



# Large scale chemical conversion of oils and residues in Rotterdam

European Biofuels Technology Platform – 6th Stakeholder Plenary meeting, 14.10.2014

Petri Lehmus, VP R&D, Neste Oil

# Neste Oil in brief

A refining and marketing company focused on premium-quality traffic fuels

Refining capacity: 15 million t/a of petroleum products and 2 million t/a of renewable diesel

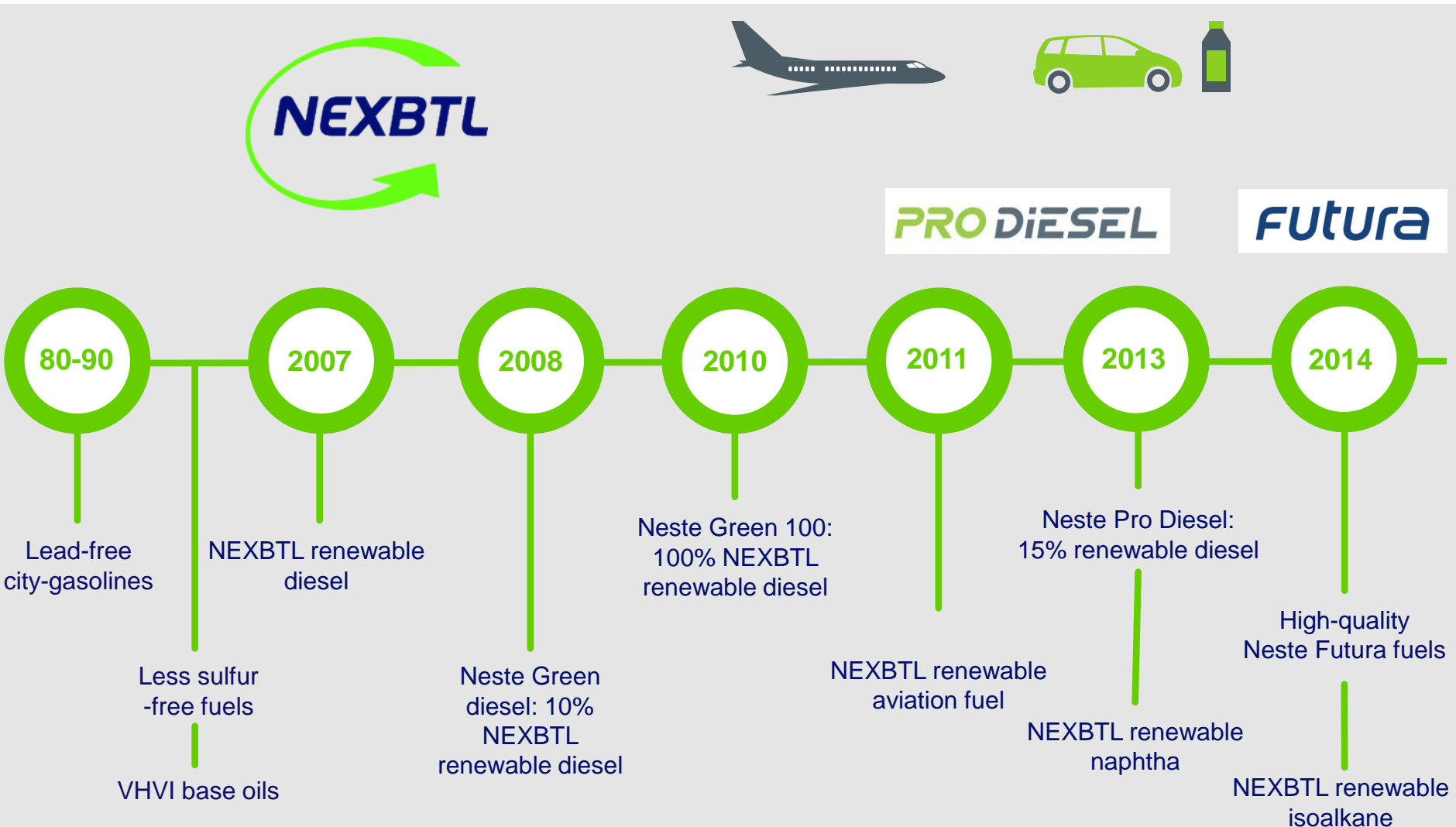
Net sales: €17.5 billion (2013)

Operations in 15 countries; employs approx. 5,000 people

Listed on the Helsinki Stock Exchange

Largest owner: the Finnish State (50.1%)

# Cleaner products along the way



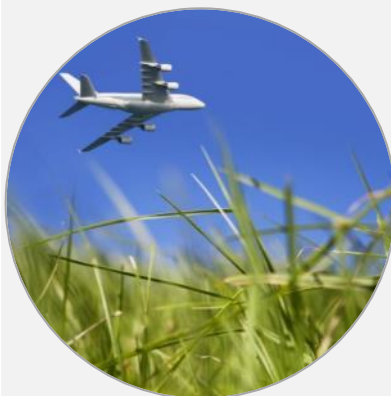
# NEXBTL market introduction: proven performance in demanding field tests

## Public bus transport



Improves the quality of urban air

## Aviation



Can be used at temperatures as low as  $-47^{\circ}\text{C}$

## Passenger cars



Performs excellently at 100% content

## Heavy traffic



Works perfectly in trucks and buses

# Neste Pro Diesel



Fifth Edition

## WORLDWIDE FUEL CHARTER

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**ACEA**  
European Automobile Manufacturers Association  
Avenue des Nations 15  
B-1040 Brussels, Belgium  
Tel: +32 2 732 51 50  
Fax: +32 2 738 70 10  
[www.acea.be](http://www.acea.be)

