HELLENIC PETROLEUM

How feasible is Decarbonisation in SE Europe
An Oil Company Perspective

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IENE 9th SE Europe Energy Dialogue, June 2016

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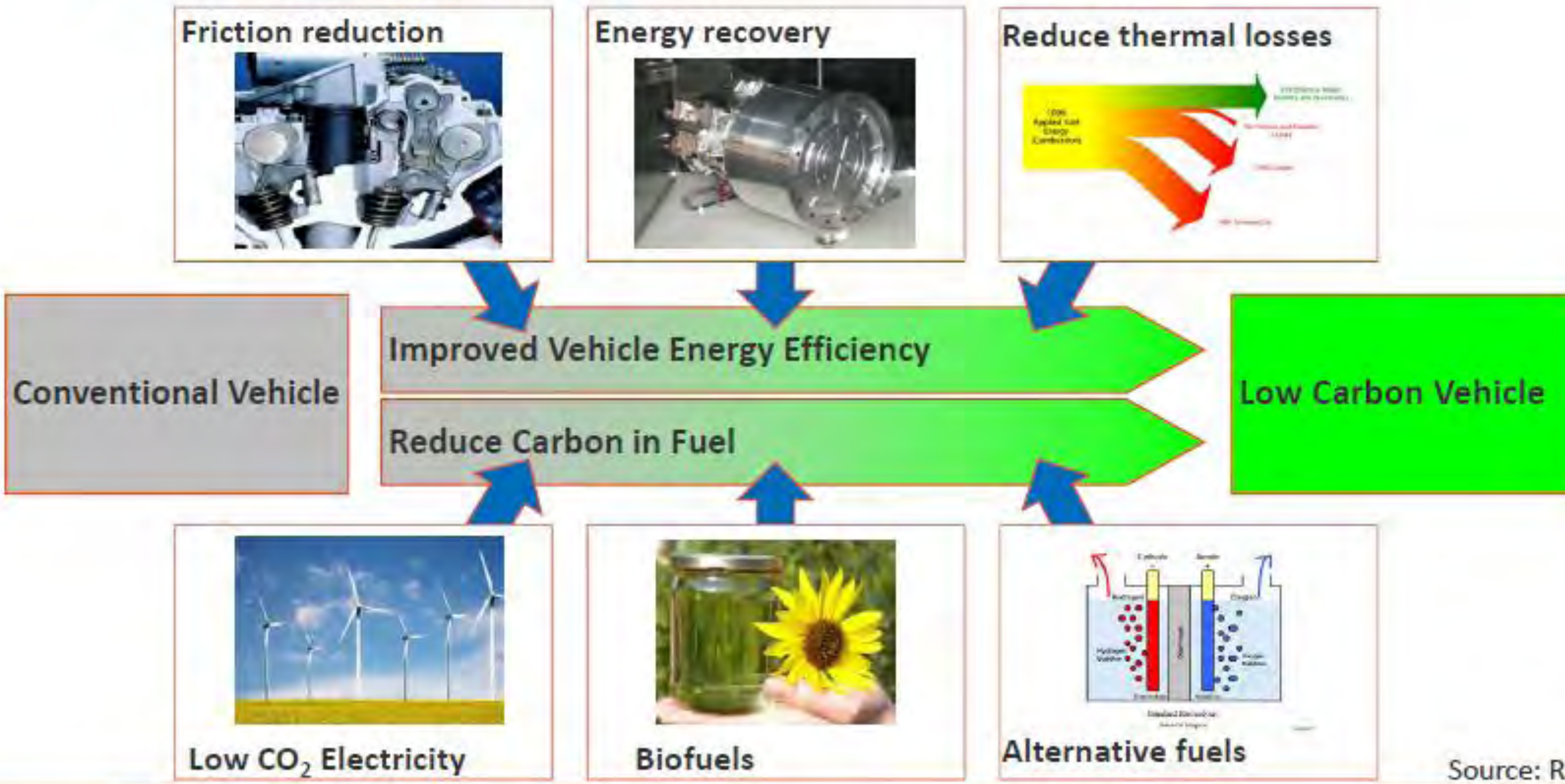
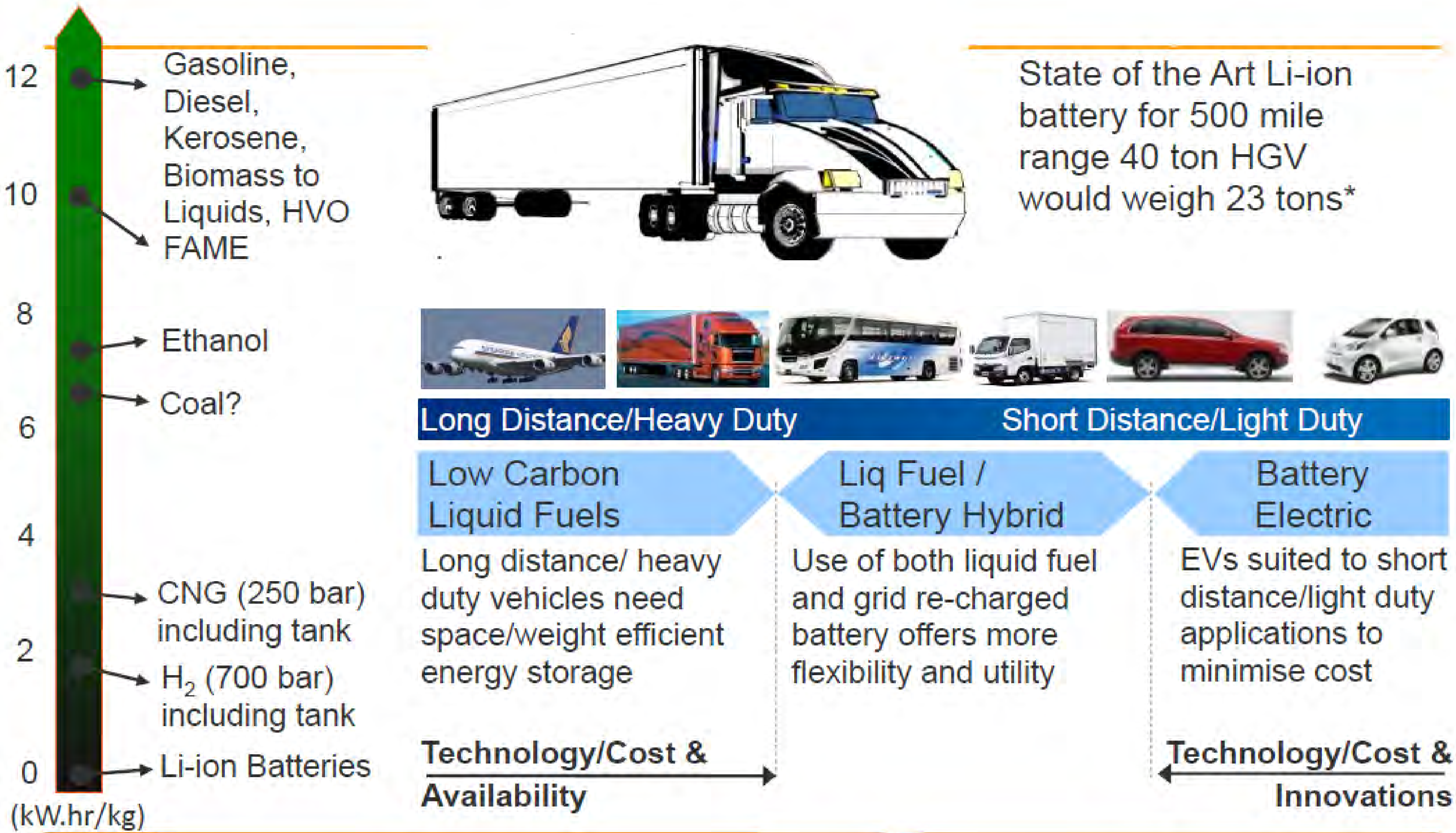
Transport Focus has been on Energy/GHG Reduction

