



GAIL – Lube Day
Milano, 15 Ottobre 2025

FUTURE PERSPECTIVES

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KEY TRENDS



PERSONAL MOBILITY



COMMERCIAL ENGINES





PERSONAL MOBILITY

ICE



ICE

Incl.
start/stop

HYBRID



MHEV

Mild Hybrid
Electric vehicle



HEV

Hybrid
Electric vehicle

PLUG-IN HYBRID



*PHEV

Plug-in Hybrid
Electric vehicle

ELECTRIC



BEV

Battery
Electric
vehicle



FCV

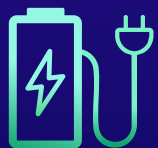
Fuel Cell
Electric
vehicle

* Includes range extended and series hybrid vehicles



PERSONAL MOBILITY

ELECTRIC



BEV

Battery
Electric
vehicle



FCV

Fuel Cell
Electric
vehicle

OEMs DEVELOPING



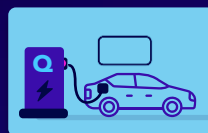
Battery technologies



New chemistries



Battery swapping



Quantum charging

TO IMPROVE

Charging



Cost



Range





PERSONAL MOBILITY

Consumer
preference
for larger
vehicles
impacting
fully electric
uptake

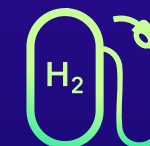


ELECTRIC



BEV

Battery
Electric
vehicle



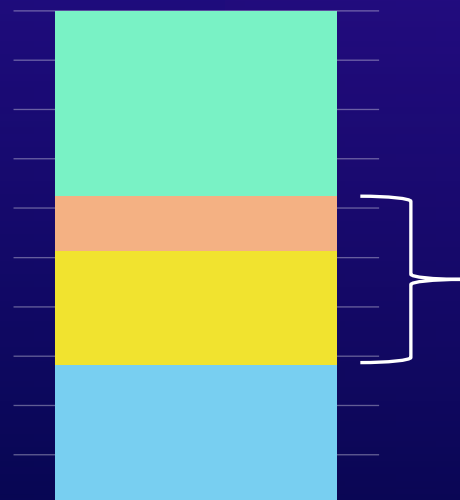
FCV

Fuel Cell
Electric
vehicle



PERSONAL MOBILITY

Global light-duty vehicle production



34%
= **33 million hybrids**

2030(f)

HYBRID



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***PHEV**

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PERSONAL MOBILITY

ICE



ICE

Incl.
start/stop

HYBRID



MHEV

Mild Hybrid
Electric vehicle



HEV

Hybrid
Electric vehicle

PLUG-IN HYBRID



*PHEV

Plug-in Hybrid
Electric vehicle

ICE PLAYS
A KEY ROLE
FOR
DECADES

* Includes range extended and series hybrid vehicles



COMMERCIAL ENGINES

NEW HEAVY-DUTY DEVELOPMENTS

Integration

Extended
warranties

Aftertreatment
technologies

Increased
onboard
monitoring

Extended
useful life

Fuel economy
improvement



TIGHTENING REGULATIONS

NO_x

Particulate matter

Non-methane
organic gases

Nitrous
oxides

Carbon
monoxide

Particulate
number



COMMERCIAL ENGINES

HYDROGEN VIABILITY IS INCREASING

**H₂ICE AND
RETROFIT**



FUEL CELL





COMMERCIAL ENGINES

Fuel flexibility today...

