Neste’s approach to renewable and circular carbon solutions

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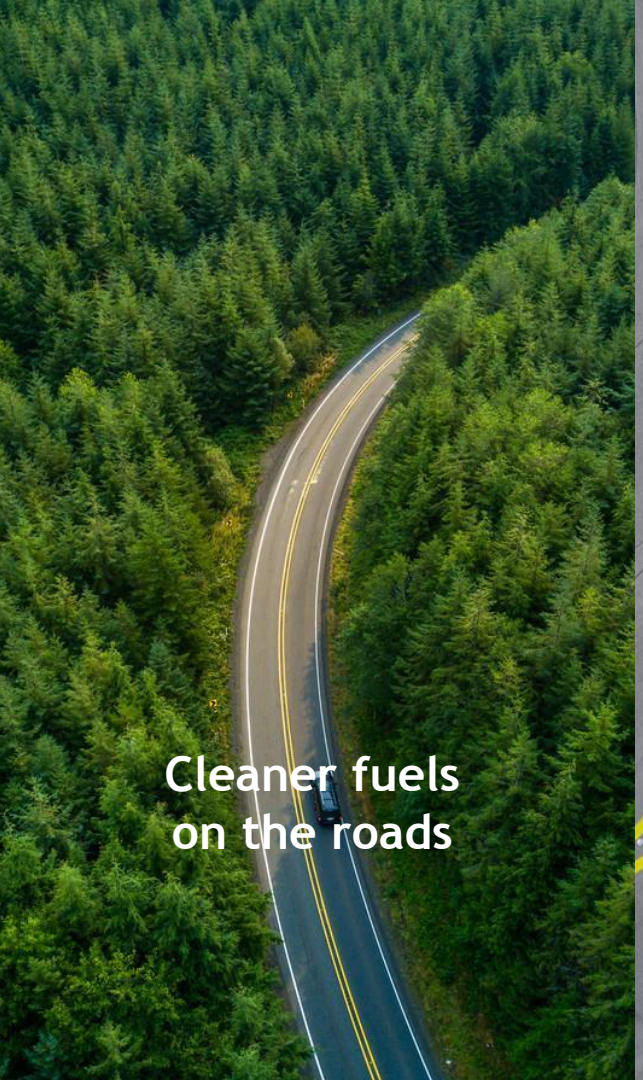
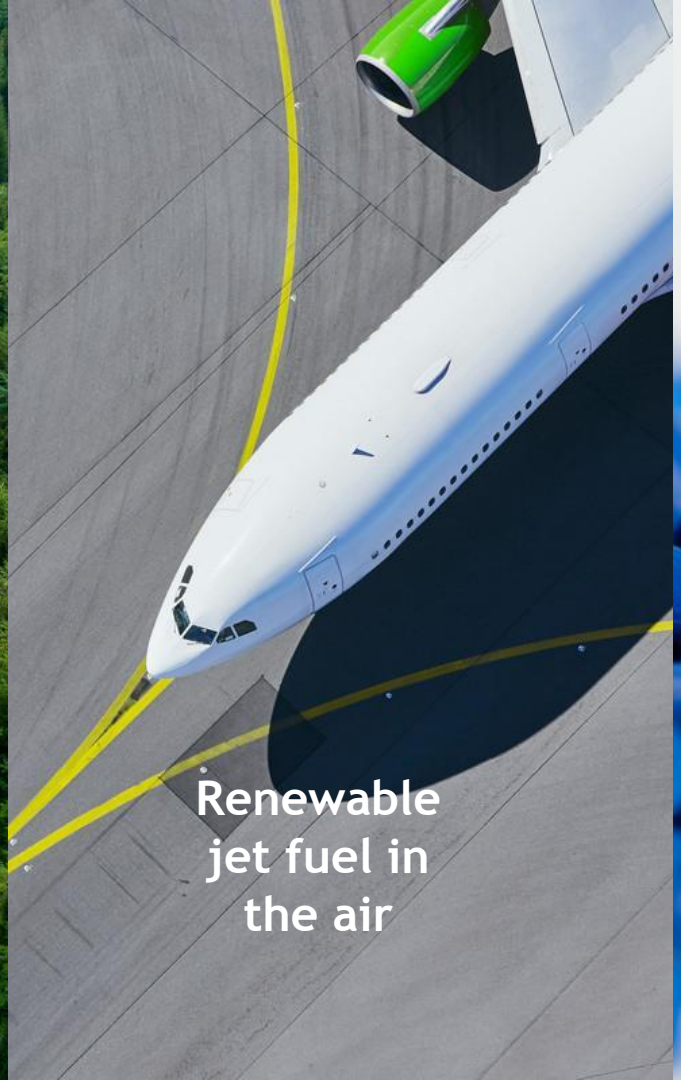
December 16