**AUTO ALLIANCE**  
Alliance of Automobile Manufacturers  
800 The Street, N.W., Suite 300  
Washington D.C., 20001  
Tel: +1 (202) 336-5500  
Fax: +1 (202) 336-5567  
[www.autoalliance.org](http://www.autoalliance.org)

**ema**  
Truck and Engine Manufacturers Association  
333 West Wacker Drive, Suite 810  
Chicago, IL 60606  
Tel: +1 (312) 929-1970  
Fax: +1 (312) 929-1975  
[www.truckandenginemanufacturers.org](http://www.truckandenginemanufacturers.org)

**JAMA**  
Japan Automobile Manufacturers Association  
Jidotei Bldg.  
1-3-1, 3rd Floor, Chiyoda-ku  
Hirotsuka, Tokyo 105-8312 Japan  
Tel: +81-3-5425-4121  
Fax: +81-3-5425-4135  
[www.japan-automobile.com](http://www.japan-automobile.com)



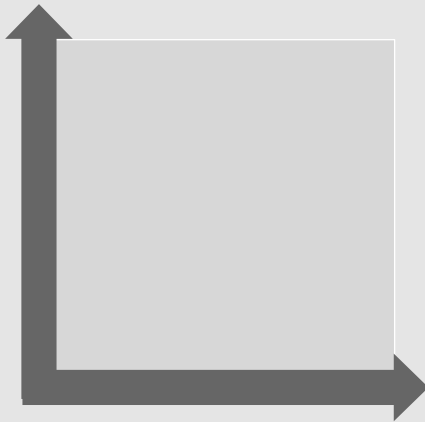
# More than 1000 commercial flights with renewable NEXBTL aviation fuel (50/50 blend)



