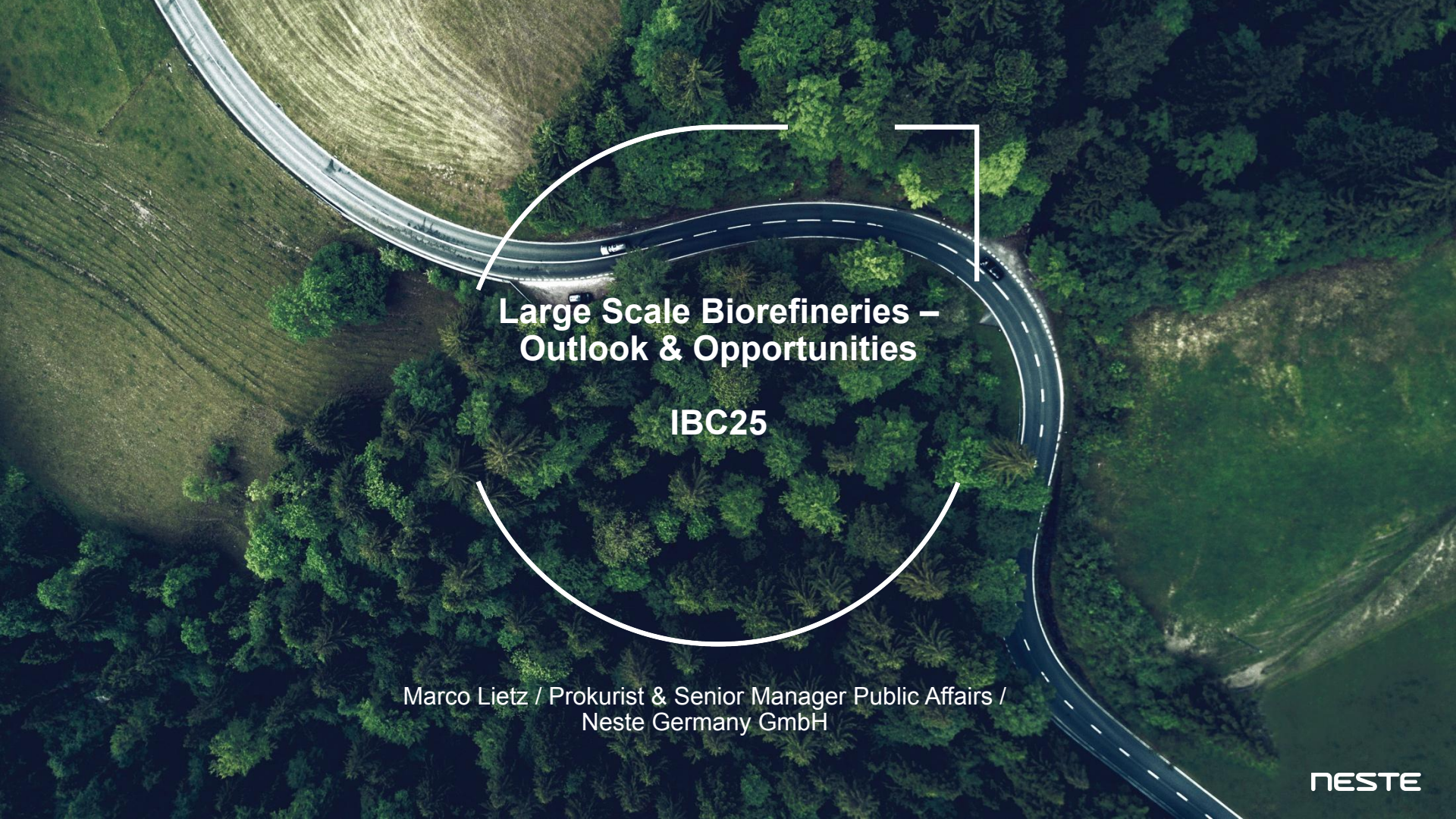


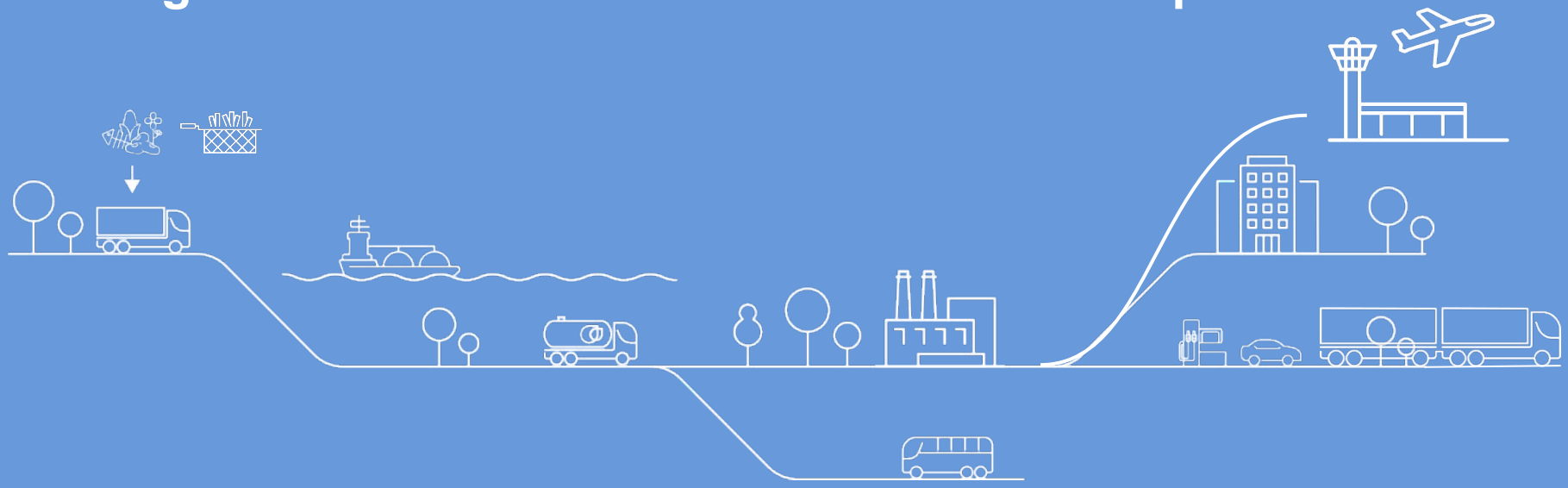
Large Scale Biorefineries – Outlook & Opportunities

IBC25

Marco Lietz / Prokurist & Senior Manager Public Affairs /
Neste Germany GmbH

Neste's transformation journey

Turning renewable raw materials into renewable products



Raw materials

A wide variety of different renewable raw materials are sourced around the world

Waste and residues account for approx. 90% of our renewable raw material inputs globally.

Pretreatment

Pretreatment of the renewable raw materials ensures impurities are removed before refining.

Refining

Pretreated raw materials are hydrotreated with Neste's own NEXBTL™ technology or other hydrotreatment technologies.

Oxygen is removed from raw materials with hydrogen. The created pure hydrocarbons are isomerized to tune the end product properties.

Output

5.5 million tons of Neste renewables per year

→ Increasing to 6.8 million tons in 2027

NESTE

Focused on refining waste and residues into renewable products

Renewables production on three continents

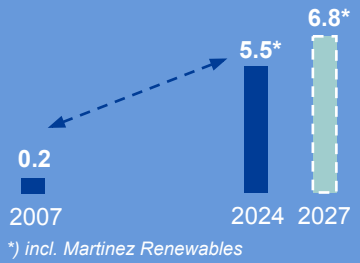
- Rotterdam, the Netherlands
- Singapore
- Porvoo, Finland
- Martinez, CA, U.S. (joint operation)

Our Rotterdam refinery capacity expansion project will further increase the total production capacity of renewable products to

6.8 million tons

in 2027

Renewables production capacity growth, Mt



*) incl. Martinez Renewables

Waste and residues

90%

of our annual renewable raw material inputs globally

NESTE

Accelerating the green transition

We create solutions for mitigating climate change and accelerating a shift to a circular economy.

