SOUTHEAST EUROPE’S LEADING DOWNSTREAM GROUP WITH PRESENCE ALONG THE ENERGY VALUE CHAIN

**Refining, Supply & Trading**
- 17Mtpa / 344kbpd Refining capacity
- c. 7m M³ Crude and product tank capacity
- 60% domestic market share
- > 55% Exports

**Petrochemicals**
- 235kt Capacity (PP)
- 26kt Capacity (BOPP)
- 80% vertical integration
  - Supply of propylene
- >65% Exports

**Marketing**
- Domestic
  - 1,682 petrol stations under EKO and BP brand
  - > 30% market share
- International
  - 314 Petrol stations
  - 5 countries

**RES**
- ELPE Renewables
  - c. 350 MW in operation
- >2GW projects in various stages of development

**Power & Gas**
- Power (Elpedison JV)
  - 840MW CCGT capacity
  - 6% retail market share
- Gas DEPA (35%)
  - Infrastructure: In sale process
  - International: Exit considered
- Commercial:
  - 2.1 bcm w/s
  - Retail

**E&P**
- 6 Offshore early exploration blocks
  - Partnership with credible IOCs
THE ONLY CONSTANT IS CHANGE

- **Electric mobility**
  - Fleet electrification is proposed as a strategy for reducing air pollutant emissions and improving air quality in urban areas
  - New storage technologies and electric vehicles are leading towards a new system in which consumers can produce, use and sell their electricity
  - Electricity produced from RES

- **Renewable fuels**
  - Advanced biofuels can serve all different transport modes (road, rail, marine and air)
  - Waste, non-food biomass as a feedstock
  - Hydrotreated Vegetable Oil attracts investments (e.g., Neste, ENI, Total, UPM, Preem)

- **Green Hydrogen**
  - Integrating renewable electricity with electrolysers and desalination plants
  - Fuel cell vehicles

Aligned with EU strategies such as European Green Deal, REPOWER etc.
THE REFINING OF THE FUTURE:
AN ENERGY HUB WITHIN AN INDUSTRIAL CLUSTER

Source: FuelsEurope, Concawe
Strategic Research and Innovation at HELLENiQ ENERGY

- Started as participants in proposed research projects related to energy issues.
- Continue in targeted participation in projects relevant to the Group’s activities, enhancing collaborations with the academic community in Greece and abroad.
- Evolve into a team that defines and proposes research projects according to the strategic visions of HELLENiQ Energy.

✓ Areas of Interest

- Reduction of CO2 emissions
- Digitalization in refining
- Low GHG fuels
- Energy storage
- Renewable energy sources
- E-Mobility
INNOVATION AND RESEARCH OVERVIEW

**Biofuels**
- LIFE Biomass C+
- CIRCforBIO
- HyCon
- Beet2Bioref
- ALGAfuels
- BREW2BIO
- SUSTAIN Diesel
- ALGEA Biofuels

**Green H2**
- HYDROSOL

**CCS**
- OCEEGS

**Bio-refineries**
- HYDROSOL

**Electric Vehicles and Charging**
- PROOF
- SCENE
- Esthis
- ARIS
- Esthis
- H2

**Energy efficiency & Digitalization**
- PROOF
- SCENE
- Esthis
- ARIS

**Refineries**
- ZEOCAT-3D
- MethEUS
- HYDROSOL
- HYDROSOL

**Lipid4Fuels**
- Marginal lands, industrial crops and innovative bio-based value chains

**MIDAS**
- Novel CO2-based electrothermal energy and geological storage system

**ACTOIL**
- Bioenergy Solutions for Europe's Vehicles
Utilization of plastic and rubber waste for the production of alternative liquid fuels and adsorbent materials with innovative processes within the framework of the circular economy and industrial symbiosis model - ACTOIL

ESPA 2014-2020 abt 450.000 eur

GOALS

Pyrolysis of PP waste from HELLEniQ Energy – which can be use as feedstock for a pyrolysis plant.

Pyrolysis of synthetic rubber

Investigation of the conceptual plastic waste pyrolysis in a circular economy and industrial symbiosis model, focused on the development of a PP waste pyrolysis plant in Greece, within the context of circular economy and industrial symbiosis.

Partners

- CaO Hellas Natural Chemicals
- HelleniQ Energy
- Center for Research & Technology
- Aristotle University of Thessaloniki
Plastic Waste Treatment via Pyrolysis

- **Pyrolysis oil**: can be sold, providing a source of revenue for the pyrolysis plant. It can be used to generate heat and electricity, or it can be upgraded to produce fuels.

- Two additional products can be used efficiently within the concept of industrial symbiosis:
  
  - **The gaseous product** can be utilized to cover the energy demands of the pyrolysis plant. It can also be used by neighboring industrial plants as a source of thermal energy, thus reducing their operating costs and dependence on fossil fuels, such as natural gas.
  
  - **The char** can be offered to neighboring plants and used as fuel. It can also be used as feedstock in a plant that produces activated carbon.

Several industrial plants that produce plastic waste can offer their waste as feedstock to a pyrolysis plant, ensuring an efficient and environmentally safe utilization route for their waste.

Reference:

A. Zabaniotou & I. Vaskalis (2023), Economic Assessment of Polypropylene Waste (PP) Pyrolysis in Circular Economy and Industrial Symbiosis Energies, MDPI 16(2), 593
In Greece, approximately 700 thousand t of plastic waste (68 kg per capita), is generated annually. Improper management: low collection rates; highly mixed waste streams & limited recycling infrastructure.

The accumulation of plastic waste poses an important issue for the country, as more than 40 thousand t of plastic leaks into nature and local ecosystems each year.

Negative implications on the national economy, with annual losses amassing to 26 M€, affecting the tourism, shipping, and fishing sectors.
The potential of utilizing waste and feeding it into a forward supply chain, within the model of circular economy, is of great significance for the energy transition to a low carbon economy.

A circular economy model focuses on waste management and resource recovery, through reuse, recycling, and energy utilization.

Emission reduction and promotion of the efficient use of resources