- Options broadly fall into two categories:
  - Improve vehicle efficiency.
  - Reduce carbon footprint of fuel.
- Both pathways result in reduced CO_2 emissions for a specific vehicle/condition.



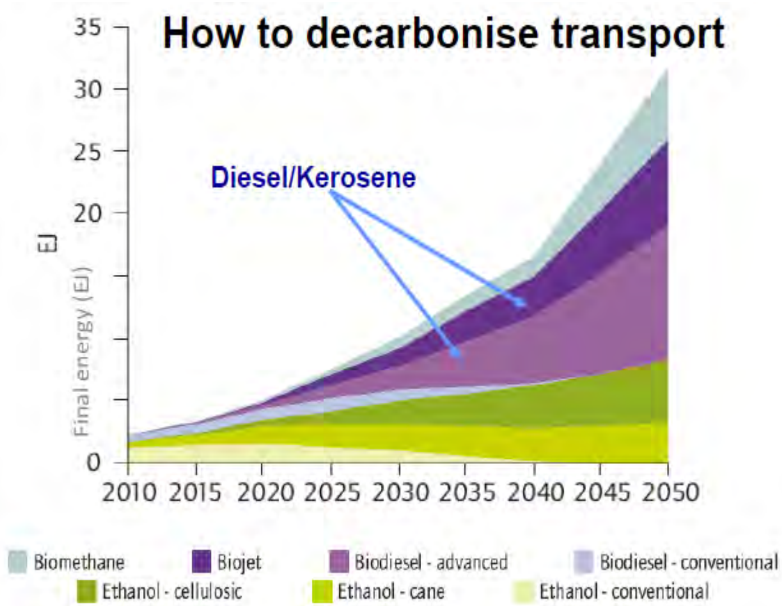
Source: Ricardo

Electric Vehicles likely attractive for some light duty applications but long haul will need low carbon fuels



