

LyondellBasell - Rebuilding the Circular Plastics Path?

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Industry: Commodity Chemicals

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Decision scope: The next U.S. circular-plastics investment step

Case convention: This is a hypothetical classroom strategy exercise, not a reconstruction of a disclosed board vote or private deliberation. Use only information available by the cutoff. Financial modeling and Excel are deferred.

The decision

LyondellBasell Industries N.V. (LYB) was balancing portfolio change, cash discipline and a long-term circularity strategy. Its first commercial-scale MoReTec chemical-recycling plant was under construction in Wesseling, Germany; the company expected it to begin operating in 2027 at a stated capacity of 50,000 metric tons per year. LYB had postponed the final investment decision (FID) on a second plant, MoReTec-2, in the United States. In its July 31, 2026 Form 10-Q, LYB also reported that it had fully impaired its 50% investment in a Houston plastic-waste sorting facility, recording a \$74 million noncash charge.

Assume you are advising LYB's strategy team after the July 31 filing. How should it approach the next U.S. circular-plastics investment step? It could continue to defer new commitments and prioritize reliability and advantaged core assets; stage a restart of sorting and chemical-recycling investment behind defined evidence gates; or pursue a partner-led pathway that shares capital, feedstock or offtake exposure. The public record does not show that LYB made this exact choice or convened this review.

The challenge is to decide whether and how LYB could assemble a reliable business system: suitable waste, sorting and pretreatment, conversion at scale, qualified output, and a buyer or internal use. The \$74 million impairment is a warning about project sequencing and uncertain value. It does not establish that the physical facility shut down, that the entire investment had no recoverable value, or that MoReTec technology failed.

Strategy and portfolio context

LYB described its strategy as three pillars: grow and upgrade the core; build a profitable Circular & Low Carbon Solutions business; and step up performance and culture. The company said its portfolio transformation focused on core value chains, low-cost feedstocks, and circular and renewable raw materials in select markets. These are management priorities, not proof of commercial returns.

In 2025, LYB's annual report said construction was underway on the 50 KTA MoReTec-1 facility in Germany, expected to start up during 2027. It also said the company had delayed MoReTec-2's FID and resequenced capital spending in response to market conditions and cash

priorities. The company's current public disclosures did not provide MoReTec-2's updated budget, capacity, FID date, feedstock contracts, expected yields or product-offtake arrangements.

The strategy decision arrived as LYB was reshaping its conventional portfolio. It completed the sale of selected European olefins and polyolefins assets and associated businesses in Berre l'Etang, Münchsmünster, Carrington and Tarragona on May 1, 2026; LYB retained Advanced Polymer Solutions at Tarragona. The second-quarter 10-Q reported a \$734 million pre-tax loss on sale, including a \$310 million cash contribution to the businesses at closing. Management said the sale would improve focus and the cost position. Those are stated rationales; the reported accounting loss and contribution are separate facts.

Exhibit 1. Selected circularity and portfolio events

Event	Status disclosed by July 31, 2026
MoReTec-1, Wesseling, Germany	Under construction; company expected 2027 start-up; stated capacity 50 KTA
MoReTec-2, United States	Final investment decision postponed; no current public FID date or complete economics in reviewed disclosures
Houston plastic-waste sorting facility	LYB's 50% investment fully impaired; \$74 million charge in Q2 2026; filing attributes impairment primarily to slower U.S. circularity investment, including MoReTec-2 postponement
Selected European O&P assets	Sale completed May 1, 2026; \$734 million pre-tax loss on sale and \$310 million cash contribution reported

Sources: LYB 2025 annual report and Q2 2026 Form 10-Q, described in "Sources and conventions." "Fully impaired" describes the recorded carrying value of LYB's investment; it is not a statement that the facility stopped operating.

Operating conditions and financial context

LYB reported second-quarter net income of \$559 million, diluted EPS of \$1.71 and EBITDA of \$1.252 billion. Excluding identified items, the company reported net income of \$1.401 billion and EBITDA of \$2.127 billion. Identified items included the \$734 million pre-tax loss on the European asset sale and \$74 million in asset write-downs, among other items. Adjusted figures are company-defined non-GAAP measures; they should not replace GAAP results or be treated as cash available for a specific project.

Second-quarter revenues were \$9.177 billion, compared with \$7.197 billion in the first quarter. LYB attributed much of the sequential improvement to higher prices and industry supply constraints related to the conflict in the Middle East. The company said it operated its advantaged North American assets at approximately 90% utilization amid these conditions. It

generated \$752 million of operating cash flow in Q2, while working capital used cash as prices and operating rates increased. The quarter also included the \$310 million contribution associated with the European asset sale. LYB spent \$270 million on capital expenditures and paid \$224 million in dividends. At June 30, it held \$2.6 billion in cash and reported \$7.1 billion of available liquidity.

These figures describe a single, disrupted quarter. Cash, liquidity and adjusted earnings do not equal an uncommitted MoReTec-2 budget. LYB's 2025 annual report had estimated approximately \$1.2 billion of FY2026 accrued capital spending, including about \$400 million for profit-generating growth and \$800 million for sustaining investment, while prioritizing safe and reliable operations and ongoing MoReTec-1 construction. That plan provides context, not a published authorization for MoReTec-2.

