

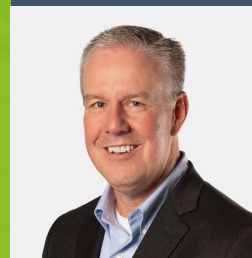
lyondellbasell

MoReTec Technology Webinar

September 26, 2023



**WELCOME AND
OPENING REMARKS**



David Kinney

Head of
Investor Relations

CAUTIONARY STATEMENTS AND INFORMATION RELATED TO FINANCIAL MEASURES

CAUTIONARY STATEMENTS

The statements in this presentation relating to matters that are not historical facts are forward-looking statements. These forward-looking statements are based upon assumptions of management of LyondellBasell which are believed to be reasonable at the time made and are subject to significant risks and uncertainties. When used in this presentation, the words “estimate,” “believe,” “continue,” “could,” “intend,” “may,” “plan,” “potential,” “predict,” “should,” “will,” “expect,” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain such identifying words. Actual results could differ materially based on factors including, but not limited to, market conditions, the business cyclical nature of the chemical, polymers and refining industries; the availability, cost and price volatility of raw materials and utilities, particularly the cost of oil, natural gas, and associated natural gas liquids; our ability to successfully implement initiatives identified pursuant to our Value Enhancement Program and generate anticipated earnings; competitive product and pricing pressures; labor conditions; our ability to attract and retain key personnel; operating interruptions (including leaks, explosions, fires, weather-related incidents, mechanical failure, unscheduled downtime, supplier disruptions, labor shortages, strikes, work stoppages or other labor difficulties, transportation interruptions, spills and releases and other environmental risks); the supply/demand balances for our and our joint ventures’ products, and the related effects of industry production capacities and operating rates; our ability to manage costs; future financial and operating results; benefits and synergies of any proposed transactions and our ability to align our assets with our core; legal and environmental proceedings; tax rulings, consequences or proceedings; technological developments, and our ability to develop new products and process technologies; our ability to meet our sustainability goals, including the ability to operate safely, increase production of recycled and renewable-based polymers to meet our targets and forecasts, and reduce our emissions and achieve net zero emissions by the time set in our goals; our ability to procure energy from renewable sources; our ability to build a profitable Circular & Low Carbon Solutions business; the continued operation of and successful shut down and closure of the Houston Refinery, including within the expected timeframe; potential governmental regulatory actions; political unrest and terrorist acts; risks and uncertainties posed by international operations, including foreign currency fluctuations; and our ability to comply with debt covenants and to repay our debt. Additional factors that could cause results to differ materially from those described in the forward-looking statements can be found in the “Risk Factors” section of our Form 10-K for the year ended December 31, 2022, which can be found at www.LyondellBasell.com on the Investor Relations page and on the Securities and Exchange Commission’s website at www.sec.gov. There is no assurance that any of the actions, events or results of the forward-looking statements will occur, or if any of them do, what impact they will have on our results of operations or financial condition. Forward-looking statements speak only as of the date they were made and are based on the estimates and opinions of management of LyondellBasell at the time the statements are made. LyondellBasell does not assume any obligation to update forward-looking statements should circumstances or management’s estimates or opinions change, except as required by law.

This presentation contains time sensitive information that is accurate only as of the date hereof. Information contained in this presentation is unaudited and is subject to change. We undertake no obligation to update the information presented herein except as required by law.

INFORMATION RELATED TO FINANCIAL MEASURES

This presentation makes reference to certain “non GAAP” financial measures as defined in Regulation G of the U.S. Securities Exchange Act of 1934, as amended.

We report our financial results in accordance with U.S. generally accepted accounting principles, but believe that certain non-GAAP financial measures, such as EBITDA provide useful supplemental information to investors regarding the underlying business trends and performance of the company’s ongoing operations and are useful for period-over-period comparisons of such operations. Non-GAAP financial measures should be considered as a supplement to, and not as a substitute for, or superior to, the financial measures prepared in accordance with GAAP. We calculate EBITDA as income from continuing operations plus interest expense (net), provision for (benefit from) income taxes, and depreciation and amortization.

Incremental EBITDA related to our Circular & Low Carbon Solutions (“CLCS”) Business is incremental to LyondellBasell’s fossil-based Olefins & Polyolefins Americas (O&P Americas) and Olefins & Polyolefins Europe, Asia International (O&P EAI) annual EBITDA. This measure cannot be reconciled to net income due to the inherent difficulty in quantifying certain amounts that are necessary for such reconciliation at the business unit level, including adjustments that could be made for interest expense (net), provision for (benefit from) income taxes and depreciation & amortization, the amounts of which, based on historical experience, could be significant.

These measures as presented herein, may not be comparable to similarly titled measures reported by other companies due to differences in the way the measures are calculated.

AGENDA

15:00 – 15:30 Ferrara, Italy
09:00 – 09:30 New York

Welcome and Opening Remarks

David Kinney, Head of Investor Relations

MoReTec: LyondellBasell's Advanced Recycling Technology

Jim Seward, EVP and Chief Innovation Officer

Growing a Profitable Circular & Low Carbon Solutions Business

Yvonne van der Laan, EVP, Circular & Low Carbon Solutions

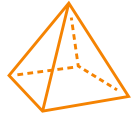
15:30 – 16:00 Ferrara, Italy
09:30 – 10:00 New York

Live Q&A with sell-side analysts



LYONDELLBASELL'S LONG-TERM STRATEGY

Impactful three-pronged strategy supported by exceptional cash generation and an investment grade balance sheet



Grow & Upgrade the Core

- Focusing growth on **attractive, resilient assets** – enabled by industry-leading performance
- **Acting decisively** to shape our portfolio toward businesses where we have distinct advantages at scale
- Identifying and implementing **capacity expansions and improved reliability** through our Value Enhancement Program