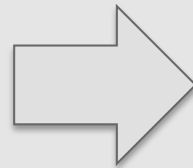
# Increasing the window of opportunity

1990's

Product  
Quality

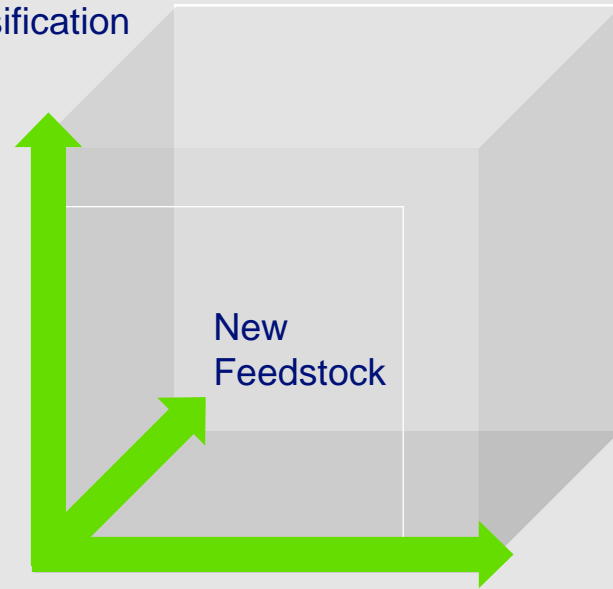


Efficiency



21<sup>st</sup> century

Product  
Quality &  
Diversification



New  
Feedstock

Efficiency

# Two key rationales



## Feedstock flexibility

- Global sourcing
- Availability
- Sustainability
- Pricing



## Drop in products

- Quality improvement (→ premium)
- No additional investment
- No blend walls