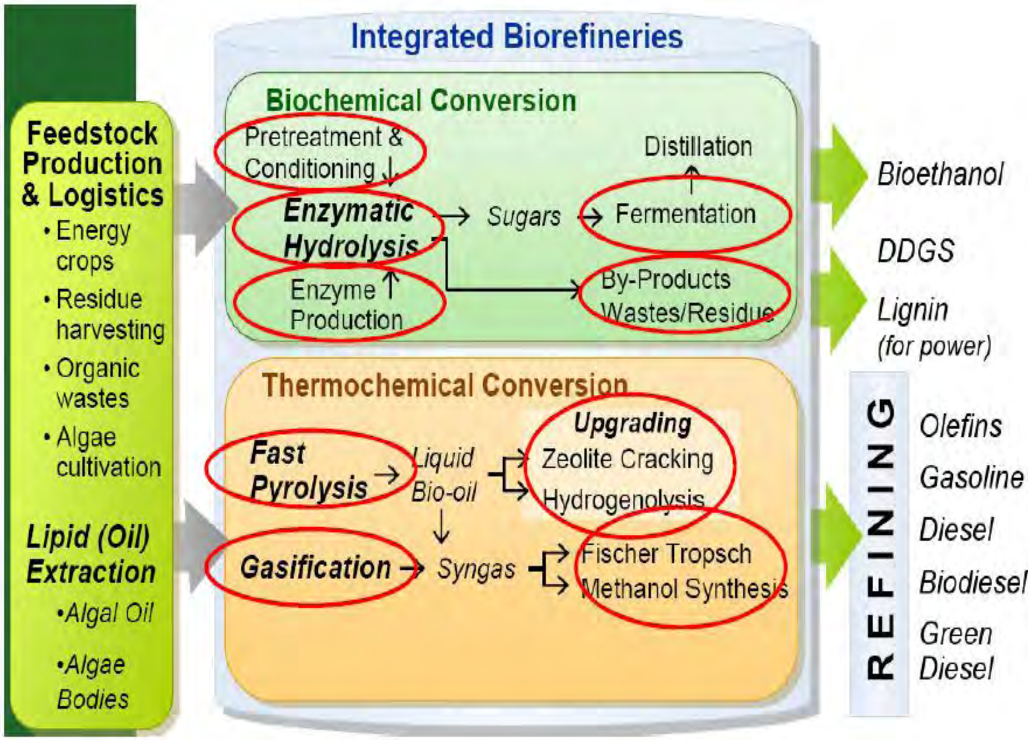
Πηγή: Ricardo research & US DoE

Next generation biofuels can be an alternative



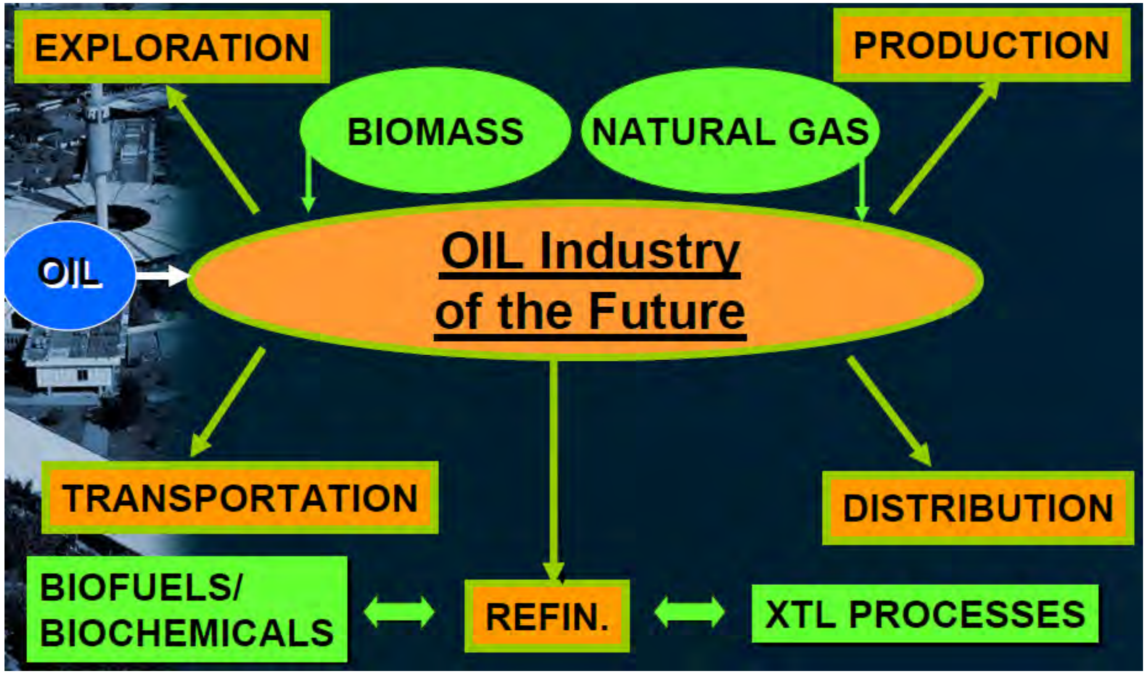
Πηγή: IEA, IRENA

2nd gen biofuels



Πηγή: IEA - Bioenergy

Biorefinery – oil industry's next step



- ✓ Increasing stringent environmental regulation
- ✓ Growing demand for cleaner fuels
- ✓ Increase in the production of derivatives from declining quality oil
- ✓ Growing pressure of several segments of the society aiming at the reduction of GHG
