Future Focused: LyondellBasell's Sustainability Approach

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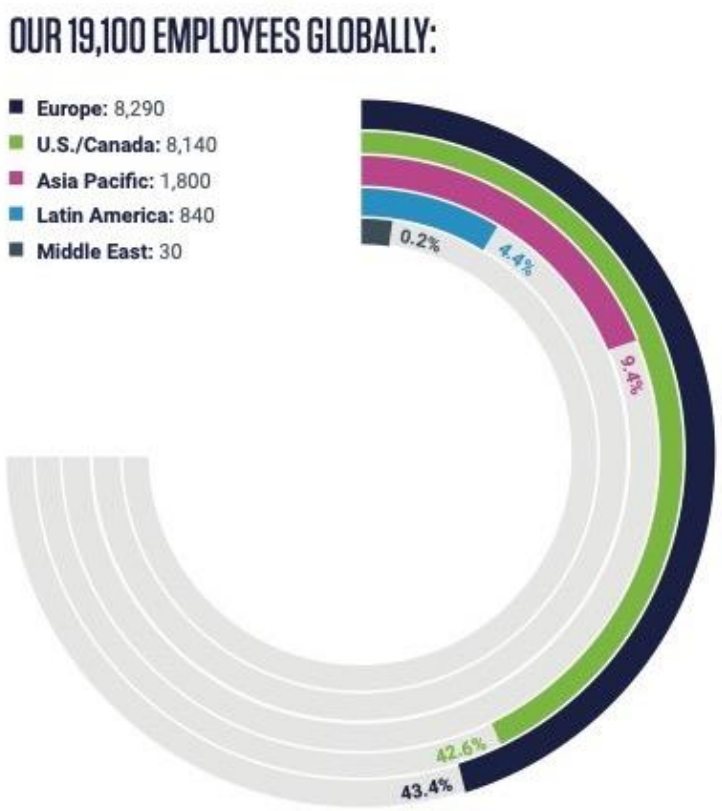
About LyondellBasell

We are a leader in the global chemical industry, producing products and materials key to advancing solutions to modern challenges. Many of our materials go into products that people use every day, such as food packaging, automotive, electronics and healthcare items.



100+

countries where our products are sold

21

countries with manufacturing sites and joint ventures

#1

largest producer of polyethylene (PE) and polypropylene (PP) in Europe

#2

largest producer of propylene oxide (PO) worldwide

6000

patents and patent applications worldwide

0.21

2021 Total Recordable Incident Rate

$34M+

in charitable investments globally over the past four years through 4,500 grants

23 TONS

of waste collected in the environment during our 2021 Global Care Day events

Our products help enable sustainability and will continue to play a key role in our society

Global Megatrends Influencing Sustainability in the Healthcare Industry

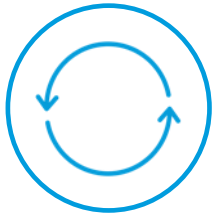
Climate Change

“Carbon Neutral by 2030: How Pfizer is Fighting Climate Change”

“A clear vision of achieving absolute zero greenhouse gas emissions by 2050 without compensating and off-setting emissions” Roche

“In 2021, we committed to becoming Net Zero by 2040” Novartis

“We have set ourselves the target to achieve net zero GHG emissions including our entire value chain1 by 2050 or sooner and signed the Business Ambition 1,5C” Bayer



Resource Use

“25% Environmental impact reduction for our products & packaging by 2030“ GSK

“100% Green packaging by 2030” Bayer

“Become Plastic Neutral by 2030” Novartis

“Making our packaging more sustainable” J&J

“Establishing Green Packaging Design Guidelines to assist in the development or modification of a package to reduce its environmental impact” Pfizer


LYONDELLBASELL
SUSTAINABILITY APPROACH
ENDING PLASTIC WASTE
ADDRESSING CLIMATE CHANGE
SUPPORTING A THRIVING SOCIETY

Our Future Focused Sustainability Goals

ENDING PLASTIC WASTE

2MMT[1]

of recycled and renewable-based polymers will be produced and marketed annually by 2030

FOR EVERY $

we invest in venture funds that address the plastic waste challenge, we help catalyze another 5 dollars from co-investors.

