Motor Oil Group – Στρατηγική 2030 & Ανάπτυξη Εναλλακτικών Καυσίμων




Γεώργιος Μητκίδης, Head of Alternative and Renewable Fuels, Δ/νση Στρατηγικής

www.moh.gr | 16th May, 2025

MOTOR OIL

Motor Oil Group at a Glance

A Diversified Multi-Energy Group

Refining, Supply & Trading

Local Energy Champion with a Global Reach

~12,700 kt
Refining Processed Volume[1]

12.61
NCI[2]

MOTOR OIL

Retail

One of the Largest Mobility Networks in Greece

c.1,500
Fuel Stations in 5 Countries

>250,000
Electricity and Gas Customers

AVIN Coral nrg incharge

Regional RES Champion

#2 RES Operator in Greece

839 MW
Installed Capacity

2.7 GW
Pipeline

more energy

Circular Economy and Alternative Fuels

Integrated Circular Economy Platform

~300,000 tpa
Solid Waste Management

43,000 tpa
Lubricants Processing and Regeneration

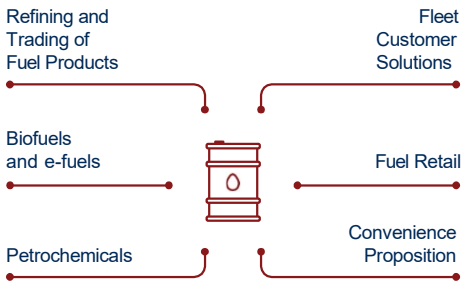
Thalis LPC verd ΗΛΕΚΤΩΡ

Financials (2024)				
	€12.2bn Revenues	**€0.967bn** EBITDA	**€433ml** Investments	**€1.4** Dividends per Share

Notes: 1.2023. 2. The Nelson Complexity Index (NCI) is a measure of the sophistication of an oil refinery.

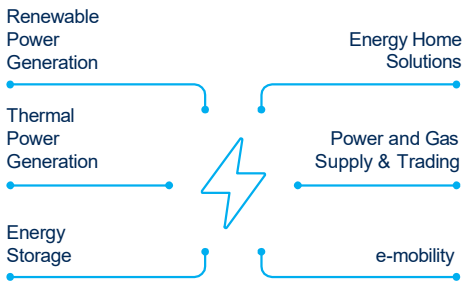
Route to 2030: Supplying the World with Fuels, Electricity and Recycled Resources

Fuels



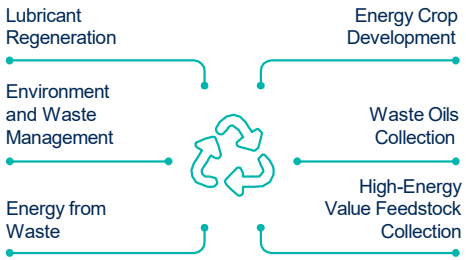
- Reinforced resilience, flexibility and cost efficiencies
- Decarbonisation of products and services
- Logistics improvements and digitalisation

Electrification



- Renewable platform growth and internationalisation
- Commercial and operations optimization across platforms
- Integrated customer solutions

Circular Economy



- Harvest the potential of circular processes
- Development of high energy-value feedstocks
- Explore major growth potential in waste management

We Have Made Significant Progress on our Energy Transition Plan…

Building Low-Carbon Projects to Enhance Resilience and Sustainability at the Refinery

160,000 tpa
new propylene splitter unit **under construction**

+67 MW
dependable efficient generation capacity to reinforce resilience, **under construction**

30 MW
electrolyser **under construction**
Expansion to 50 MW under consideration

3
major investment programs under review (advanced biofuels, e-fuels, CCS)

Established Leading Positions Across the Electrification Value Chain

#2
RES operator in Greece[1]

RES installed capacity
279 MW (2021) → **839 MW** (1H 2024)

+877 MW
Komotini CCGT commissioning started: the most efficient gas-fired facility in Greece

e-mobility leadership
145 EVC[2] (2021) → **~1,550 EVC**[2] (1H 2024)

Integrated and Diversified Circular Economy Business

One of the largest
circular economy platforms in Greece

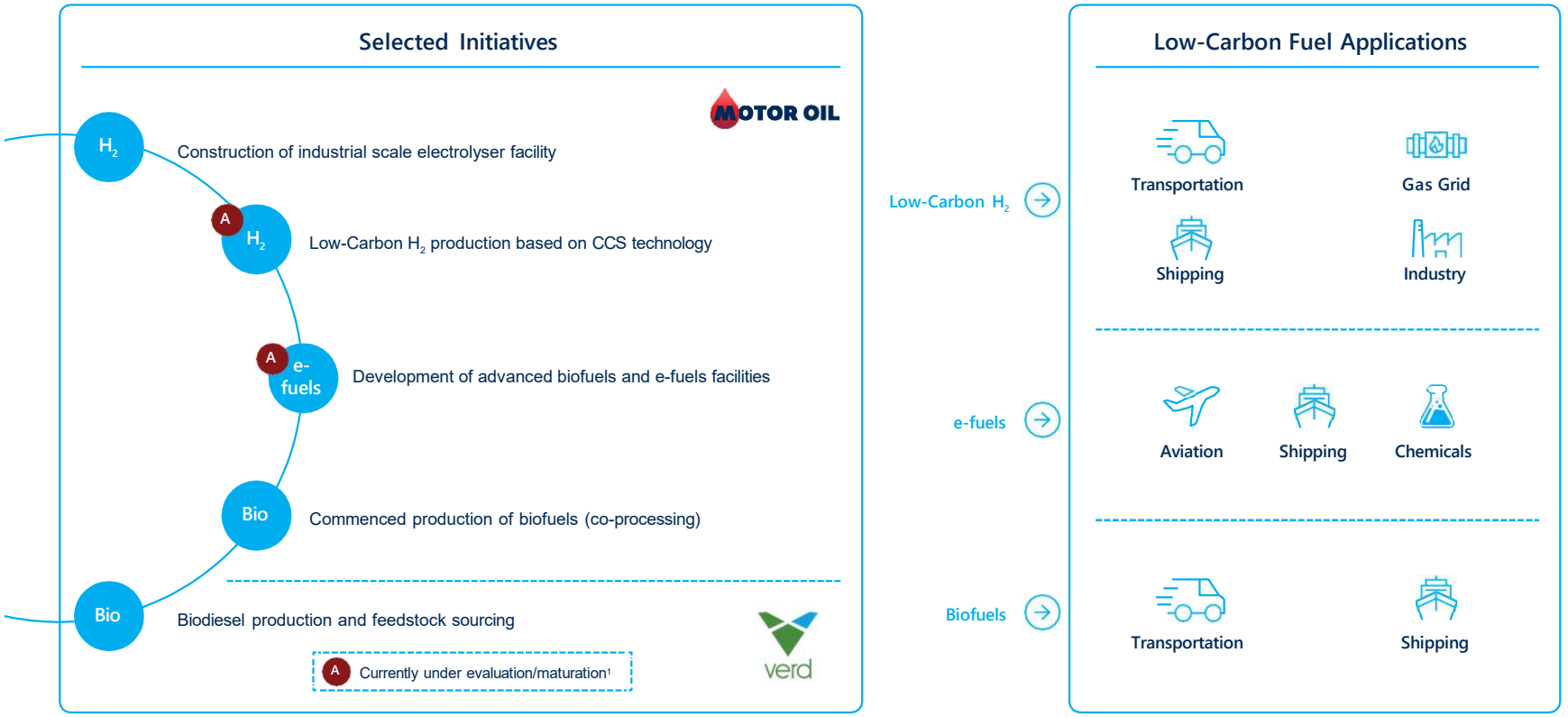
~300,000 tpa
solid waste management

>15,000,000 m³/year
municipal wastewater treatment

>25,000 tpa
UCO collection and biofuel production

Notes: 1. Refers to total wind and solar installed capacity. 2. Electric vehicle charging point.

Developing the First Low-Carbon Energy Hub in Southeastern Europe



Notes: 1. Includes Project IRIS, part of MOH's Blue Med program. Project IRIS has been awarded an €127mn grant from EU's large scale innovation fund.

