – CapEx[2]) / Adjusted EBITDA[1]



Use of Robust Adjusted Free Cash Flows and Net Sale Proceeds, Since IPO[3]



2017 Cash conversion includes $72 million of ecovyst capital spending, including 50% share of Zeolyst Joint Venture
2019 Cash conversion includes $70 million of ecovyst capital spending, including 50% share of Zeolyst Joint Venture
1. Adjusted EBITDA represents Total ecovyst Adjusted EBITDA
2. CapEx represents ecovyst capital spending and excludes capital spending from Performance Materials and Performance Chemicals
3. Adjusted for Chem32 acquisition and anticipated use of proceeds from sale of Performance Chemicals



Financial Performance & Goals Overview

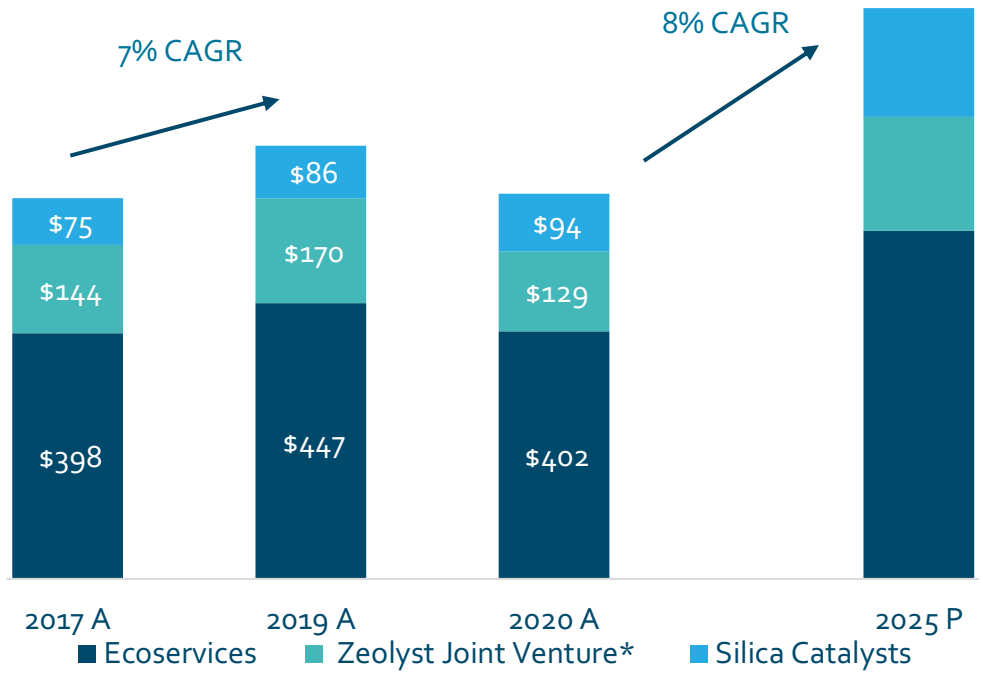
Mike Feehan
Vice President of Finance and Treasurer

PQ Corporation ecovyst

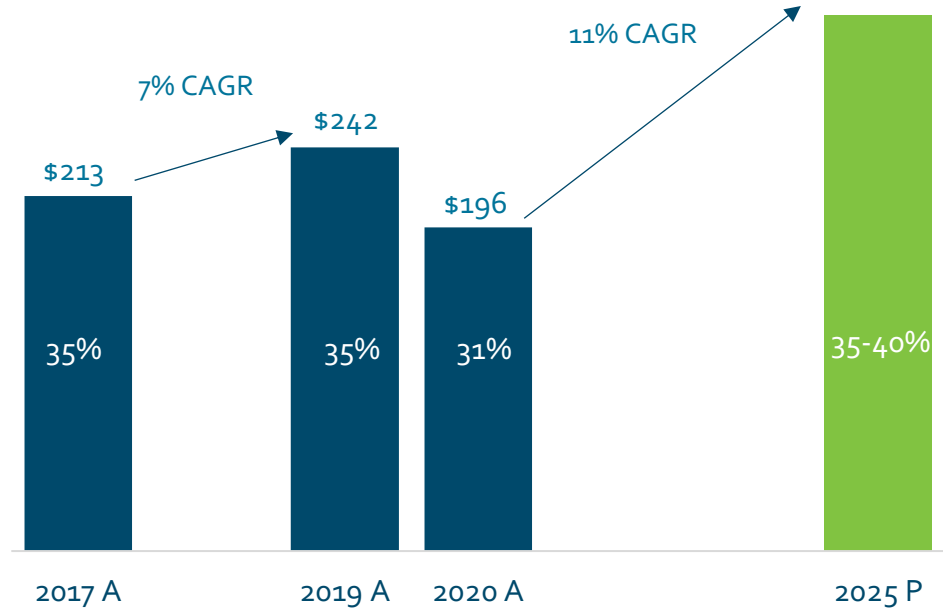
YOUR CATALYST FOR POSITIVE CHANGE

Top-Line Organic Growth and Operational Improvements Drive Higher Adjusted EBITDA and Margins

Total Sales (in millions)[1]



Adjusted EBITDA[1] (in millions) and Margins[2]



