

Towards the development of a hydrogen valley demonstrating applications in an integrated ecosystem in Greece

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Key insights from projects on permitting -
EU Hydrogen Valley Days 2025

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



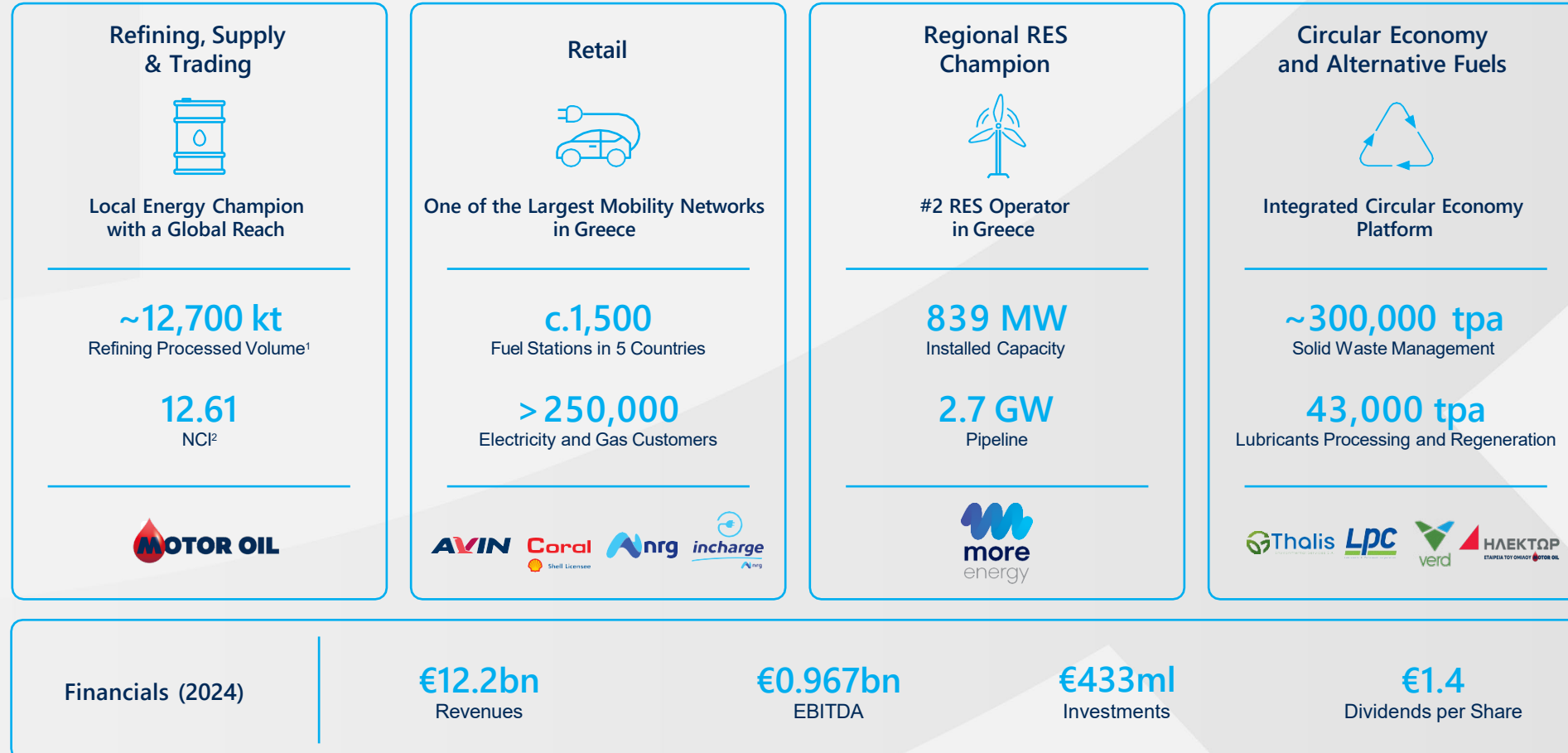
TRIÈRÈS



Co-funded by
the European Union

Motor Oil Group at a Glance

A Diversified Multi-Energy Group

