



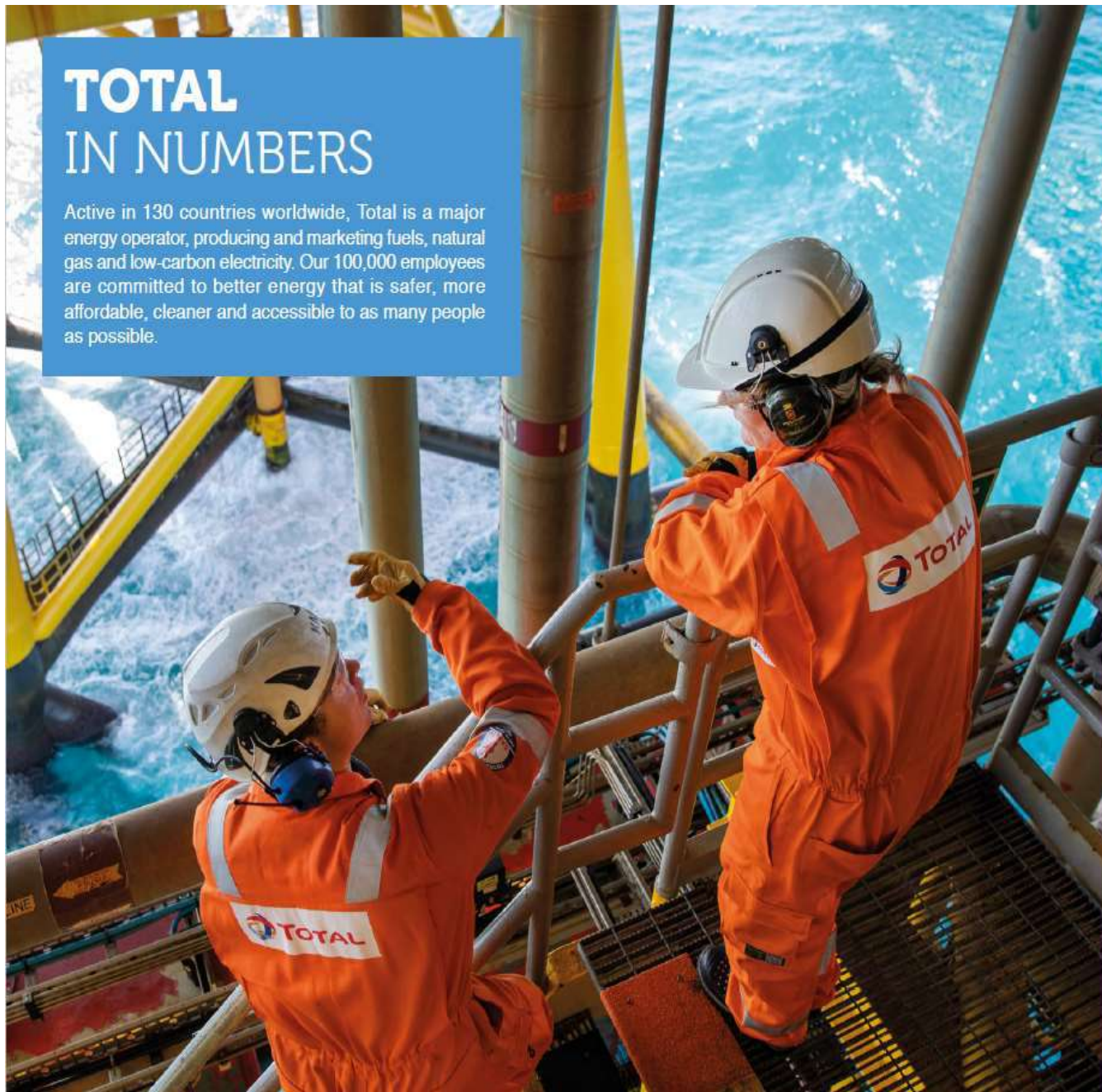
TOTAL IN BIOFUELS

ISCC conference, Shanghai, 02/07/2019

Christophe Hein, Biofuel Business Development manager

TOTAL IN NUMBERS

Active in 130 countries worldwide, Total is a major energy operator, producing and marketing fuels, natural gas and low-carbon electricity. Our 100,000 employees are committed to better energy that is safer, more affordable, cleaner and accessible to as many people as possible.