Pathway to Reduce GHG Emissions

Decarbonisation of our Activities

- Secured €127mn grants for implementation of CCS on SMR unit (Project IRIS)
- Low-carbon H_2 to reduce Refinery GHG emissions further
- Reduced emissions from power unit efficiencies and recycled H_2
- Ongoing energy conservation initiatives
- 10 MW PVs installed on refinery alongside 6 MW storage. 24 MWh storage system

Decarbonisation of our Products

- ~60 ktpa of low-carbon H_2 to be produced by 2029
- ~25 ktpa of e-methanol to be produced by 2029
- ~200 ktpa biodiesel production capacity from co-processing biogenic feedstock
- 250+ ktpa advanced biofuel production program under assessment

CO_2 Emissions Reduction Based on Visible Projects

~500,000 tpa[1]
Scope 1& 2
Emissions Reduction

~800,000 tpa
Scope 3
Emissions Reduction

Under the umbrella of the Blue Med program. Currently under evaluation/ maturation.

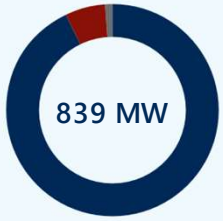
Notes: 1.Represents ~25% of current Scope 1& 2 emissions of the refinery.

Well-Positioned Across the Electrification Value Chain

Generation

Renewables

more energy



1.6 TWh
(2023)

Conventional

ΘΕΡΜΟΗΛΕΚΤΡΙΚΗ ΚΟΜΟΤΗΝΗΣ Α.Ε.

877 MW
Capacity
50%
Ownership

KORINTHOS POWER

437 MW
Capacity
35%
Ownership

Supply & Trading

nrg

~235,000
Customers[1] # (2023)

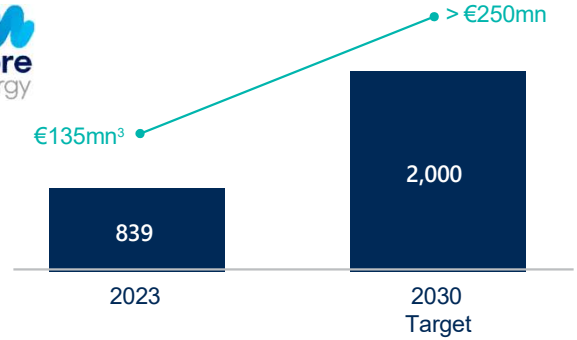
~2.5 TWh
(2023)

incharge

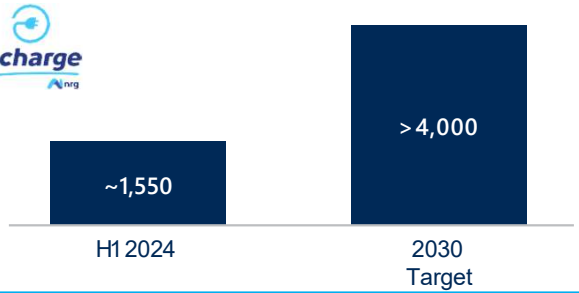
~1,550
Charging Points[4]

~400
Fast CPs[4]

MORE Installed Capacity (MW) & EBITDA (€mn)



inCharge (Charging Points)



Energy Management

- Strong synergies between renewables platform and electricity supply & trading arm
- Capability to offer full suite of products backed by renewable, conventional and storage assets

Notes: 1. Electricity customers. 2. MORE & nrg EBITDA has been adjusted for one-off items. 3. Illustrative EBITDA levels adjusted by MOH's ownership stake (35% Korinthos Power, 50% Komotini). 4. 1H 2024. 5. Pro-forma.

Circular Economy: An Emerging Strategic Pillar

One of the most diversified circular economy platforms in Greece[1]

- L Landfill
- G Biogas
- C Waste Cooking Oil Collection
- W MSW Facility
- F Lubricants Regeneration Facility

Thalis

Solid Waste
~300,000 tpa under management in 7 sites[2]

Thalis

Municipal Wastewater Treatment
> 15,000,000 m³/year

LPC

Lubricants Processing and Regeneration
> 43,000 tpa

ΠΡΑΣΙΝΑΔΙ

Waste Cooking Oil Collection
> 28,000 tpa

Pro-Forma Financials (LTM[3])

Revenue
~€220mn
(2024 LTM[3])

EBITDA
~€25mn
(2024 LTM[3])

Notes: 1.Map includes selected assets of Thalis. 2. Includes waste treatment units, sanitary landfills. 3. Includes Thalis, LPC, Prasino Ladi.

The Addition of Helector Brings Significant Operational Benefits

HELECTOR
MEMBER OF ELLAKTOR GROUP

EPC Contractor	✓
Technology Provider	✓
Operator	✓
Operations	
Recycling	✓
Treatment (solid waste)	✓
Waste-to-Energy	✓

Financials	
Revenue (LTM[4])	EBITDA (LTM[4])
~€100mn	~€19mn

Helector is an EfW[5] Leader in the Region

EfW

> 32 MW[3]
Biogas prospects

The acquisition of Helector has been completed in Q1-2025

Backlog[1]	Market Opportunities[2]
~€110mn	~€5bn

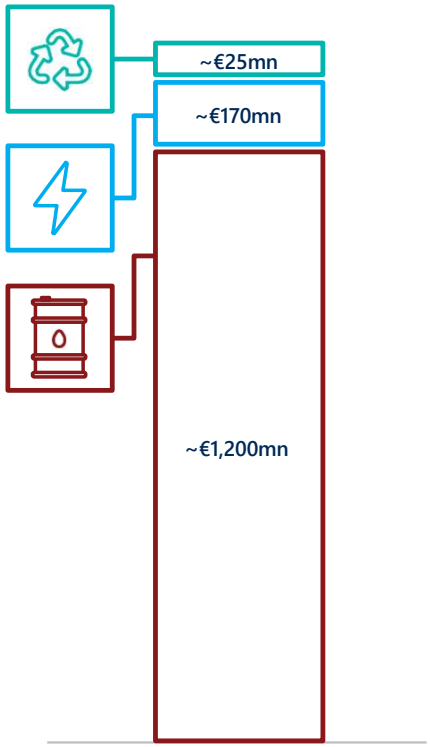
Solid Waste

Existing Market Leader with Unparalleled Knowhow

- Designed & delivered the largest MBT[6] plant in Europe (Sofia, Bulgaria)
- Operating one of the largest landfill gas energy utilisation units in Europe (Athens, Greece)
- Designed, delivered & operating the 1st integrated MSW[7] facility in Greece (Western Macedonia, Greece)
- Designed, delivered & operating the 1st MSW facility in Cyprus

Notes: 1. Helector construction and O&M backlog as reported in Ellaktor's 1H2024 update. 2. Gross construction and operation value of selected market opportunities. 3. Gross installed capacity, as reported by Ellaktor.
4. LTM as of 1H2024. 5. Energy from waste. 6. Mechanical Biological Treatment 7. Municipal Solid Waste

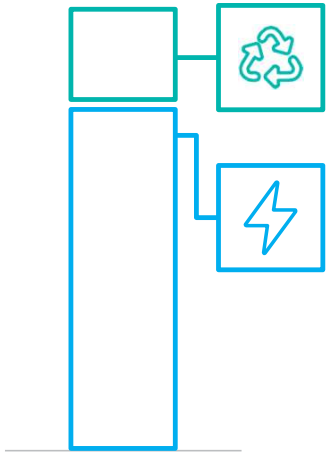
An Evolving Financial Profile: Higher Resilience and Attractive Growth



Evolution of Financial Profile

- Diversified operations across new growth markets
- Reduced exposure to regulatory headwinds and positioned to capture profitable transition opportunities
- Enhanced sustainability of financial outlook and dividend distribution capacity
- Reduced uncertainty due to commodity cycles
- Improved visibility supported by contracted cash flows