and for the future of marine



MGO
HFO
VLSFO
Bio-blends



LNG
LPG
Methanol



BIO -
LNG
LPG



E -
LNG
LPG



Green
ammonia
Green
hydrogen



DRIVERS



PERSONAL MOBILITY



Consumer
preference



Regulations
and legislation



COMMERCIAL ENGINES



The Industry's
energy transition



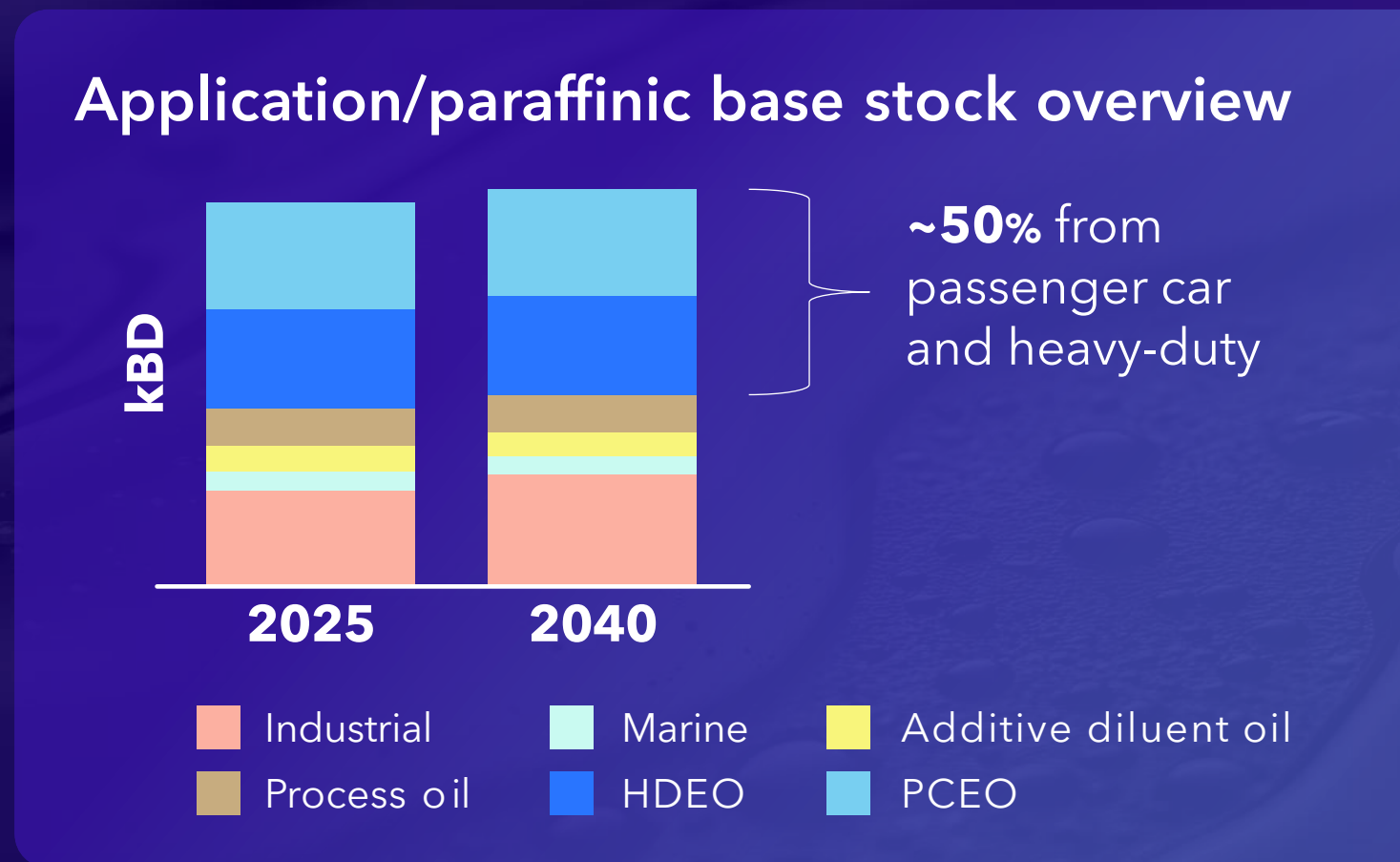
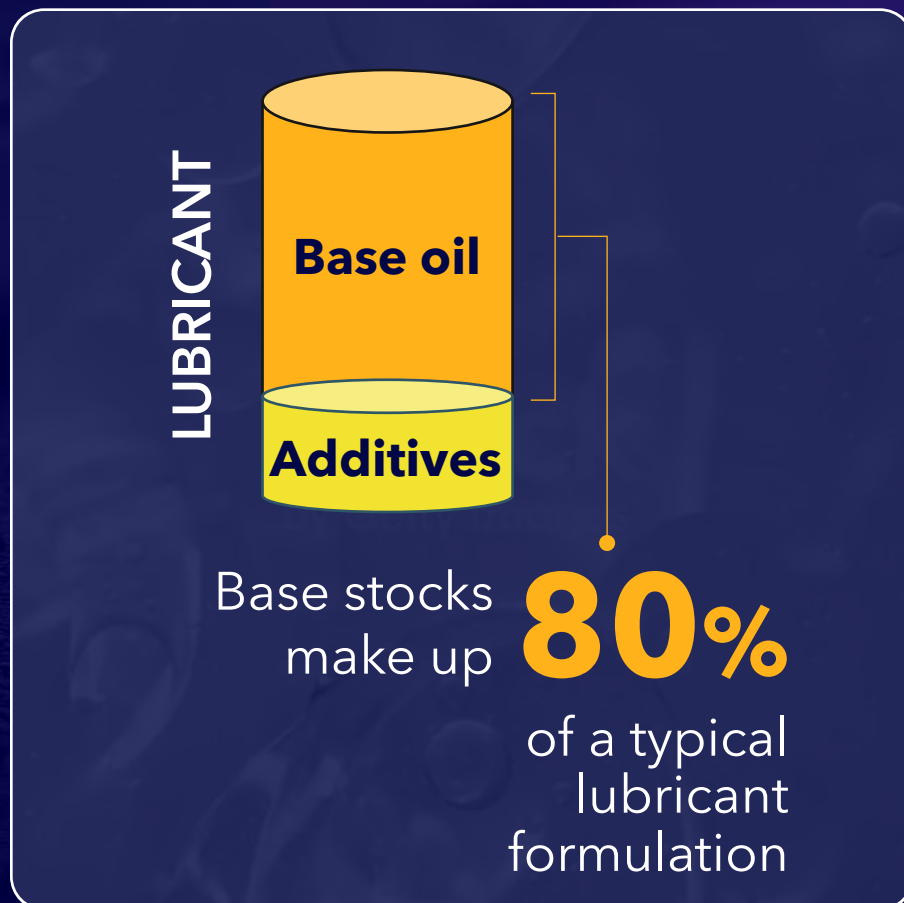
Profitability and
competitiveness