MORE THAN
130
COUNTRIES

PRODUCTION OF
2.8
MBOE/DAY
in 2018,
a year-on-year
INCREASE OF 8.1%

NEARLY
800
PRODUCTION SITES

LNG
THE WORLD'S
NO. 2
LIQUEFIED NATURAL
GAS OPERATOR

MORE THAN
8
MILLION
CUSTOMERS SERVED IN OUR
14,000 SERVICE STATIONS
EACH DAY

10 GW
OF LOW-CARBON
ELECTRICITY
GENERATION
CAPACITY BY 2023

6
MAJOR
INTEGRATED REFINING AND
PETROCHEMICAL COMPLEXES

A GLOBAL
TOP
10
REFINER AND
PETROCHEMICAL
MANUFACTURER

100,000
EMPLOYEES
REPRESENTING MORE THAN
150 NATIONALITIES

2018 ADJUSTED
NET INCOME
\$13.6
BILLION

\$1
BILLION
SPENT ON R&D IN 2018

143
MILLION TONS
OF CRUDE AND REFINED
OIL SHIPPED BY SEA

4,000+
RESEARCHERS

TOTAL ORGANISATION



Exploration & Production

- OIL / GAS PRODUCTION
- GAS LIQUEFACTION / REGASIFICATION



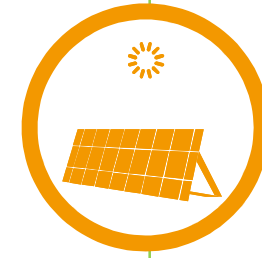
Refining & Chemicals

- REFINERIES
- PETROCHEMICAL PLANTS
- SPECIALTY CHEMICALS
- BIOFUEL DIVISION



Marketing & Services

- FUEL RETAIL
- LUBRICANTS
- OIL DEPOT



Gas, Renewables & Power

- GAS / POWER DISTRIBUTION
- SOLAR PANELS **SUNPOWER**
- BATTERIES **saft**

OUR CHALLENGES FOR THE NEXT 20 YEARS

Meet the energy needs of **a growing global population**

Protect the planet and **limit** global warming

Adapt to new consumer practices and changing customer expectations

Helping provide tangible solutions to these challenges means supplying affordable, reliable, clean energy.

TOTAL, ALREADY AN ACTIVE PLAYER IN BIOFUELS

DISTRIBUTOR



1st DISTRIBUTOR
OF BIOFUELS IN EUROPE

2.4 Mt biofuels
incorporated in 2018:

- 20% ethanol
- 80% biodiesel

PRODUCER

Already producing in our refineries:

- 1) **ETBE** (Ethyl Tert-Butyl Ether)
from ethanol and isobutylene
- 2) **HVO** (Hydrotreated Vegetable Oil)
by co-processing of vegetable oils

+ Industrial project at La Mède:



500 kt
HVO per year

RESEARCHER

Partnerships with industrials,
startups, universities & private
laboratories:

Conversion of lignocellulosic biomass



Fermentation of sugars:



Ethanol based chemistry:
Ethanol de-hydration



LA MÈDE BIOREFINERY



LA MÈDE

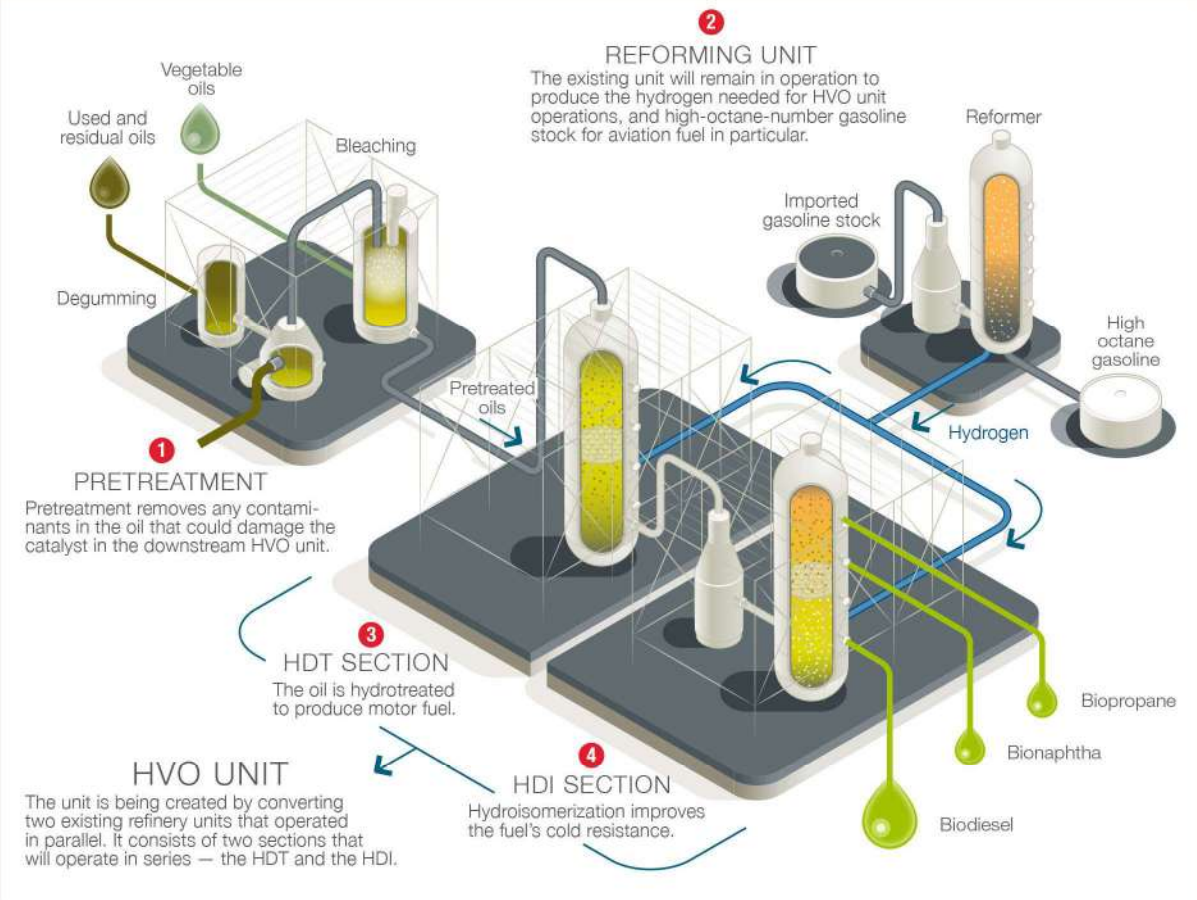
FRANCE'S FIRST WORLD-CLASS
BIOREFINERY,
one of the biggest in Europe.

€275M
INVESTMENT

Redeployment of the site to an activity that will drive growth. Bio-units will start up in 2018.

