



GEMINI 4.0

A GLOBAL SOLUTION FOR THE **DECARBONISATION** OF INDUSTRIAL ACTIVITIES

In continuity of the GEMINI+ project, GEMINI 4.0 was launched to demonstrate that the high temperature nuclear cogeneration system developed in GEMINI+ can provide a global solution for the competitive and safe decarbonisation of industrial activities.



Funded by
the European Union

KEY OBJECTIVES

The main objective of GEMINI 4.0 is to clear the way towards the safety demonstration and subsequent deployment of high temperature industrial nuclear cogeneration with the system developed in the GEMINI+ project through four main steps.

- 1 Consolidate the GEMINI+ system safety demonstration and ensure that its licensing readiness is assessed by regulators and TSOs including the scenario in which it is used in poly-generation mode.
- 2 Develop the capability of the GEMINI+ system to operate in a cost-effective way in poly-generation mode.
- 3 Plan for the development of a consistent fuel cycle for high temperature reactors with respect to fissile resources as well as a safe, and an acceptable back-end.
- 4 Implement a communication plan aimed towards political stakeholders, industry stakeholders and the general public to remove barriers to nuclear solutions for the decarbonisation of industry.

EXPECTED OUTCOMES

- ✓ Validation of safety options of high temperature reactors as candidate reactors for cogeneration initiatives for high energy-consuming industries.
- ✓ Confirmation of whether a generic design for a high temperature reactor can be proposed for licensing, with the early involvement of regulators, and how a licensing process can be launched at the European level.
- ✓ Demonstration of the feasibility of coupled nuclear cogeneration technologies and installations at industrial scale.
- ✓ Socio-economic evaluation of the introduction of cogeneration with temperatures relevant to high temperature reactors in the industrial landscape of European regions with high energy-consuming industries.

PROJECT PARTNERS