The impact on the **FUTURE** of our industry

Additives

Base stock demand remains stable



Base stock and lubricant demand data based upon ExxonMobil assessment of publicly available data (including subscription-based material and consultant reports)

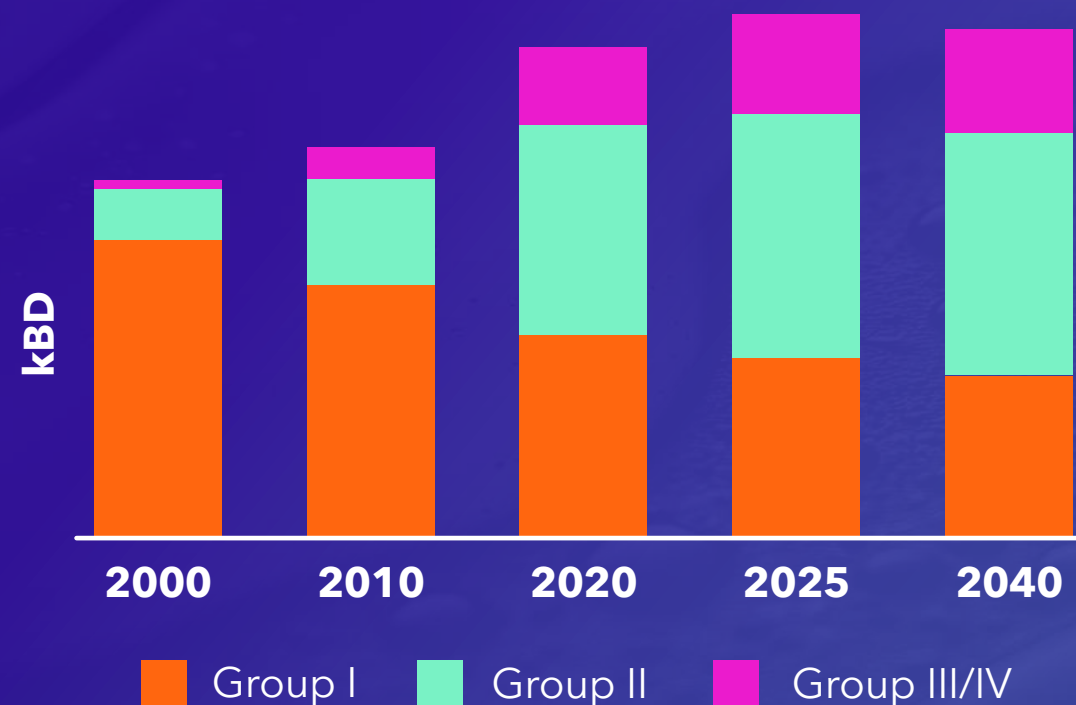
Chart: © 2025 ExxonMobil

Base stock shifting demand and capacity

**PASSENGER CAR
AND HEAVY-DUTY
SHIFTING TO
GROUP II AND III**

**ROBUST DEMAND
FOR GROUP I
FROM MARINE**

Global base stocks capacity



Base oil demand data based upon ExxonMobil assessment of publicly available data (including subscription-based material and consultant reports) Group III Effective Capacity illustrated as 80% of assessed regional nameplate capacity