- ✓ Search for alternative raw materials such as biomass, NG and coal
- ✓ Profitability maintenance - Survival

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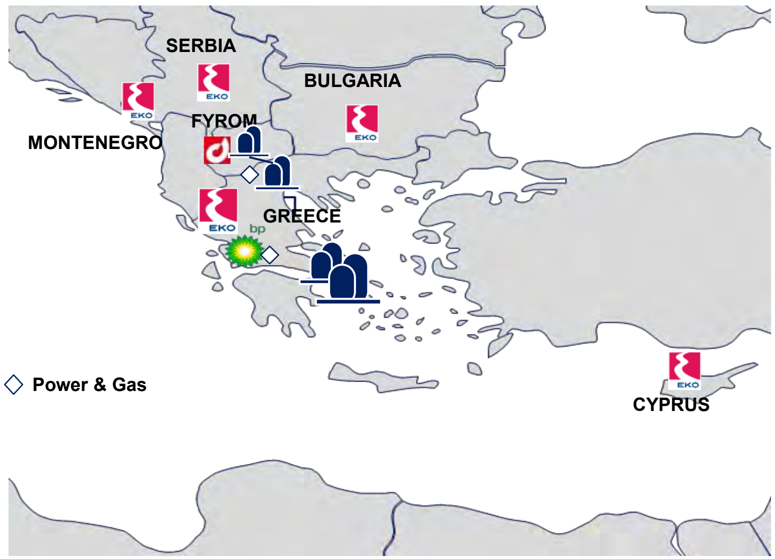
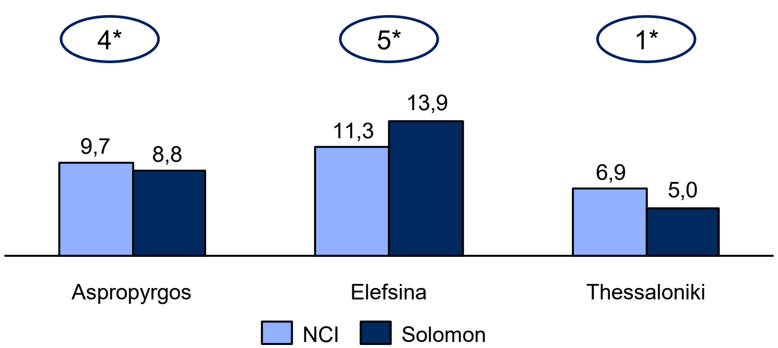
Leading independent refiner in SEE with recently upgraded complex refining asset base; sales evenly split between exports and domestic, where leading market position supports high over-performance vs benchmarks