ZERO

plastic pellet loss to the environment from our facilities

ADDRESSING CLIMATE CHANGE

NET ZERO

greenhouse gas emissions from operations by 2050[2]

30%

absolute greenhouse gas emissions reduction from operations by 2030 [3,4]

50%

minimum of electricity procured from renewable sources by 2030

SUPPORTING A THRIVING SOCIETY

ZERO

incidents, injuries and accidents

ACHIEVE

gender parity in senior leadership globally by 2032

INCREASE

the number of people from underrepresented groups in U.S. senior leadership roles to reflect the general population ratio by 2032

ASSESS

a minimum of 70% of our key suppliers globally using sustainability criteria by 2025

[1] 2 millions metric tons
[2] Our 2050 net zero greenhouse gas emissions goal includes scope 1 and 2 emissions
[3] Our 2030 greenhouse gas emissions goal includes scope 1 and 2 emissions
[4] Related to 2020 levels

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Advancing Possible

Helping to End Plastic Waste

Helping to End Plastic Waste

WHY WE'RE DOING IT

Plastics will continue to play a key role in our society

Plastic waste is **a critical challenge** that must be addressed. We believe if we don't, realizing the sustainable benefits of plastics is at risk

By moving towards a **circular economy**, where resources are circulated back into the economy after use, we can unlock the full value of plastic waste

HOW WE'LL DO IT

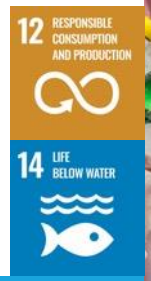
Leverage **our expertise and R&D capabilities** to create innovative solutions

Grow our mechanical and advanced (molecular) **recycling capacity,** as well as the use of **alternative waste feedstocks (*Circulen*)**

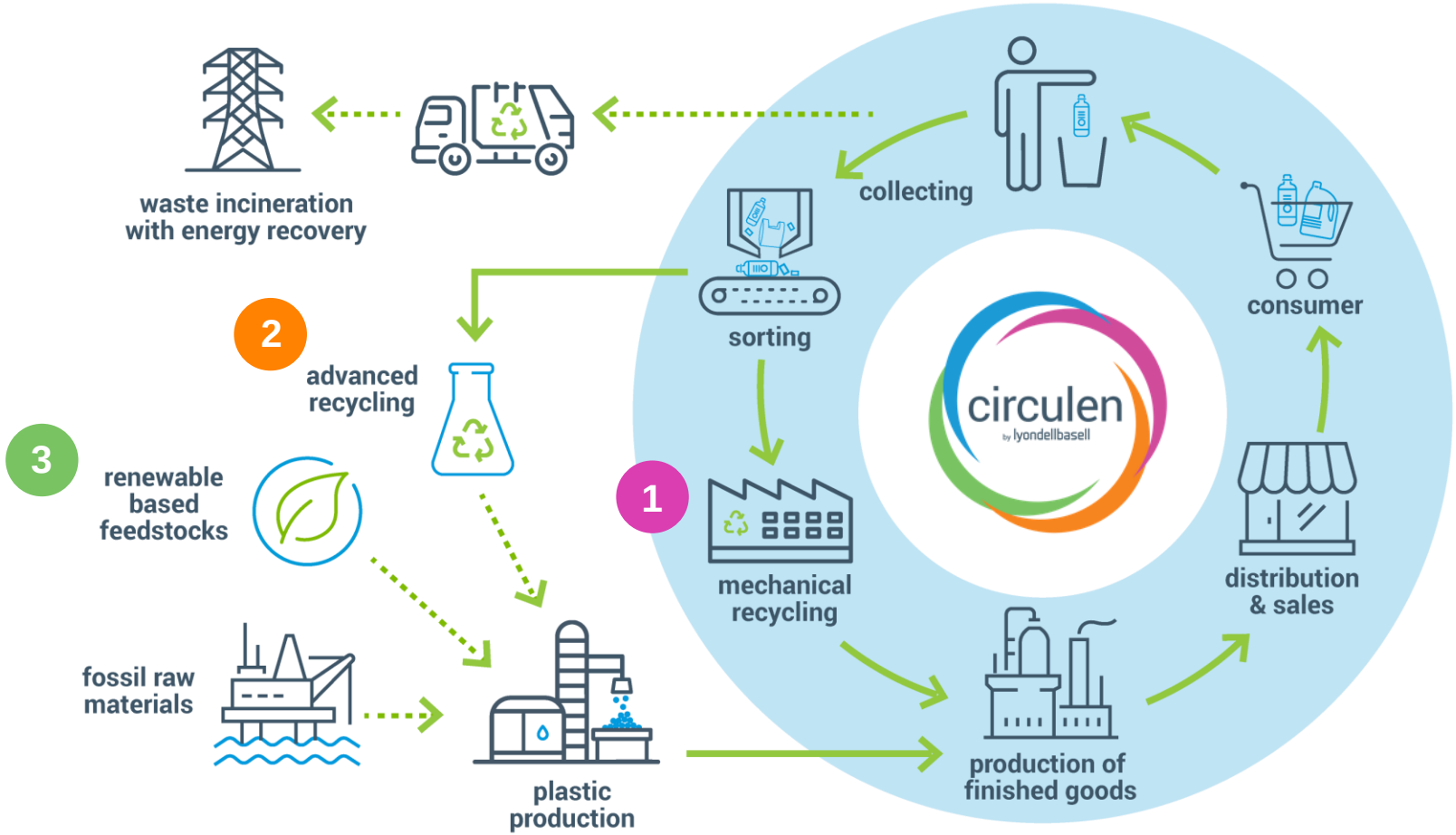
Invest **catalytic capital** to help accelerate development of plastic waste infrastructure and recovery