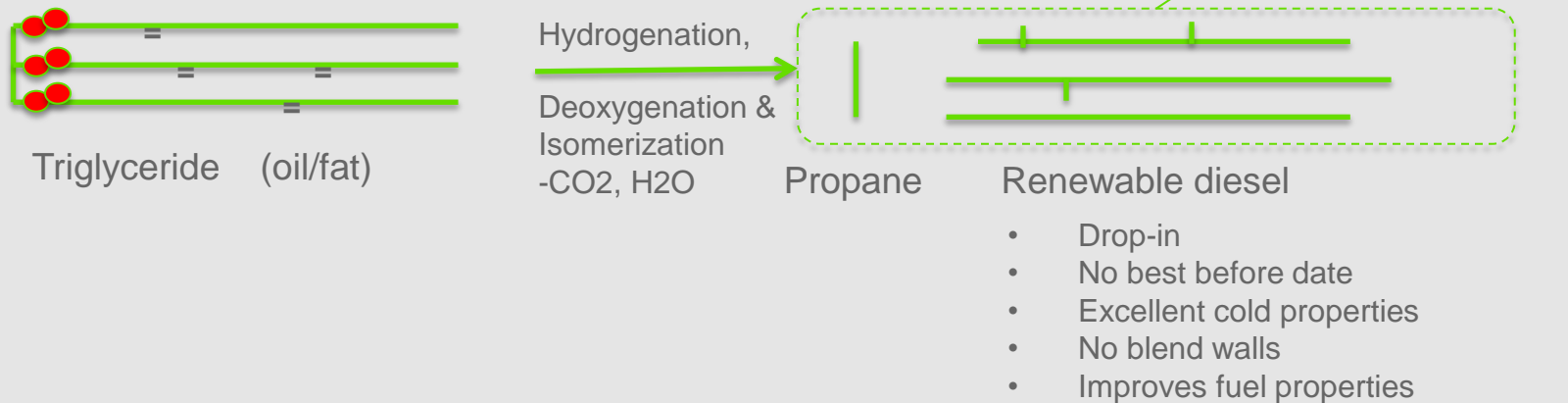


# Biodiesel vs. Renewable diesel

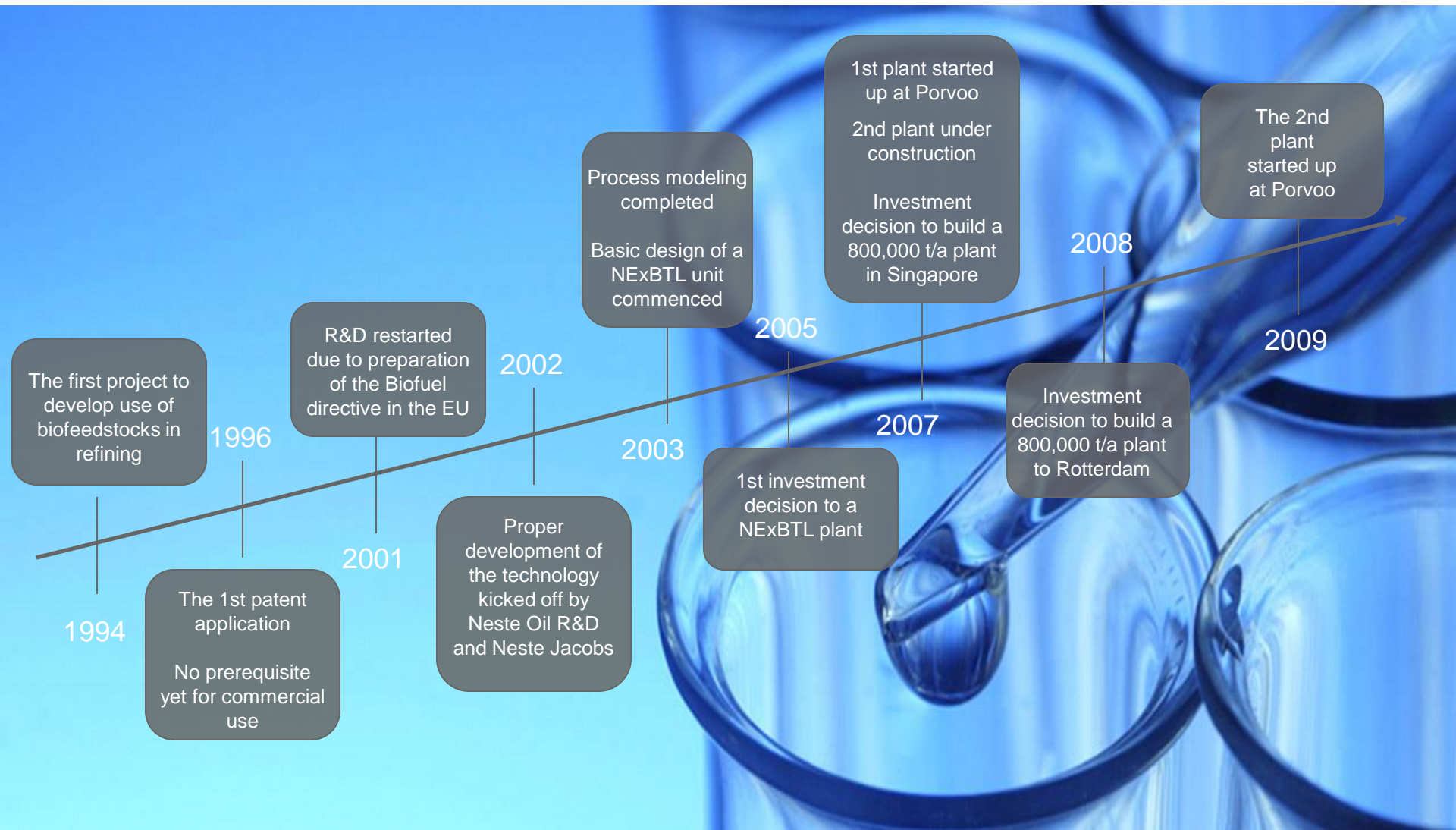
## Biodiesel



## Renewable diesel (HVO)



# The evolution of NEXBTL renewable diesel



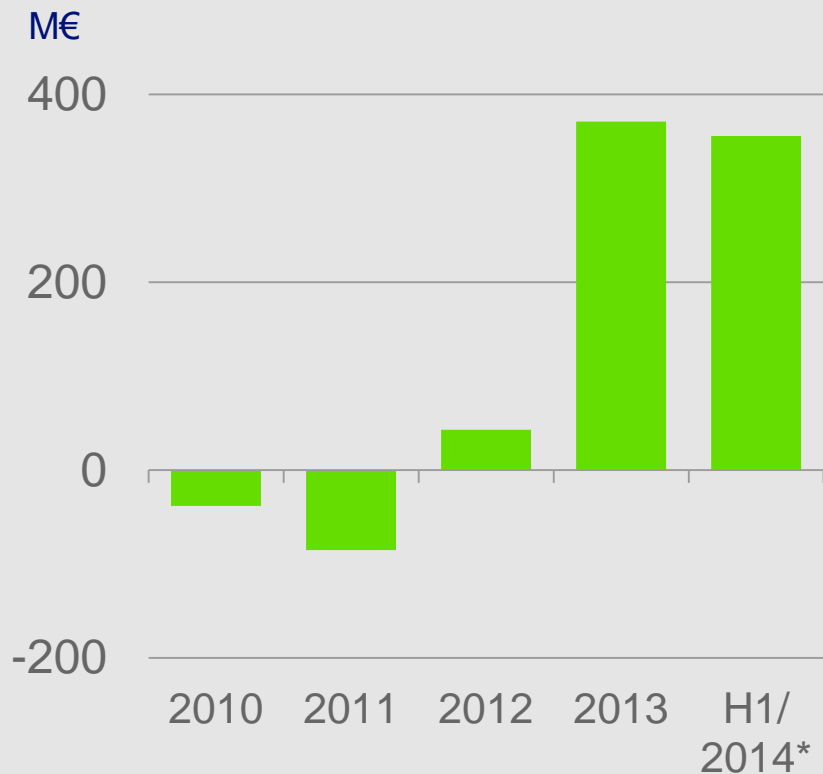
# Our investments

Location	Capacity	Investment	Completed
1. Finland #1	190,000 tons	€ 100 million	2007
2. Finland #2	190,000 tons	€ 100 million	2009
3. Singapore	800,000 tons	€ 550 million	2010
4. Rotterdam	800,000 tons	€ 670 million	2011