Build a Profitable Circular & Low Carbon Solutions Business

- Building **scale, differentiation** and **access to plastic waste feedstocks**
- Creating **integrated hubs** at scale
- **Technology optionality** to maximize value from waste
- Leading our industry by aligning with **science-based emission reduction guidance**
- **\$1 B+ of incremental EBITDA¹** from our Circular & Low Carbon Solutions (CLCS) business by 2030



Step Up Performance & Culture

- Shifting culture from **cost-control to value realization** and unlocking continuous value improvement
- Expanding margins through **strong customer focus, value-driven purchasing strategy and improved logistics sourcing** using the Value Enhancement Program

Today's Focus Areas

MoReTec: LYONDELLBASELL'S
ADVANCED RECYCLING
TECHNOLOGY



Jim Seward

EVP & Chief
Innovation Officer

KEY MESSAGES

1

Advanced recycling will play a critical role in helping end the problem of plastic waste

2

MoReTec is LyondellBasell's proprietary technology that improves economics through scale and efficiency to maximize plastic circularity

3

LyondellBasell's integrated hub model creates unique advantages as *MoReTec* reaches commercial scale

4

MoReTec's scalability underpins LyondellBasell's leadership in serving the world's urgent and growing demand for recycled polymers

ENDING PLASTIC WASTE AND IMPROVING CIRCULARITY

Plastics play a critical role for society but the problem of plastic waste must be addressed

- **Plastics are essential for everyday sustainable living**
 - Reducing food spoilage
 - Protecting water quality
 - Providing materials that support renewable electricity
 - Enabling safe healthcare
 - Improved environmental footprint over alternatives *when recycled*
- **Today, a significant amount of plastic waste is lost**
 - Buried in landfills
 - Incinerated for energy
 - Leaked into our environment
- **LyondellBasell is focused on comprehensively addressing the problem of plastic waste and circularity**
 - Improving recyclability through product and packaging design
 - Growing our mechanical recycling capacity
 - Accelerating scalable advanced recycling technologies, including our proprietary *MoReTec* process



ADVANCED RECYCLING IS A CRITICAL PART OF THE CIRCULAR VALUE CHAIN

Pyrolysis converts post-consumer plastic waste into valuable feedstocks to produce new polymers

Capabilities

- Advanced recycling provides a solution for hard-to-recycle mixed plastic waste
- Plastic waste is recycled into valuable hydrocarbon feedstocks (“pyrolysis oil and pyrolysis gas”) by breaking polymer chains
- Pyrolysis feedstocks are transformed into new polymers using existing cracker and polymerization assets
- Polymers produced from advanced recycling are indistinguishable from fossil-based polymers

Limitations of Traditional Advanced Recycling

- Higher **costs** due to small scale and low yield of high value feedstocks
- Inability to reach commercial **scale** with batch processes or modular units and required purification
- Lower **energy efficiency** due to high reactor temperatures
- Lower **carbon efficiency** with pyrolysis gases consumed as fuel resulting in lower plastic to plastic yield



MoReTec: A DIFFERENTIAL ADVANCED CATALYTIC RECYCLING TECHNOLOGY

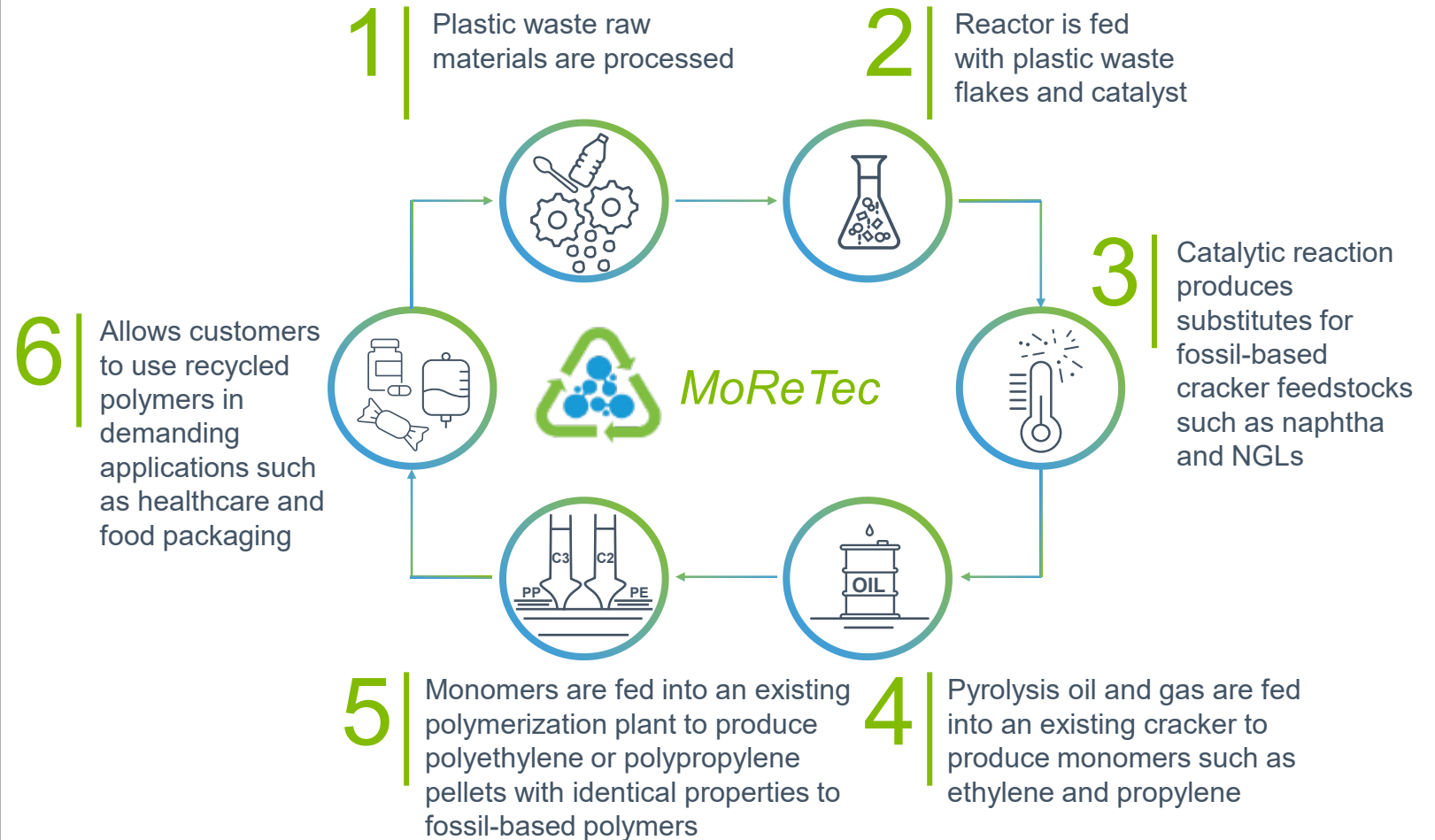
Maximizes plastic-to-plastic recycling at scale to address our world's urgent need for a circular value chain

