

VIENNA ENERGY TRANSITION FORUM

The role of Oil&Gas in the “Energy Transition” Era

E.U. Energy Transition 2050

Challenges for a petroleum refining company in South-East Europe

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1.

Introduction to HELPE:

Who we are, key financial results, production sites

Hellenic Petroleum: Who we are

We are the leading energy group in SEE region

- Complex system of 3 refiners plus a pipeline-fed terminal in FYROM
- >60% Greek market share
- Sales volume: 16,1 mMT

- PP vertically integrated with refining & trading



**Refining,
Supply
& Trading**

Petrochemicals



**Exploration &
Production**



**Domestic
Marketing**



- Progress in exploration:
JV on Patraikos Gulf (w/ Edison)
- Licenses:
2 inland blocks, 3 sea blocks

**HELLENIC
PETROLEUM**

- Leading position in all market channels 1764 petrol stations
- >30% market share



Power & Gas

**International
Marketing**



- 35% share on DEPA NG supplier / DESFA Transmission Operator
- Elpedison (JV HELPE, Edison)
- ELPE Renewables (100% HELPE subsidiary)

- Cyprus, Bulgaria, Serbia, Montenegro & FYROM
- 305 petrol stations
- Sales volume: 1.8 MTmn

Group Operational Footprint and Sales Mix



Leading domestic market position; major middle distillates and naphtha/gasoline exporter in the East Med market

Production Sites – Aspropyrgos / Thessaloniki / Elefsina Refineries



Aspropyrgos Challenges

- Bioethanol / RED II Directive
Revamp of existing methyl ethers plants to respective ethyl ethers (ETBE, TAE), in order to meet the minimum bioethanol content on gasoline stemming from RED II Directive on Biofuels, from 01.01.2020
- Marine Fuels / IMO 2020
Decision on global reduction of sulphur content in marine fuels from 3.5% to 0.5%, from 01.01.2020

Thessaloniki Upgrade Investment : €245 million

- Supplies products in Northern Greece Integrated with Petrochemicals Complex
- CE and the Balkan area
- Emissions Reduction: SO₂ ↓60%, PM ↓60%



Elefsina Upgrade Investment : €1,4 billion

- Increase in processing MS and HS crude types: 60% → 100%
- Increase in production of middle distillates vs fuel oil
- Emissions Reduction:
 - SO₂: 642 kg/hr → < 200 kg/hr
 - NOx: 92 kg/hr → < 90 kg/hr
 - PM: 45 kg/hr → < 20 kg/hr

2018
HELPE's best year ever in terms of refining performance

HELPE GROUP

2018 Financial Results



Growth
in sales volume



10 year Record High



2018 Dividend



2.

**Energy Transition in the EU and the world:
*Changes in the energy mix, projections of oil demand, new
geographies on trade***

Energy Transition in the EU and the world

The EU has the ambitious goal of leading the global energy transition



2030 → - 40% GHG vs 1990

2050 → 8 different scenarios from 80-95% to 100% GHG reduction (climate neutral economy)

*EC preference for the 2 scenarios transitioning to *a climate neutral economy (first two)*, but EU leaders will decide in the Sibiu Summit in May 2019

Third countries' goals



REACHING PEAK EMISSIONS by 2030



25% by 2030 vs 2005



26 -28% by 2025 vs 2005



30% by 2025 vs 2005

Some questions on the Energy Transition and Low Carbon pathways

Oil



Will we still **need oil** in the next decades?

Liquid Fuels



What will the **role of liquid fuels** be in the future?

Refining Industry



Will we still need **refineries in the future**, and what the refinery of the next decades will look like?