Collaborate across the value chain

Engage with government and industry peers to **support effective policies and infrastructure development**



Pathways to circularity of plastics



Source: Berenschot via PlasticsEurope

We are helping to advance the circularity of plastics through three complementary pathways; mechanical recycling, advanced recycling and use of renewable-based feedstocks.

Our *Circulen* brand of polymers enable customers to deliver sustainable consumer products

circulen recover by lyondellbasell

Polymers made from plastic waste through a **mechanical recycling process**

circulen revive by lyondellbasell

Polymers made by converting plastic waste into feedstock to produce new polymers using an **advanced (molecular) recycling process***

circulen renew by lyondellbasell

Polymers made from **renewable feedstocks** such as used cooking oil*

*based on a mass balance approach

ADVANCING CIRCULARITY

Why Use **Polymers from Renewable-based Resources?**

- Based on waste and residue feedstock* which helps to **decouple production of plastics from fossil fuel**
- This solution addresses the **growing market needs for renewably sourced materials with a lower carbon footprint**
- **2nd Generation Renewable feedstock** which contains only **waste and residues** and therefore not in competition with the food chain and **unsuitable for human consumption**
- **Up to 212% lower CO_2e emissions** for renewable-based PE and PP* compared with fossil-based feedstocks
- **One to one Virgin Quality** with same nomenclature
- **No product requalification needed (**same monomer, same polymer and same process)
- **Global availability** for *CirculenRenew*

* Based on a mass balance approach
** Cradle-to-gate Life cle Analysis (LCA) calculations based on a feedstock composed of waste and residue oils

ADVANCING CIRCULARITY

LyondellBasell
Mass Balance Certificates
Circulen Polymers

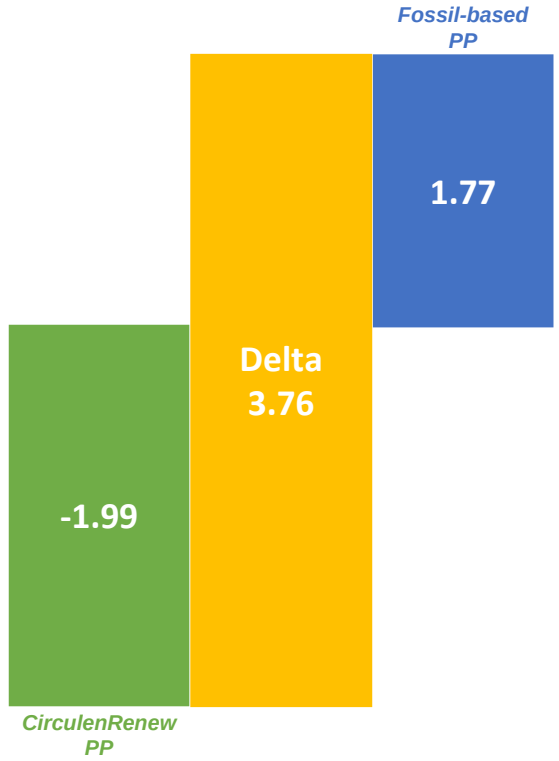
- **Maintaining our Service Protocol with CirculenRenew Polymer Certificates for Purell products**
- **No product requalification needed,** products maintain the same nomenclature
- **Certificates** are available to allocate this feedstock to product on a mass balance basis based on our own PP/PE assets
- **Certification provides traceability along the supply chain** and verifies that the mass balance accounting follows predefined and transparent rules (ISCC Plus, International Sustainability & Carbon Certification)
- Customers can use these certificates to verify **compliance with sustainability and traceability requirements**