Molecular Recycling Technology

MoReTec addresses past limitations

- Differentiated technology with improved economics
- Scalable, high-yield process that benefits from integrated hubs located at LyondellBasell's existing world-scale facilities
- Lower energy consumption from a catalyzed process that operates at lower temperatures
- Novel catalyst technology improves carbon efficiency and minimizes low-value by-products

How MoReTec Works



MoReTec: MAXIMIZING CARBON CIRCULARITY TO HIGH VALUE FEEDSTOCKS

Increasing yield and conserving valuable carbon through innovation and integration

Minimizes the loss of plastic waste to fuels and low-value by-products

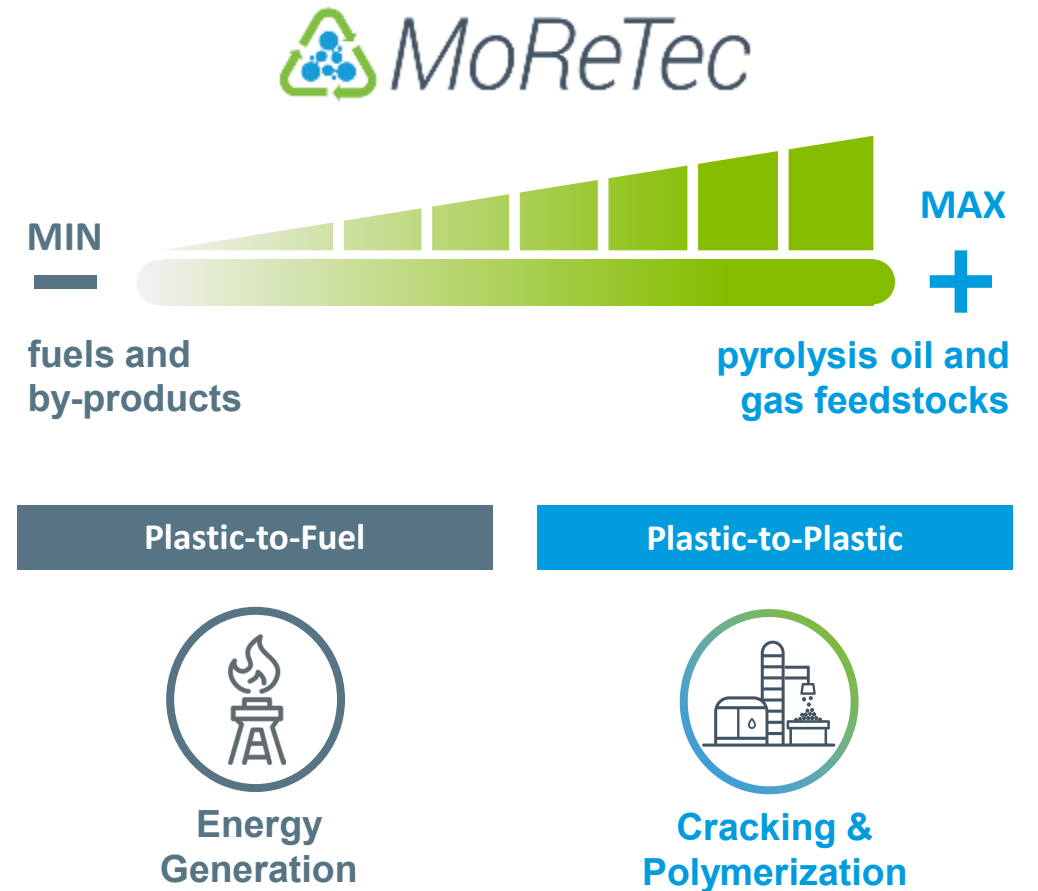
- Fuels can generate energy and by-products conserve carbon but both fuels and by-products reduce circularity for the plastics value chain

Maximizes the circularity of plastic waste to plastics

- *MoReTec* targets industry-leading yields of valuable pyrolysis oil and pyrolysis gas feedstocks
- High yields of pyrolysis oil and gas are utilized to produce new polymers and maximize the circularity of carbon from plastic waste

Integrated hub model maximizes yield and enables pyrolysis oil and gas to displace fossil-based feedstocks

- Locating *MoReTec* alongside existing ethylene cracker assets allows pyrolysis oil and gas to displace naphtha and NGL feedstocks
- Higher yields of pyrolysis oil and gas improves economics to give *MoReTec* a distinct advantage (feedstocks are a significant portion of production costs for monomers and polymers)