PLASTICS IN CARBON-NEUTRAL BIOCIRCULAR ECONOMY -webinar


Our purpose
is to create a healthier
planet for our children.


Cleaner fuels
on the roads


Renewable
jet fuel in
the air


Renewable and
circular solutions for
polymers and
chemicals
NESTE


Founded in
1948
to secure oil supply for the state of Finland
World's
#1
producer of renewable diesel and sustainable aviation fuel (SAF)
3rd
most sustainable company in the world (2020 Global 100)
In 2019, Neste's revenue stood at EUR
15.8
billion
25%
of employees working on R&D, engineering and innovation
Renewable products production capacity
3.2 → 4.5 Mt/a
in 2023
NESTE


Renewable and recycled
- the future of plastics
NESTE

We need to **reduce** the amount of carbon released in the atmosphere. We also need to innovate circular solutions where carbon is **reused**, again and again.

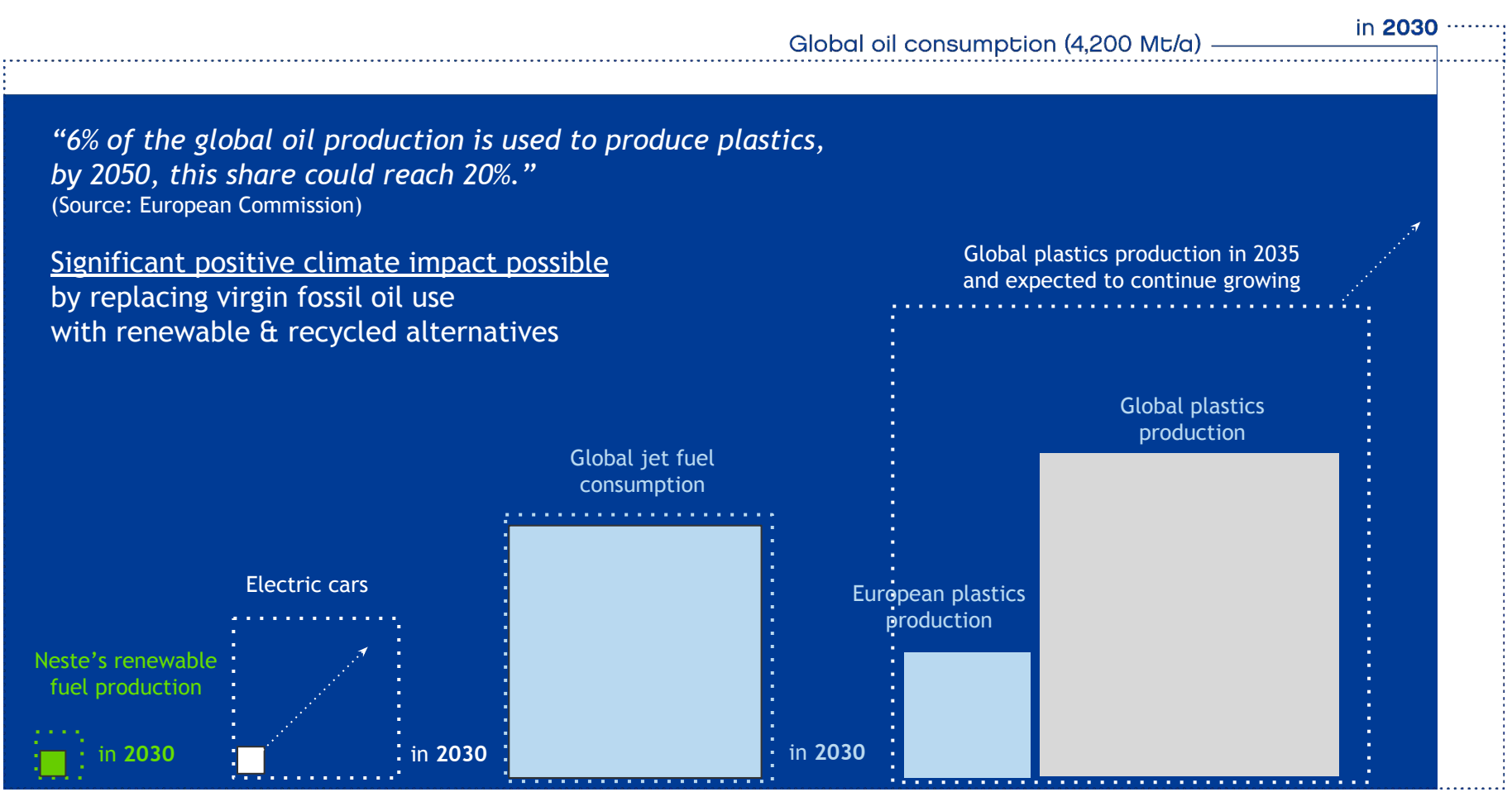
Neste developing more sustainable solutions for the polymers and chemicals industries with a focus on two areas