Chart: © Copyright 2025 ExxonMobil



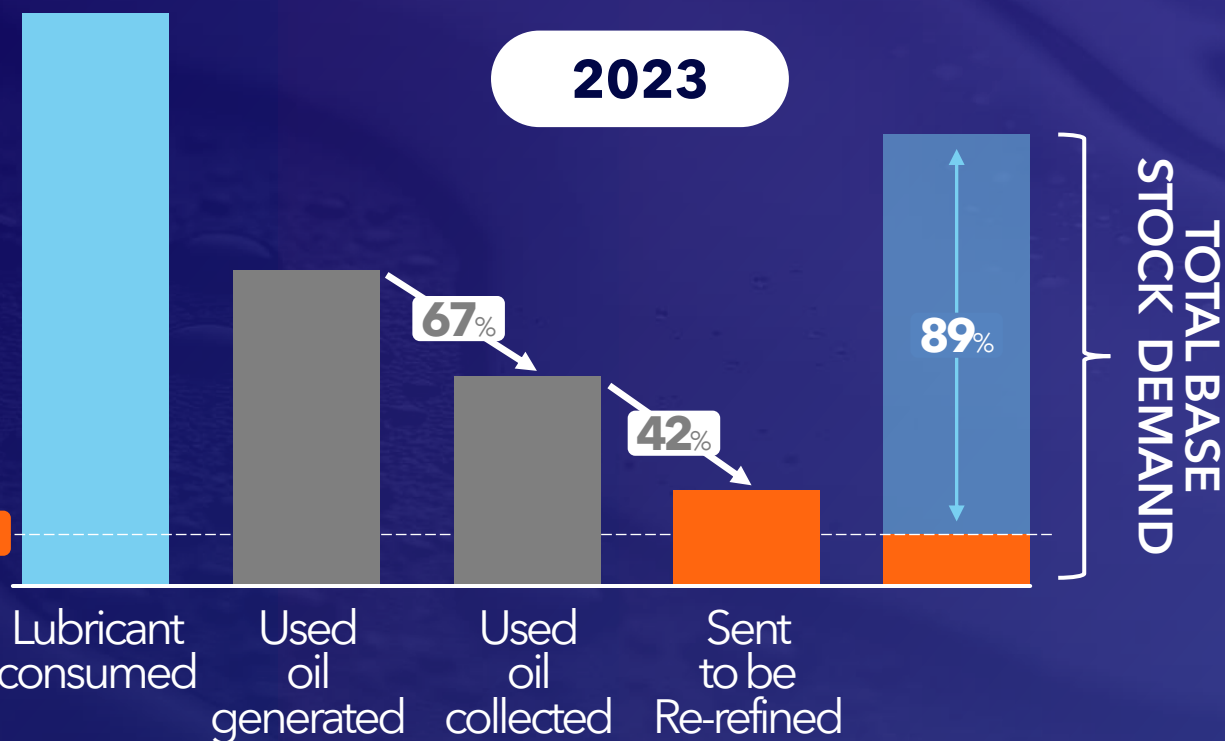
RRBO

re-refined base oils



RRBO capacity is modest but growing

Used oil market, million tons of oil



2028

Re-refined forecast

**ACTION
NEEDED TO
GET MORE
FEEDSTOCK TO
RE-REFINERIES**



Data source: Kline & Company

Unlocking the value of RRBO

HARMONISED ACTIONS AND SUPPORT NEEDED



VEHICLE OEMs
taking action on
RRBOs



Adding PCF
reduction targets and
limits in specifications



Requesting RRBO-
containing lubricant
formulations



Seeking advice on
PCF and
circularity options



Co-developing RRBO-
containing products
with circular claims

MARKET INTEREST AND ACTION

PCF = product carbon footprint



ICE

Investment and
longevity





ICE technological advancements

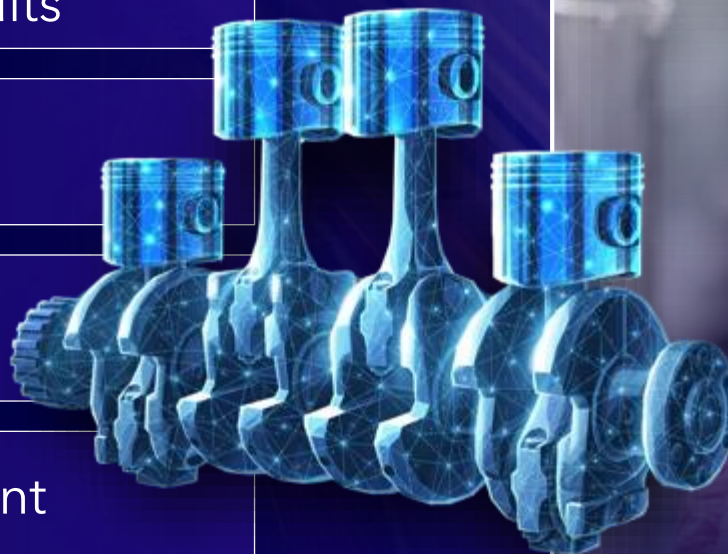
Injection and ignition
Combustion chamber
Intake and exhaust circuits