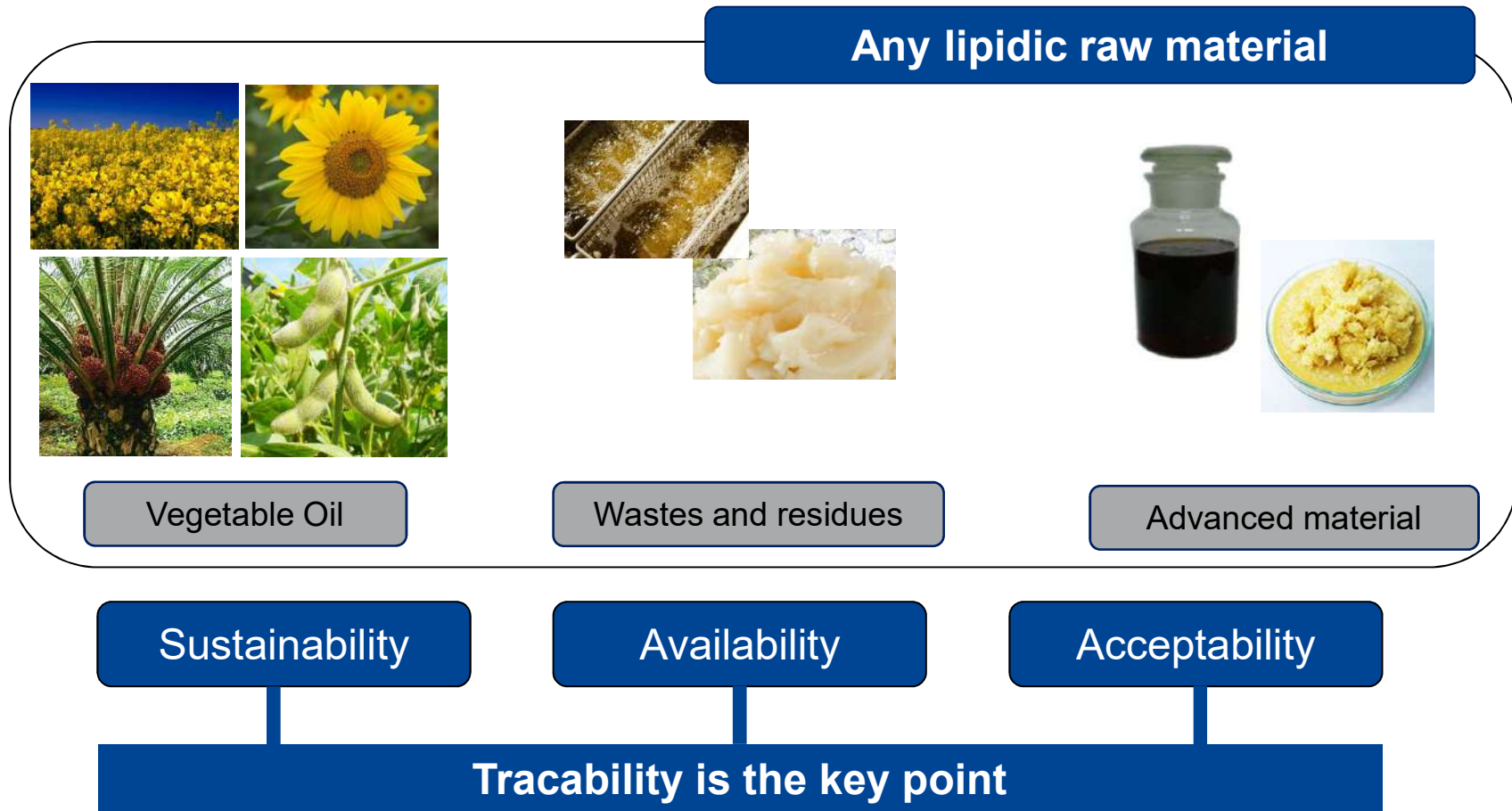
500 kt/year of HVO
to meet growing demand for biodiesel.

TECHNOLOGY THAT CAN PROCESS
ALL TYPES OF OIL:
vegetable, used and residual.



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FEEDSTOCKS, SUSTAINABILITY AND CHALLENGES



TOTAL have very stringent suppliers selection criterias
TOTAL is supportive to a system that leads to more tracability and control



THANK YOU!