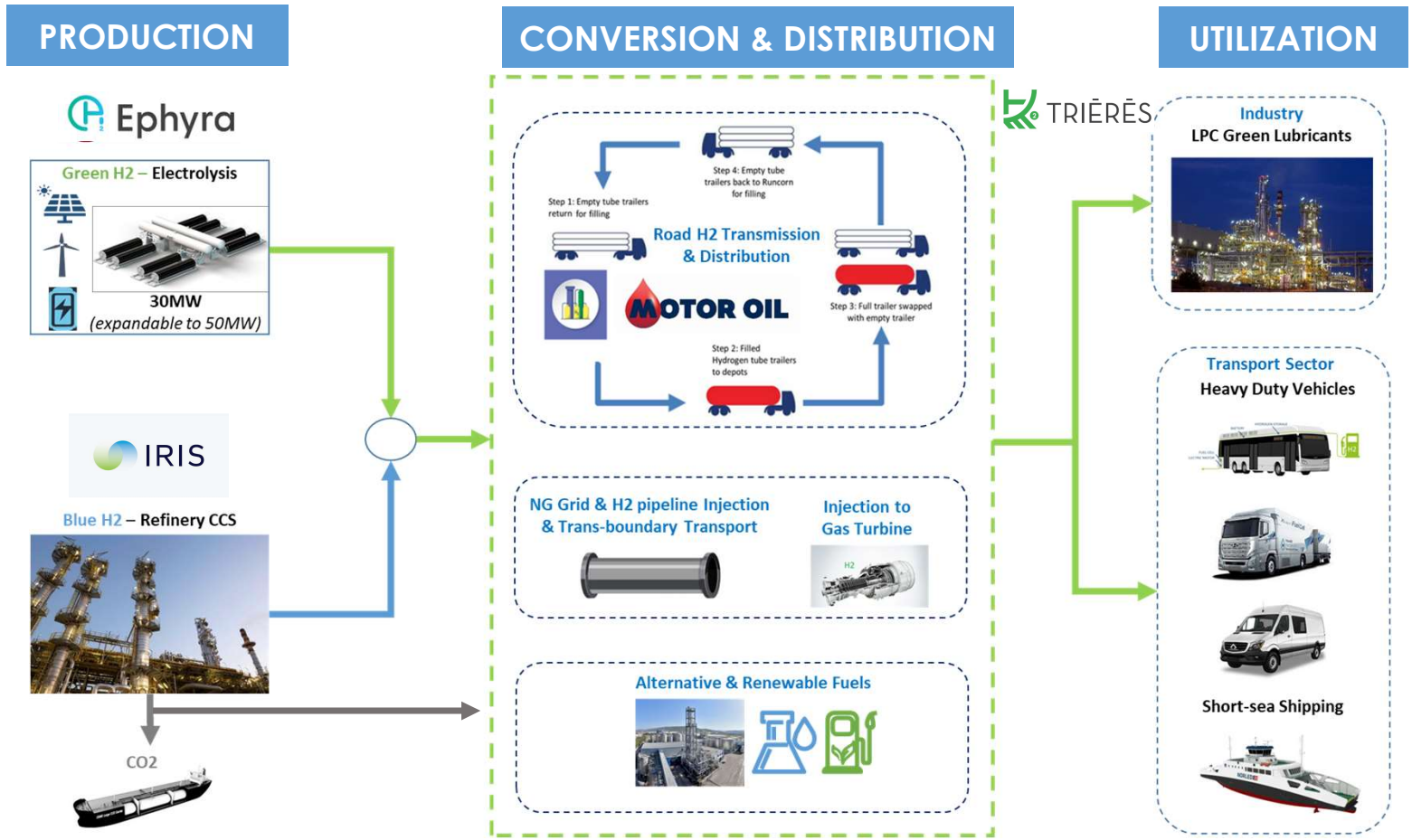
40% Sustainable Non-Fuel EBITDA by 2030



BLUE MED PROGRAM OVERVIEW

BLUE MED: The Path Towards a Low Carbon Energy Hub in East Med

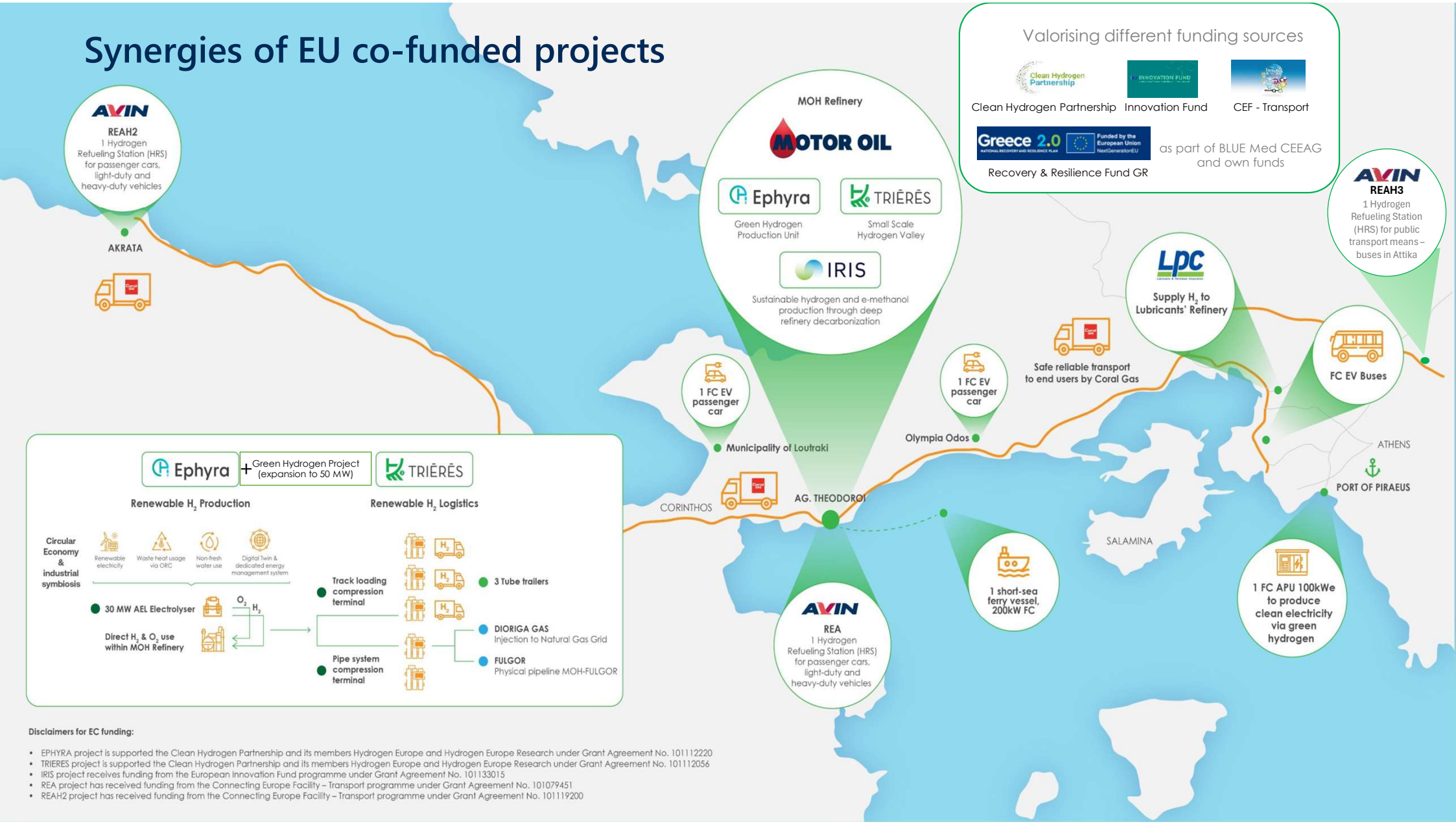
Phased development of flexible, scalable and cost advantaged infrastructure for the production and distribution of Renewable & Ultra-low Carbon Hydrogen for use in industry and transport



MOTOR OIL

www.moh.gr

Synergies of EU co-funded projects



Disclaimers for EC funding:

- EPHYRA project is supported the Clean Hydrogen Partnership and its members Hydrogen Europe and Hydrogen Europe Research under Grant Agreement No. 101112220
- TRIERES project is supported the Clean Hydrogen Partnership and its members Hydrogen Europe and Hydrogen Europe Research under Grant Agreement No. 101112056
- IRIS project receives funding from the European Innovation Fund programme under Grant Agreement No. 101133015
- REA project has received funding from the Connecting Europe Facility – Transport programme under Grant Agreement No. 101079451
- REAH2 project has received funding from the Connecting Europe Facility – Transport programme under Grant Agreement No. 101119200

Establishing European Production of Hydrogen from RenewAble energy and integration into an industrial environment - EPHYRA

The project is supported by the Clean Hydrogen Partnership and its members Hydrogen Europe and Hydrogen Europe Research under Grant Agreement No. 101112220

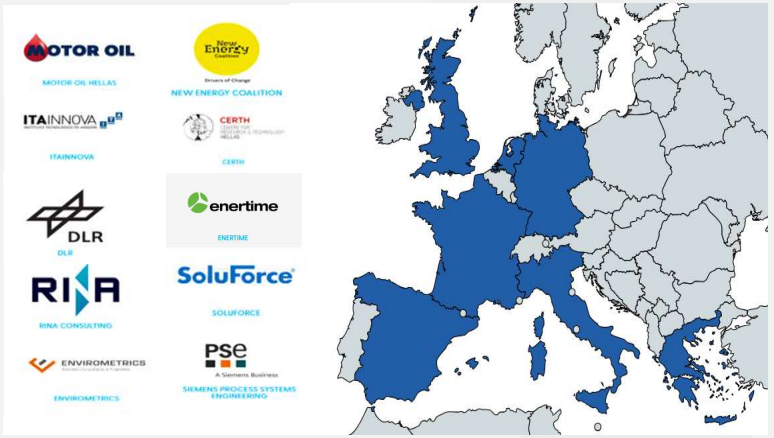
Clean Hydrogen Partnership

Co-funded by the European Union

Ephyra The project in a nutshell

SCOPE

- To establish the 1st of its kind **renewable** hydrogen production facility at industrial scale in South-eastern Europe – **30 MW Electrolysis plant** within MOH's Corinth refinery. The EZ will enter a **commercial operation** for at least 2 years to supply H2 to **refinery's processes** and **external end-users**