Circularity

Chemically recycling waste plastic to new high-quality plastics and chemicals.

Renewable

Renewable feedstock to replace virgin fossil feedstock in the production of a variety of plastics


Global oil consumption (4,200 Mt/a)
in 2030
"6% of the global oil production is used to produce plastics, by 2050, this share could reach 20%."
(Source: European Commission)
Significant positive climate impact possible
by replacing virgin fossil oil use
with renewable & recycled alternatives
Global plastics production in 2035
and expected to continue growing
Global plastics production
Global jet fuel consumption
Electric cars
European plastics production
Neste's renewable fuel production
in 2030
in 2030
in 2030

Demand for sustainable chemicals and polymers is growing, driven by consumers, governments, and brand owners

Stakeholders driving the demand for renewable polymers

Public/consumer awareness
- Is increasing with high media attention and campaigns

Regulatory pressure
- EU ban on single-use plastic products
- European Green Deal – roadmap for becoming climate-neutral by 2050

Brand owners' commitment
- Continues to build up through sustainability pledges of industry players

Examples of brand owners' commitment

Henkel

100% recyclable,
reusable or compostable packaging by 2025

Unilever

100% recyclable,
reusable or compostable packaging by 2025

Cofresco

100% renewable
or recycled plastics in the long-term

NESTE

We are committed to helping our partners make their business more sustainable

Neste closing the plastics loop together with value chain partners

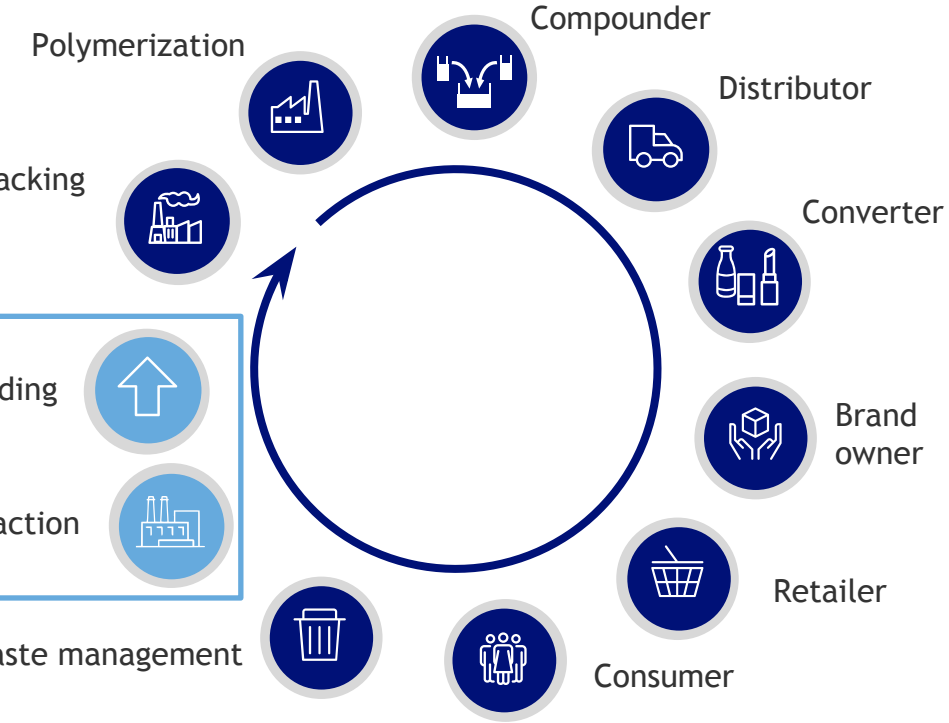
RENEWABLE POLYMERS

Reduction of fossil oil dependency & climate emissions

Bio-based feedstock

WASTE PLASTICS

Rethinking the end-of-life, circularity



NESTE

We can support brand owners to fulfill their sustainability commitments

RENEWABLE
Waste and residue oils as well as vegetable oils

RECYCLED
Liquefied and purified waste plastics

NESTE HYDROCARBONS

Cracker

C2
C3
C4
C1
C5-9
C10+

Polymers
Composites

Ingredients
Surfactants
Emollients

Adhesives
Coatings