MoReTec: FURTHER ADVANTAGED BY LYB'S CATALYST TECHNOLOGY

Proprietary catalyst differentiates *MoReTec* relative to traditional pyrolysis processes



Utilizing LyondellBasell's deep expertise in catalyst technology for polymers and chemicals

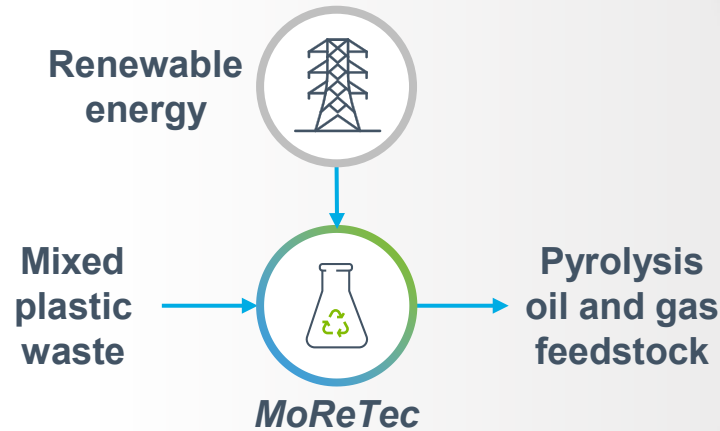
- LyondellBasell has decades of multidisciplinary leadership in polymer, monomer and feedstock technologies
- Leveraging our existing catalyst systems and intellectual property

Catalysis lowers the activation energy and improves the yield of valuable pyrolysis oil and pyrolysis gas

- Improved energy efficiency through lower reactor temperatures
- Reduced residence time and improved scalability with lower capital costs
- Higher plastic-to-plastic yield with lower production of low-value by-products

MoReTec: SUPPORTING OUR NET ZERO GOALS

LyondellBasell's unique process design allows for electrical heating and reduced emissions



SCOPE 1 IMPACT

Electrical heating enables a reduction of scope 1 emissions, with pyrolysis gas utilized as feedstock to integrated ethylene cracker as opposed to fuel



SCOPE 2 IMPACT

Electrical heating of the process allows for utilization of renewable electricity from solar, wind or other sources

Catalysis reduces energy consumed during pyrolysis of plastic waste



SCOPE 3 IMPACT

Plastic waste displaces fossil-based feedstocks and diverts plastic waste from incineration, landfills or leakage into the environment

MoReTec-1 process estimated to have less than 50% of the carbon footprint of fossil-based process¹

MoReTec: FOCUSED ON SCALE TO MEET SOCIETY'S NEEDS

LyondellBasell's integrated hub model provides meaningful cost advantage

MoReTec is designed as a large single-train unit while many competing technologies are smaller and rely on modularization

- Modular designs could have roles in small advanced recycling units located at waste sorting facilities
- Difficult to scale numerous small modular units as part of a large integrated chemical hub
- Modular designs are typically less efficient due to higher capital and operating costs

Purification of pyrolysis feedstock enables increased scale

- Low-quality post-consumer waste contains many contaminants
- Ethylene crackers can tolerate modest levels of impurities, but higher ratios of pyrolysis feedstocks requires purification
- LyondellBasell is incorporating purification into our commercial scale-up for *MoReTec-1* and beyond



MoReTec's innovative design enables commercial scale and supports LyondellBasell's goal to produce and market at least 2 MM tons/year of recycled and renewable-based polymers by 2030

MoReTec: PATH TO COMMERCIALIZATION

LyondellBasell's innovation capabilities and integrated assets accelerate commercial scalability

Leveraging LyondellBasell's unique innovation capabilities

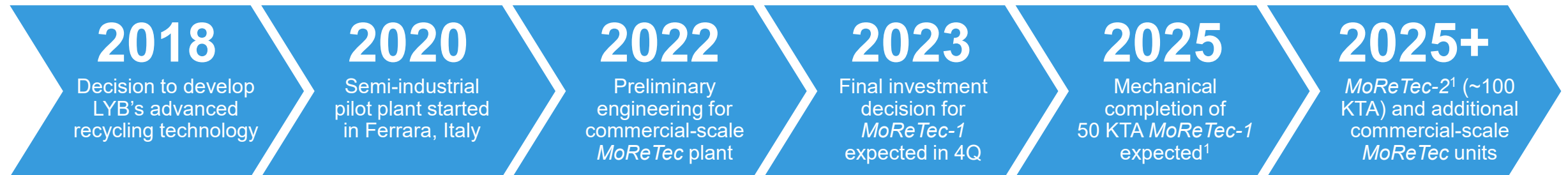
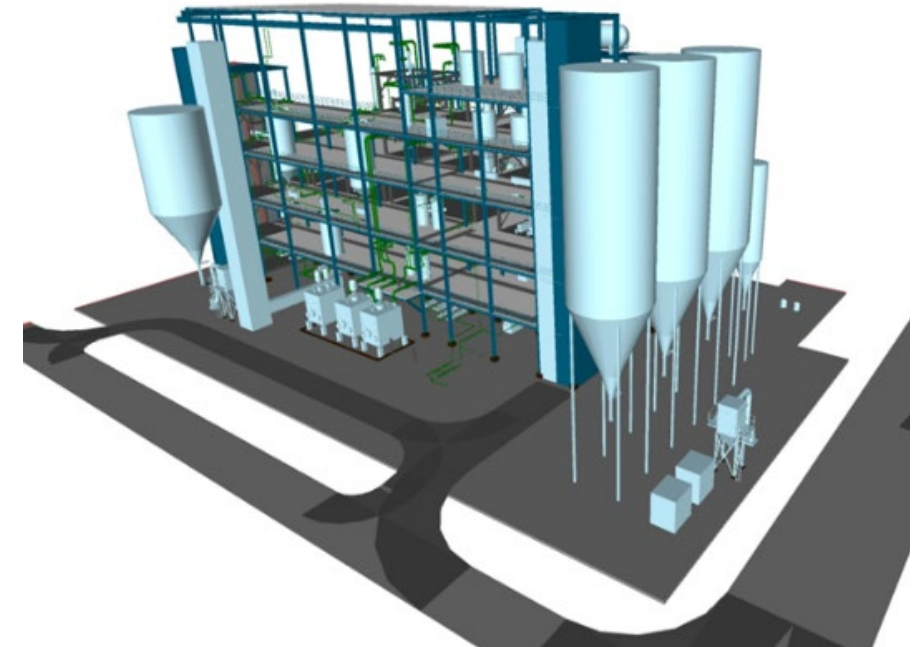
- Integrated R&D team rapidly developed *MoReTec* from concept to pilot scale to address the urgent need for scalable circular solutions that do not exist today