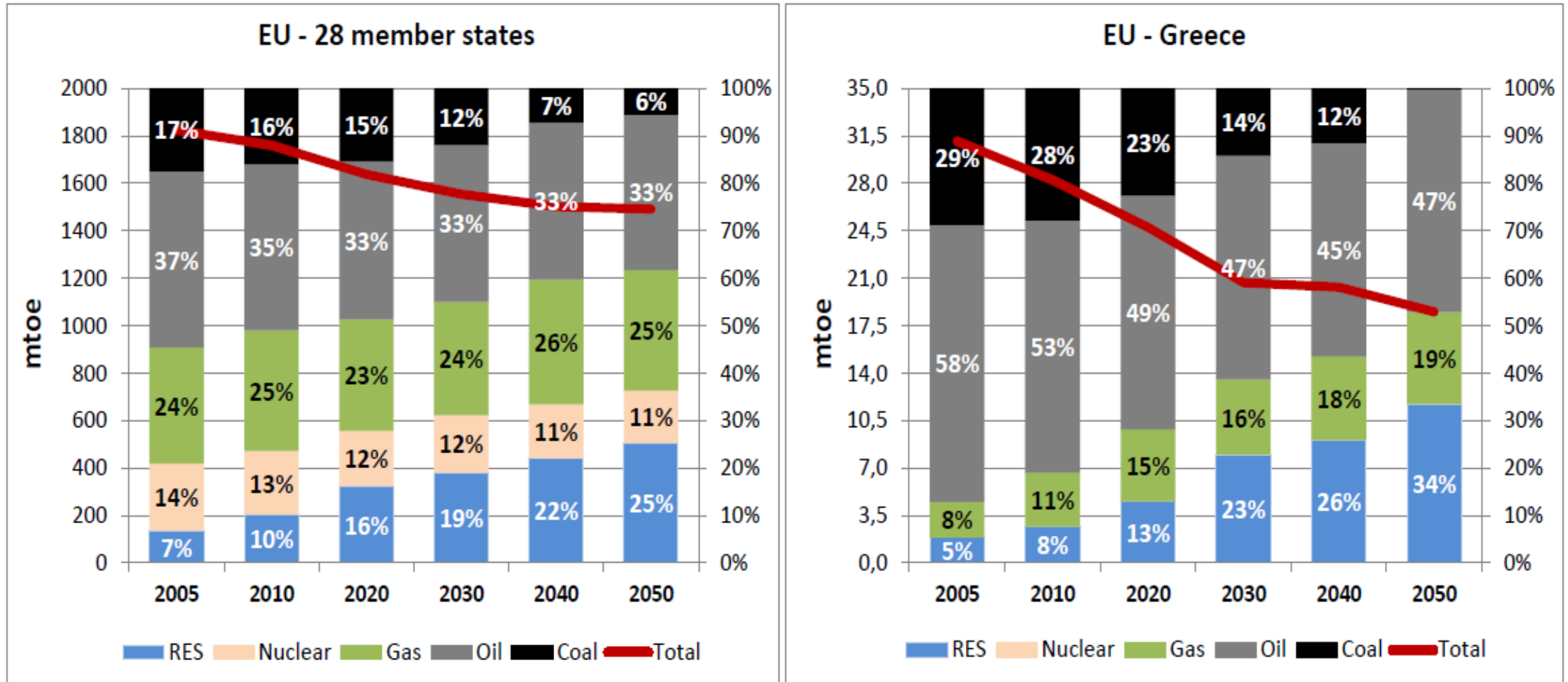
Innovation towards
Low Carbon Economy



Is **petroleum technology** an “old, fading technology” or does it have a crucial role to play in the transition to low carbon economy?

Energy Transition in the EU and the World / Energy Demand in EU

- EU projections show significant decline in energy demand (-18%) and switch of energy mix
- Greece projections point to the same conclusion but more aggressively (-27%)



Source : EU Reference Scenario 2016

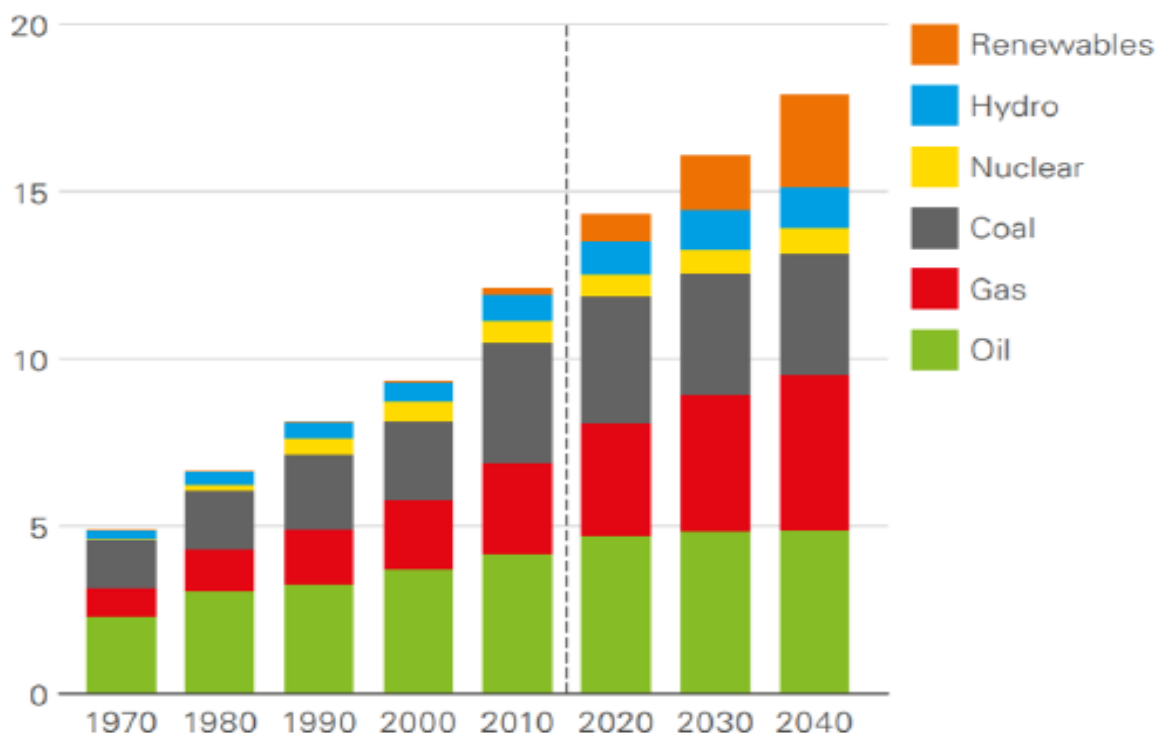
Energy Transition in the EU and the World / Energy Demand Globally