Sealants

Packaging
Fashion
Furniture
Personal care
Construction
Automotive
Toys
Electronics

CONTINUOUS PORTFOLIO EXPANSION WHILE MEETING SUSTAINABILITY CRITERIA


More sustainable plastics
from renewable raw materials

Renewable feedstock - NEXBTL technology

Raw materials:

Around 10 different raw materials are sourced around the world

Pre-treatment:

The renewable raw materials are purified

NEXBTL process:

Pre-treated raw materials are processed based on Neste proprietary NEXBTL technology; 4 production units globally

Output:

3.2 million tons of Neste Renewables per year

→ 4.5 million tons in 2023

Renewable raw material mix

Neste's renewable raw material portfolio consists of **waste and residue oils and fats as well as vegetable oils**

Waste and residues account for **80% of Neste's renewable raw material use annually**

All renewable raw materials Neste uses are **sustainably produced*** **and traceable** to the place of origin

Independent of raw materials used, our renewable feedstock for polymers and chemicals have **consistent high quality**

*Meeting or exceeding e.g. EU RED requirements

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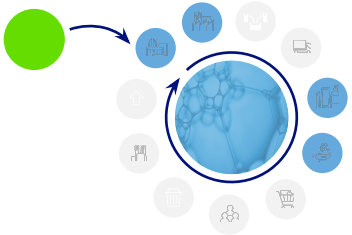
Targeting

100% wastes and residues

by 2025

Drop-in solution for renewable polymers proven at commercial scale and ramping up to the demand of leading brands



Achievements with partners

lyondellbasell	World's first commercial scale production of bio-based polypropylene from Neste renewable hydrocarbons
BOREALIS Keep Discovering	World's first commercial scale production of propylene from bio-propane
CLARIANT	Introduction of 11 new additives based on Neste renewable hydrocarbons
IKEA	Collaboration to produce renewable plastics
Cofresco	Product launch of cling film with bio-based based content
Henkel	Collaboration to produce sustainable packaging solutions

Strong pipeline going forward

- Developing additional partnerships and moving to regular business with current partners
- Continued brand owner pull for drop-in solutions
- Expansion of offering for polymer and chemical industry