*Represents 50% share of Zeolyst Joint Venture sales

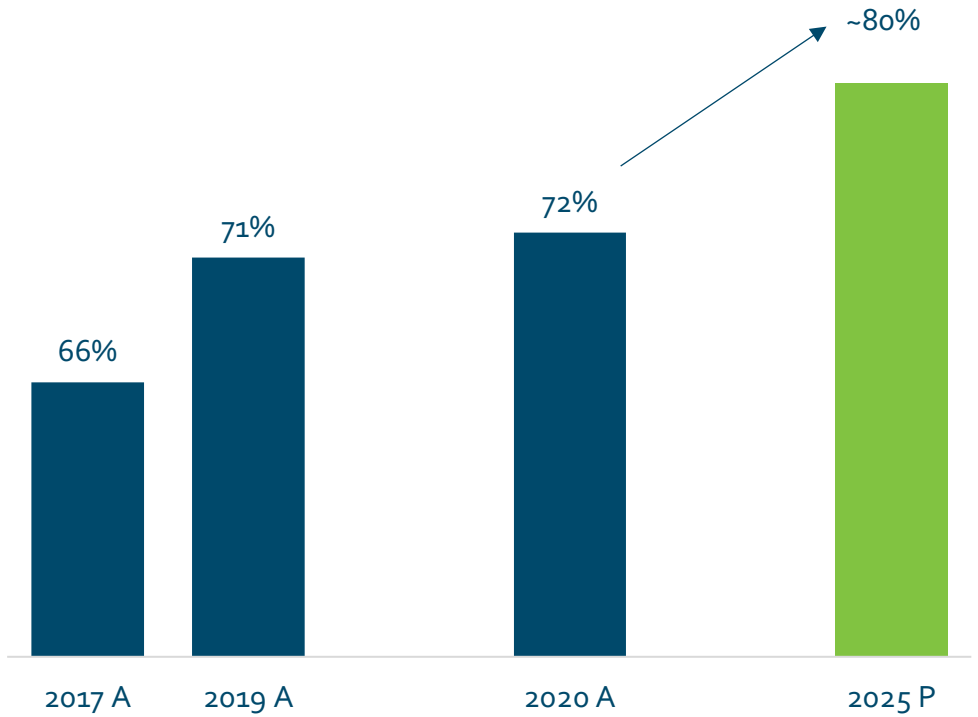
1 Sales represent Total ecovyst Sales plus the 50% share of Zeolyst Joint Venture sales; Adjusted EBITDA represents Total ecovyst Adjusted EBITDA

2 Adjusted EBITDA margin calculation includes 50% share of Zeolyst Joint Venture

PQ Corporation ecovyst

Strong Cash Conversion to Fund Future Growth and Pay Down Debt

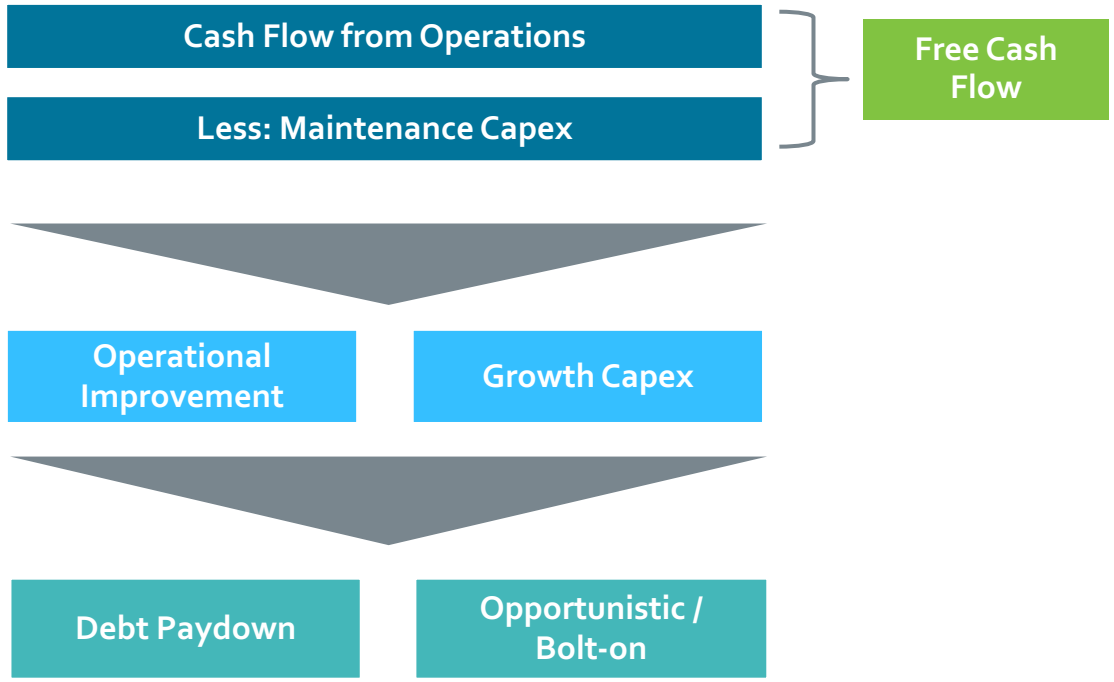
Cash Conversion



2017 Cash conversion includes $72 million of capital spending, including 50% of Zeolyst Joint Venture
2019 Cash conversion includes $70 million of capital spending, including 50% of Zeolyst Joint Venture
2020 Cash conversion includes $55 million of capital spending, including 50% of Zeolyst Joint Venture