Utilizing LyondellBasell's integrated hub model

- MoReTec-1* to be built at our Wesseling site near Cologne, Germany with benefits for plastic waste sourcing, carbon yield and energy integration¹
- MoReTec-2* planned for Houston hub and expected to be double the size of *MoReTec-1*¹

Potential licensing opportunities

- Technology drives value and global growth for LyondellBasell through partnerships



KEY TAKEAWAYS

1

Advanced recycling will play a critical role in helping end the problem of plastic waste

2

MoRe Tec is LyondellBasell's proprietary technology that improves economics through scale and efficiency to maximize plastic circularity

3

LyondellBasell's integrated hub model creates unique advantages as *MoRe Tec* reaches commercial scale

4

MoRe Tec's scalability underpins LyondellBasell's leadership in serving the world's urgent and growing demand for recycled polymers

GROWING A PROFITABLE CIRCULAR AND LOW CARBON SOLUTIONS BUSINESS



**Yvonne
van der Laan**

EVP, Circular &
Low Carbon
Solutions

KEY MESSAGES

1

Growing and sustained demand for recycled and renewable-based polymers driven by brand owners and regulation

2

LyondellBasell has a clear path to value creation in circular and low carbon solutions

3

We are well-positioned to lead in this market at scale with our integrated hub business model

4

Our Circular & Low Carbon Solutions business is expected to capture \$1 B+ in incremental EBITDA¹ by 2030

LYONDELLBASELL'S COMPREHENSIVE STRATEGY FOR LONG-TERM PROFITABLE GROWTH

Expect to capture at least \$1 B in incremental EBITDA¹ by 2030

\$25 B+

Total addressable market^{2,3}

20%+

Market share for LyondellBasell³

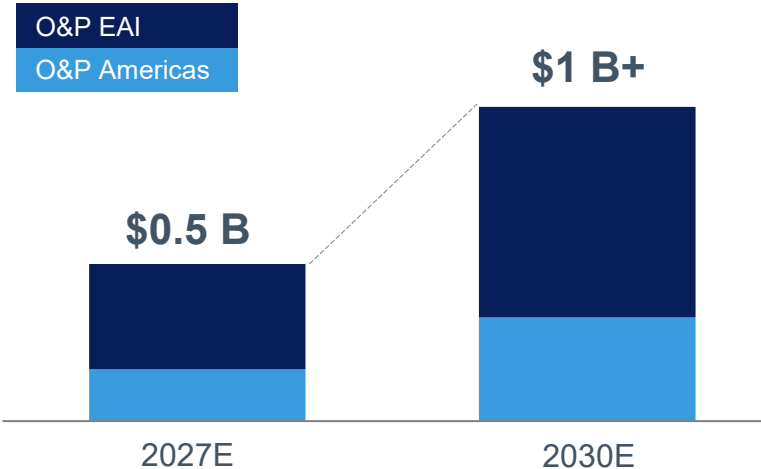
2 MM+ Tons

Recycled and renewable-based polymers produced and marketed by LyondellBasell

Annually by 2030

GROWTH TARGETS

(USD, billions)



Relatively low capital intensity:
~15% of our expected capital investment
from 2023 – 2030

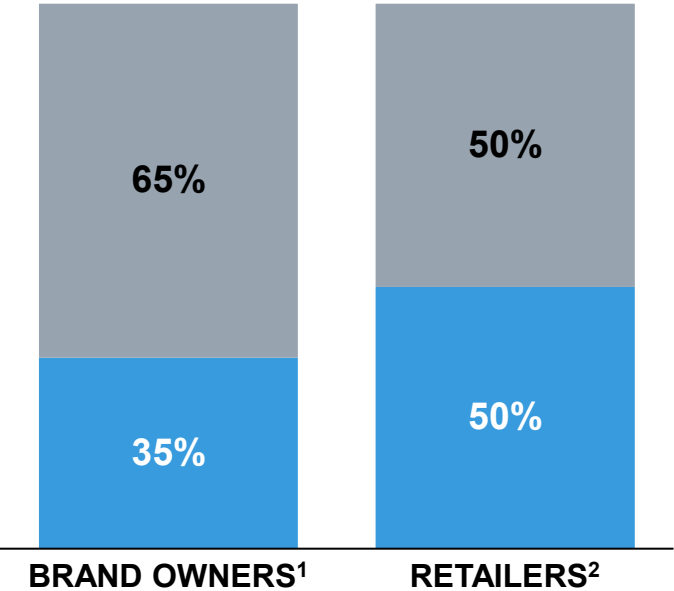
OUR SUCCESS FACTORS CONTINUE TO BE VALIDATED

- 1** Access to large customers and brand owners
- 2** Ability to leverage existing asset base
- 3** Innovative and differentiated technologies (e.g., *MoReTec*)
- 4** Differentiated operating model resourced for success
- 5** Access to plastic waste through strategic partnerships and footprint in strategic locations