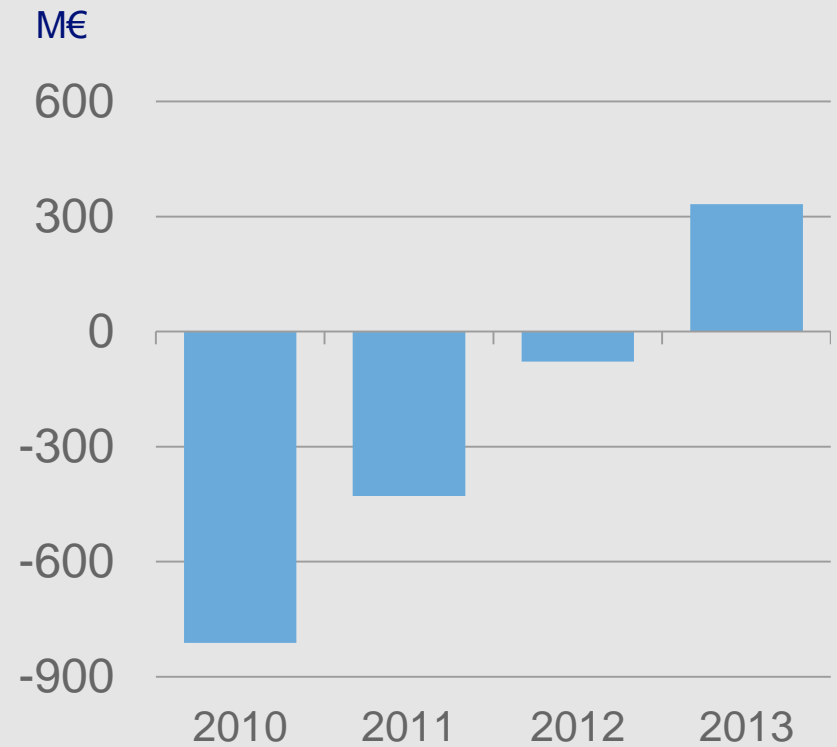
# Established a new profitable business

## Comparable EBITDA

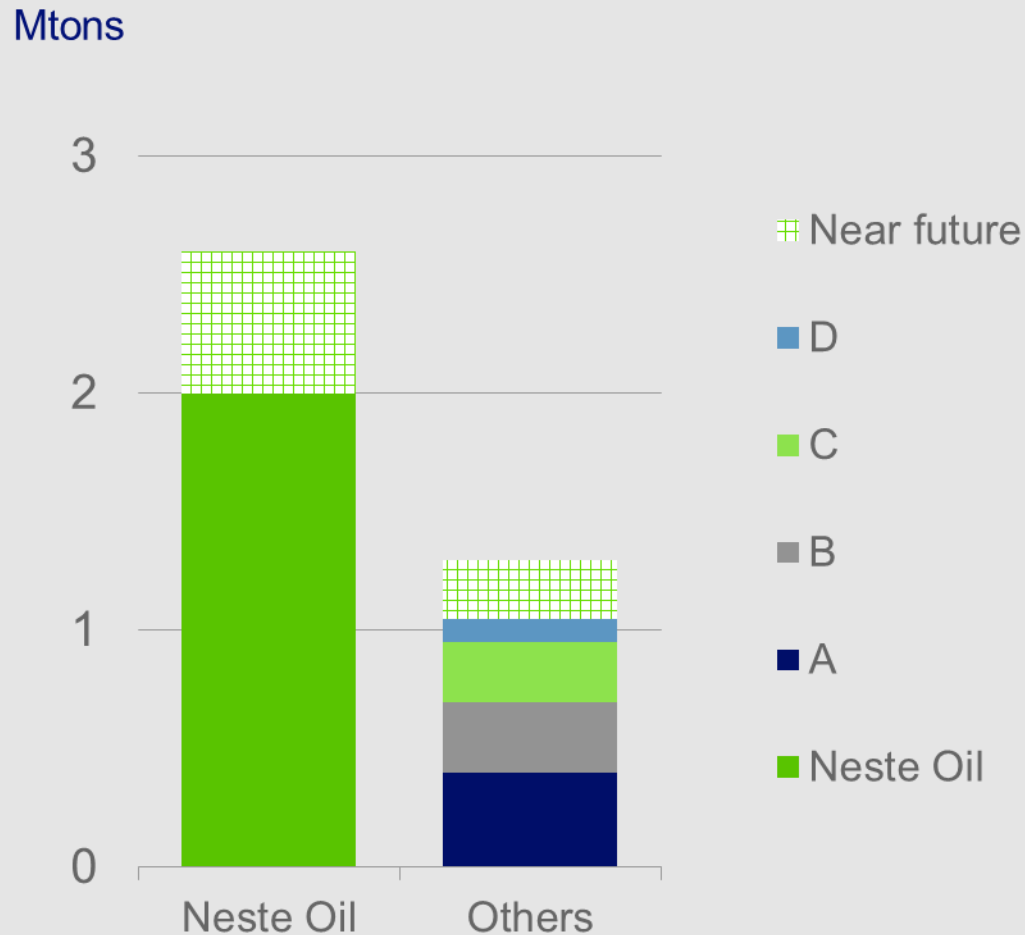


\* Rolling 12 months

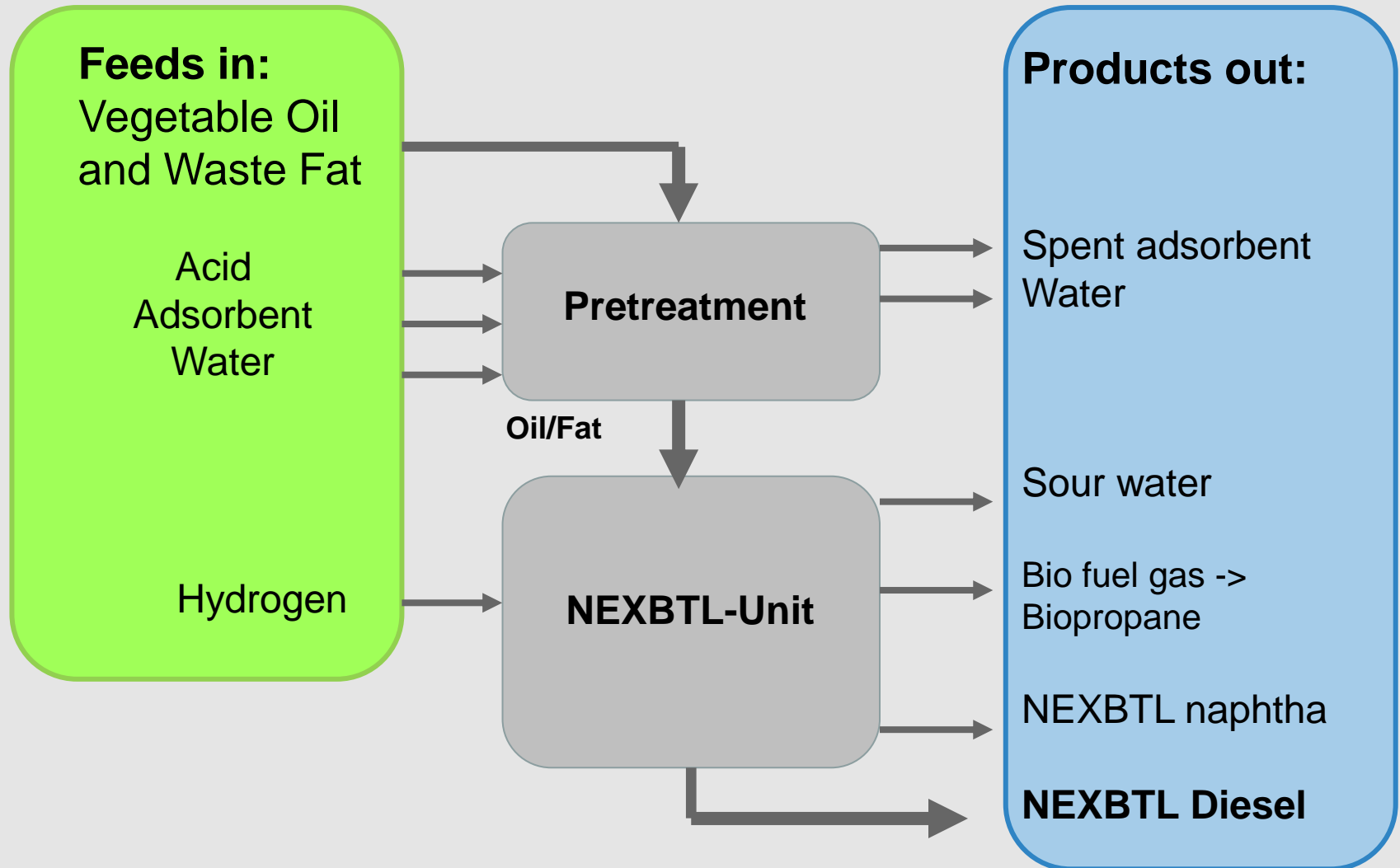
## Cash flow



# Renewable diesel capacity growing as demand for advanced drop-in solutions increases



# Simplified NEXBTL process



# Start-up of latest world-scale plant in 2011



# Key success factors

An aerial photograph of a large industrial refinery at night. The facility is illuminated by numerous lights, creating a complex network of structures, pipes, and towers against a dark blue sky. In the foreground, there are several large, curved concrete basins and a network of pipes. Overlaid on the image are four white circular callouts with blue borders, each containing a key success factor.