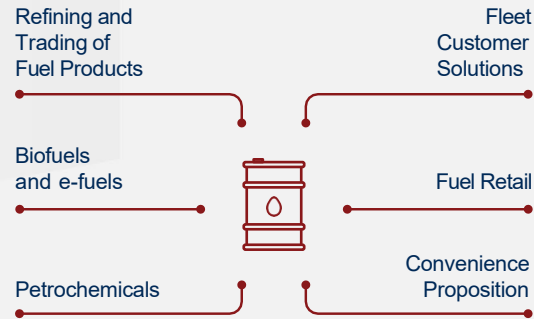


Notes: 1.2023. 2. The Nelson Complexity Index (NCI) is a measure of the sophistication of an oil refinery.

Motor Oil Group at a Glance

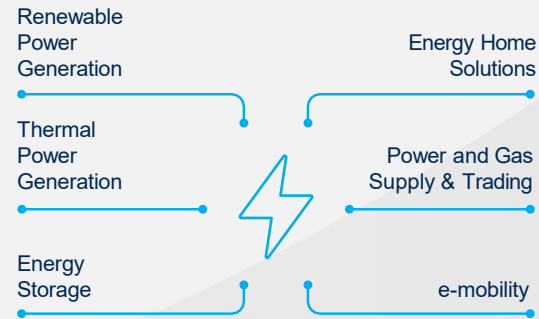
Route to 2030

Fuels



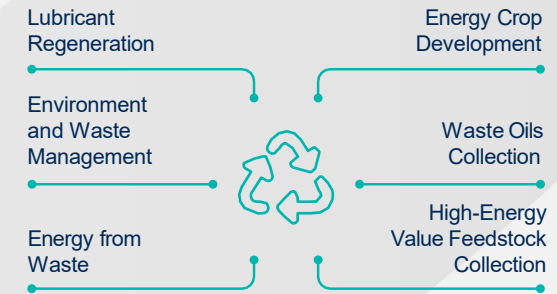
- Reinforced resilience, flexibility and cost efficiencies
- Decarbonisation of products and services
- Logistics improvements and digitalisation

