Asprofos engineering

Carbon Solutions for a Sustainable Tomorrow: The Role of Asprofos

Konstantinos Koutsogiannis
Business Development Director

Member of HELLENiQ ENERGY

Asprofos
Engineering Tomorrow

Brief introduction to Asprofos

Leading Engineering & Consultancy Firm

Founded in 1983 as a joint venture between Hellenic Aspropyrgos Refinery and Foster Wheler Italiana

Expertise in Oil, Gas & Energy Sectors

Providing comprehensive engineering, project management and consultancy services and unparalleled Technical Expertise

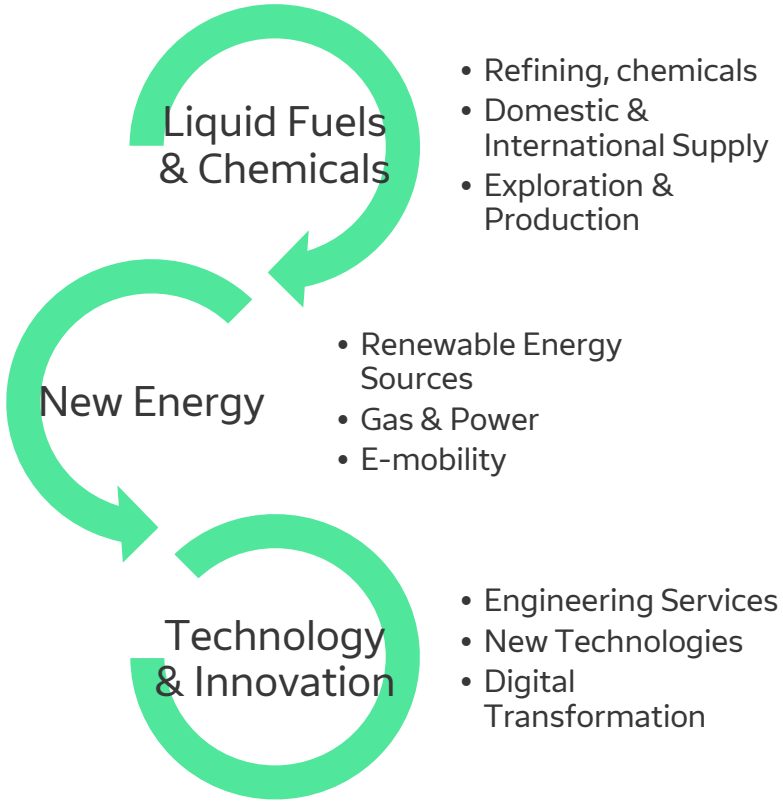
Delivering integrated solutions to meet the full spectrum of clients' project needs

Commitment to sustainability & innovation

Driving solutions for decarbonization in industrial applications.

Expertise in integrating cutting-edge technologies like Carbon Capture, Utilization, and Storage (CCUS) into existing and new projects.

Proud member of HELLENIQ ENERGY



The Importance of CCUS

What is CCUS and why does it matter?

CCUS is a key technology for reducing carbon emissions, especially in energy-intensive industries (e.g., power generation, refining, cement, chemicals).

Captures CO_2 from industrial sources, preventing it from entering the atmosphere.

Can store CO_2 underground (sequestration) or repurpose it for industrial applications.

CCUS & the Net-Zero Transition

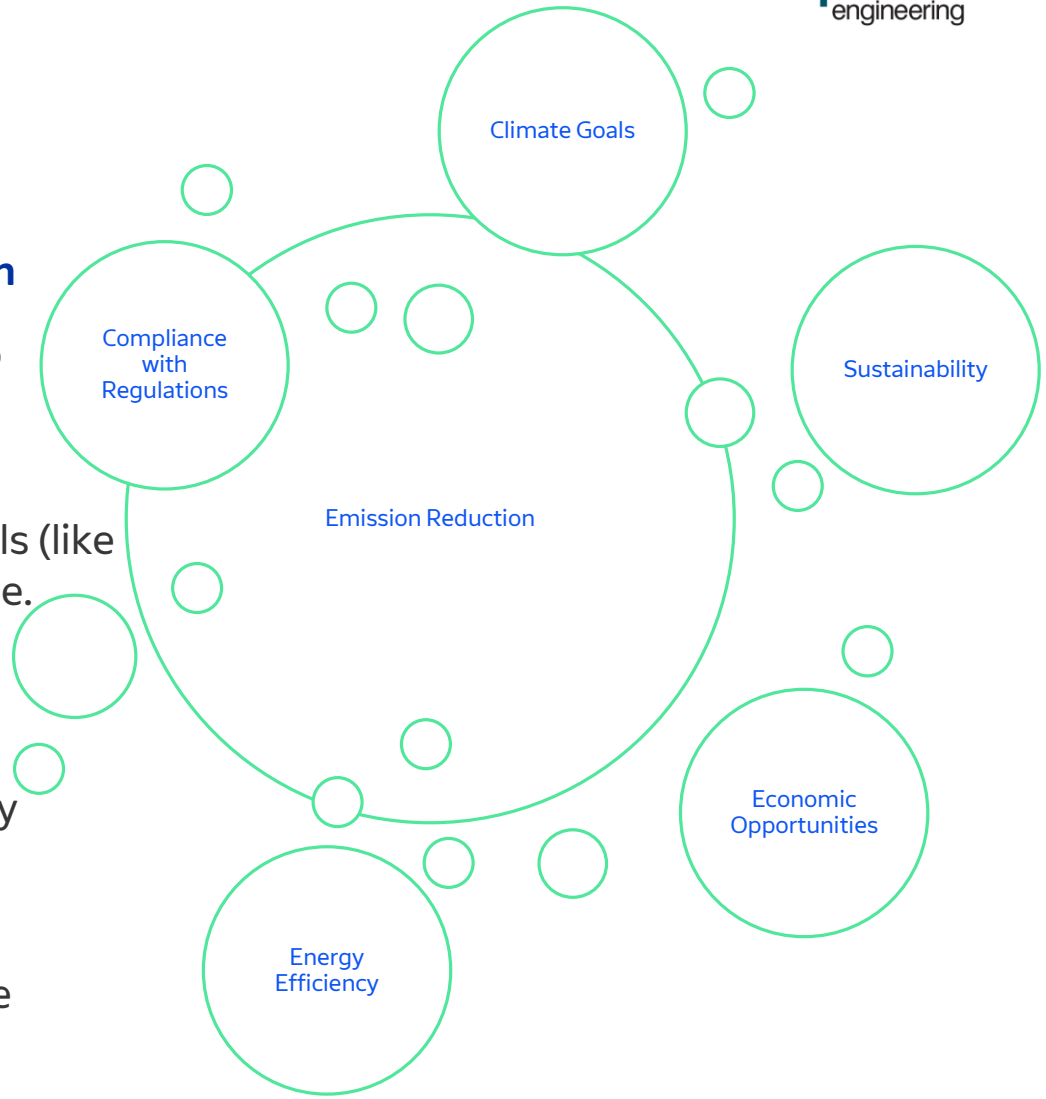
Essential for achieving net-zero emissions by 2050.