High-level objectives

- ✓ Develop a **detailed technology** and **integration concept** for an innovative **AEL electrolyser**
- ✓ Optimize the **synergies** among: H2 production - use - complementary supply & valorisation streams
- ✓ Develop a **digital twin**, controls and automation of the **H2 plant and its (symbiotic) environment**

Duration

June 2023 – May 2028 (**5 Years**)

Ephyra

7 countries

10 partners

30MW electrolyser

18M total EU grant in €

60M ~ 5 years
June 2023 – May 2028

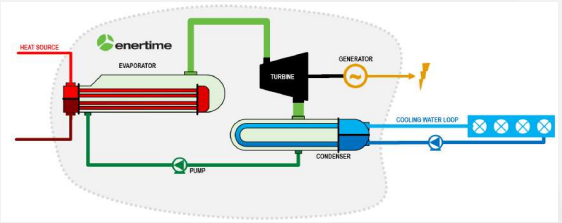
The project is supported by the Clean Hydrogen Partnership and its members Hydrogen Europe and Hydrogen Europe Research under Grant Agreement No. 101112220

Clean Hydrogen Partnership

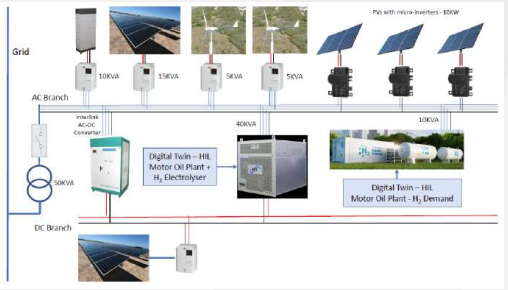
Co-funded by the European Union

Ephyra

Innovations



1. **Large-scale** (5-10 MW stacks), **pressurized** (20 barg) **systems with next generation electrode technology** to optimize performance, cost, footprint and dynamic response
2. **Usage of Co-product Oxygen** at the refinery (e.g. Claus units)
3. **Usage of waste heat** for energy generation **via an Organic Rankine Cycle** machine
4. **Usage of non-fresh Water** (desalination) and assessment of a novel method of reject water re-use via lab-scale plasma wastewater treatment
5. Optimal design of **large-scale industrial electrical grids & energy management** concept
6. **Digital** process **twin** development
7. **Transport piping** concept via use of Reinforced Thermoplastic Pipes (RTP)

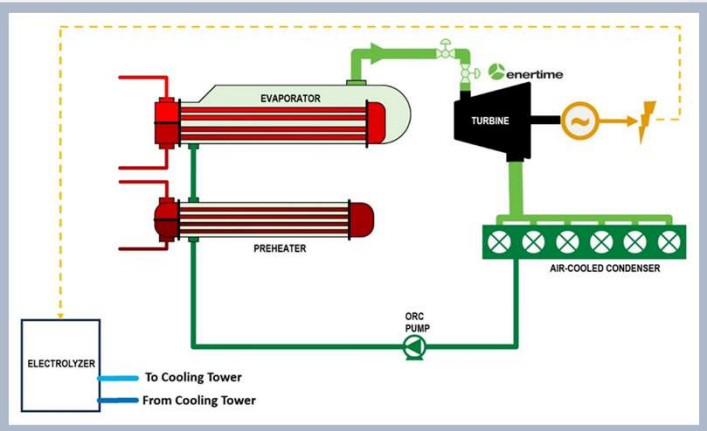


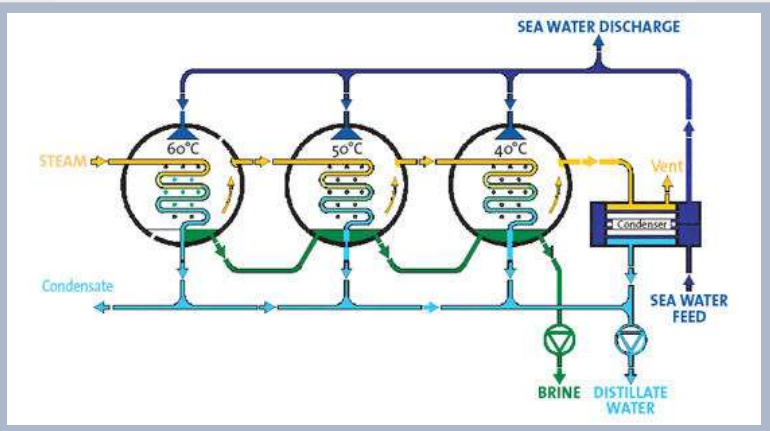
The project is supported by the Clean Hydrogen Partnership and its members Hydrogen Europe and Hydrogen Europe Research under Grant Agreement No. 101112220

Clean Hydrogen Partnership

Co-funded by the European Union

Industrial Symbiosis – Waste heat utilization





Zero-carbon power generation (ORC)

- Valorization of Electrolyser's waste heat and other units within the Refinery to produce zero-carbon energy via an ORC system.
  - → ***12.7 MW** waste heat for 30 MW AEL and **21.2 MW** for 50 MW AEL (EOL)*
  - → *Up to 5 MW from other units at the Refinery*
- Power the Electrolyser and/or auxiliary equipment with the zero-carbon energy generated by the ORC
  - → *Contribute to the decarbonization of entire H2 value chain*

Demin water production to supply the Electrolyser (Thermo-desalination)

- Use electrolyser's waste heat to produce clean water via distillation process to feed the electrolyser
- Clean water with purity < 4µS/cm
- Production capacity to meet the electrolyser demands and potentially other units
- Use seawater for cooling the electrolyser
  - → savings in water cooling costs

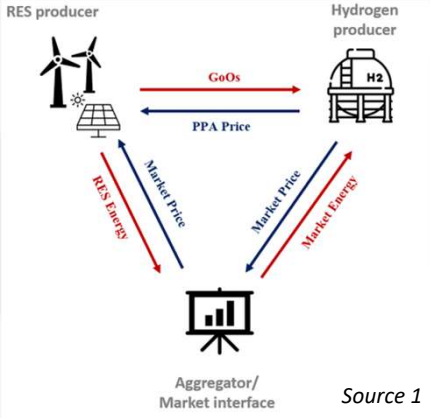
The project is supported by the Clean Hydrogen Partnership and its members Hydrogen Europe and Hydrogen Europe Research under Grant Agreement No. 101112220

Clean Hydrogen Partnership

Co-funded by the European Union

Ephyra Energy Management System

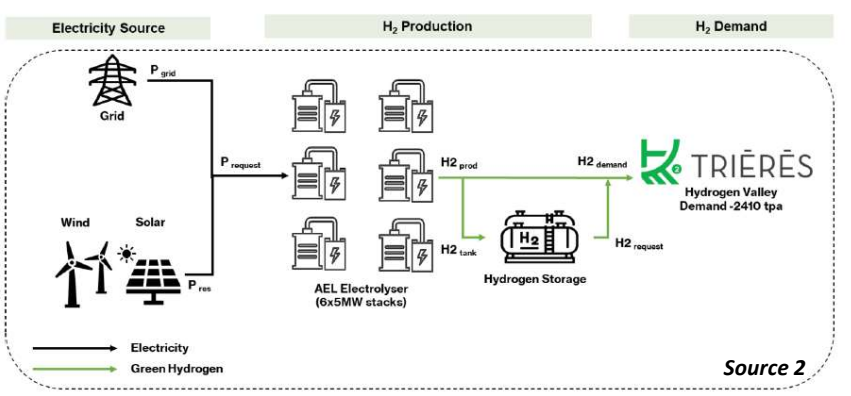
Green Energy provision to Electrolyser



Source 1

A. As-produced green PPA with MORE (213 MW solar)

B. Behind-the-meter Renewables & ORC



Source 2

Energy Management System

For RFNBO certification

→ Monthly settlement for GOs based on the PV PPA.