Attractive location

Access to qualified personnel

Co-operation with Port of Rotterdam

Support by Technology Office organization



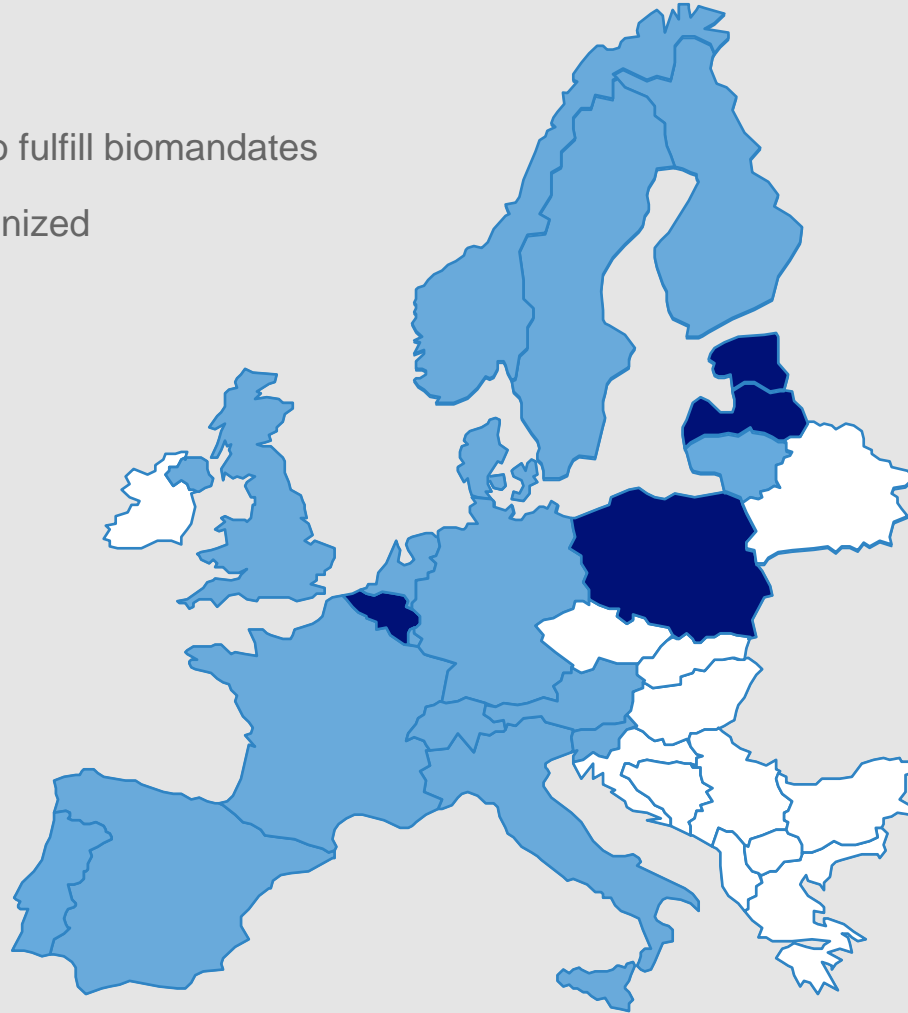
# HVO-type biofuel (like NEXBTL-diesel) recognized in a majority of EU member states

- HVO recognized to fulfill biomandates
- HVO not yet recognized

**HVO =**  
Hydrotreated  
Vegetable Oil

Advanced biofuel

But feedstock  
restrictions exist:  
e.g. waste animal fat not  
allowed in Germany



# Broad range of renewable raw materials



Waste animal fat from the food processing industry



Waste fat from the fish processing industry



Vegetable oil residues (stearin, PFAD and spent bleaching earth oil)