Exhibit 2. Q2 2026 selected company-reported figures

Measure	Reported amount
Net income / diluted EPS	\$559 million / \$1.71
EBITDA	\$1.252 billion
Net income excluding identified items / EBITDA excluding identified items	\$1.401 billion / \$2.127 billion
Operating cash flow	\$752 million
Capital expenditures / dividends	\$270 million / \$224 million
Cash and cash equivalents at June 30	\$2.6 billion
Available liquidity at June 30	\$7.1 billion

Source: LYB, "Second Quarter 2026 Earnings Release," July 31, 2026, Exhibit 99.1 to Form 8-K. Adjusted measures are non-GAAP. The release notes working-capital use and the \$310 million cash contribution connected to the European asset sale.

What makes a circularity pathway work?

Academic research gives no single answer to whether chemical recycling is superior. Results depend on the polymer, conversion route, energy use, output and-especially-the waste stream's alternative fate.

One comparative environmental study models five packaging plastics and multiple chemical-recycling and waste-treatment routes. Its "environmental potential" assumes idealized processing, so it is an upper bound rather than the performance of an operating commercial plant. The study finds potential greenhouse-gas benefits for some chemical-recycling-to-monomer and value-added pathways across the modeled benchmarks. By contrast, routes to refinery feedstock or fuels can lose to mechanical recycling or cement-kiln recovery on greenhouse-gas impact. The ranking depends on material, route and counterfactual; none of these modeled results is an observed commercial outcome.

A separate techno-economic analysis models pyrolysis of challenging automotive plastic waste in Germany. Higher plant capacity lowers its estimated cost-covering minimum selling price, but feedstock availability and quality, oil quality, reliable utilization and demonstrated scale-up constrain that benefit. These study values are not LYB economics. They help identify evidence needed for any LYB proposal: What material would be processed? What is its current fate? Can

the plant secure enough suitable supply? Can it operate consistently and meet a buyer's specification?

A European petrochemical-system model further illustrates how feedstock, utilities, infrastructure, policy and product mix interact. It is a long-term scenario, not a prediction of LYB or U.S. returns. None of these studies evaluates LYB's technology or determines the best timing of a U.S. investment.

Exhibit 3. Evidence needed before committing further capital

Question	Why it matters
Is the feedstock truly residual, and what would happen to it otherwise?	The environmental comparison changes with the alternative treatment route and ability to recycle mechanically.
How much feedstock is available at a stable composition and delivered cost?	Low utilization, contamination or variable composition can erode scale benefits and output quality.
Can sorting and conversion meet uptime, yield and product-specification requirements?	A planned capacity does not establish commercial operating performance.
Who will buy the product, at what specification and under what contract?	Output has no realized value until qualified and sold or consumed.
Which policy or customer economics support the project?	The reviewed studies show sensitivity to policy and possible gate-fee economics, but no LYB-specific premium or incentive is public.

Decision assignment

Recommend one of three paths for the next U.S. circular-plastics investment step: continued deferral with core focus; a staged restart behind evidence gates; or a partner-led approach. Address:

1. What the Houston impairment and MoReTec-2 delay indicate-and what they do not establish.
2. How LYB should balance circular investment with safety, reliability, liquidity and advantaged-core projects.
3. What feedstock, technology, operating, environmental and offtake evidence must be available before additional commitments.
4. How your recommendation would change if utilization, feedstock quality, product value or policy support underperformed expectations.

For a staged recommendation, name the milestones that release capital and the conditions that stop, redesign or redirect the project. For a partner-led option, identify what risk the partner bears, what control LYB gives up, and how economics and operating responsibilities would be shared. Any threshold, budget, partner, pilot size, FID date, expected return or internal mandate

you propose is a classroom assumption-not a company fact. The public record supplies no project-level data sufficient to calculate LYB-specific returns.

Sources and conventions

1. LyondellBasell Industries N.V., [2025 Annual Report / Form 10-K](#), fiscal year ended Dec. 31, 2025; CEO letter, PDF pp. ii-iv; project-execution risk, PDF p. 141.
2. LyondellBasell Industries N.V., [Q2 2026 Form 10-Q](#), quarter ended June 30, filed July 31, 2026; Note 13, printed pp. 28-29; MD&A, pp. 30-33; segment table and analysis, pp. 34-38.
3. LyondellBasell Industries N.V., [“LyondellBasell Reports Second Quarter 2026 Earnings”](#), July 31, 2026, Exhibit 99.1 to Form 8-K; earnings summary and operating/cash update, printed pp. 1-4.
4. LyondellBasell, [“Completes Sale of Select European Assets”](#), May 1, 2026.
5. Raoul Meys et al., “Towards a Circular Economy for Plastic Packaging Wastes-The Environmental Potential of Chemical Recycling,” *Resources, Conservation & Recycling* 162 (2020), 105010, [DOI 10.1016/j.resconrec.2020.105010](#).
6. Christoph Stallkamp et al., “Pyrolysis of Mixed Engineering Plastics: Economic Challenges for Automotive Plastic Waste,” *Waste Management* 176 (2024), 105-116, [DOI 10.1016/j.wasman.2024.01.035](#).
7. Clemens Schneider et al., “A Defossilised EU Petrochemical Production System: Consequences for the Meta-Cluster in the Antwerp-Rotterdam-Rhine-Ruhr Area,” *Energy and Climate Change* 6 (2025), 100173, [DOI 10.1016/j.egycc.2024.100173](#).

The academic sources are summarized at the level needed for the decision; their full versions, methods, locators and transfer limits are recorded in [site/research/lyondellbasell-industries-nv/source-register.md](#). No evidence released after July 31, 2026 is used. All financial case and spreadsheet work is deferred.