→ Certification of renewable hydrogen based on Delegated Act 2023/1184

For power pricing and cost optimization

→ Power supply scheme when PPA does not produce

→ Exposure to grid with market transactions for energy balancing.

→ Price balancing with grid prices. Excess energy sold in capture price and energy supplied from grid purchased in baseload price.

The project is supported by the Clean Hydrogen Partnership and its members Hydrogen Europe and Hydrogen Europe Research under Grant Agreement No. 101112220

[1] Giannis Georgopoulos, et al. (2025). *The impact of Additionality Delegated Act on the LCOH of Green Hydrogen: A case study in Greece*, Nature Communications Earth and environment.

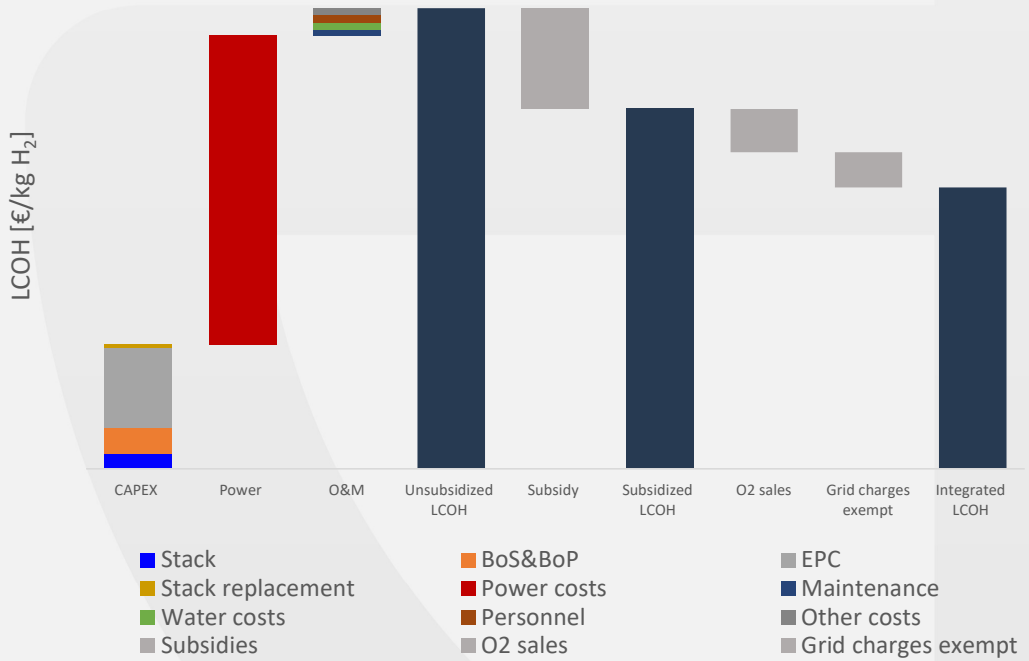
[2] N. Skordoulias et al. (2025) *RES-Electrolyser Coupling within TRIERES Hydrogen Valley – A Flexible Technoeconomic Assessment Tool*, J Energy Conversion and Management.

Clean Hydrogen Partnership

Co-funded by the European Union

LCOH and Industrial Symbiosis

Levelized Cost of Hydrogen (LCOH): A key performance indicator that entails both technical and financial data



$$LCOH = \frac{I_o + \sum_{t=0}^{n} \frac{M_t - D_t \cdot Tax\ rate}{(1+r)^t}}{\sum_{t=0}^{n} \frac{H_t}{(1+r)^t}}$$

LCOH assumptions

- **20** years project lifetime
- Refurbishment costs included
- **100%** capacity factor (max. H2 production)

LCOH at project level

- CAPEX (estimate) with O2 recovery & purification system and auxiliary BoP systems by EPC (N2, chiller etc.)
- Energy price based on PPA + grid charges
- Subsidy (based on EPHYRA & RRF grants)
- O2 sales
- Behind the meter energy supply and grid discount or exempts for Electrolysers

Disclaimer: This is an estimate for the LCOH achieved within EPHYRA project and is subject to changes of the actual project costs (e.g. construction costs, energy costs, etc.) as it progresses

The project is supported by the Clean Hydrogen Partnership and its members Hydrogen Europe and Hydrogen Europe Research under Grant Agreement No. 101112220

Clean Hydrogen Partnership

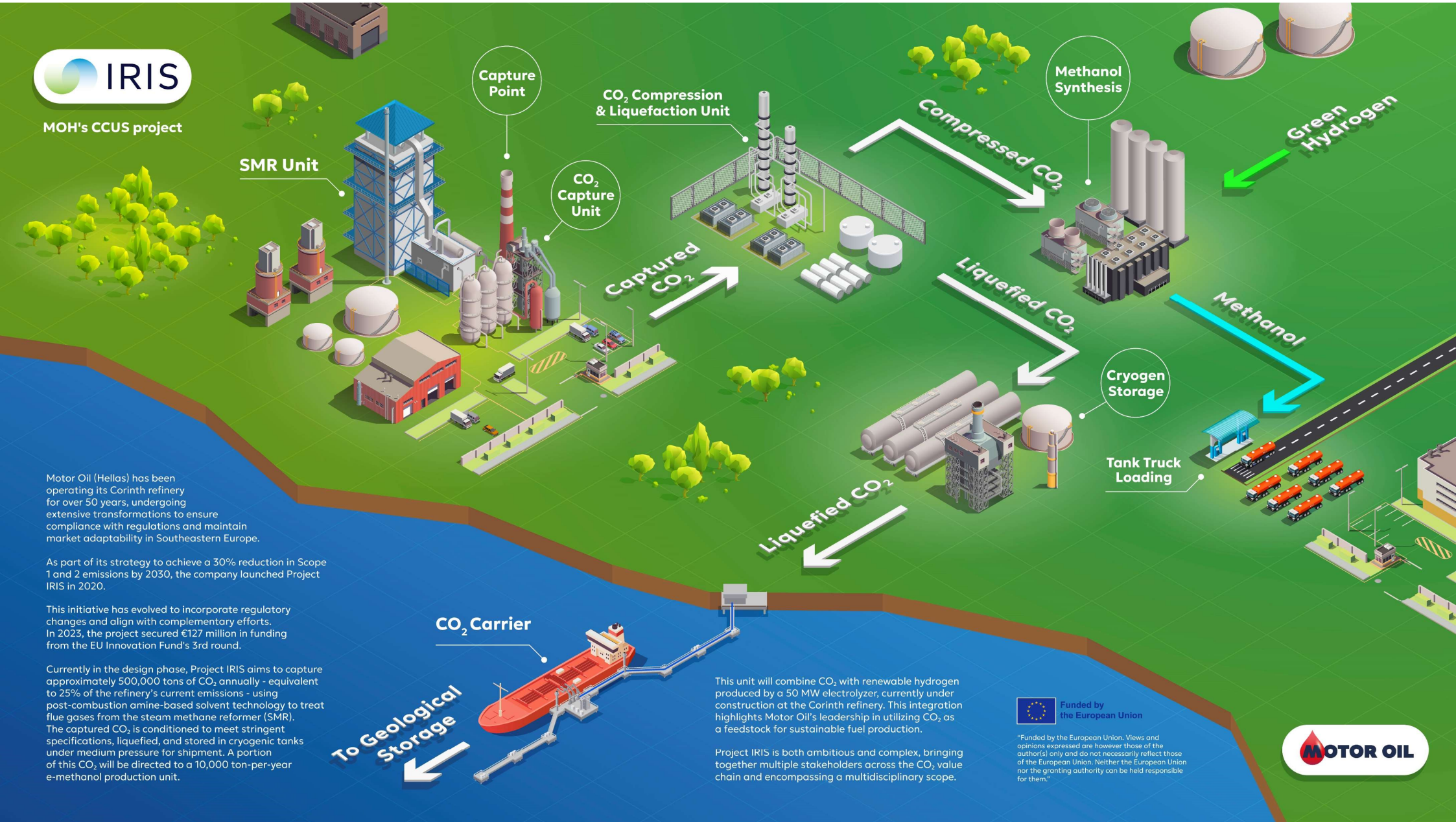
Co-funded by the European Union

Green Hydrogen Project – Expanding EPHYRA Project

Project Key Features

Green Hydrogen Production – 50 MW Electrolyzer

- Unit construction to be completed in 2026
- **>5000** tons per annum Green Hydrogen Production
- Electrolyzer to be supplied by a 212 MW green industrial PPA
- Among largest electrolyzers currently operating in Europe
- Largest under construction in Balkans
- Supplying Industry – Hydrogen Refueling Stations – Green Fuels & ability to supply the National Natural Gas Network



Motor Oil (Hellas) has been operating its Corinth refinery for over 50 years, undergoing extensive transformations to ensure compliance with regulations and maintain market adaptability in Southeastern Europe.