* Cradle-to-gate LCA calculations based on a feedstock composed of waste and residue oils

ADVANCING CIRCULARITY

CO_2eq emissions comparison between: *Circulen*Renew PP and fossil-based PP*

(metric tons CO_2eq per ton of product)



Note: the sizes are not precisely scaled and therefore indicative

The use of *Circulen*Renew PP reduces the CO_2eq emissions by **3.76 tons CO_2eq per ton of PP** vs equivalent fossil fuel based polypropylene

*Circulen*Renew PP has a negative CO_2eq value and will lead to a **CO_2eq reduction of 212% on a Cradle-to-gate (1) basis vs the equivalent fossil-based PP**

This evaluation is based on a renewable raw material composed **of waste and residues;** fossil fuels are used in process operations and transport

(*) CirculenRenew Data PP are peer reviewed
(1) Cradle-to-gate LCA is a partial product life cycle assessment covering from resource extraction (cradle) to the manufacture of the product (gate)

ADVANCING CIRCULARITY

LyondellBasell *Circulen*Renew polymers LCA summary

CO_2eq savings vs equivalent fossil-based polymers		
PP	HDPE	LDPE
3,76 tons	3,71 tons	3,71 tons
212%	202%	177%

CO_2eq emissions per ton of polymer production eq. (*)