So, is there any role for the oil and gas sector in the future? **YES!**

BP sees an important role for oil and gas, at least until 2040

Primary energy consumption by fuel

Billion toe

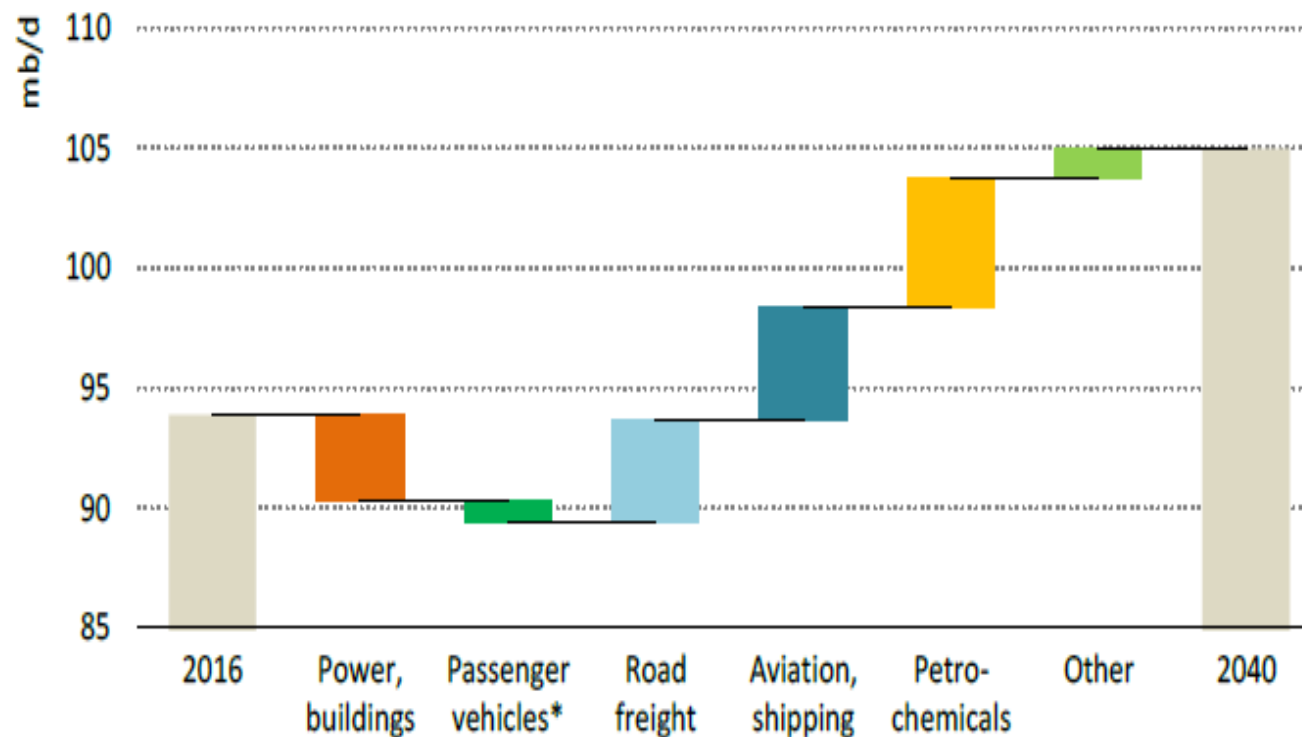


Source: BP Energy Outlook 2019

- Primary consumption of oil and gas will keep increasing up to 2040, due to growing demand from developing economies
- RES : the fastest growing source of energy but with a share of only 14% in 2040
- Gas is also growing fast, becoming the bridging fuel

“Will we still need oil in the next decades”?

Change in World Oil Demand by Sector within the next decades



While the outlook for oil in power generation, buildings and passenger vehicles hints at a peak in oil demand, this is more than offset by rising demand in other sectors

* Includes passenger cars, two/three wheelers and buses.

3.

**The role of the Refining Sector:
*securing energy supplies, environmental performance,
energy transition***

Energy security & geopolitics: the role of the refining sector

If indigenous hydrocarbons have a role to play in securing affordable supplies for Europe, then **there is a strong case for keeping refining capacity in Europe**. Refineries are:

- Ready to respond to political instability and trade sanctions that threaten security of supply
- Secure **supply of 90% of energy products used in transport in the EU, and about 2/3 of the feedstock for the petrochemical industry**.

EU refineries are flexible, reliable, and capable of processing a variety of crude sources

In the case of product supply disruptions, EU consumers and the EU industrial systems could face a shortage and/or a price spike.

Non EU-refineries not capable of producing products of the quality needed in Europe

Secure supply of oil is essential for EU production of petrochemicals, on which our everyday lives depend