URGENT DEMAND FOR RECYCLED AND RENEWABLE-BASED PACKAGING

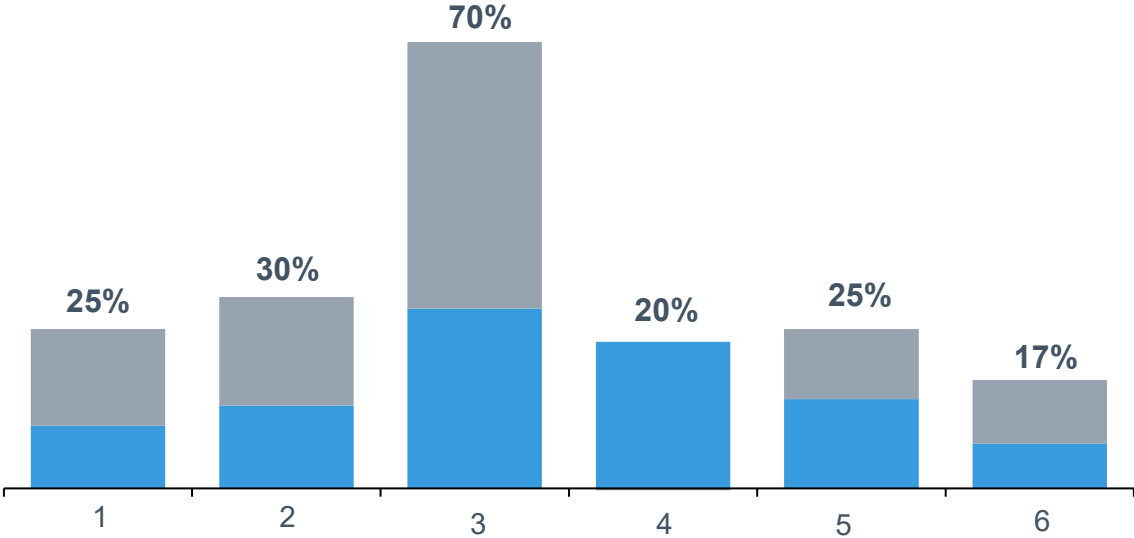
Brand owners and retailers both facing substantial gaps to 2025 targets

SUBSTANTIAL SHORTAGE TO MEET 2025 TARGETS



RETAILER COMMITMENTS²

Major Retailer Recycled Content Targets by 2025
% of total packaging content



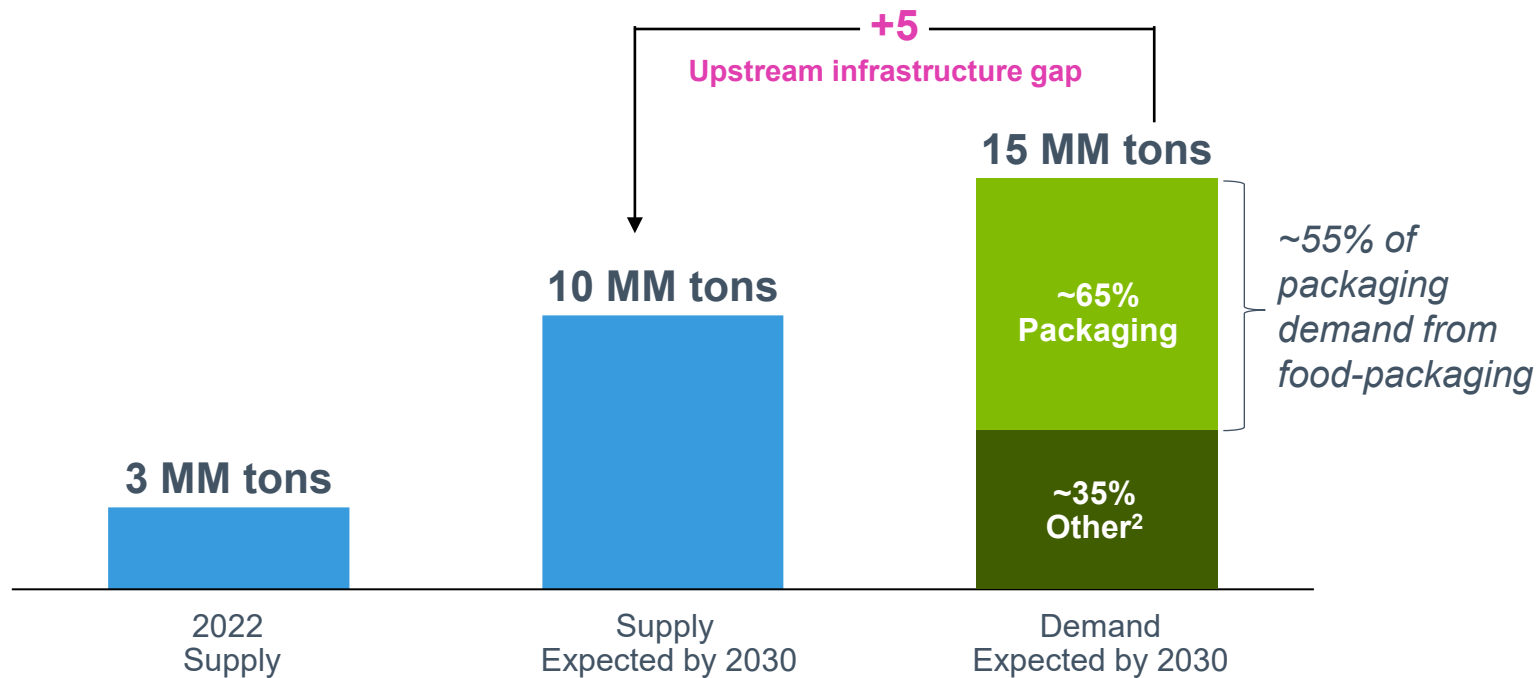
■ 2021 recycled content ■ Gap to 2025 target