LYB buys renewable feedstock from

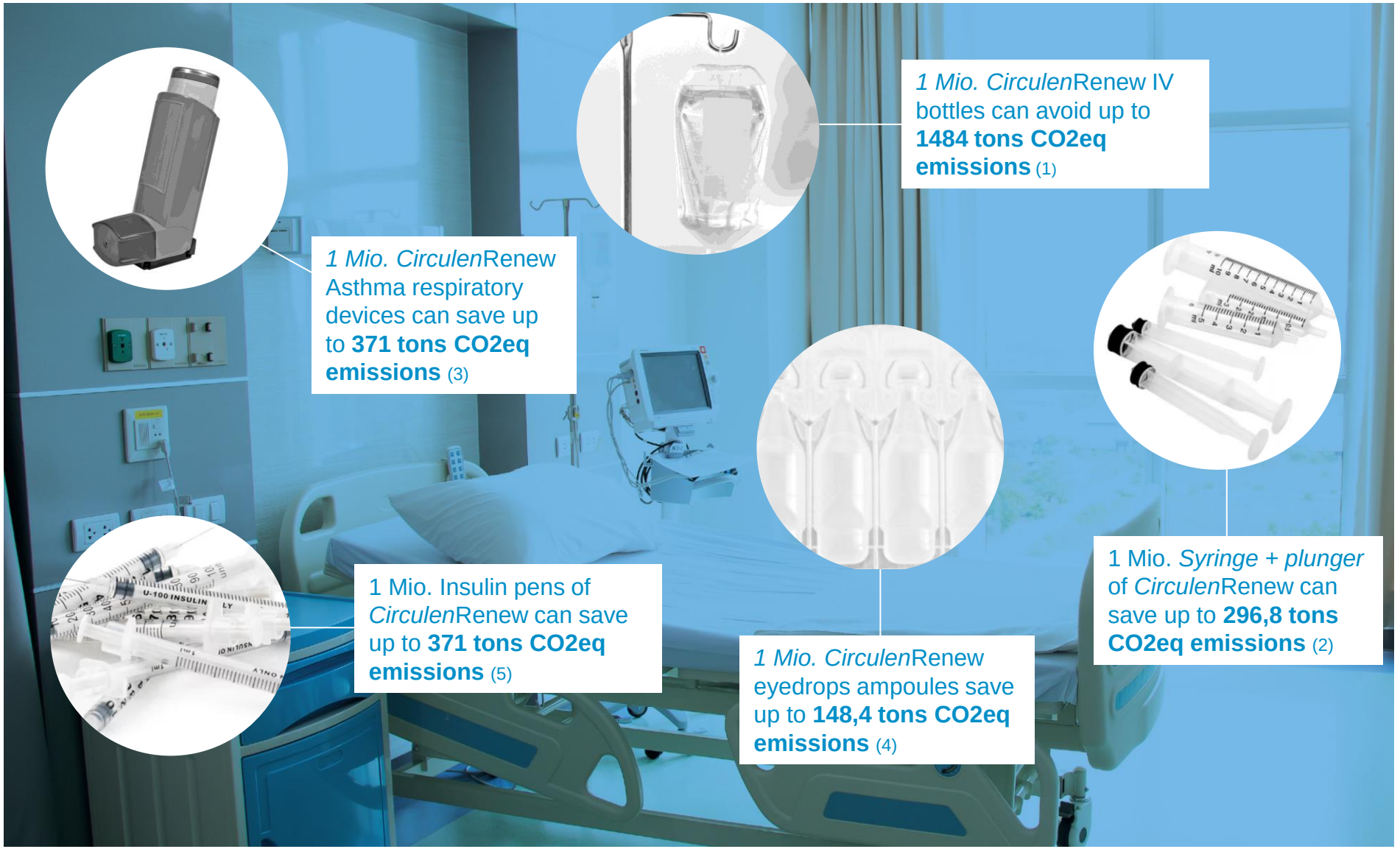
100 %

Bio-based waste & residues

(ISCC PLUS Certified)

**** Cradle-to-gate** LCA approach **based on a feedstock composed of waste and residue oils,** when taking a waste like approach to all raw materials in the feedstock and is compared to fossil fuel -based polymer*

***CO_2eq** is the unit for comparing the radiative forcing of a GHG (Greenhouse Gas) to that of carbon dioxide.*



By the producing 1 Mio products made of *Circulen*Renew **up to 2671 tons of CO2eq emission can be saved**

This is the equivalent approximately **133.000 trees** capturing the same amount of CO2 a year. Or approximately the emissions of driving **331 cars in a circle around the world***

Average weight per product:
1. IV Bottle (salt) 40 grams
2. Syringe + plunger: 6-10 gram
3. Asthma respiratory device10 grams
4. Ampoules (eyedrops) 4 grams
5. Insulin pen (body + cap) 10 gram

Per ton CO2 average gasoline car can drive 4979 km. For 1 ton CO2 captured, 50 trees need to grow for one year .

Collaboration along the value chain

ALLIANCE TO END PLASTIC WASTE

NEMO NEW END MARKET OPPORTUNITIES

cyclyx

SUSTAINABLE PACKAGING COALITION®

THE RECYCLING PARTNERSHIP

CLOSED LOOP partners

INFINITY RECYCLING

We participate in a number of initiatives to accelerate solutions to end plastic waste in the environment, support recycling and create a circular economy for plastics

Addressing Climate Change

Addressing Climate Change

WHY WE'RE DOING IT

We recognize the urgency of climate change, and believe **a net zero greenhouse gas (GHG) economy will require products and contributions from the plastics & chemical industry**

We consider a commitment to net zero GHG emissions by 2050 and a credible pathway to 2030 as **critical to the long-term operation of LyondellBasell**

This will help us advance our customers' climate ambitions and to support society's transition **toward a net zero GHG future**.

HOW WE'LL DO IT

Continue to integrate **climate change and decarbonization** into our business processes and strategy

Integrate **proven solutions** to be more efficient and effective

Increase the use of **renewable energy** primarily through Power Purchase Agreements (PPA)

Accelerate the scale up and deployment of **breakthrough technologies** that will decarbonize the chemical processes