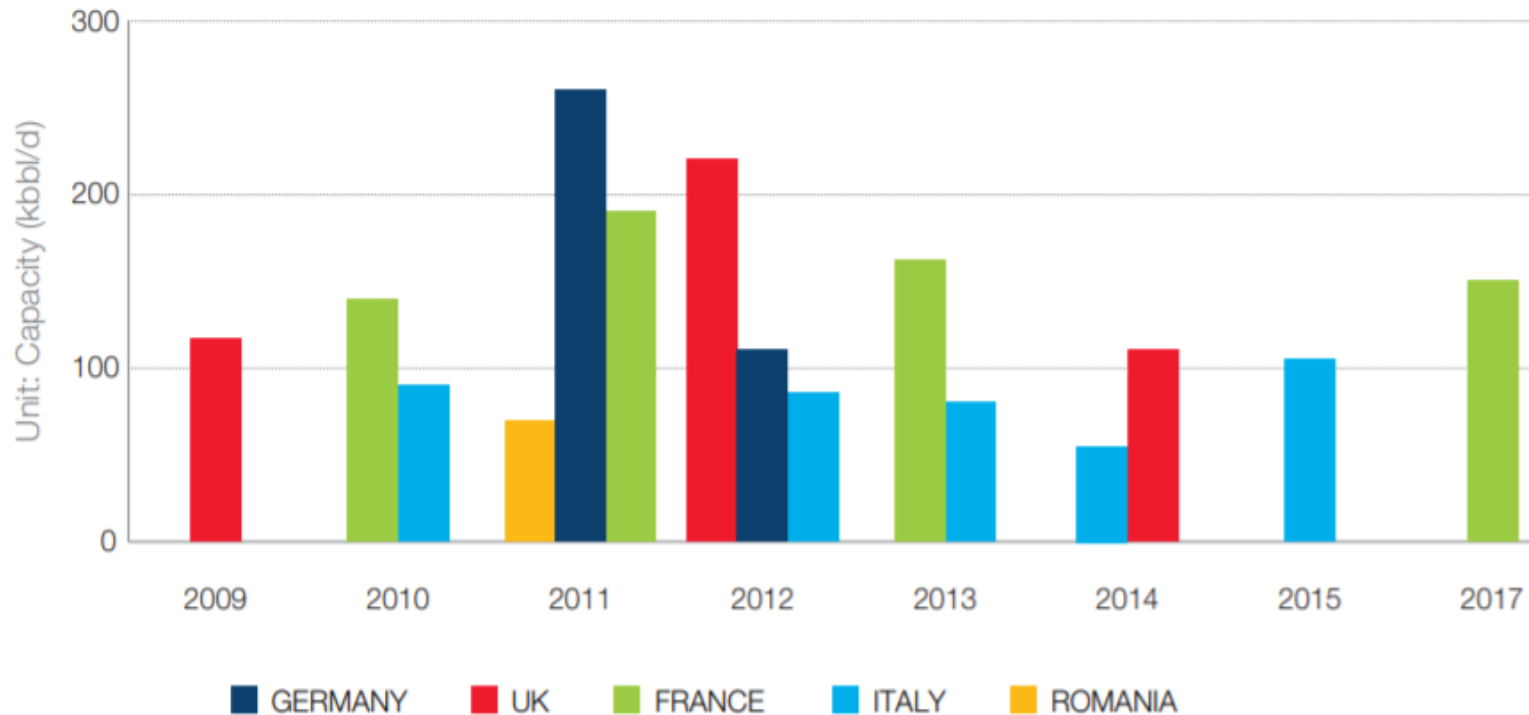
Therefore ready to switch between types of crude oil, depending on availability

A healthy domestic refining sector is indispensable for European energy security in an era of geopolitical upheaval

Energy security & geopolitics: the role of the refining sector

Since 2008,

22 refineries were closed in Europe (out of close to 100) accounting for a reduction of 13% of Europe's refining capacity, of which 1,8m barrels per day involve EU Countries



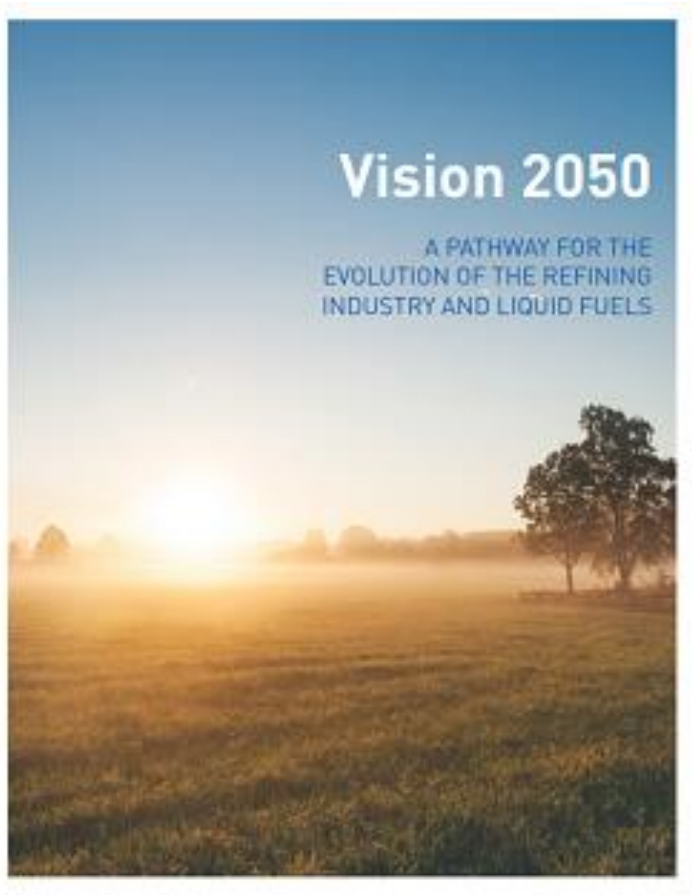
+35% ↑

Relocation of EU refining : Replacing 100 units of CO₂ emissions in EU means 135 units of CO₂ emissions out of the EU*

Threshold >50 kbb/d or 2.5Mt/a

Keeping refining capacity in Europe improves energy security AND environmental performance!

Source: Concawe / *Vivid Economics for UK DECC – Case study on Refining - Carbon leakage prospects under Phase III of the EU ETS and beyond



2018

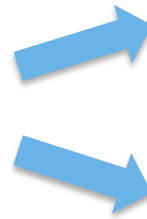
the EU refining sector presented its Vision 2050:

a pathway for the evolution of the refining industry and liquid fuels

- ✓ EU refining industry recognises that Climate Change is real and warrants action
- ✓ Answering the demand for energy while limiting the GHG emissions is a critical challenge

How can the EU refining industry can effectively contribute to address this challenge?