1. 10 top brand owner's commitments represent ~12% of total recycled content demand in packaging by 2025
 2. Leading retailers including Ahold Delhaize, Carrefour, El Corte Inglés, Kesko, Schwarz Gruppe, Walmart
 Source: Ellen MacArthur Foundation Global Commitment 2022 Progress Report

PERSISTENT SUPPLY SHORTAGE CREATING A STRONG BUSINESS CASE FOR INVESTMENT

Our target of 2 MM+ tons per year of recycled and renewable-based polymers by 2030 would establish our market leadership in North America and Europe

UPSTREAM INFRASTRUCTURE GAP IS CREATING A SIGNIFICANT SUPPLY SHORTAGE¹



1. Sources: McKinsey Chemical Insights, IHS Markit. Supply and demand for recycled and renewable-based polyethylene and polypropylene in North America and Europe.

2. Other includes automotive, durable goods and construction.

MARKET ASSESSMENT

- More than **50% of total demand growth for PE/PP** driven by recycled and renewable-based content¹
- Consumer packaging sector** has the highest growth in demand for recycled content
- New capacity** is needed to bridge the supply gap
- Persistent shortage of supply is expected to sustain **healthy margins**
- Customers (food packaging, healthcare etc.) are increasingly seeking higher quality recycled content from plastic waste that **only advanced recycling can address**

CUSTOMER NEEDS ARE INTEGRAL TO OUR STRATEGY

LyondellBasell is collaborating with converters, brand owners and retailers to be the global supplier of choice for circular and low carbon solutions

CUSTOMER NEEDS FOR RECYCLED AND RENEWABLE-BASED MATERIAL



Indistinguishable

Polymers sourced from renewables and advanced recycling are indistinguishable from fossil-based material

Drop-In Solutions

Ease of use that requires little to no investment or redocumentation

Traceable

ISCC+ certification provides auditable mass balance methodology for recycled or renewable-based feedstocks

Global

Suppliers with a comprehensive suite of products accessible through a robust global supply chain network

Scale

Sizeable sustainability commitments require stable, established, large-scale suppliers

TODAY'S CIRCULARITY VALUE CHAIN

LyondellBasell is participating across complex and complementary value chains

WASTE TO FINAL PRODUCT VALUE CHAIN



KEY DYNAMICS

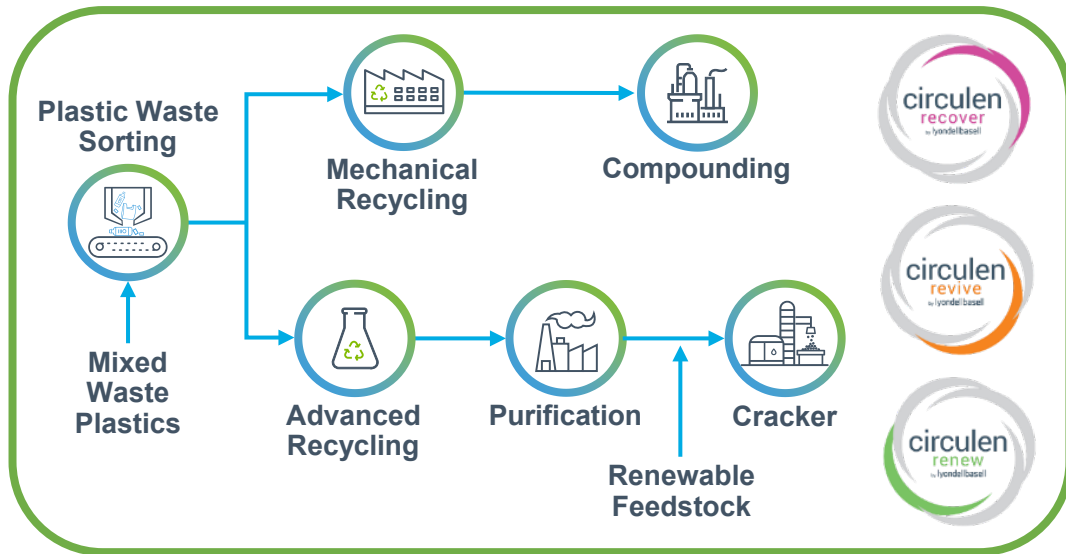
- Plastic waste is localized and extremely fragmented
- Regulations vary by region
- Opportunity to divert plastic waste from incineration and landfills
- Underdeveloped sorting technologies in highly populated areas do not optimize the value of recyclable feedstock at scale
- Mechanical recycling is complementary to advanced recycling
- Existing advanced recycling technologies are in early stages and face higher cost, smaller scale, and lower energy and carbon efficiency

LYONDELLBASELL'S INTEGRATED HUB MODEL PROVIDES ADVANTAGE

Building scale, reducing cost and capturing value to establish leadership in circular solutions

Integrated Hub Concept

- Regional hubs to access and supply feedstock into integrated hubs
- Preferred strategic partner to feedstock owners
- Leveraging existing capabilities at Cologne and Houston sites
- Differentiated and advantaged technologies (e.g., *MoReTec*)
- Collaborating with brand owners to provide a range of optimal solutions via *Circulen* brands