Engage with governments and industry peers to **support effective policies**

LYONDELLBASELL CLIMATE GOALS

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Advancing Possible

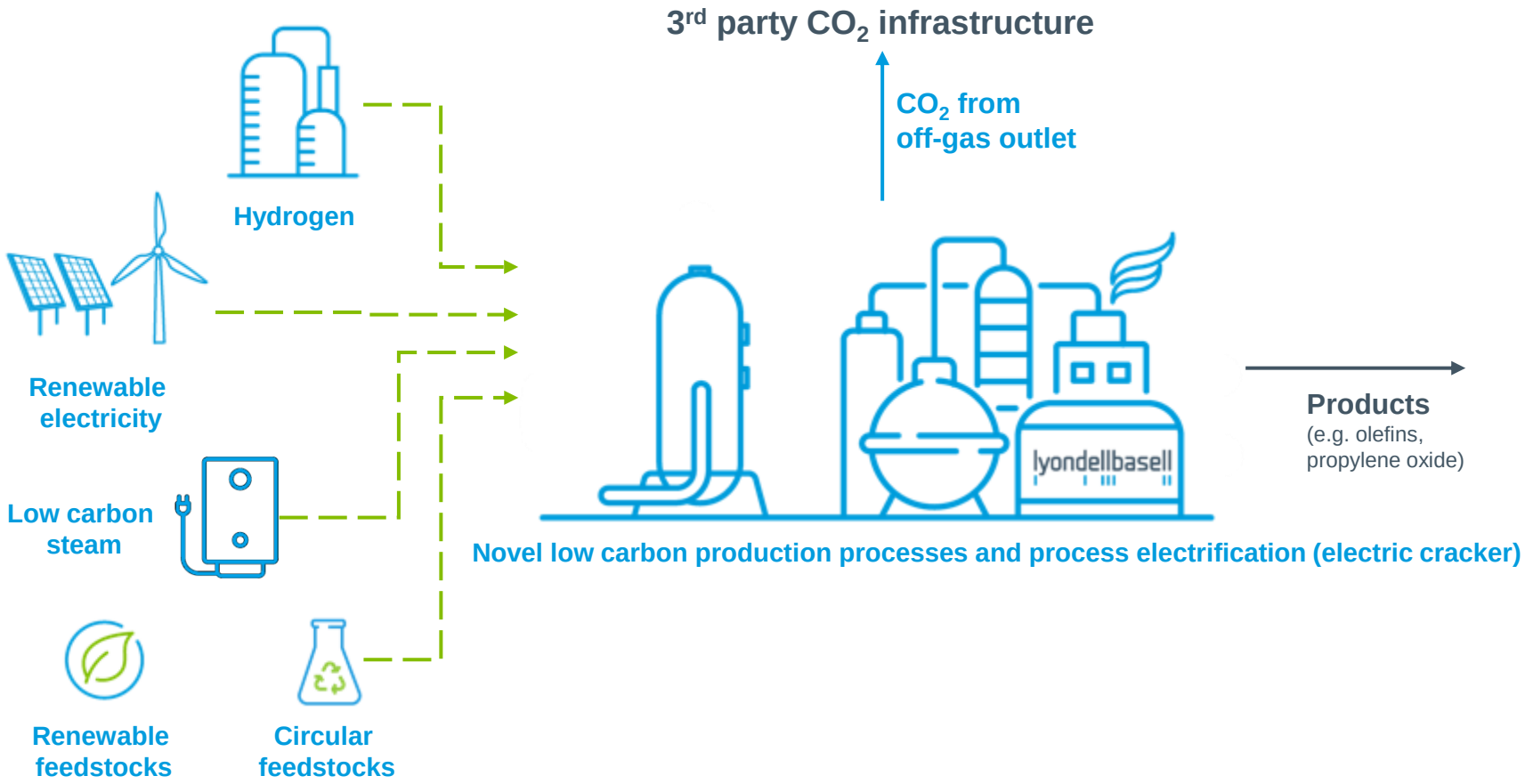
net zero by 2050

30% absolute* emissions reduction by 2030

50% minimum of electricity procured from renewable sources by 2030

*GHG emission reduction

Reaching Net Zero GHG Emissions by 2050 will require a portfolio of technology options



We are pursuing different technology options as part of our decarbonisation strategy

Supporting a Thriving Society

Supporting a Thriving Society

WHY WE'RE DOING IT

As a leader in the global chemical industry, we strive everyday to be the s**afest, best operated and most valued** company in our industry

We have **a responsibility** to mitigate social, environmental, and ethical risks in our operations, products and supply chains

We make **an impact far beyond our company** when we fulfill our responsibility to improve society and create long-term value for our stakeholders

HOW WE'LL DO IT

Keep our employees, contractors, customers and neighbors safe

Implement **a DEI strategy** that holds leadership accountable, drives change and delivers meaningful results

Invest in programs that strengthen our communities, our planet and tomorrow's workforce

Collaborate for meaningful impact, accelerate our progress and learn from others

Thank you

FUTURE FOCUSED

www.lyondellbasell.com/en/sustainability

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