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

The project in a nutshell

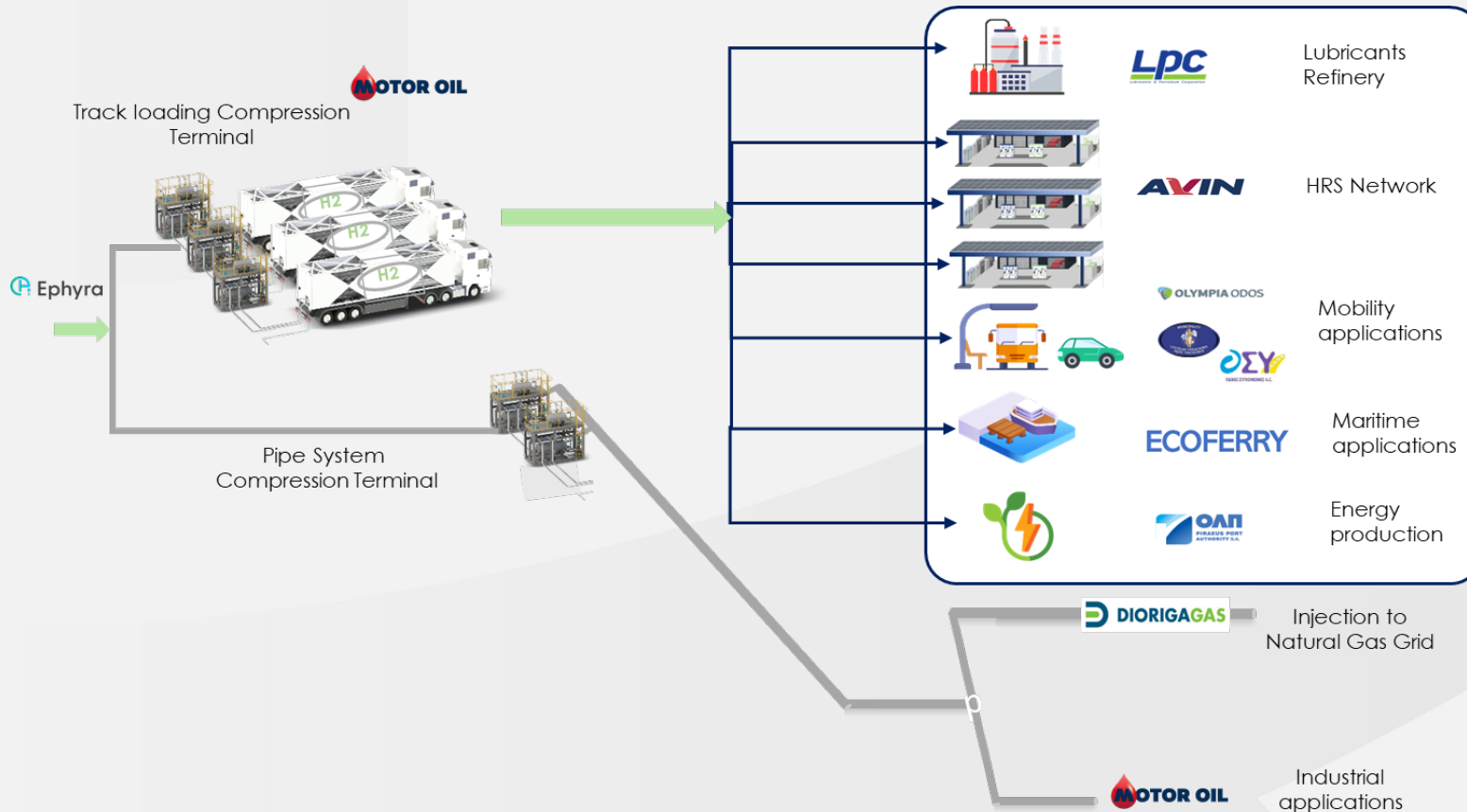
Project Summary

- **Coordinator:** Motor Oil Hellas
- **Consortium:** 26 partners across 5 countries (GR, NL, AT, CY, EG)
- **EU Funding:** €8 M (Clean Hydrogen Partnership)
- **Duration:** July 2023 – April 2028 (58 months)
- **Annual H₂ Production:** 2,410 tons of renewable H₂ (30 MW electrolyser)
- **Annual CO₂ Savings:** 9,880 tons via fuel substitution



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

Versatility in end - uses



Horizontal Activities

- Development of a **digital twin** to simulate valley operations
- Creation of business models for **replication** and **scalability**
- Engagement with national authorities to further **enhance and harmonise the regulatory framework** in line with EU

Additional expected outcomes

- **Technical, regulatory, and business blueprint for future hydrogen valleys** – follower regions as Cyprus and Egypt
- **Contribution to the Greek H₂ value chain** and broader **East Med region**

Overall Progress up to date



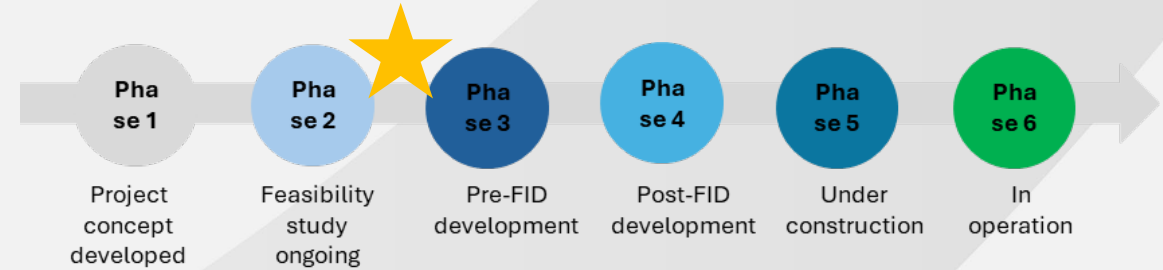
EPHYRA electrolyser: FEED completion (MOH), EPC phase