		Cologne, Germany	Houston, Texas
	Plastic waste Sorting	<ul style="list-style-type: none"> Source One JV EEW partnership 	<ul style="list-style-type: none"> Cyclyx agreement Houston Recycling Collaboration
	Advanced Recycling	<ul style="list-style-type: none"> Semi-industrial pilot plant running in Ferrara <i>MoReTec</i> 50 KTA completion by end of 2025 Third-party pyrolysis oil offtakes in place 	<ul style="list-style-type: none"> Studying <i>MoReTec</i> 100+ KTA Third-party pyrolysis oil offtakes in place
	Purification	<ul style="list-style-type: none"> Pursuing various options 	<ul style="list-style-type: none"> Potential repurpose of Houston refinery
	Cracker	<ul style="list-style-type: none"> LYB cracker and polymer sites 	<ul style="list-style-type: none"> LYB cracker and polymer sites
	Mechanical Recycling	<ul style="list-style-type: none"> QCP 100% ownership APK investment AFA Nord JV 	<ul style="list-style-type: none"> Third party offtake Mechanical recycling options in progress
	Compounding	<ul style="list-style-type: none"> Mepol acquisition APS sites 	<ul style="list-style-type: none"> APS sites
	Renewable Feedstock	<ul style="list-style-type: none"> Multiple renewable diesel feedstock agreements 	<ul style="list-style-type: none"> Multiple renewable diesel feedstock agreements

MoReTec: DIFFERENTIATED AND ADVANTAGED TECHNOLOGY

Cost-advantaged continuous single-train technology with innovative design and scale

Opportunity with MoReTec

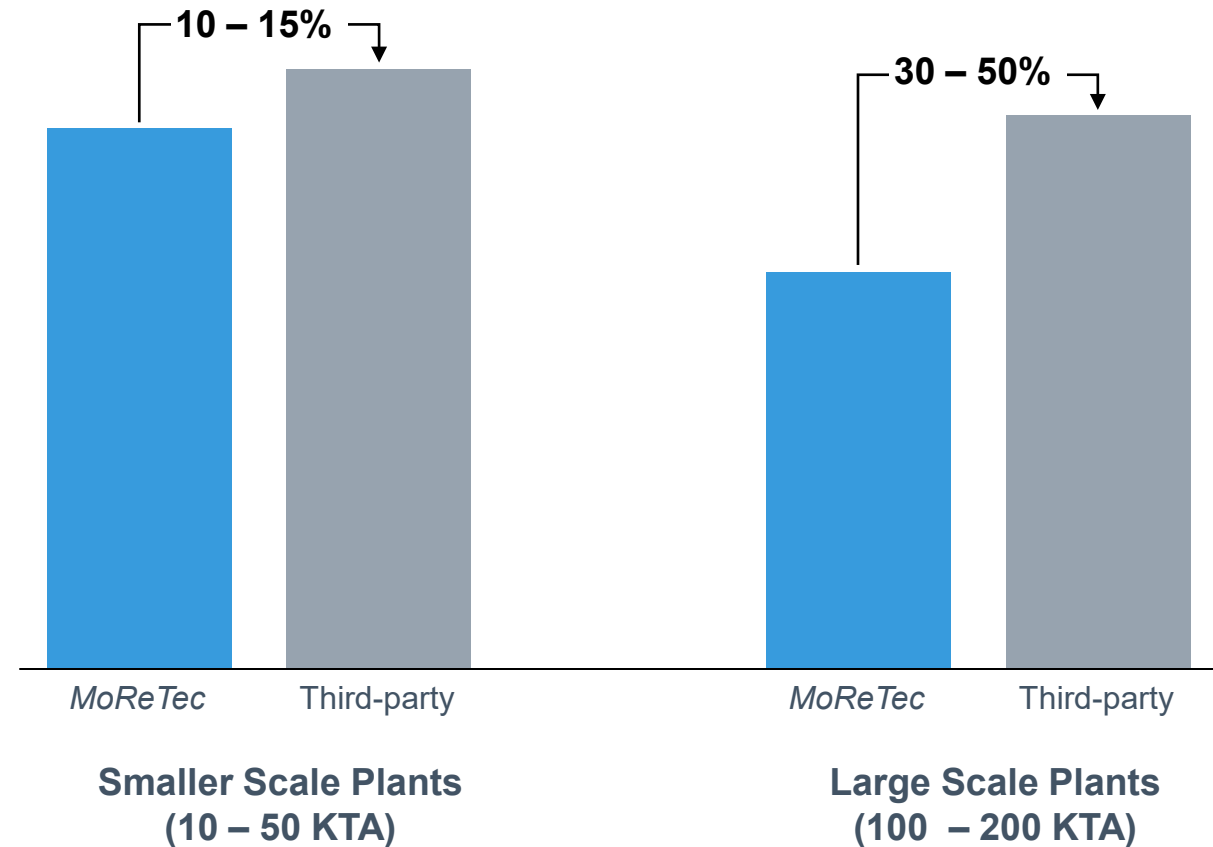
- Differentiated technology with improved economics
- Scalable, high-yield process that benefits from integrated hubs located at LyondellBasell's existing world-scale facilities
- Lower energy consumption from a catalyzed process that operates at lower temperatures
- Novel catalyst technology improves carbon efficiency and minimizes low-value by-products

MoReTec addresses customers needs

- Indistinguishable
- Drop In Solution
- Traceable
- Global
- Scale

MoReTec IS COST-ADVANTAGED RELATIVE TO THIRD PARTY TECHNOLOGIES

MoReTec vs. Third Party Operating Costs



Source: LYB analysis and third party data as of 9/4/2023.

CREATING VALUE THROUGH LEADERSHIP IN SUSTAINABILITY

Accelerating circular solutions to meet increasing demand from our customers and society

Grow our position as a trusted partner for suppliers of plastic waste feedstocks

Develop regional hubs to access and supply plastic waste feedstocks into integrated advanced recycling hubs

Leverage benefits from scale, logistics and cost at our integrated advanced recycling hubs in Cologne and Houston

Leverage our innovation capabilities for scalable solutions that meet growing demand

Provide a full range of solutions for all customers and markets across LyondellBasell's *Circulen* brands

\$1 B+

Incremental EBITDA¹

2 MM+ Tons

Recycled and renewable-based polymers²

LyondellBasell is building a leading and profitable Circular & Low Carbon Solutions business driven by scale and efficiency