By:

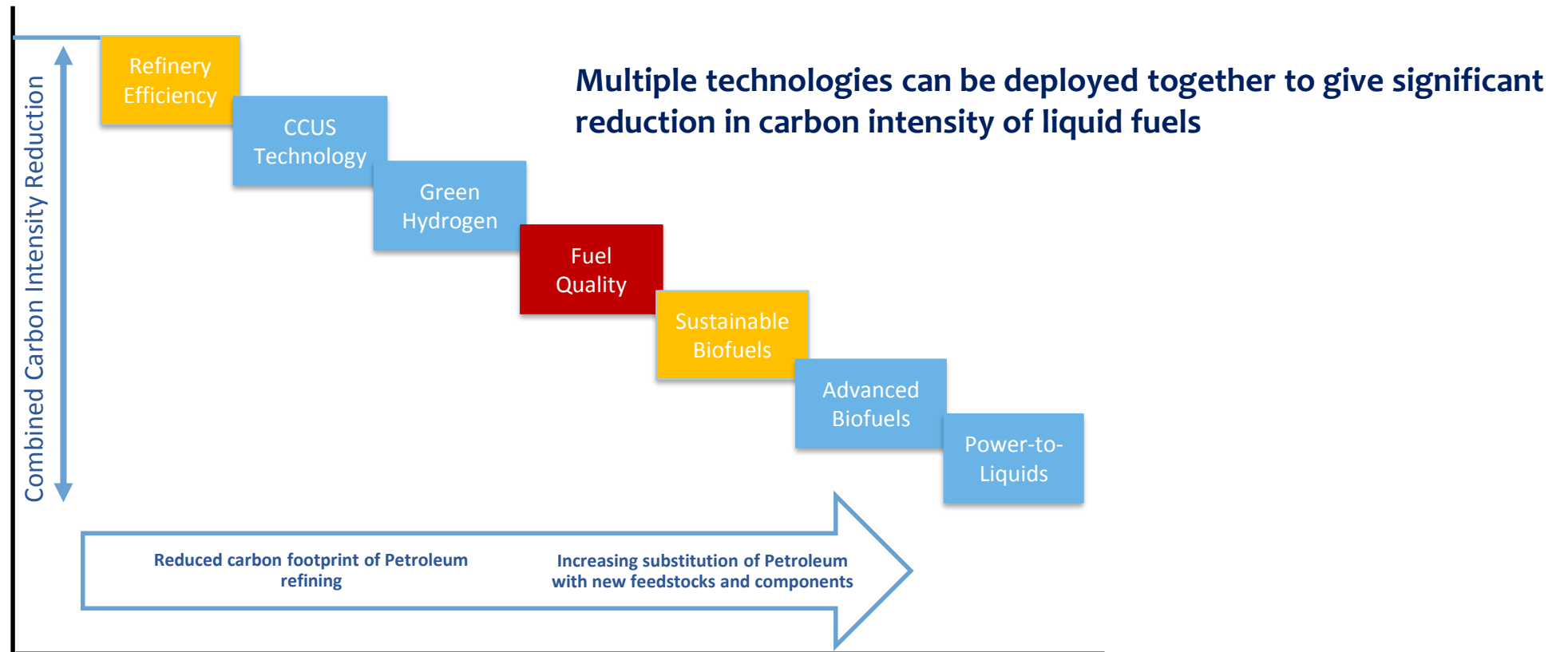


Gradually transitioning to new feedstocks, reducing product-related GHG emissions (combined with more efficient vehicles)

Further increasing GHG efficiency in refineries

Vision 2050: The role of the refining sector in the Energy Transition

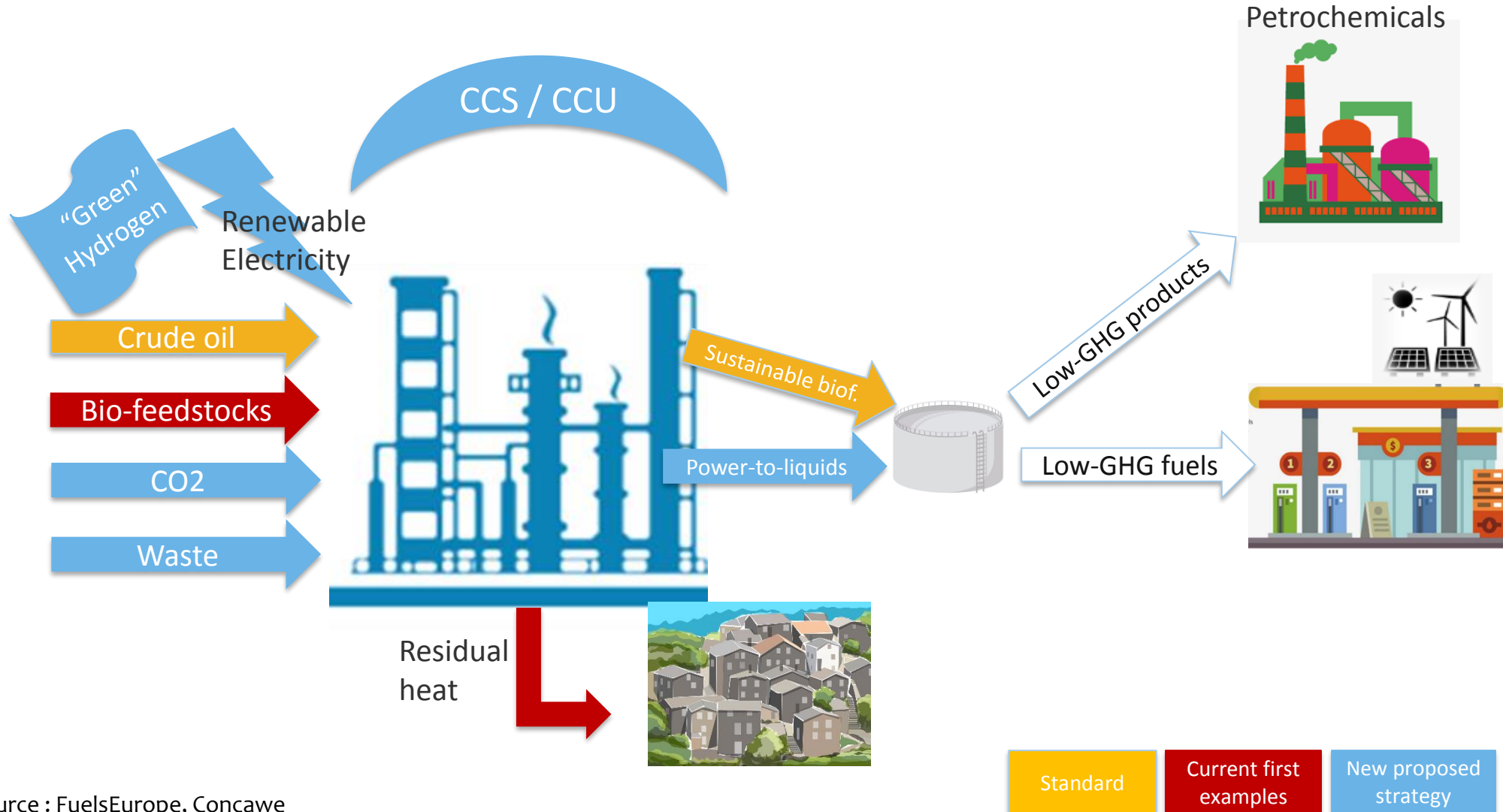
The refining sector invests in new and clean technologies, offering the potential to reduce GHG in liquid fuels