Group operational footprint



Nelson/Solomon complexity and benchmark margins



(*) Average benchmark margins 2014-2015 ($/bbl)

- High complexity and net cash margin refineries
- Balanced sales channel mix with exports at 50% of total sales
- Regional footprint with international subsidiaries
- > 70% of cashflows driven from international sales and regional benchmark margins
- Leading domestic market position with c.60-65% of wholesale and c.30% of retail
- Marketing and Petchems vertically integrated with Refining; diversification in G&P
- Completed extensive restructuring plan significantly improving competitiveness position with c.€50 -70m of further upside

Assets overview

Core business around downstream assets with activities across the energy value chain

		DESCRIPTION	METRICS
Exploration & Production		• Exploration assets in Greece	• Patraikos Gulf (HELPE-Operator, 50% & Edison, 50%) • Sea of Thrace (HELPE 25%, Calfrac Well Services 75%)
Refining, Supply & Trading		• Complex (recently upgraded) refining system: – Aspropyrgos (FCC, 148kbpd) – Elefsina (HDC, 100kbpd) – Thessaloniki (HS, 93kbpd) • Pipeline fed refinery/terminal in FYROM	• Capacity: 16MT • NCI: 9.6 • Market share: 65% • Tankage: 7m M^3
Petrochemicals		• Basel technology PP production (integrated with refining) and trading • > 60% exports in the Med basin	• Capacity (PP): 220 kt
Domestic Marketing		• Leading position in all market channels (Retail, Commercial, Aviation, Bunkering) through EKO and HF (BP branded network)	• c.1,700 petrol stations • 30% market share • Sales volumes: 3.5MT
International Marketing		• Strong position in Cyprus, Montenegro, Serbia, Bulgaria, FYROM • Advantage on supply chain/vertical integration	• c.290 petrol stations • Sales volumes:1.2MT
Power & Gas		• ELPEDISON: Second largest IPP in Greece (JV with Edison/EdF)	• Capacity: 810 MW (CCGT)
		• DEPA/DESFA GROUP: 35% in Greece's incumbent NatGas supply company (DESFA in sale process)	• Volumes (2015): 3.0bcm