Technical corn oil



Tall oil pitch



Soybean oil



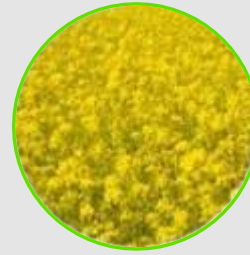
Crude palm oil



Camelina oil



Jatropha oil



Rapeseed oil

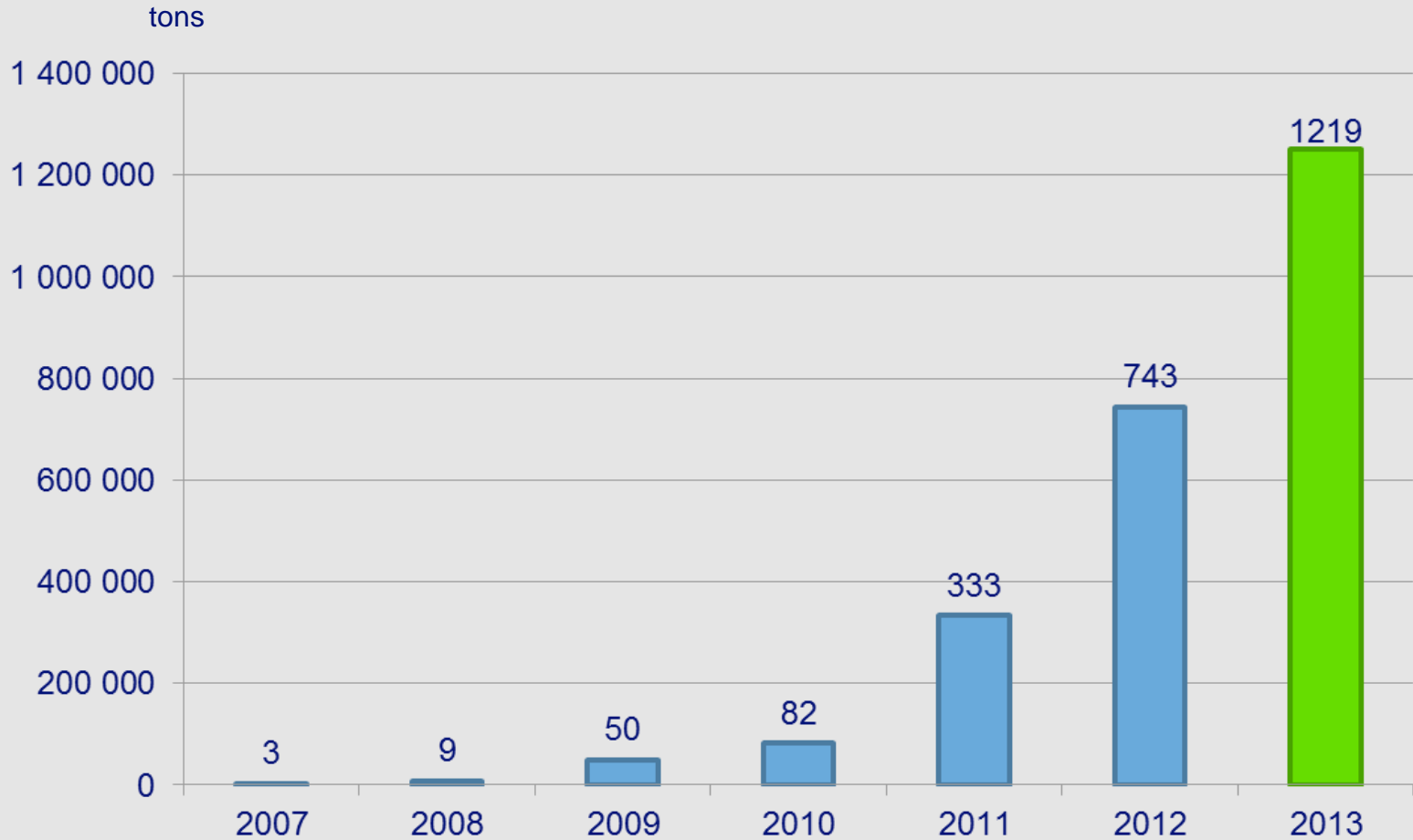


Used cooking oil

# Sustainable global supply chain for renewable raw materials

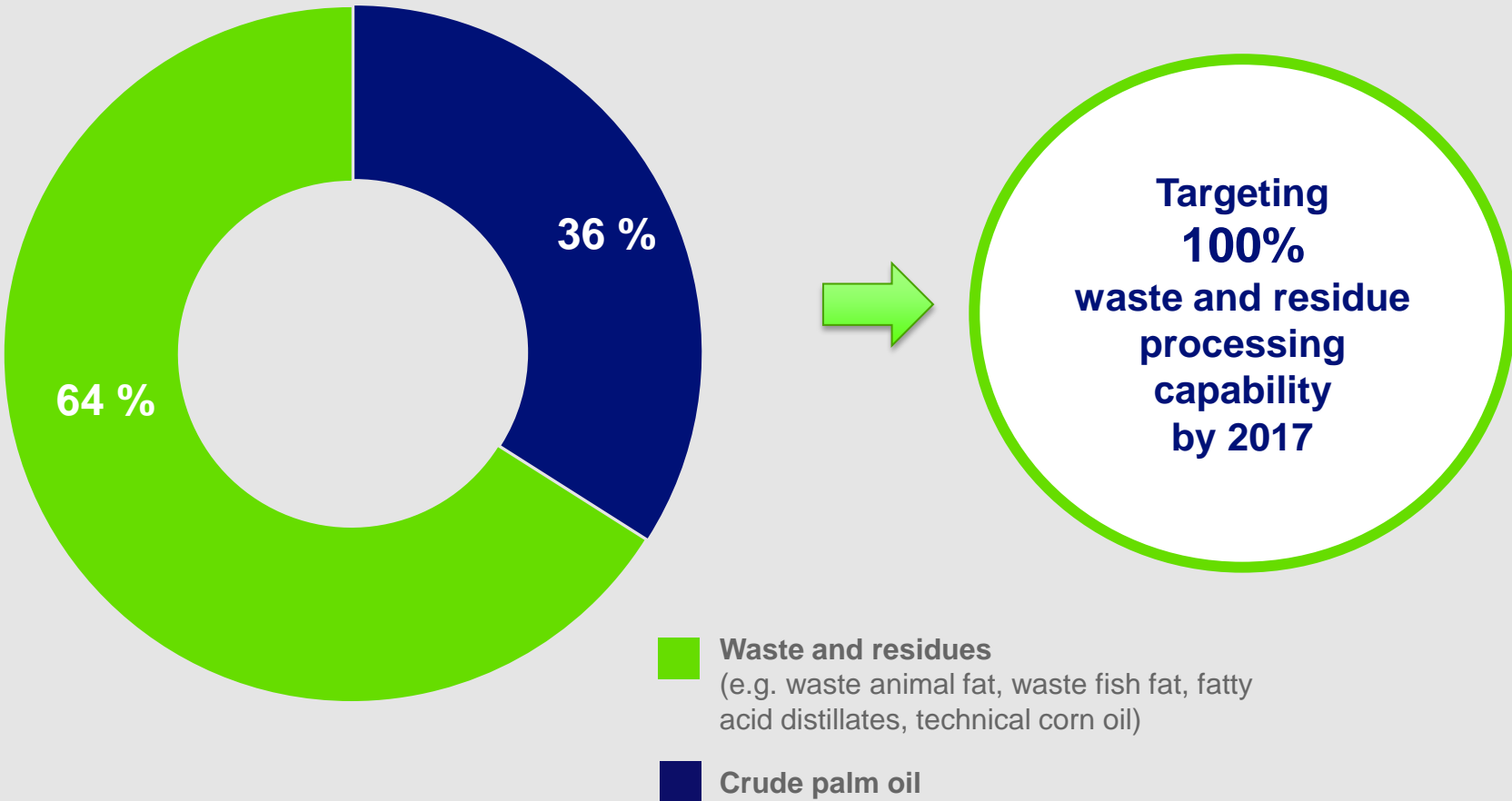


# Huge increase in waste and residue use



# More than 60 % of Neste Oil's feedstocks are currently waste and residues

**Neste Oil feedstock mix H1/2014**



# Waste and residue based diesel

1,2 million  
tons waste  
and residues

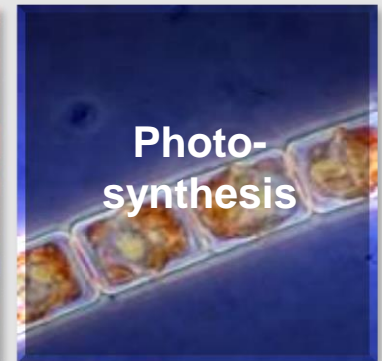