Source: FuelsEurope



The Refining of the future : an ENERGY HUB within an Industrial CLUSTER



Source : FuelsEurope, Concawe

Vision 2050: The role of the refining sector in the energy transition

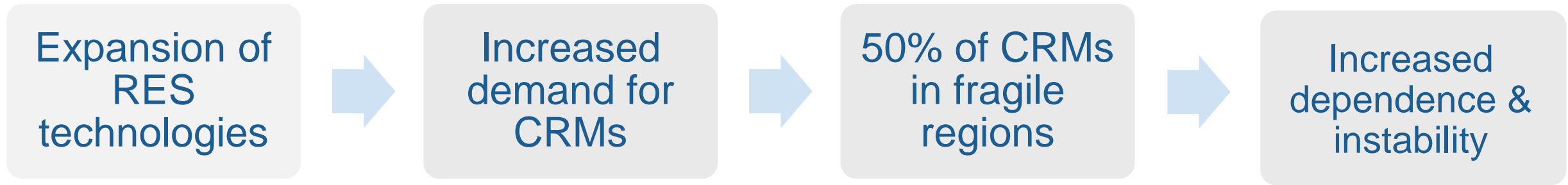
- A pathway to achieving the EU **climate change mitigation** objectives
- Ambitious but achievable
- A new **opportunity** for Europe to restore its **global industrial leadership** for the low-carbon transition, creating opportunities for exporting technologies and business models
- Based on **established and emerging technologies**
- Ensure **energy diversity and security** of supply for the EU
- Continue to offer **high skilled jobs** and major social and financial **contribution to the EU economy**

*There is no silver bullet!
but
many technologies will be needed*



4.