Capital spending represents ecovyst capital spending and excludes capital spending from Performance Materials and Performance Chemicals

Capital Allocation Strategy



ecovyst Delivers Best in Class Metrics but Remains Undervalued vs. Peers

Public Comparables & The Rationale

Specialty Chemicals & Materials

Quaker, Ashland, GRACE, H.B. Fuller, victrex, innospec

- High growth, high margin specialty chemicals
- Strong FCF conversion vs specialty chemical peers
- Similar end use exposure

Electronic Chemicals

ATOTECH, element solutions, CMC MATERIALS

- Growth rates aligned with ecovyst
- 20+% EBITDA margins
- Similar FCF conversion

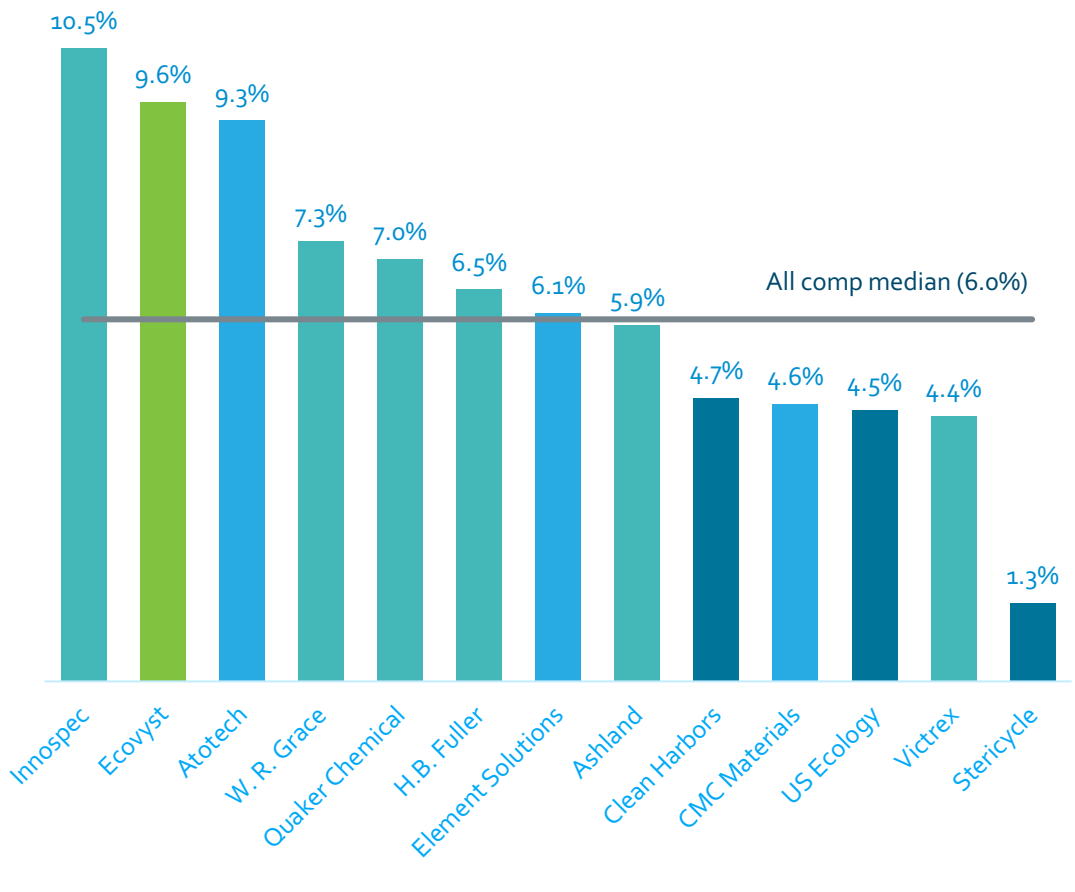
Recycling/Environmental Services

Stericycle, US ecology, CleanHarbors

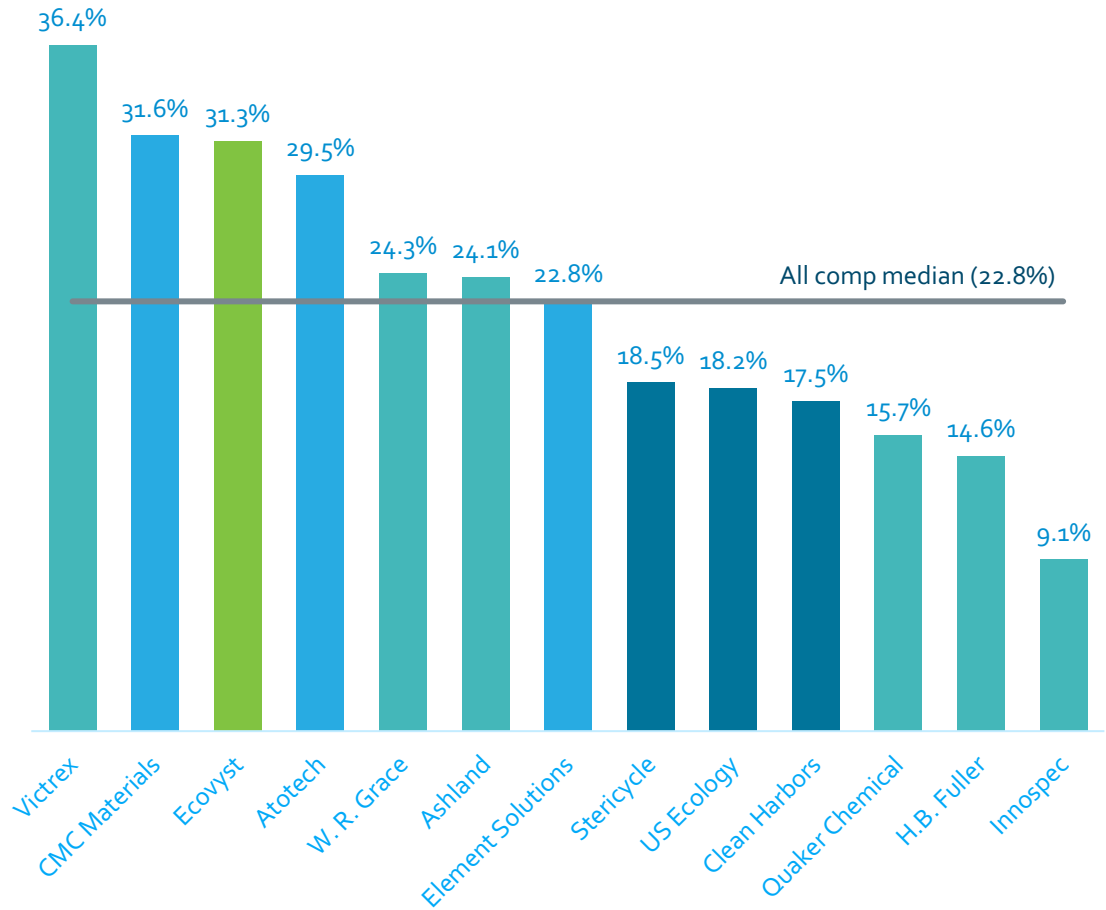
- Critical support for US manufacturing
- Driven by recycling and reusing industrial waste
- Strategic operating footprints a key advantage
- Long term contracts