Smaller, lighter,
more compact

New materials and
seals

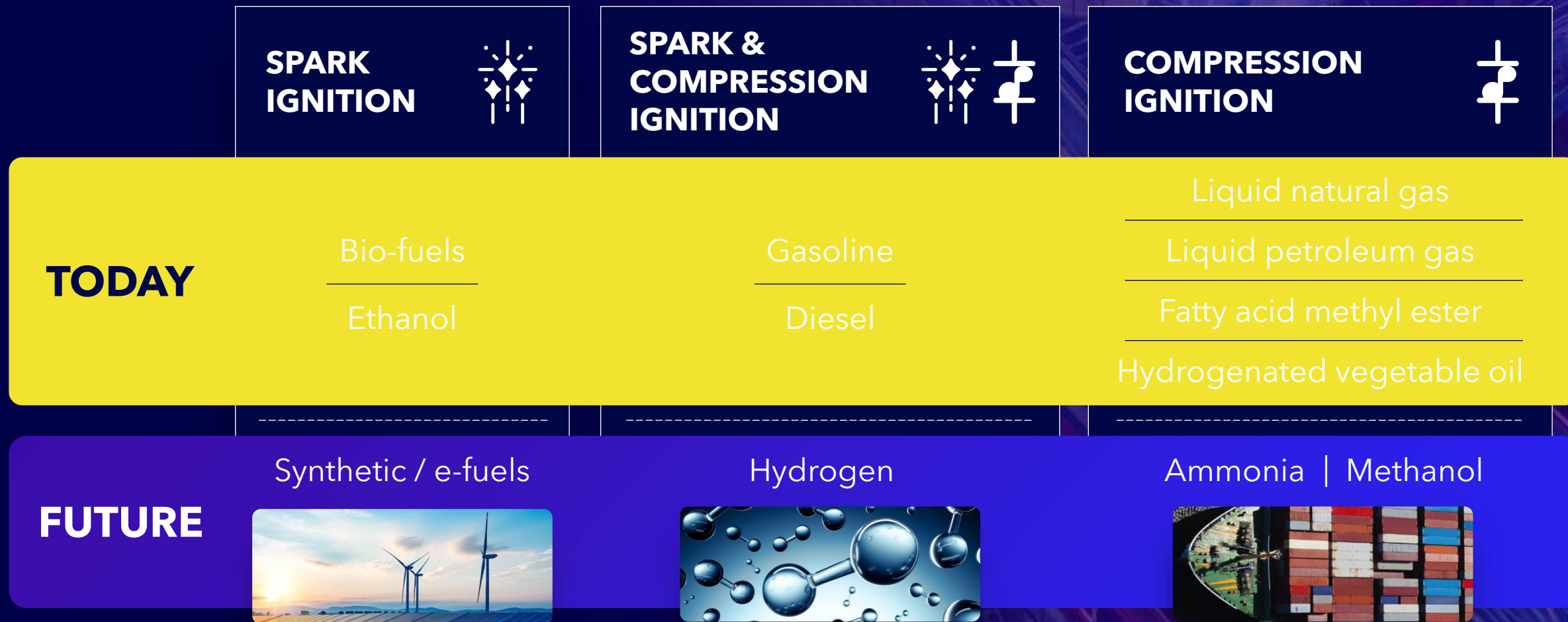
Advanced aftertreatment

Evolving oil ageing mechanisms



**LUBRICANT DEVELOPMENT
MUST ENSURE PROTECTION
OVER LONGER DRAIN
INTERVALS**

A complex landscape of ICE future fuels





THE WORLD IS CHANGING FAST



Regional uncertainties - challenges emerge

Increasing impact of US tariffs



*Unexpected changes
in legislation likely*

*Threat of large fines for
missing emissions targets*



*Upcoming
ICE ban*

*Expanding globally,
increasing competition*





PERSONAL MOBILITY

COMMERCIAL ENGINES



ICE

BEV

H2ICE



ICE

HEV

BEV

e-FUEL
/ H2ICE

A MULTI-FUEL,
MULTI TECHNOLOGY
FUTURE



ICE

ALT FUEL

FUEL CELL

H2ICE



BIO /
METHANOL

ICE

ICE
GREEN
FUELS

Keeping pace with change



STAY AGILE



INVEST WISELY



**INFLUENCE
POLICY**



**STRENGTHEN
PARTNERSHIPS**



**KNOW OUR
MARKET**

**BY BEING HERE TODAY,
WE ARE ALREADY DOING THIS!**

TRENDS

INSIDE NET ZERO