As part of its strategy to achieve a 30% reduction in Scope 1 and 2 emissions by 2030, the company launched Project IRIS in 2020.

This initiative has evolved to incorporate regulatory changes and align with complementary efforts. In 2023, the project secured €127 million in funding from the EU Innovation Fund's 3rd round.

Currently in the design phase, Project IRIS aims to capture approximately 500,000 tons of CO_2 annually - equivalent to 25% of the refinery's current emissions - using post-combustion amine-based solvent technology to treat flue gases from the steam methane reformer (SMR). The captured CO_2 is conditioned to meet stringent specifications, liquefied, and stored in cryogenic tanks under medium pressure for shipment. A portion of this CO_2 will be directed to a 10,000 ton-per-year e-methanol production unit.

This unit will combine CO_2 with renewable hydrogen produced by a 50 MW electrolyzer, currently under construction at the Corinth refinery. This integration highlights Motor Oil's leadership in utilizing CO_2 as a feedstock for sustainable fuel production.

Project IRIS is both ambitious and complex, bringing together multiple stakeholders across the CO_2 value chain and encompassing a multidisciplinary scope.

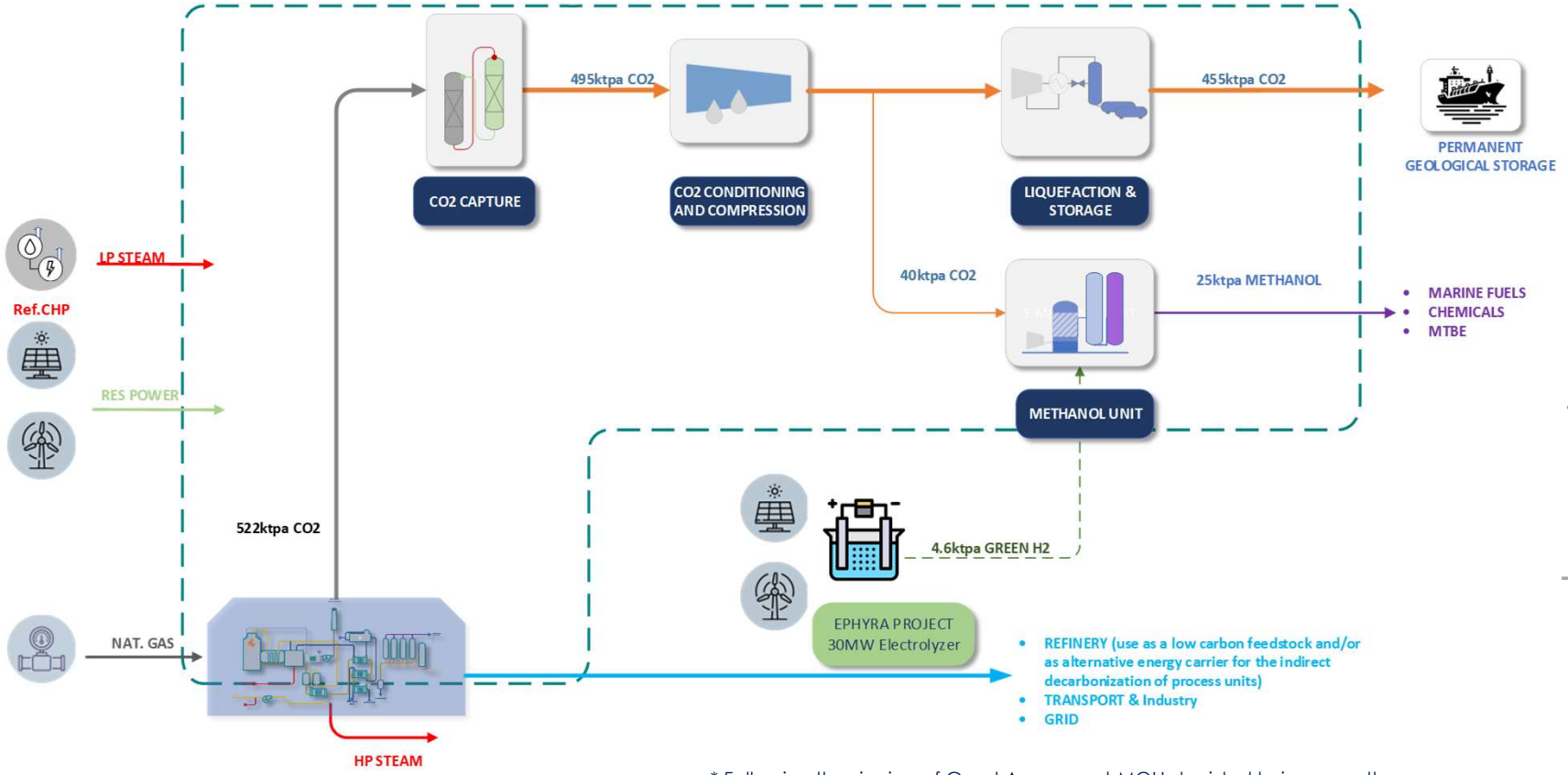
Funded by the European Union

"Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them."

MOTOR OIL

Project configuration & performance

IRIS project: 455kt p.a. CO2 removal & 25kt* p.a. e-methanol production



H2 carbon footprint
1.89tCO_2/tH_2
Taxonomy Threshold
3.0tCO_2/tH_2
(-37.0%)
ETS Threshold
6.84tCO_2/tH_2
(-72.0%)

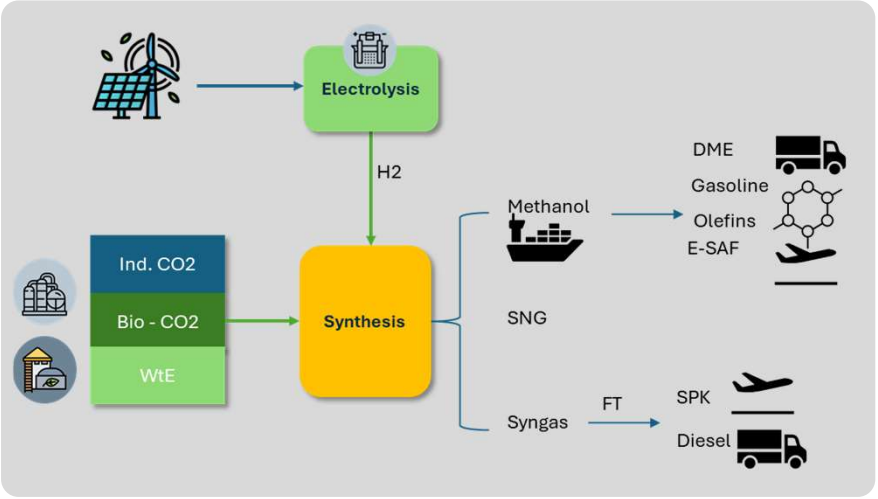
- Post Combustion Amine Capture
- CO2 as refrigerant
- MP temporary storage
- 12-16 km3 storage
- AA Grade Methanol

- Timely operation of storage facility
- Fair & transparent access and pricing procedures
- Intermittency
- QA/ Custom Custody systems
- Development of Maritime & bio-CH4 Markets

* Following the signing of Grant Agreement MOH decided to increase the capacity of MEOH unit from 10kt to 25lt p.a..