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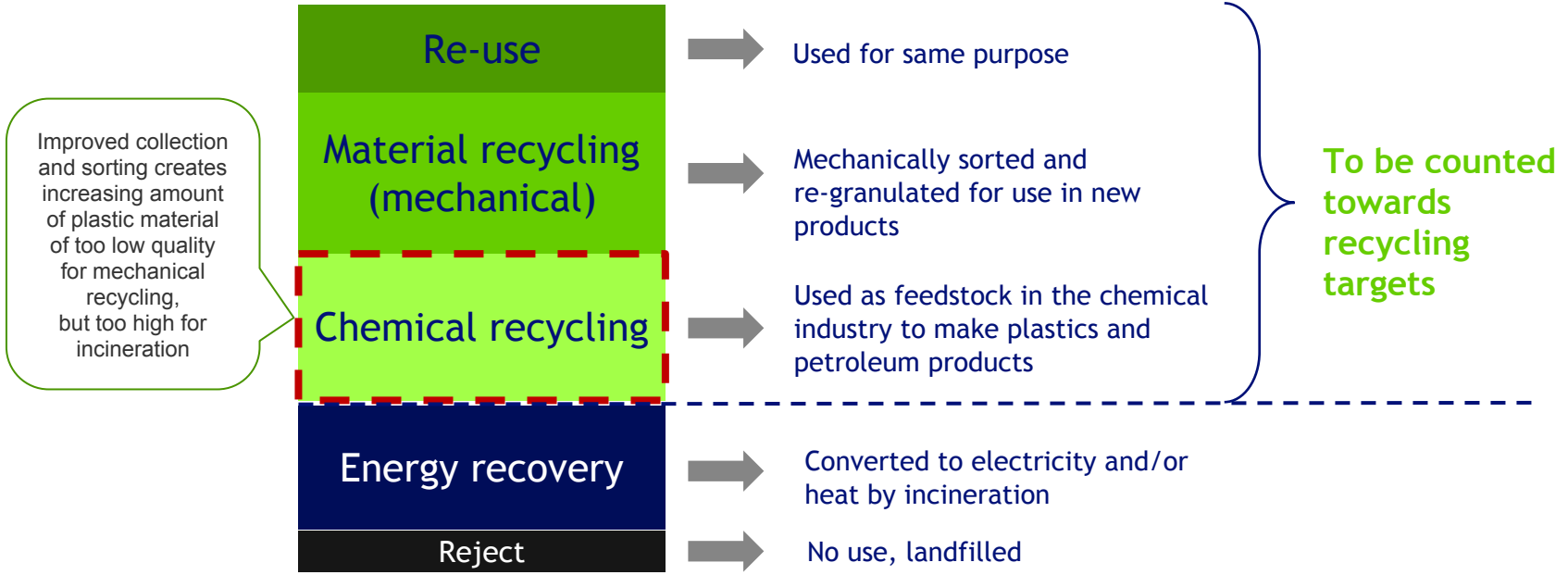
Solutions to speed up transition to a circular plastic economy

- Chemical recycling of plastic waste

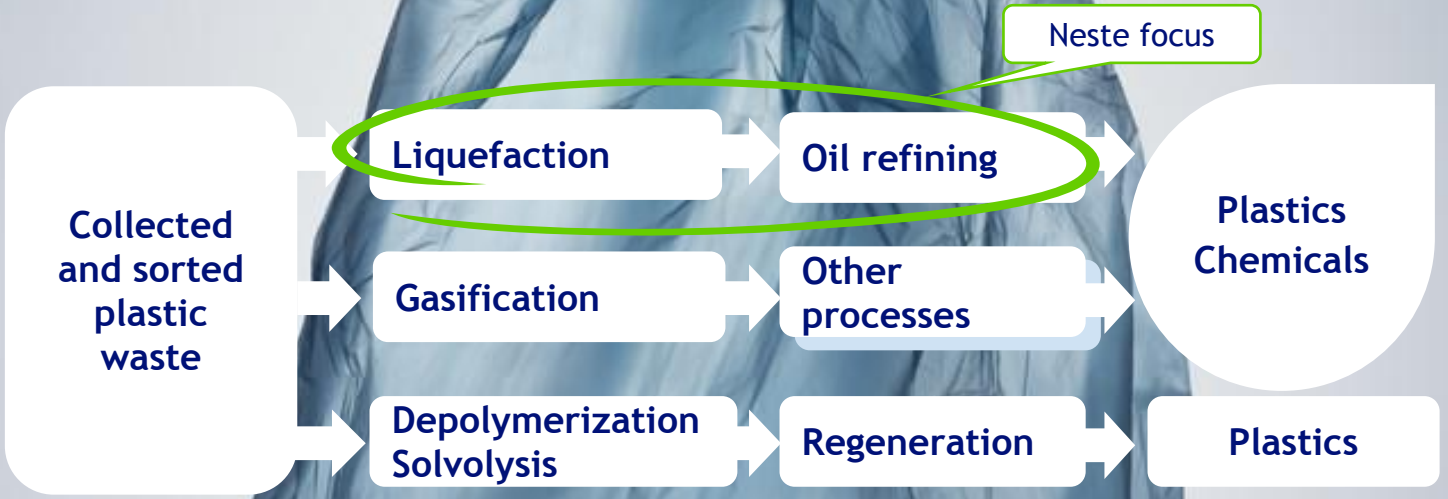

In Europe, some
29 million tons
of post-consumer plastic waste is generated annually.
1/3 collected for recycling
1/10 actually recycled
EU's Strategy for Plastics in a Circular Economy: increase recycling of plastic and reuse of plastic packaging by 2030.
In the EU Waste package, recycling target for plastic packaging:
50% by 2025
55% by 2030


Neste’s ambitious goal
is to process
>1 Mt/a
of waste plastic
from 2030 onwards.