**Energy Transition and energy security:
*New routes and Indigenous sources in SEE and Greece***

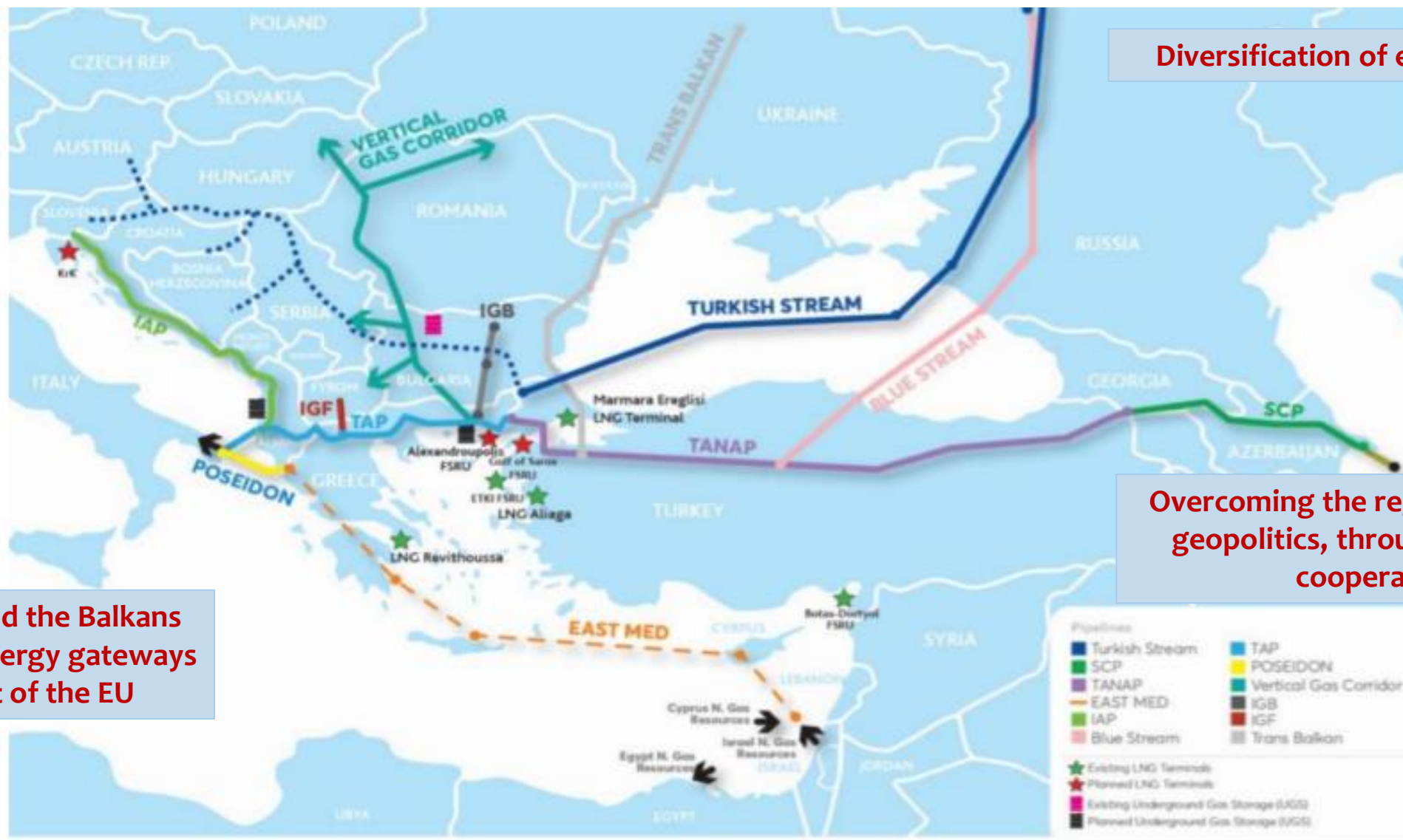


RISKS

Renewables & Batteries

- New monopolies
- New raw material concentration
 - New dependencies
- Non – transparent pricing mechanisms
- Lack of environmental standards and energy efficient production methods

Improving EU energy security in the EU: differentiation of energy routes

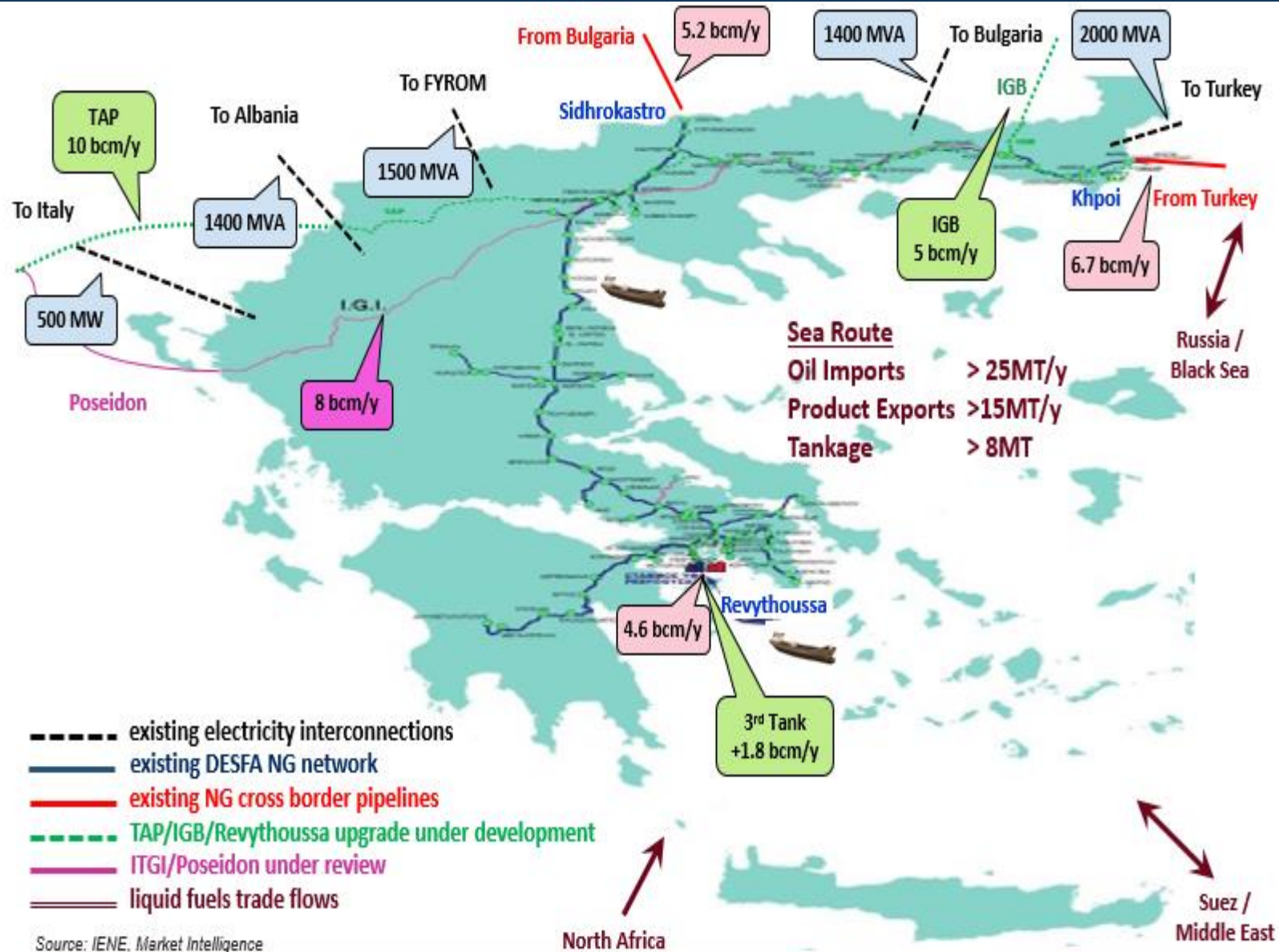


Diversification of energy routes

Overcoming the region's complex geopolitics, through economic cooperation

Greece and the Balkans become energy gateways to rest of the EU

Greece as an Energy hub



around 500 million € to be
invested in the next 5-6 years

Greece, too, pushes the E&P button



- Oil and Gas exploration is now a strategic target of the Greek National Energy & Climate Plan:
- improves energy security
 - improves geopolitical position
 - reduces dependence on coal
 - explores EU indigenous resources

Exploring indigenous resources in Greece: the role of HELPE

Patraikos Gulf (offshore) - HELLENIC PETROLEUM W.