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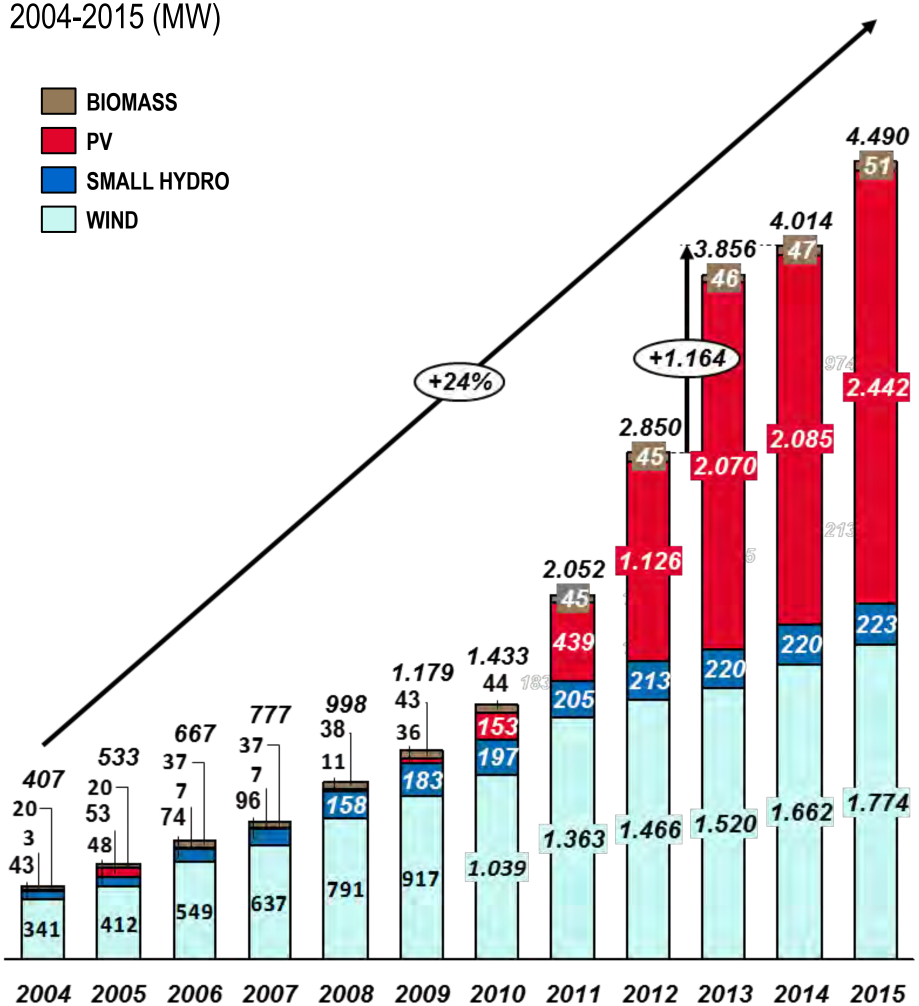
The Greek renewables sector: one of the fastest growing in Europe with increasing contribution in the energy mix

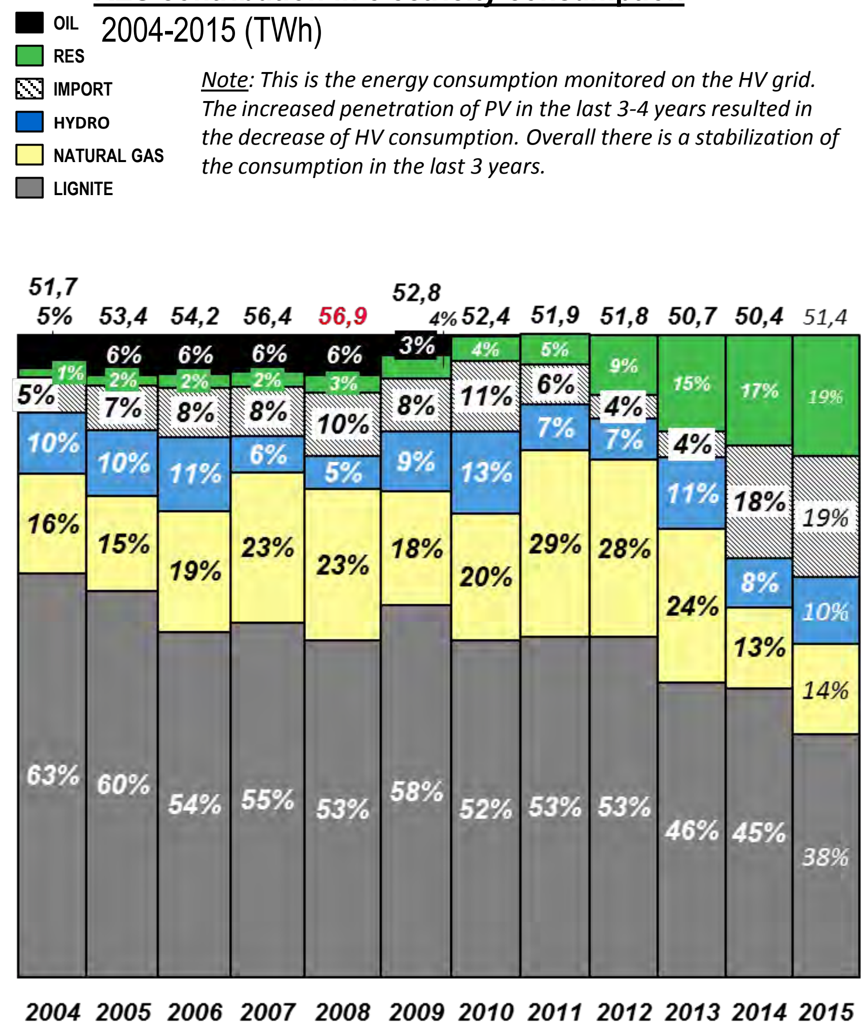
RES Installed capacity on the grid (interconnected)

2004-2015 (MW)



RES contribution in electricity consumption

2004-2015 (TWh)



Note: This is the energy consumption monitored on the HV grid. The increased penetration of PV in the last 3-4 years resulted in the decrease of HV consumption. Overall there is a stabilization of the consumption in the last 3 years.