ecovyst Delivers Best in Class Metrics but Remains Undervalued vs. Peers

Sales CAGR 2020-2022 E



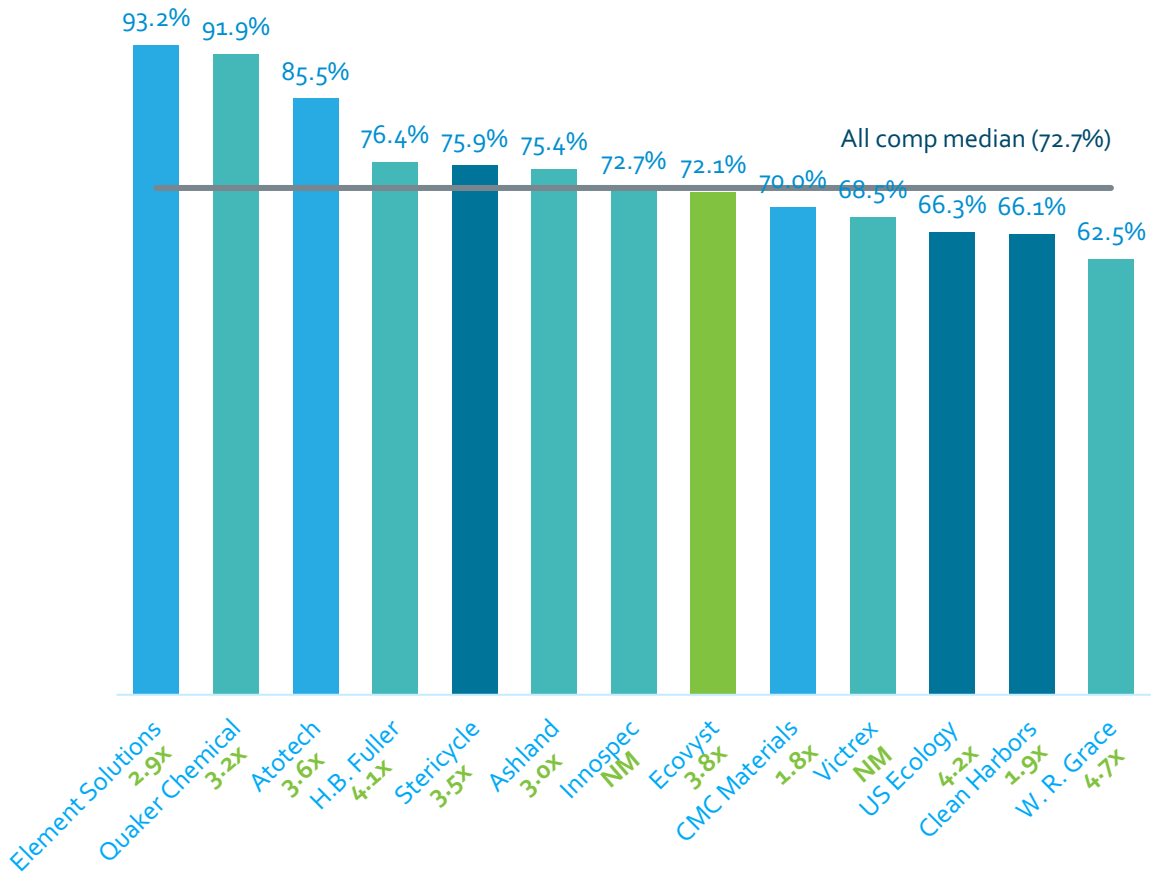
2020 Adjusted EBITDA Margin



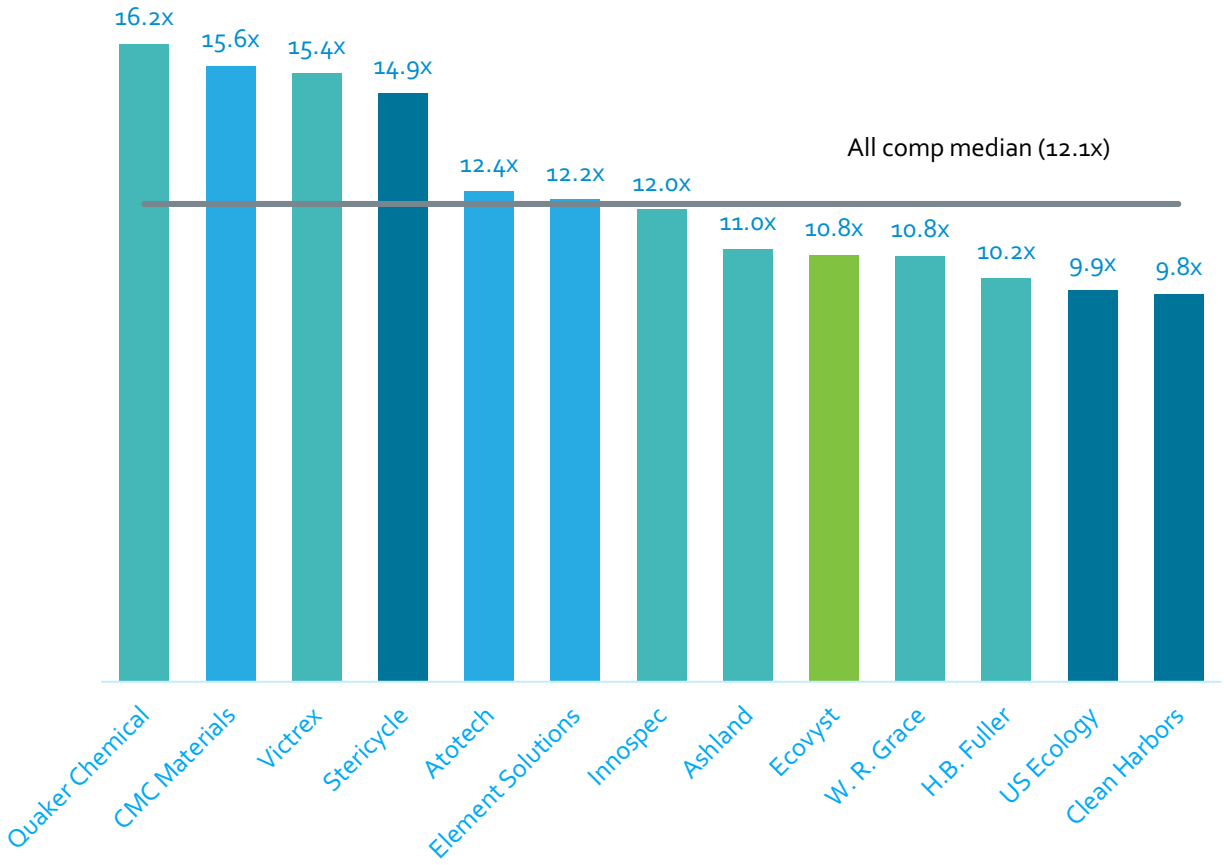
Source: PQ for historical data and select company filings, FactSet, for forecasted data. Market data as of 3/26/2021