Carbon Utilization in IRIS: Methanol production

- ✓ E-fuels: an option for the hard to abate sectors
- ✓ Methanol is the precursor of high value chemicals and fuels
- ✓ Current regulatory framework provides for the use of captured fossil CO2 till 2041
- ✓ On-site availability of green H2 is a major contributing factor; Investigating the use of Blue H2 for specific uses
- ✓ Catalytic hydrogenation of CO2 is gaining momentum with new plants coming online



The methanol unit contributes to the opening of CO2 market

- ✓ Operating in a demanding industrial complex in tandem with the capture unit
- ✓ Allows for the testing of different business models, including sourcing of CO2 from 3rd parties
- ✓ Circularity is served

Towards the development of a hydRogen valley demonstrating applications in an intEgRated EcoSystem in Greece - TRIERES

TRIĒRĒS

The project is supported by the Clean Hydrogen Partnership and its members Hydrogen Europe and Hydrogen Europe Research under Grant Agreement No. 101112056

Clean Hydrogen Partnership

Co-funded by the European Union

TRIĒRĒS

The project in a nutshell

TRIĒRĒS

5 countries	26 partners
2,410 Tons of green H2 supplied per year	9,880 Tons/year CO_2 removed from industry & mobility via fuel substitution with green H2
58M ~ 5 years July 2023 – April 2028	8M Total EU grant in €

The project is supported by the Clean Hydrogen Partnership and its members Hydrogen Europe and Hydrogen Europe Research under Grant Agreement No. 101112056

Clean Hydrogen Partnership

Co-funded by the European Union

TRIĒRĒS

The H2 valley operations - From innovative ecosystems to a viable market

Industry

MOTOR OIL · LPC · FULGOR S.A. HELLENIC CABLE INDUSTRY

Road mobility

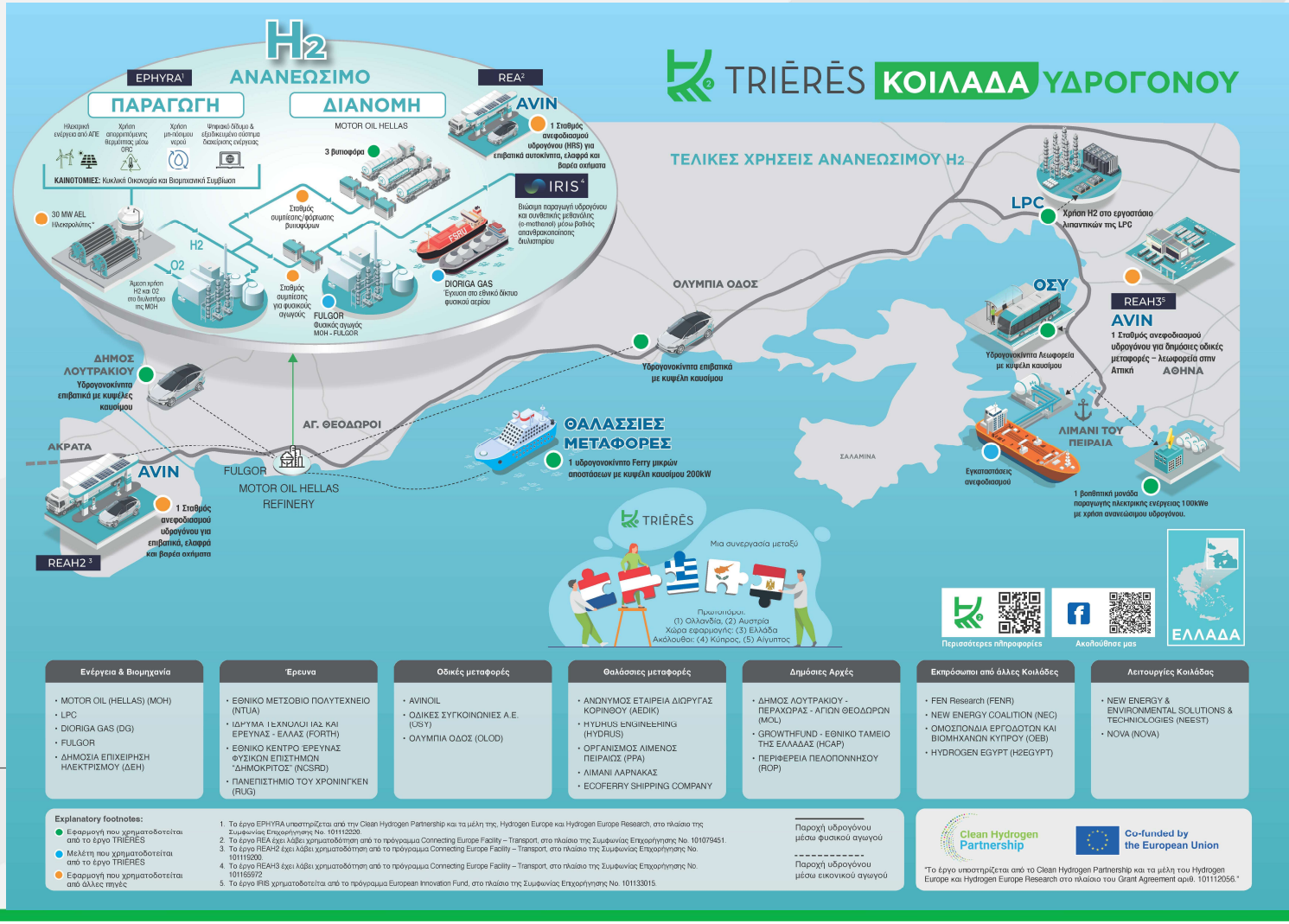
OLYMPIA ODOS · AVIN · ΟΣΥ

Energy

DIORIGAGAS · ΔΕΗ

Maritime mobility

HYDRUS · LARNACA · ΟΛΠ PIRAEUS PORT AUTHORITY S.A. · Α. Ε. ΔΙ. Κ. ΑΝΩΝΥΜΟΣ ΕΤΑΙΡΕΙΑ ΔΙΩΡΥΓΟΣ ΚΟΡΙΝΘΟΥ · ECOFERRY



TRIĒRĒS ΚΟΙΛΑΔΑ ΥΔΡΟΓΟΝΟΥ

Ενέργεια & Βιομηχανία	Έρευνα	Οδικές μεταφορές	Θαλάσσιες μεταφορές	Δημόσιες Αρχές	Εκπρόσωποι από άλλες Κοιλάδες	Λειτουργίες Κοιλάδας
• MOTOR OIL (HELLAS) (MOH) • LPC • DIORIGA GAS (DG) • FULGOR • ΔΗΜΟΣΙΑ ΕΠΙΧΕΙΡΗΣΗ ΗΛΕΚΤΡΙΣΜΟΥ (ΔΕΗ)	• ΕΘΝΙΚΟ ΜΕΤΣΟΒΙΟ ΠΟΛΥΤΕΧΝΕΙΟ (NTUA) • ΙΔΡΥΜΑ ΤΕΧΝΟΛΟΓΙΑΣ ΚΑΙ ΕΡΕΥΝΑΣ - ΕΛΛΑΣ (FORTH) • ΕΘΝΙΚΟ ΚΕΝΤΡΟ ΕΡΕΥΝΑΣ ΦΥΣΙΚΩΝ ΕΠΙΣΤΗΜΩΝ "ΔΗΜΟΚΡΙΤΟΣ" (NCSRD) • ΠΑΝΕΠΙΣΤΗΜΙΟ ΤΟΥ ΧΡΟΝΙΓΚΕΝ (RUG)	• AVINOIL • ΟΔΙΚΕΣ ΣΥΓΚΟΙΝΩΝΙΕΣ Α.Ε. (OSY) • ΟΛΥΜΠΙΑ ΟΔΟΣ (OLOD)	• ΑΝΩΝΥΜΟΣ ΕΤΑΙΡΕΙΑ ΔΙΩΡΥΓΑΣ ΚΟΡΙΝΘΟΥ (AEDIK) • HYDRUS ENGINEERING (HYDRUS) • ΟΡΓΑΝΙΣΜΟΣ ΛΙΜΕΝΟΣ ΠΕΙΡΑΙΩΣ (PPA) • ΛΙΜΑΝΙ ΛΑΡΝΑΚΑΣ • ECOFERRY SHIPPING COMPANY	• ΔΗΜΟΣ ΛΟΥΤΡΑΚΙΟΥ - ΠΕΡΑΧΩΡΑΣ - ΑΓΙΩΝ ΘΕΟΔΩΡΩΝ (MOL) • GROWTHFUND - ΕΘΝΙΚΟ ΤΑΜΕΙΟ ΤΗΣ ΕΛΛΑΔΑΣ (HCAP) • ΠΕΡΙΦΕΡΕΙΑ ΠΕΛΟΠΟΝΝΗΣΟΥ (ROP)	• FEN Research (FENR) • NEW ENERGY COALITION (NEC) • ΟΜΟΣΠΟΝΔΙΑ ΕΡΓΟΔΟΤΩΝ ΚΑΙ ΒΙΟΜΗΧΑΝΩΝ ΚΥΠΡΟΥ (OEB) • HYDROGEN EGYPT (H2EGYPT)	• NEW ENERGY & ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES (NEEST) • NOVA (NOVA)

Explanatory footnotes:

- Εφαρμογή που χρηματοδοτείται από το έργο TRIĒRĒS
- Μελέτη που χρηματοδοτείται από το έργο TRIĒRĒS
- Εφαρμογή που χρηματοδοτείται από άλλες πηγές

1. Το έργο EPHYRA υποστηρίζεται από την Clean Hydrogen Partnership και τα μέλη της, Hydrogen Europe και Hydrogen Europe Research, στο πλαίσιο της Συμφωνίας Επιχορήγησης No. 101112020.
2. Το έργο REA έχει λάβει χρηματοδότηση από το πρόγραμμα Connecting Europe Facility – Transport, στο πλαίσιο της Συμφωνίας Επιχορήγησης No. 101079451.
3. Το έργο REAH2 έχει λάβει χρηματοδότηση από το πρόγραμμα Connecting Europe Facility – Transport, στο πλαίσιο της Συμφωνίας Επιχορήγησης No. 101115200.
4. Το έργο REAH3 έχει λάβει χρηματοδότηση από το πρόγραμμα Connecting Europe Facility – Transport, στο πλαίσιο της Συμφωνίας Επιχορήγησης No. 101165972.
5. Το έργο IRIS χρηματοδοτείται από το πρόγραμμα European Innovation Fund, στο πλαίσιο της Συμφωνίας Επιχορήγησης No. 101133015.

