Innovation Overview

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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

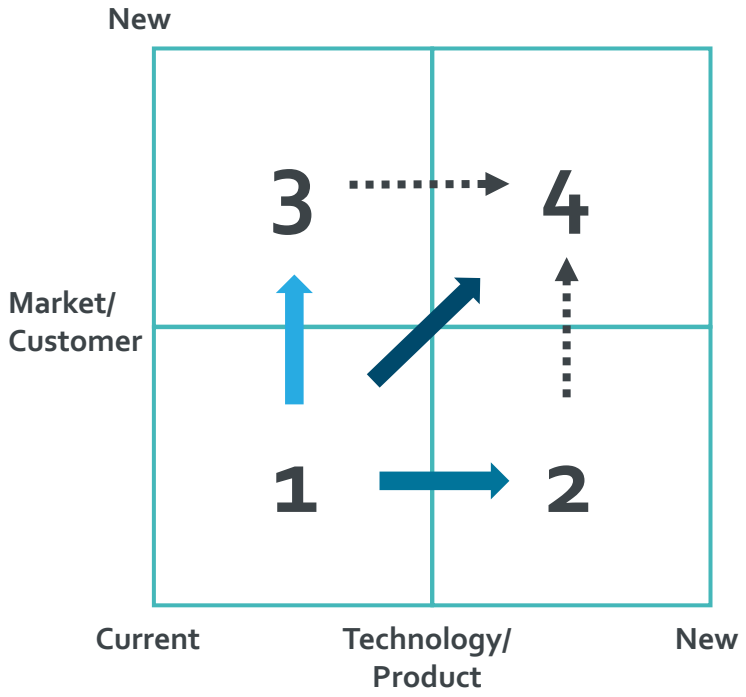
Houston, TX
Ecoservices Houston Site

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

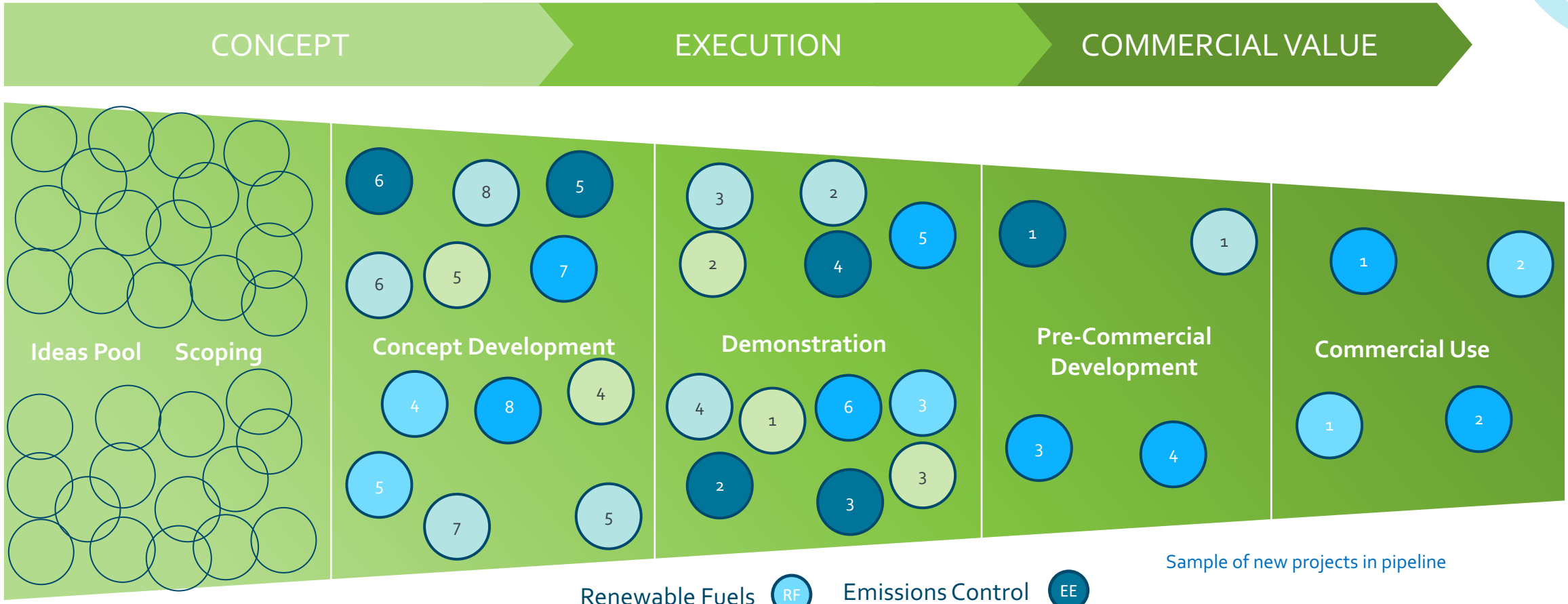
- Next generation custom chemical catalysts
- Next generation zeolite based dewaxing catalysts
- Process development for improved efficiencies and reduced waste

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

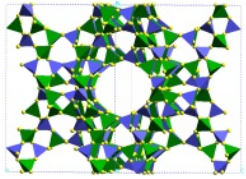
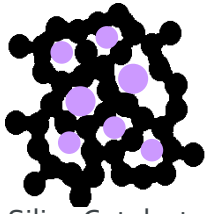
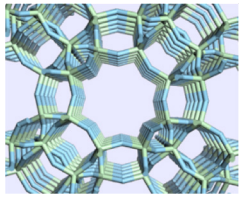
Rich and Relevant Pipeline



Sample of new projects in pipeline

Renewable Fuels RF
Renewable Materials RM
Emissions Control EE
Polyolefins PO
Custom Catalysts CC

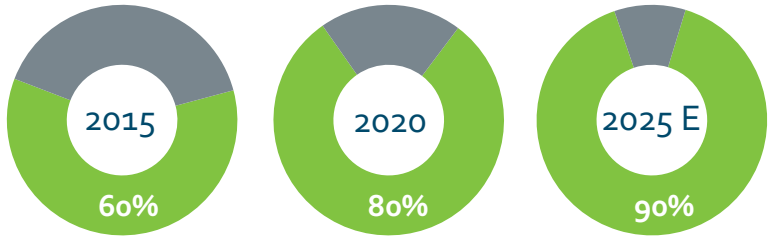
A Peek Into Some Active Innovation Projects

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



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