ecovyst Delivers Best in Class Metrics but Remains Undervalued vs. Peers

2020 Cash Conversion & Current Net Debt/Adjusted EBITDA

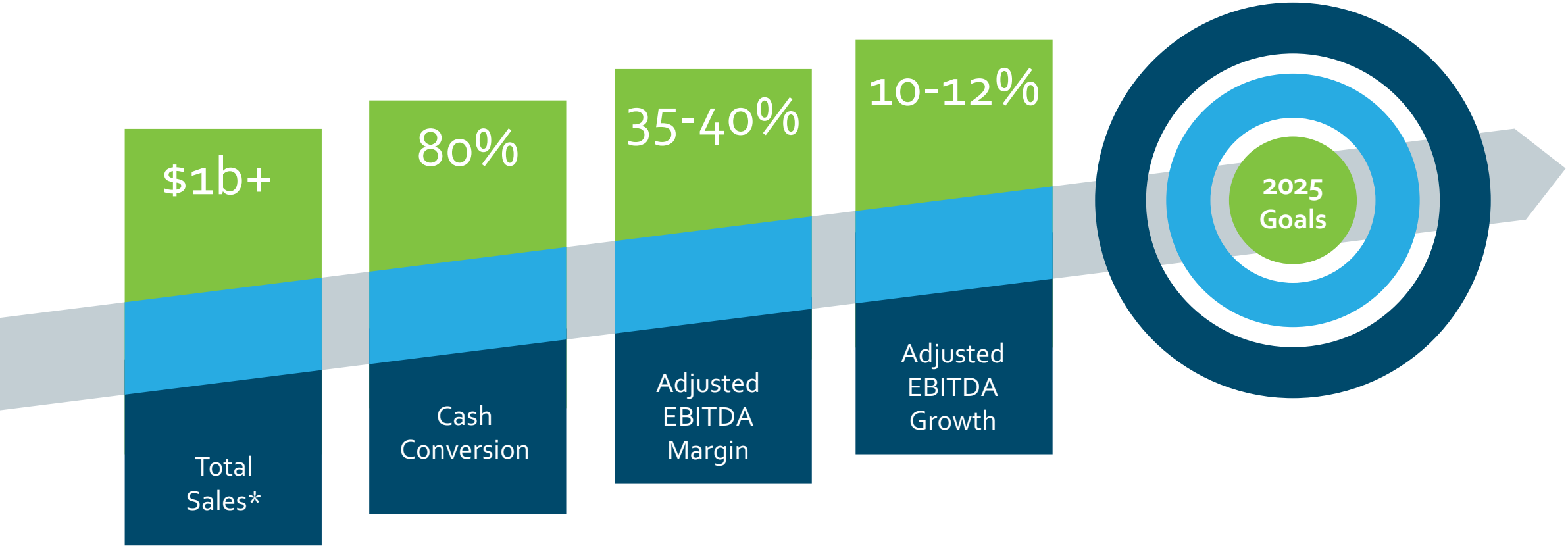


2022 E EV/Adjusted EBITDA



Source: PQ for historical data and select company filings, FactSet, for forecasted data. Market data as of 3/26/2021

2025 Goals – Targeting Across the Board Improvements Moving Forward



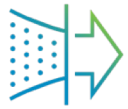
*Total sales represents ecovyst, 50% share of Zeolyst Joint Venture, and 10% projected inorganic growth

Closing Remarks

Belgacem Chariag
Chairman, President, and Chief Executive Officer

ecovyst Business Proposition…

1	Proven operational and commercial execution.
2	High single-digit top-line growth plus additional inorganic growth opportunities with strong and sustainable margins rivaling best-in-class companies.
3	Strong cash flows and high revenue visibility from customer collaborations, specified products and long-term contracts.
4	Focused on developing catalysts, solutions and services for improving environmental sustainability and enabling transition.
5	Innovative and proprietary technologies and processes driving disruption in the catalyst business.



Well-defined growth strategy supported by solid execution foundation

Operating in growing industries, and transition solutions are real expansion opportunities

2025 goal to reach >$1B in total sales with strong margins and cash conversion

> 80% of innovation pipeline focused on sustainability products and solutions

Collaborating and innovating with customers to further their sustainability initiatives

PQ Corporation ecovyst

APPENDIX

Management Bios

Belgacem Chariag

Chairman, President and Chief Executive Officer

Mr. Chariag joined PQ Corporation in August 2018. Prior to joining PQ, he served as Chief Global Operations Officer at Baker Hughes, a GE Company, where he headed the operations of the global entity after Baker Hughes' merger with GE Oil & Gas, until January 2018. Prior to that, Mr. Chariag served as President, Global Operations as well as President, Global Products and Services for Baker Hughes. He also previously served as President of Baker Hughes Eastern Hemisphere Operations.

Prior to joining Baker Hughes in 2009, and for 20 years, Mr. Chariag held a variety of leadership and management roles for Schlumberger, including serving as President of Well Services Business Unit and Vice President of Global Health, Safety, Environment and Security. He earned a Bachelor of Science degree in Petroleum Engineering from the University of Texas and a Master of Business Administration degree in Global Energy from the University of Calgary Haskayne School of Business.

Mike Crews

Executive Vice President and Chief Financial Officer

Mr. Crews joined PQ Corporation in August 2015. Prior to joining PQ, he was Executive Vice President and Chief Financial Officer at Peabody Energy Corporation from 2008 to 2015. From 1998 to 2008, Mr. Crews held various executive and management positions at Peabody Energy Corporation in Operations Planning, Treasury and Financial Planning and Analysis. Mr. Crews began his career in KPMG's audit function. He earned a Bachelor of Science degree in Accounting from the University of Missouri-Columbia and a Master of Business Administration degree from Washington University in St. Louis.

Management Bios

Mike Feehan

Vice President of Finance and Treasurer

Mr. Feehan first joined PQ Corporation in December 2006 and has served as Vice President of Finance and Treasurer since May 2016. From 2008 to 2016 he served as Corporate Controller. Prior to joining PQ, Mr. Feehan served as Director of Finance and Corporate Controller for Radnor Holdings Corporation, and began his career in public accounting with Arthur Andersen and KPMG.