Παροχή υδρογόνου μέσω φυσικού αγωγού

Παροχή υδρογόνου μέσω εικονικού αγωγού

Clean Hydrogen Partnership · Co-funded by the European Union

"Το έργο υποστηρίζεται από το Clean Hydrogen Partnership και τα μέλη του Hydrogen Europe και Hydrogen Europe Research στο πλαίσιο του Grant Agreement αριθ. 101112056."

The project is supported by the Clean Hydrogen Partnership and its members Hydrogen Europe and Hydrogen Europe Research under Grant Agreement No. 101112056

Value chain - from enhanced renewable H2 production to a small-scale valley operations

Ephyra

TRIĒRĒS

Ephyra

TRIĒRĒS *

MOTOR OIL

Electrolyser

Green H2 production

H2

O2

Direct H2 and O2 use in MOH refinery

Refinery decarbonization & synthesis of advanced fuels

MOTOR OIL

Track loading Compression Terminal

Pipe System Compression Terminal

LPC — Lubricants Refinery

AVIN — HRS Network

OLYMPIA ODOS — ΟΣΥ — Mobility applications

ECOFERRY — Maritime applications

ΟΛΠ — Energy production

DIORIGAGAS — Injection to Natural Gas Grid

MOTOR OIL — Industrial applications

H2 Production

- ✓ Short-term forecast of available H2 quantity (according to PPA execution and local RES)
- ✓ Real-time availability of H2 quantity
- ✓ Cost of production
- ✓ H2 quality parameters

H2 Trading & Distribution

- Quantity H2 requested
- Quantity of trucks
- Timing of request
- Quality of supply
- Retail cost to the customer

* The Greek Hydrogen Valley is developed in the framework of the EU project TRIERES co-funded by the Clean Hydrogen Partnership and its members Hydrogen Europe and Hydrogen Europe Research under Grant Agreement No. 101112056.

TRIĒRĒS

JIVE 3rd Hydrogen Bus Roadshow

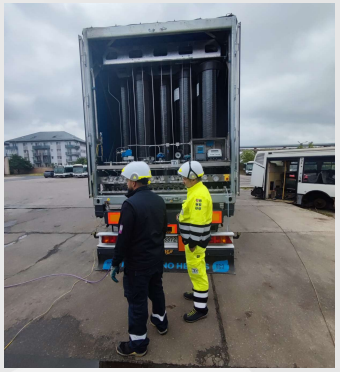
4 Greek Cities - Raising Awareness events

General public, Schools, Academia, Industry, Automotive, National to Local Authorities

TRAINING on technical & safety aspects:

- Drivers/technicians of Local Operators
- Industry companies – MOH & Coral Gas (H2 production & Supply)

One (1) Multiple element hydrogen gas container (tube trailer) for transport and storage



Refueling of H2 bus and training sessions

The project is supported by the Clean Hydrogen Partnership and its members Hydrogen Europe and Hydrogen Europe Research under Grant Agreement No. 101112056

Clean Hydrogen Partnership

Co-funded by the European Union

Hydrogen Refueling Stations

Hydrogen Refueling Stations – REA / REAH2 / REAH3

REA – The 1st HRS to be commissioned in Greece & 1st AFIF HRS in Europe

Co-funded by the European Union

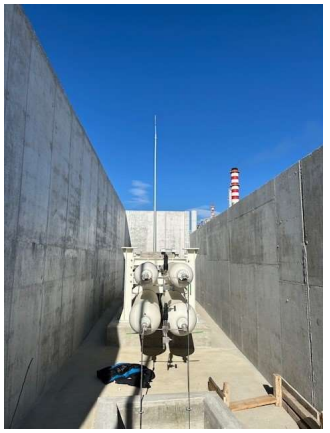
AVIN

REA 1st HRS in Ag. Theodoroi - Operational by Q2 2025

- The **1st Hydrogen Refueling Station (HRS) – REA** will be installed inside a new service station of AVIN OIL (AVIN) located near the central TEN-T road network in the area of Ag. Theodoroi, Corinth, Greece
- It serves as a **gateway and local hub** to the south part of **Orient/East Med corridor**
- Supply-chain by compressed Hydrogen loading terminal to be operational in 2026 and transport by **4 tube trailers** readily available with ability to reach up to 500km

Co-funded by the European Union

AVIN Hydrogen



Source: EPHYRA Electrolyzer by Refinery

Mass flow (compressor): 65 kg/hour minimum

Service Capacity: Trucks, Buses, Cars

Pressure Levels: 350 bar and 700 bar

* REA project is funded from the Connecting Europe Facility programme under Grant Agreement No. 101079451.
* REAH2 project is funded from the Connecting Europe Facility programme under Grant Agreement No. 101119200.
* REAH3 project is funded from the Connecting Europe Facility programme under Grant Agreement No. 101165972.

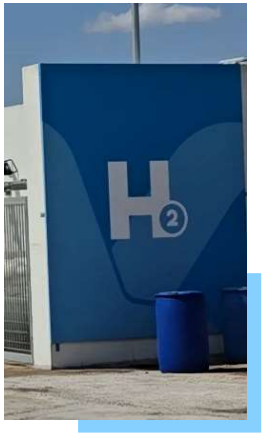
MOTOR OIL

www.moh.gr

Hydrogen Refueling Station Agioi Theodoroi

Dispenser

Compressor Area



Storage Area

H2 Greek Value Chain Development

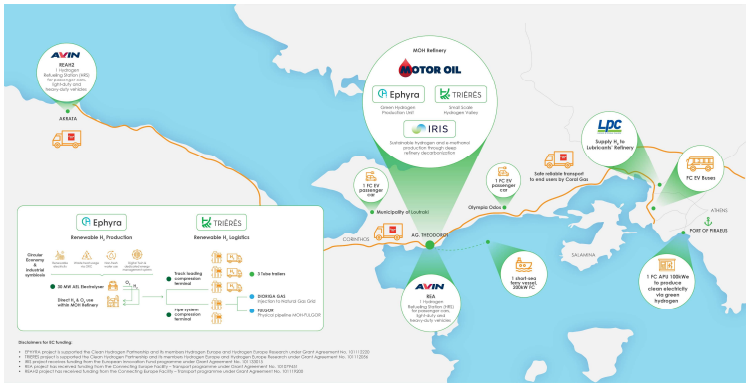
From enhanced renewable H2 production to innovative energy pilots, applications and operations, valorising different funding sources…

Clean Hydrogen Partnership

- **EPHYRA**: renewable H2 production
- **TRIERES**: small-scale H2 valley

Innovation Fund

- **IRIS:** carbon capture storage and use via e-methanol production unit



CEF - Transport

- **REA**: 1st commercial HRS for light and heavy-duty vehicles in Agioi Theodoroi
- **REAH2**: 2nd commercial HRS for light and heavy-duty vehicles in Akrata
- **REAH3**: HRS for public transport buses in OSY depot in Thriasio, Attika

Greece 2.0 NATIONAL RECOVERY AND RESILIENCE PLAN — Funded by the European Union NextGenerationEU

State Aid - RRF

- **GREEN HYDROGEN:** 111.7 M € grant primarily supporting infrastructure development and their respective construction works, while also adding a 20MW electrolysis unit to the existing 30MW system at the Agioi Theodoroi Refinery, increasing the production of green hydrogen to a maximum of 7,500 tpa

Thank you!

Georgios Mitkidis
Head of Alternative & Renewable Fuels
General Directorate of Strategy, Motor Oil
gmitkidis@moh.gr

https://ephyraproject.eu/
https://trieres-h2.eu/

https://www.linkedin.com/company/ephyra-project/
https://www.linkedin.com/company/trieres-h2-valley