Logistics: 4 H₂ tube trailers acquired (3 CH JU, 1 MOH)

Infrastructure: 1st HRS operational (AVIN Ag. Theodoroi – REA project – CEF-T)

Mobility Pilots:

- 1 LD vehicle in procurement (Municipality of Loutraki)
- 2 FC buses under tender prep (OSY)
- 1 HD vehicle in market research (OLYMPIA ODOS)
- Maritime retrofit under study (SHIPPING COMPANY)



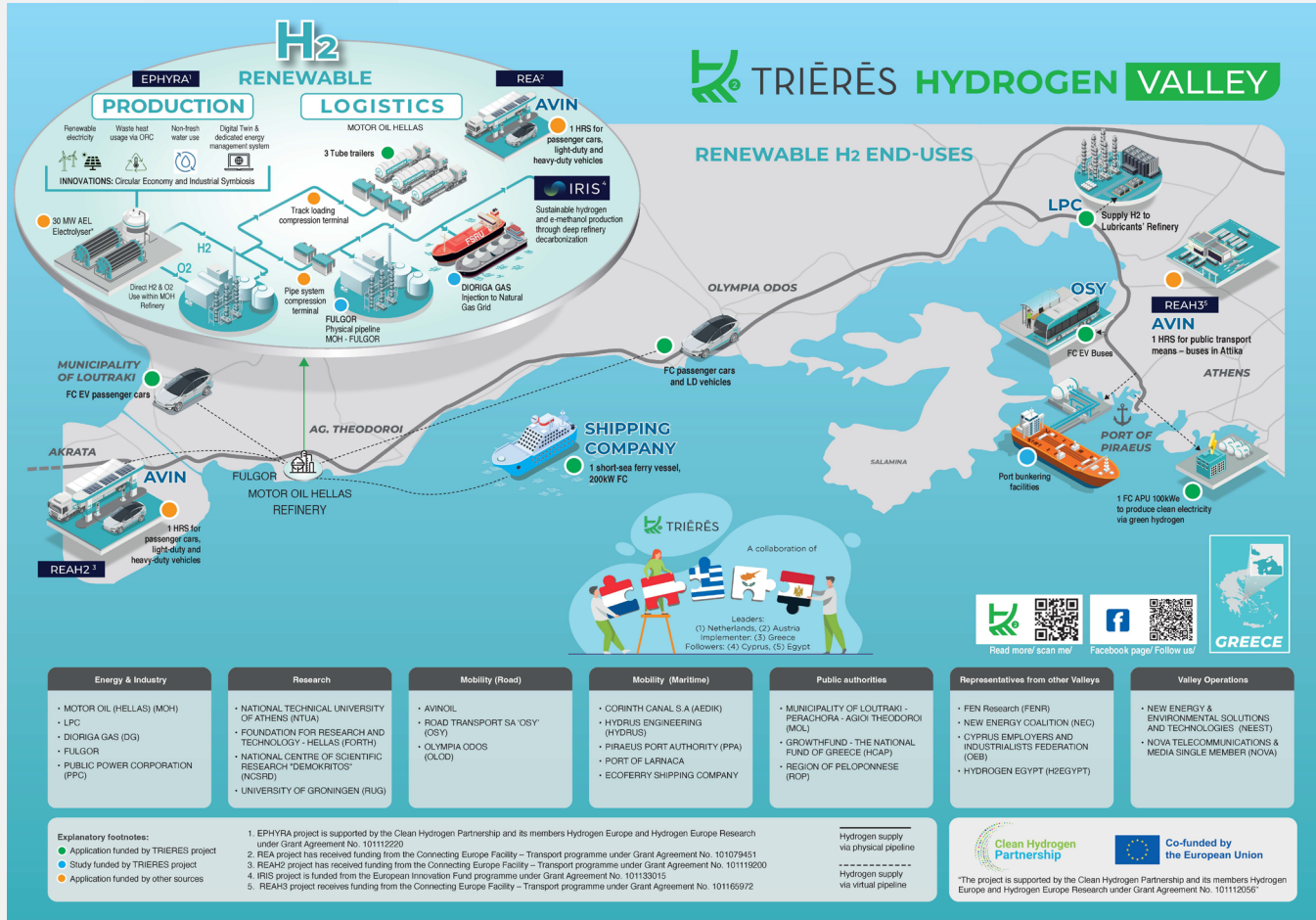
Energy & Industry Pilots:

- 100 kW FC APU (energy) under market research (PIRAEUS PORT)
- Lubricants factory conversion progressing; permit submitted (LPC)

Regulation: Engaged on Law 5151/2024 (Art. 63 – hydrogen supply regime)

R&D: Digital twin and publications ongoing

EU H2 Valley of Year 2024 Award!



Successes / What Others Can Learn:

- ✓ Integration of multiple funding instruments (CH JU, CEF, RRF, EIB)
- ✓ Diverse pilot applications, first of their kind in Greece: industry, mobility (road & maritime), energy,
- ✓ Diverse feasibility studies for existing and future applications of hydrogen
- ✓ Early investments in infrastructure (HRS, trailers)
- ✓ Strong public-private-academic collaboration
- ✓ Knowledge exchange with other pioneering EU Hydrogen Valleys (Netherlands, Austria)

Valorising different funding sources...



Clean Hydrogen Partnership

- **EPHYRA**: renewable H2 production
- **TRIÈRÈS**: 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



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 tons per year (out of which 4,500 tons already produced through the EU project EPHYRA), powered by energy from renewable sources.

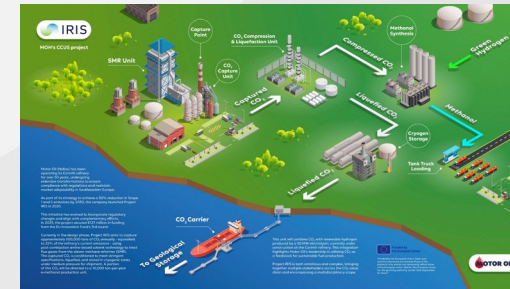
...from design to implementation...



2024: 3rd JIVE bus roadshow in Greece
2025: TRIERES regional workshop in Corinth



- Vendor selected
- FEED completed
- Project on track to deliver Green H2 by 2026



- Under Implementation
- The project is progressing with delays in PreFEED/FEED phase



- The **1st Hydrogen Refueling Station (HRS) – REA** installed inside a new service station of AVIN
- Located near the central TEN-T road network in the area of Ag. Theodoroi, Corinth, Greece
- Serves as a **gateway and local hub** to the south part of **Orient/East Med corridor**.

Hydrogen Refueling Stations – REA / REAH2 / REAH3

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



REA 1st HRS in Ag. Theodoroi - In Operation as of 6/2025

- The **1st Hydrogen Refueling Station (HRS) – REA** is 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



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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.

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Visit of AVIN Agioi Theodoroi HRS during Trieres Workshop



Dispenser



Compressor Area



Storage Area



ded by
European Union

Navigating a Nascent Regulatory/Permitting Landscape in Greece: The catalytic impact of TRIERES and EPHYRA projects

TRIERES

Before

During

- absence of any specific provision for Hydrogen production, transportation and disposal
- ambiguity of permitting rules leading to investment uncertainty

- First regulatory/permitting acts in place
 - Ministerial Decision on technical prerequisites for **Hydrogen Refueling Stations construction**
 - Amendment of Law to include **the sale of H₂** by the HRS to vehicles (Law 5151/2024, art. 63-64)
- Draft of **the first dedicated legal framework for renewable Hydrogen**
 - State aid approval by COM with RRF funding for MOH Green Hydrogen Project
 - Greece's commitment to introduce a renewable H₂ framework, in the context of RRF milestones

Thank you!

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TRIERÈS



<https://www.trieres-h2.eu/>



<https://www.linkedin.com/company/trieres-h2-valley/>



<https://www.youtube.com/@TRIERES-H2>



[Trieres Greek Hydrogen valley](#)