He holds a Bachelor of Business Administration degree in Accounting and Computer Applications from the University of Notre Dame and a Master of Business Administration degree from Villanova University.

Tom Schneberger

President of the Catalysts Group

Mr. Schneberger was named President, Catalyst Technologies in March 2021. He joined PQ Corporation in December 2019 to lead strategy and business development efforts. He played a key role in transforming PQ into a high-growth catalyst and related services company. Prior to PQ, Mr. Schneberger served as the Chief Operating Officer for FMC, Lithium, which publicly listed as Livent, and the Global Business Director for FMC, Alkali Chemicals. During his tenure at FMC, he also led the creation and implementation of FMC's award-winning sustainability program.

Prior to joining FMC, he held various leadership and management roles at Rhône Poulenc, Rhodia, Safety Compliance Management and General Chemical. He earned a Master of Business Administration from the University of California at Berkeley, a Bachelor of Science in Chemical Engineering from Lehigh University and currently sits on the Board for Habitat for Humanity Philadelphia.

Management Bios

Dr. Ray Kolberg

Vice President, Technology & Business Development

Dr. Kolberg joined PQ Corporation in 2016 and is responsible for leading PQ's innovation and business development efforts. He had previously held the position of Group President of the Catalysts business, which includes the Zeolyst International joint venture with Shell Catalysts and Technologies. Prior to joining PQ, Dr. Kolberg held leadership positions at GE and Momentive Performance Materials Inc. Dr. Kolberg is a graduate of Baldwin Wallace College in Berea, Ohio, where he earned a Bachelor of Arts in Business Administration. He also holds a Bachelor of Science in Mechanical Engineering from Case Western Reserve University in Cleveland; a Master of Science degree in Mechanical Engineering from Rensselaer Polytechnic Institute in Troy, New York; and a Ph.D. in Mechanical Engineering from the University of Michigan in Ann Arbor.

Kurt Bitting

President, Refining Services

Mr. Bitting joined Eco Services in 2006, serving as Vice President, Business Director, and Sulfur Products Manager. Prior to joining PQ, Mr. Bitting held management positions at Kinder Morgan, Inc. and Sprint Corporation. As a Captain in the U.S. Army, Mr. Bitting served as a Company Commander in the 10th Mountain Division. He was the recipient of an Army ROTC scholarship and graduated from Villanova University with a Bachelor of Science in Business Administration and holds a Master of Business Administration degree from Rider University.

Management Bios

Nahla A. Azmy

Vice President, Investor Relations and Financial Communications

Ms. Azmy joined PQ Corporation in January 2018. She has nearly 20 years of experience as a senior investor relations officer and equity analyst. Prior to joining PQ, Ms. Azmy was Head of Investor Relations for Versum Materials, which was spun out of Air Products in October 2016. At Versum she developed and executed an investor relations program for the company. Her previous roles included leading investor relations programs for Alcoa, Rockwood Holdings, and NRG Energy. Before joining NRG, Ms. Azmy was an equity analyst for eight years with a top-ranked Utilities and Power Research team. Ms. Azmy holds a Bachelor of Arts from Colgate University, a Master of Business Administration degree from NYU Stern School of Finance and was awarded the NIRI IRC credential.

Chris Hall

Corporate Controller

Mr. Hall joined PQ Corporation as Corporate Controller in August 2016. Prior to joining PQ, Mr. Hall spent seven years at Airgas, Inc., a leading manufacturer and distributor of industrial, medical and specialty gases, most recently as the Director of Financial Reporting. Mr. Hall began his career in public accounting with PricewaterhouseCoopers, spending nine years in the audit practice working with companies in the utilities, energy and manufacturing sectors. He graduated with a Bachelor of Science in Accounting and International Business from Pennsylvania State University and earned a Master of Business Administration degree from Villanova University.

Management Bios

Elaine T. Simpson

Vice President, Health, Safety, Environment & Sustainability

Ms. Simpson assumed the role of Vice President, Health, Safety, Environment & Sustainability in March 2021, having joined PQ Corporation in 2002. For the past few years, she has focused on improving PQ's environmental performance while also leading efforts to develop and implement a robust sustainability program. Ms. Simpson previously served as Vice President of Health, Safety and Environment (HSE) for 14 years. Prior to joining PQ, Ms. Simpson held numerous HSE leadership roles throughout her career, which began in BP Oil Company's downstream refining business and progressed to Tremco Inc. and The Mead Corporation. She holds a Bachelor of Science in Chemical Engineering from Washington University in St. Louis, and both a Master of Science and Master of Business Administration degree from Case Western Reserve University.

Joseph S. Koscinski

Vice President, Secretary and General Counsel

Mr. Koscinski became Vice President, Secretary and General Counsel in November 2015. From August 1995 to October 2015, Mr. Koscinski was an attorney in the Business Services Group of Babst, Calland, Clements and Zomnir, P.C., a law firm in Pittsburgh, Pennsylvania, where he was named a shareholder in 2003, and where his corporate practice included mergers and acquisitions, real estate matters and commercial contracts. While in private practice, Mr. Koscinski served as outside corporate counsel to PQ Corporation since 2005. He holds a Bachelor of Arts in Journalism and Communication from Point Park University in Pittsburgh and a Juris Doctor from Duquesne University School of Law.