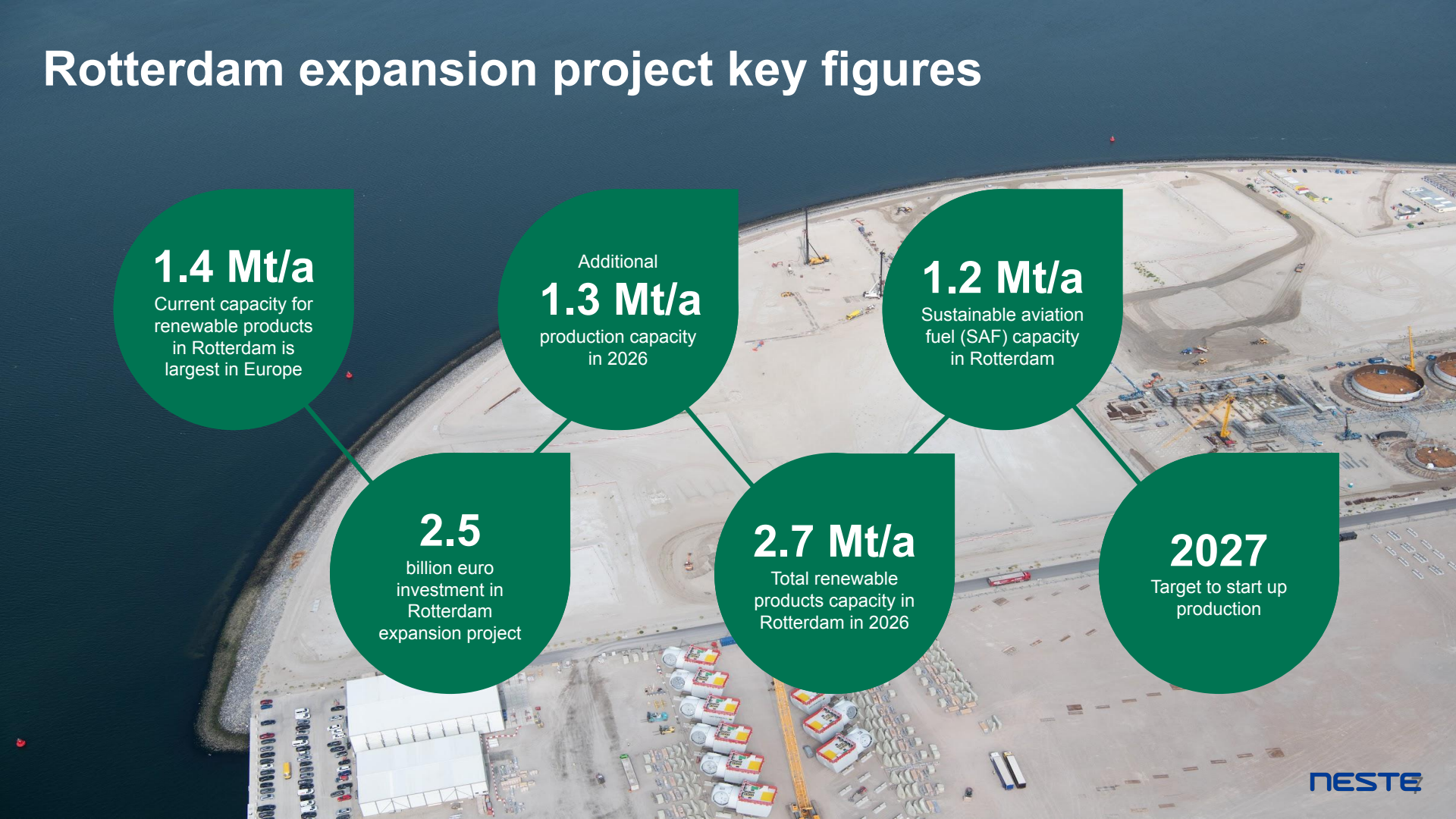
12,500 liters

of (fossil) fuel are consumed every second to keep all current commercial aircraft in the air.

A snapshot of air traffic on a typical weekday evening at 7 PM CET.

NESTE

Rotterdam expansion project key figures



1.4 Mt/a
Current capacity for renewable products in Rotterdam is largest in Europe

Additional
1.3 Mt/a
production capacity in 2026

1.2 Mt/a
Sustainable aviation fuel (SAF) capacity in Rotterdam

2.5
billion euro investment in Rotterdam expansion project

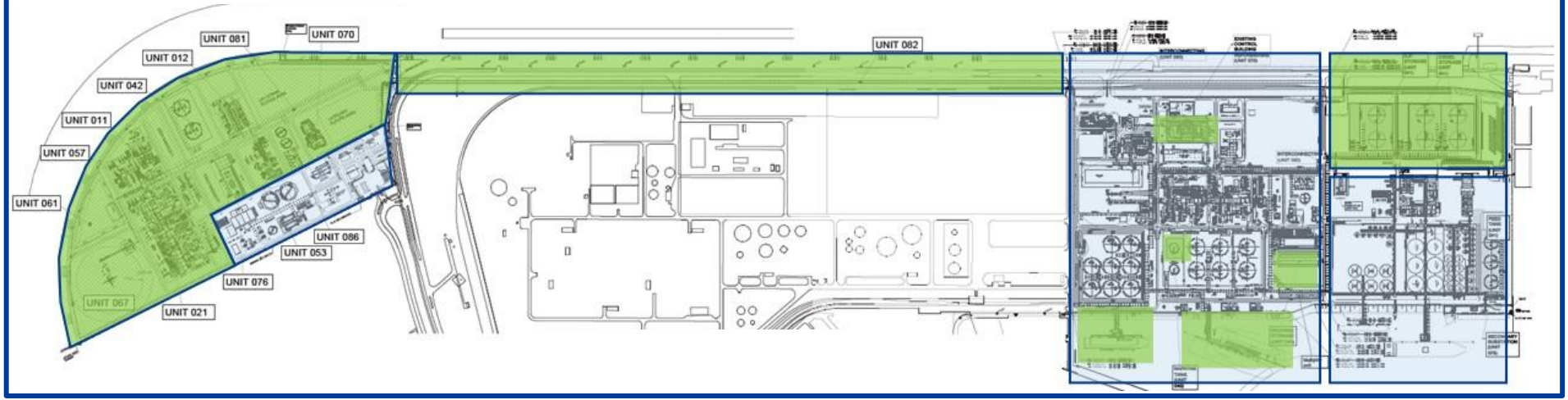
2.7 Mt/a
Total renewable products capacity in Rotterdam in 2026