Creating a higher value alternative for incineration and complementing mechanical recycling



Focus on chemical recycling



Thermochemical recycling of plastics means converting plastics by thermochemical liquefaction or gasification to feedstock for the chemical industry.

This feedstock can replace crude oil based feeds in the production of plastics and other petroleum products, such as lubricants, bitumen and solvents.

Identical to conventional, fossil plastics and suitable for a variety of applications, e.g.

Furniture

Packaging

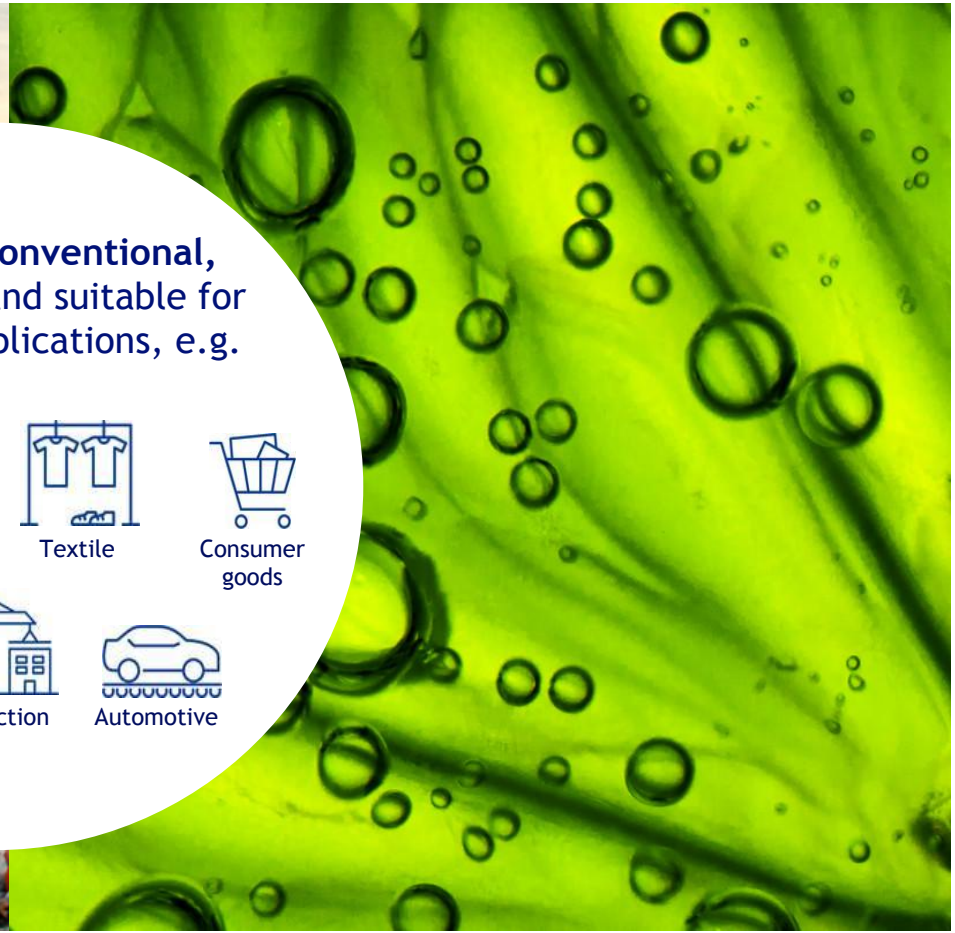
Textile

Consumer goods

Toys

Construction

Automotive



CASE

Neste driving circularity

Two new partnerships in chemical recycling

REMONDIS®

WORKING FOR THE FUTURE

One of the world's largest privately-owned recycling, service and water companies.