Critical for sectors where direct electrification or alternative fuels (like hydrogen) are not yet fully viable.

Europe's Vision for CCUS

The EU Green Deal & Fit-for-55 Package highlight CCUS as a key enabler of decarbonization.

Investments in CCUS hubs, CO_2 transport networks, and storage infrastructure are growing.



Our Expertise & Capabilities in CCUS

Why Asprofos?

Decades of experience in engineering, feasibility studies, and energy transition projects.

Strong regulatory & environmental knowledge, essential for CCUS project approvals.

Expertise in designing large-scale industrial infrastructure, making us an ideal partner for CCUS implementation.

Our Role in CCUS Projects

Feasibility Studies

- Evaluating the technical, economic, and regulatory viability of CCUS projects.
- Assessing capture, transport, and storage options.

Technical Consulting & Engineering Design

- Developing infrastructure for CO_2 capture, compression, and transportation.
- Integration with industrial plants and existing infrastructure.

Regulatory & Environmental Compliance

- Navigating the EU ETS (Emissions Trading System) and national regulatory frameworks.
- Ensuring compliance with CO_2 storage safety standards.

Market Potential & Business Case Development

- Identifying investment opportunities in CCUS infrastructure.
- Supporting clients in securing EU or national decarbonization programs funding.

Our Contribution

Asprofos has actively contributed to projects involving Carbon Capture, Utilization, and Storage (CCUS), particularly in amine-based gas treatment, CO_2 absorption, and refinery gas processing.

Our expertise spans from feasibility studies to detailed engineering, ensuring the successful execution of CCUS-related initiatives.

Process Optimization

Enhancing CO_2 separation efficiency through improved amine treatment technologies.

Engineering Expertise

Providing detailed design, feasibility assessments, and performance evaluations for CCUS projects.

Sustainability Impact

Supporting clients in achieving lower carbon footprints through efficient gas treatment solutions.

Key Projects in CCUS Applications

Detail Engineering for Amine Washing Unit (1984-1987)

Hellenic Aspropyrgos Refinery (Greece)

Scope: Design and engineering of an amine-based CO_2 removal system for refinery gas treatment.

Basic Design for Amine and Sulfur Plant Revamping (2010-2012)

HEL.PE. – Thessaloniki Industrial Complex (Greece)

Scope: Modernization of amine and sulfur removal units to improve CO_2 capture efficiency.

Rating of Tower N-3801 for Amine Absorption Section (2013)

HEL.PE. – Aspropyrgos Industrial Complex (Greece)

Scope: Performance assessment and optimization of an amine absorber for CO_2 separation.

Amine Unit Installation in Rijeka Refinery (2014-2017)

INA - Industrija Nafte d.d. (Croatia)

Scope: Engineering and implementation of an amine unit to enhance CO_2 removal from process gases.

Basic Design for Installation of Filtering Pack in Amine Unit (2024, ongoing)

HEL.PE. – Aspropyrgos Industrial Complex (Greece)

Scope: Upgrading filtration systems in an amine treatment plant to optimize CO_2 capture performance.

A major CO_2 Capture project

One of the twenty biggest cement producers worldwide

Scope: Front-End Engineering Design

Implementing CCUS Hubs in Greece: A cost-benefit analysis

Asprofos engineering

Our Active Role in the IENE Study involves

Technical Expertise – Providing engineering insights on the design, infrastructure, and operational aspects of CCUS hubs.

Cost estimation – Assessing and evaluating the investment cost and needs

Regulatory & Environmental Compliance – based on how CCUS projects align with EU ETS and national regulatory frameworks.

The Road Ahead

- ✓ Strategic Importance – CCUS hubs are essential for Greece's decarbonization and energy security.
- ✓ Technical & Economic Feasibility – Our analysis confirms the viability of CCUS as a cost-effective solution.
- ✓ Regulatory Alignment – CCUS fits within EU ETS frameworks and national climate goals.
- ✓ Commitment to Innovation – Asprofos remains a key contributor to shaping Greece's sustainable energy future.

Together, we pave the way for a low-carbon economy through innovation, collaboration, and expertise.

Asprofos engineering

Thank you

ASPROFOS

284, El. Venizelou Ave.
Kallithea, GR 17675
business@asprofos.helleniq.gr
www.linkedin.com/asprofos-engineering

Member of HELLENiQ ENERGY