GAAP Reconciliations 2017-2020

RECONCILIATION OF NET INCOME (LOSS) TO SEGMENT ADJUSTED EBITDA

($ in millions)	Continuing Operation		Legacy PQ	
	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018	Year Ended December 31, 2017
Reconciliation of net income (loss) attributable to PQ Group Holdings Inc. to Segment Adjusted EBITDA				
Net (loss) income attributable to PQ Group Holdings Inc.	(176.3)	65.1	58.3	57.6
Provision for (benefit from) income taxes	(48.1)	39.7	29.0	(119.2)
Interest expense	67.0	87.1	113.7	179.0
Depreciation and amortization	151.8	151.8	185.2	177.1
EBITDA	(5.6)	343.7	386.2	294.5
Joint venture depreciation, amortization and interest [a]	14.7	14.7	12.6	11.1
Amortization of investment in affiliate step-up [b]	6.6	7.5	6.6	8.6
Amortization of inventory step-up [c]	—	—	1.6	0.9
Impairment of fixed assets, intangibles and goodwill	260.0	—	—	—
Debt extinguishment costs	25.0	3.4	7.8	61.9
Net (gain) loss on asset disposals [d]	(0.1)	(13.2)	6.6	5.8
Foreign currency exchange (gain) loss [e]	(4.2)	2.4	13.8	25.8
LIFO expense [f]	(5.2)	9.7	8.4	3.7
Management advisory fees [g]	—	—	—	3.8
Transaction and other related costs [h]	8.6	0.4	0.9	7.4
Equity-based and other non-cash compensation	21.5	16.2	19.5	8.8
Restructuring, integration and business optimization expenses [i]	15.6	3.6	14.0	13.2
Defined benefit plan pension cost (benefit) [j]	—	3.0	(0.8)	2.9
Gain on contract termination [k]	—	—	(20.6)	—
Other [l]	1.1	2.5	7.4	4.9
Adjusted EBITDA	338.0	393.9	464.0	453.3
Unallocated corporate costs	36.1	41.0	37.0	30.5
Total Segment Adjusted EBITDA[1]	374.1	434.9	501.0	483.8

1. For additional information with respect to each adjustment, see "Descriptions for Reconciliation of Non-GAAP Financial Measures"

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

GAAP Reconciliations 2017-2020

SEGMENT SALES, ADJUSTED EBITDA AND MARGINS

($ in millions except %)	Continuing Operation		Legacy PQ	
	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31 2018	Year Ended December 31, 2017
PQ Group Holdings Inc. Sales:				
Refining Services	401.9	447.1	455.6	398.4
Silica Catalysts	94.0	85.7	72.1	75.3
Performance Materials	—	—	378.3	324.2
Performance Chemicals	614.7	670.5	717.3	687.6
Eliminations	(3.2)	(3.4)	(15.1)	(13.4)
Total PQ Group Holdings Inc. sales	1,107.4	1,199.9	1,608.2	1,472.1
Zeolyst joint venture sales	128.6	170.3	156.7	143.8
ecovyst Sales:				
Refining Services	401.9	447.1	455.6	398.4
Silica Catalysts	94.0	85.7	72.1	75.3
Total ecovyst sales	495.9	532.8	527.7	473.7
Zeolyst joint venture sales	128.6	170.3	156.7	143.8
PQ Group Holdings Inc. Adjusted EBITDA:				
Refining Services	157.2	175.6	176.5	154.2
Catalysts	74.5	107.8	81.1	89.4
Performance Materials	—	—	72.5	69.7
Performance Chemicals	142.4	151.5	170.9	170.5
Total PQ Group Holdings Inc. Segment Adjusted EBITDA	374.1	434.9	501.0	483.8
Corporate	(36.1)	(41.0)	(37.0)	(30.5)
Total PQ Group Holdings Inc. Adjusted EBITDA	338.0	393.9	464.0	453.3
ecovyst Adjusted EBITDA:				
Refining Services	157.2	175.6	176.5	154.2
Catalysts	74.5	107.8	81.1	89.4
Total ecovyst Segment Adjusted EBITDA	231.7	283.4	257.6	243.6
Corporate	(36.1)	(41.0)	(37.0)	(30.5)
Total ecovyst Adjusted EBITDA	195.6	242.4	220.6	213.1
ecovyst Adjusted EBITDA Margin:				
Refining Services	39.1%	39.3%	38.7%	38.7%
Catalysts[1]	33.5%	42.1%	35.4%	40.8%
Total ecovyst Adjusted EBITDA Margin[1]	31.3%	34.5%	32.2%	34.5%

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)

GAAP Reconciliations 2017-2020

DESCRIPTIONS FOR RECONCILIATION OF NON-GAAP FINANCIAL MEASURES

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 ("Eco") 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 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 goos sold in the statement 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.

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 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 statement 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, and non-cash asset retirement obligation accretion. Included in this line-item are rounding discrepancies that may arise from rounding from dollars (in thousands) to dollars (in millions).

PQ Corporation ecovyst

YOUR CATALYST FOR POSITIVE CHANGE