1,3 billion  
liters  
renewable  
NEXBTL-  
diesel

Waste and  
residue based  
NEXBTL (100%)  
for 1,3 million  
cars in 2013



Figures from 2013

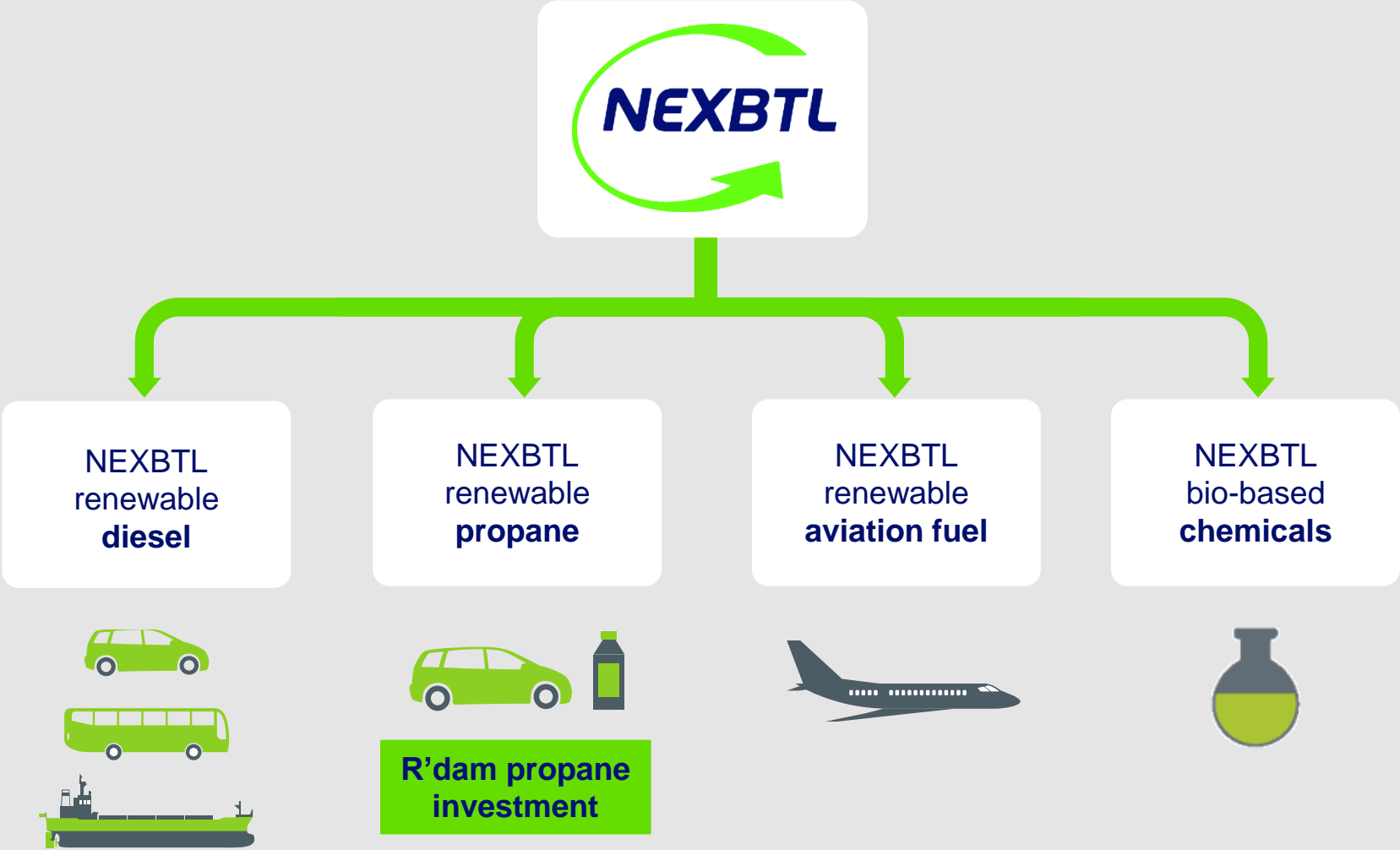
# Expanding the feedstock base



Short term

Long term (2016-)

# Renewable NEXBTL – solutions beyond road traffic





# Outlook

**Feedstock  
flexibility**

**Productivity  
growth**

**Product value  
maximization**



# Thank you.

Petri Lehmus, VP R&D  
[petri.lehmus@nesteoil.com](mailto:petri.lehmus@nesteoil.com)

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