Patraikos 50% (operator), Edison International S.p.A 50%

Main geological target confirmed from 3D seismic. Commitment for drilling one well during 2nd phase (Apr 2018 – Apr 2020)

Sea of Thrace Concession (offshore) - HELLENIC PETROLEUM

25%, Calfrac Well Services 75%

Prospective area surrounding the Prinos oilfield and Kavala gas field

NW Peloponnese and Arta-Preveza Blocks (onshore) –

HELLENIC PETROLEUM 100%

Block 2 offshore W. Greece - Total 50% (operator), HELLENIC

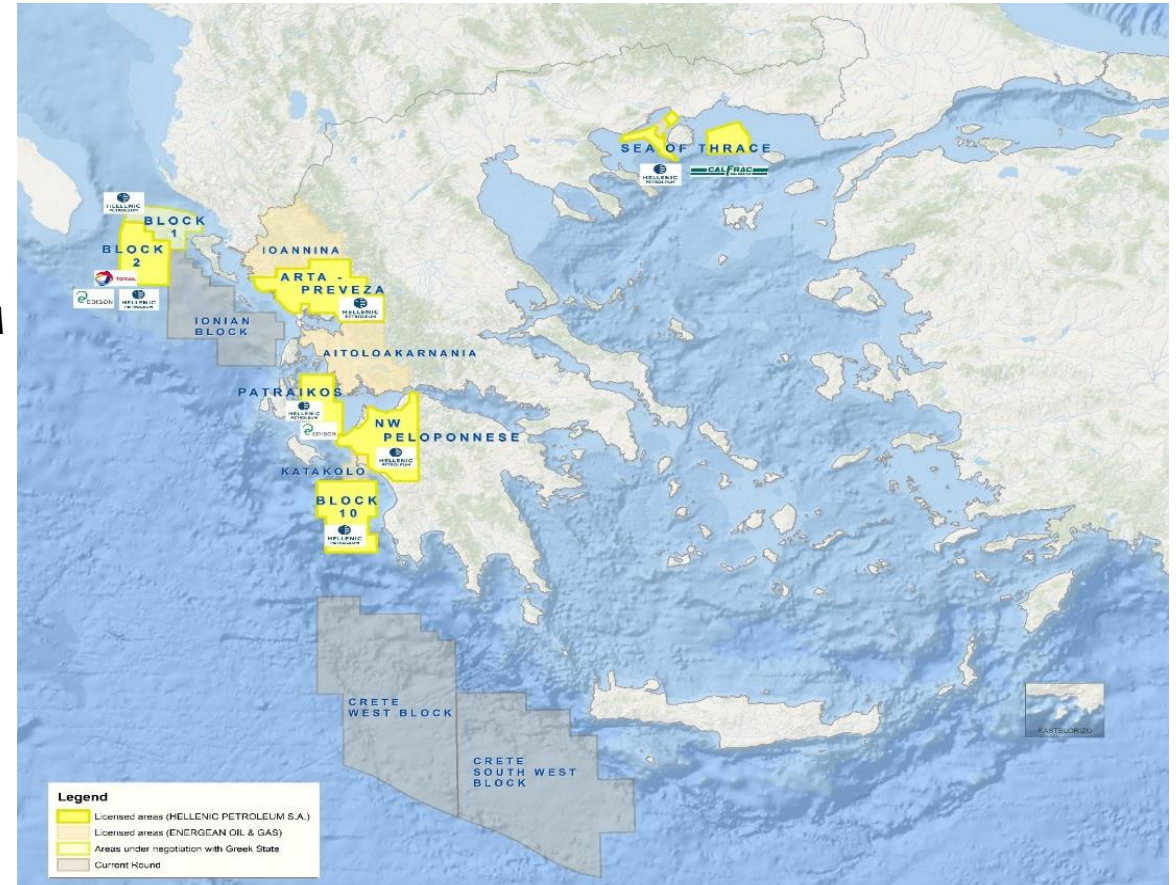
PETROLEUM 25% and Edison International

Early exploration works with environmental and geological studies in progress

Offshore W. Greece

HELPE submitted bids for Blocks 1 and 10; evaluation process ongoing for block 1, Lease Agreement finalized for block 10 and offshore Ionian block - JV with Repsol (50% - operator)

West and SW Crete - JV of Total (40% - operator), ExxonMobil (40%) and HELPE finalised Lease Agreement for two offshore areas West and SW of Crete.



4. Main Conclusions

- Europe is leading the Energy Transition
- Huge changes expected in energy mix and geopolitics
- New energy dependencies and monopolies will arise
- Oil/Liquid fuels will keep on having an important share of the energy mix for the next decades
- Oil companies need to adapt rather than simply carry on business as usual
- Refining has a crucial role to play towards the Low Carbon Economy /Vision 2050
- Many technologies will be needed. No silver bullet.
- Energy dependency and diversification will be critical for Europe
- Southeast Europe becomes Europe's *Energy Gateway and Energy Hub*. Its geopolitical role being upgraded
- Greece can act as regional storage and trading Hub
- E&P promising signs, together with the strong refining capacity of the region, constitute a real economic and social asset towards the new Energy Transition Era.

Thank you!