Ravago

The world's leading distributor and recycler of polymers.

- Aim is to **develop chemical recycling capacity**, each collaboration project targeting an annual capacity to process over 200,000 tons of plastic waste (**altogether 400,000 t/a**).

CASE

Brand owner & Liquefaction technology provider

In March 2020, Neste and Althelia Funds made a combined EUR 10 million investment into Recycling Technologies. The investment and technology development collaboration aims to accelerate technology commercialization

Unilever joined the collaboration between Neste and Recycling Technologies to develop and harness chemical recycling to recover and reuse plastic packaging that is currently either incinerated, landfilled or exported from the UK. Target is to improve circularity

Recycling Technologies

Unilever

”Our collaboration with Neste will allow us to refine and improve our technology to produce valuable feedstock from waste plastic that can be incorporated into the petrochemicals industry supply chain to increase the content of recycled plastic in new plastic production.”

ADRIAN GRIFFITHS, CEO & FOUNDER, RECYCLING TECHNOLOGIES LTD

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Plastics from Neste's renewable raw materials and chemically recycled plastics

Fully compatible with existing production and recycling infrastructures.

Comparable quality to conventional plastics. There are no limitations to their applications.

Help reduce crude oil dependency by introducing bio-based or recycled content into end products.

Suitable for reuse and recycling, contributing to reduction of plastics waste.

With Neste as a partner for plastics, there is no need to compromise on product safety, processing efficiency or recyclability.

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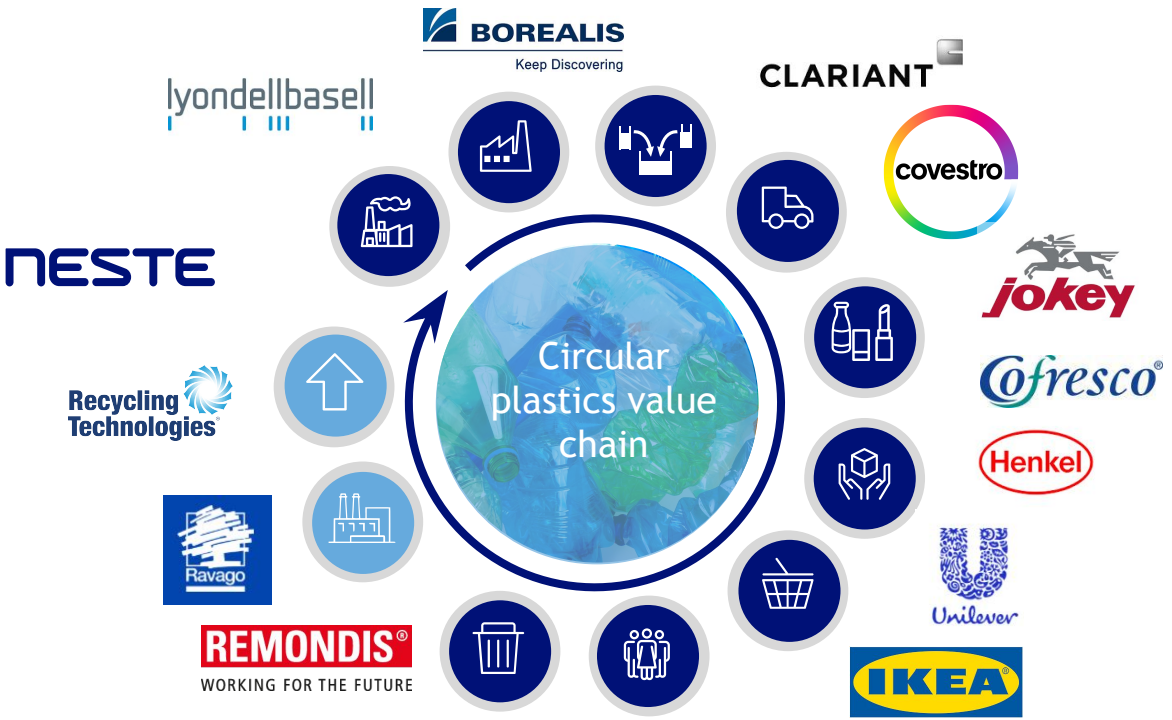
Building relationships beyond business




Leading the way
towards a sustainable
future together
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