2027
Target to start up production

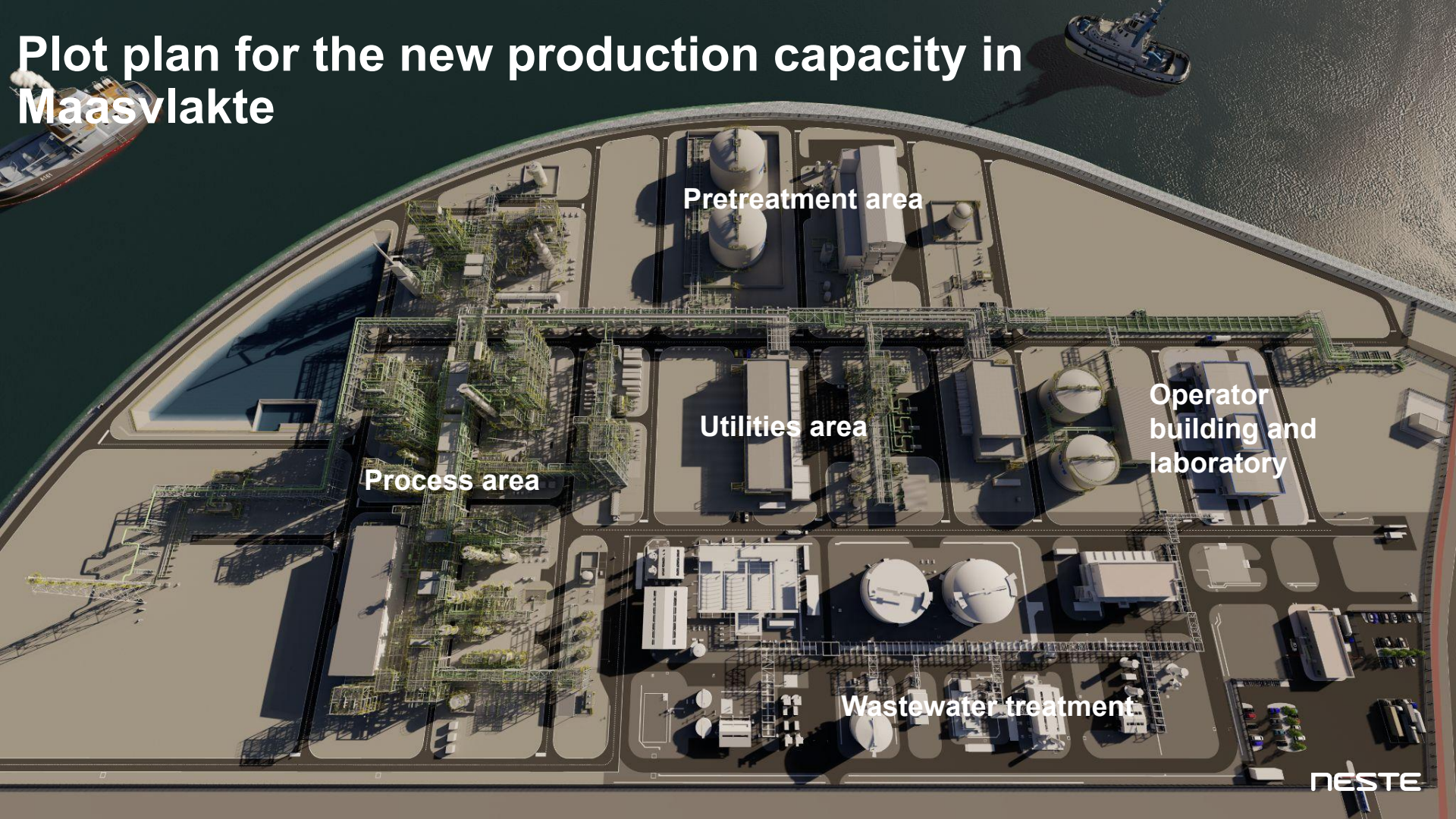
Rotterdam expansion project in detail

Maasvlakte new area

Existing plant New tank farm



Plot plan for the new production capacity in Maasvlakte

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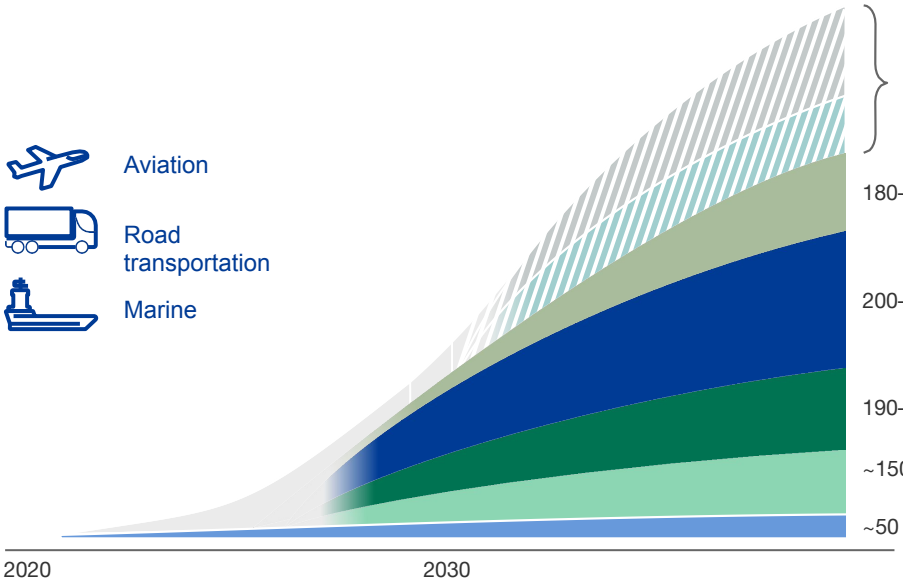
Expanding the raw material pool is necessary

Global raw material potential for renewable fuels (Mtoe)



Long-term fuel potential (Mtoe)

Significant potential for fuel production in the long term

180–275	Power-to-liquids
	Algae
	Cellulosic energy crops
200–400	Lignocellulosic residues (agriculture; forestry)
190–250	Municipal solid waste*
~150	Novel vegetable oils (cover crops; degraded land)
~50	Waste and residue fats and oils

Source: Neste analysis based on WEF Clean Skies for Tomorrow and other sources. Biomass potential converted to fuel potential, using around 85% conversion efficiency (weight-based) for fats and oils and novel vegetable oils; around 25% efficiency for lignocellulosic biomass and municipal solid waste.
*80% organic waste, with 20% non-reusable, non-separable plastic waste

NESTE

Developing vegetable oils from regenerative agricultural practices

Novel Vegetable Oils

Renewable raw materials produced using regenerative agricultural practices that help restore soil health and increase farm productivity

Neste's approach

64 field trials on 5 continents

Partnerships with the value chain

Scaling the most promising concepts

Continuous focus on sustainability KPIs

Novel vegetable oils could make up 20% of our raw materials pool by 2035

Restoring soil health

Promoting biodiversity

Carbon sequestration in the soil

Increased farm productivity

NESTE

Lignocellulosic waste & residues are a vast, underutilized raw material pool that could yield >350 Mtoe renewable fuels annually

Lignocellulosic waste & residues

Lignocellulose is the woody and fibrous structural material present in all plants

Lignocellulosic waste & residues include a wide array of different types of materials from forestry, agriculture and related industries

Ongoing technology development

Neste is partnering with CLG (Chevron Lummus Global) to jointly develop **a novel technology for conversion of lignocellulosic biomass** into high-quality, lower-emission renewable fuels

The development is currently in pilot scale, and Neste and CLG are validating the concept, targeting readiness to scale the technology to commercial scale

Lignocellulosic waste & residues could be used to produce >350 Mtoe[1] of renewable fuels per year

Ensuring sustainability

No impact on harvesting levels

Preserving biodiversity and soil quality

Certified sources and production chains

No food and feed crops

1. Mtoe = Million tons of oil equivalent. Sources: World Economic Forum in collaboration with McKinsey & Company and Neste analysis. The product yield depends on the conversion technology used.

NESTE

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