Our partners

UNIVERSITY OF TWENTE.

National Technical University of Athens

eXergia CLIMATE CHANGE CONSULTANTS

Tec4Fuels

Science4Fuels OWI an der RWTH Aachen

CERFACS

Wroclaw University of Science and Technology

PAUL SCHERRER INSTITUT PSI

EPFL

Imperial College London

Destinus

Funded by the European Union

HERMES

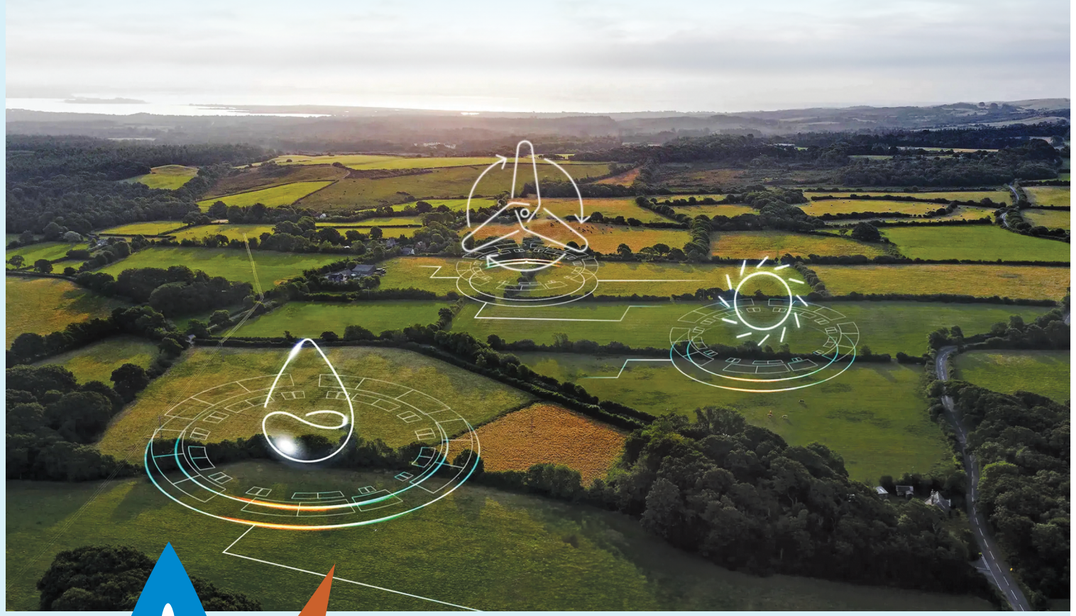
Contact us
HERMES coordinator
Artur Pozarlik
a.k.pozarlik@utwente.nl

info@hermes-energy.gr
https://hermes-energy.eu

https://www.youtube.com/@HermesEnergy

https://www.linkedin.com/in/hermes-project-594932258/

https://twitter.com/HERMESproject4



HERMES

Highly Efficient super critical zeRo eMission Energy System

https://hermes-energy.eu

11 partners

7 countries

2,594,660 EU Funding

11/2022 start date

10/2025 end date

HERMES system overall benefits

- Zero generation of pollutants
- 100% carbon recovery
- Efficiency >65%
- Compactness
- Fast response time/operational flexibility
- Support to the circular economy

Objectives

The key objective of HERMES is to develop and assess the performance of a closed-loop renewable energy system based on directly fired supercritical gas turbine engine (s-GT) operating on a variety of liquid/gaseous renewable fuels (here, methanol and hydrogen are used as a representatives) to provide electricity (and heat) with an efficiency above 65%, with net-zero greenhouse gas emissions and no emission of other pollutants. The Scientific and Technical Objectives are briefly presented below:

- Synthesis of renewable fuels for interchangeable GT operation and their value chains
- Fundamentals of zero-emission highly efficient supercritical combustion of renewable fuels
- System integration and assessment for technology maturity leap forward

Output

Hermes goes **beyond the current state-of-the-art**. It develops a research framework encompassing

a) **determination of carbon-neutral and carbon -free fuel properties** and development of **methods and tools** for assessing the performance of combinations of such fuels in **high pressure supercritical combustors,**
b) **validation** of renewable **fuels in terms of fuels economy and pollutant formation** stemming from the use of such fuels in combustors operating under **high pressure conditions,** and
c) approach to **support decision making** regarding the widespread deployment of these fuels to facilitate transition to a **climate friendly economy.**

HERMES

Highly Efficient super critical zeRo eMission Energy System