SMALL HYDRO < 15MW

Source: ADMIE – INDEPENDENT POWER TRANSMISSION OPERATOR

HELLENIC PETROLEUM

Investing in Renewable Energy Sources

- Developing renewable electricity to diversify Group's energy portfolio. Also offsetting part of CO_2 emissions due to refining and power generation.

  - Wind farm and PV stations in operation
  - Developing a 200 MW portfolio (in various maturity stages)

- Expanding in biofuels

  - 2nd and 3rd generation biofuels

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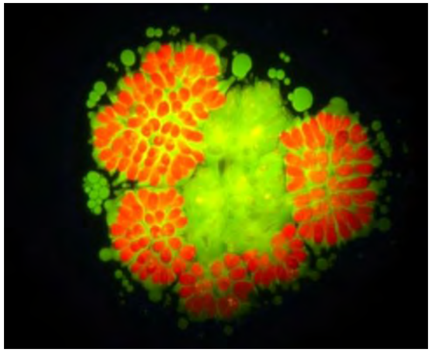
Supporting new technologies in energy and transport

- Supporting R&D projects with various academic institutions :
  - ✓ "Sustain-Diesel": hybrid diesel from used cooking oils
  - ✓ "Sustainable use of marine microalgae for the production of biofuels and high-added value biochemicals": 3rd gen biofuels
- Pilot applications of alternative technologies in transport
  - ✓ Electric vehicle charging points in selected petrol stations
- Corporate Venture Capital - under discussion

Participating in R&D projects …

Sustain-Diesel

Hydrosol Plant project - FCH JU



Sustainable use of marine microalgae for the production of biofuels and high-added value bio-chemicals

CAPITA

GREEN MEOH

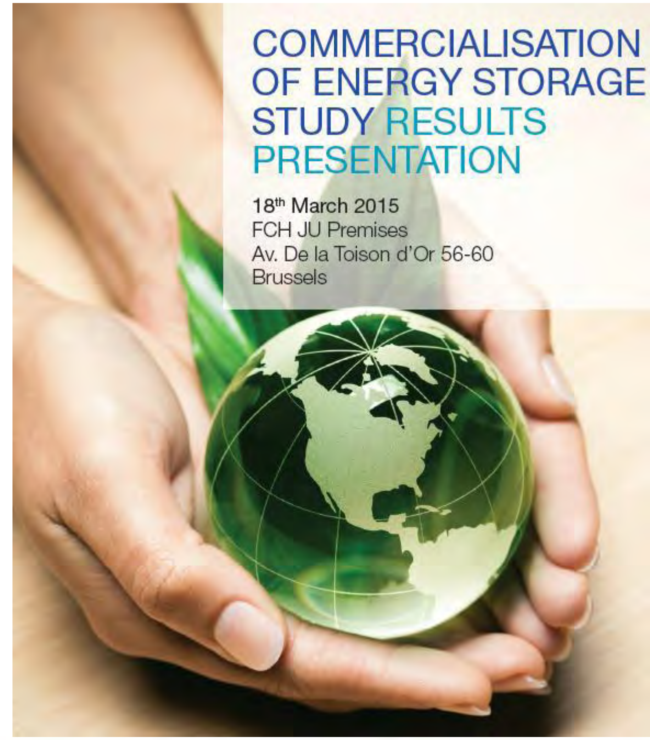
Green MEOH project - CAPITA

CHORUS

Clean Energy *cluster*

Innovation Clusters

… and European Union initiatives



Our vision: Sustainable transport & Clean energy

- Gaining know-how in future energy technologies
- Developing new business
- Converting R&D outputs in production

Evolving to an innovative, reliable and competitive energy supplier in the future

Hellenic Petroleum: Energy for life