

POLYGENERATION FROM NUCLEAR

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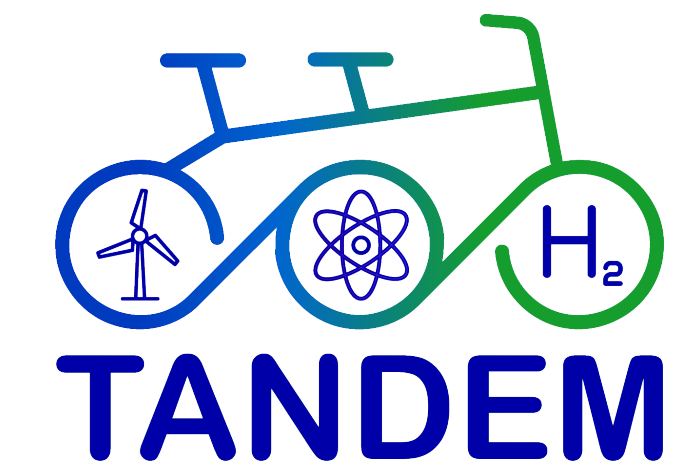
EUROPEAN PROJECTS



- Demonstrate that High Temperature Reactor (HTGR) provides a global solution for the competitive and safe decarbonisation of industrial activities.
- Confirm that this new form of poly-generation of various energy products does not negatively affect the safety of the combined plant.



- NPhyCo (Nuclear Powered Hydrogen Cogeneration)
- Assesses the implementation feasibility of coupling Generation 2 reactors (especially VVER) with a hydrogen production plant.



Small Modular Reactor for a European safe and Decarbonised Energy Mix

- Development of **tools and methodologies** to assess nuclear hybrid energy systems (SMRs+RES+energy storage+heat networks and power grid+energy conversion systems)
- Implementation on **demonstrative study cases** systems => safety, performances, techno-economics, citizen engagement

ADDRESSED TOPICS

Safety for Nuclear Polygeneration

Technico-economics & Shorts and Long term Impact of Nuclear on Energy Decarbonisation

Flowsheet for Hydrogen Production

Communication and Public Acceptance

MAIN OUTCOMES

Low-carbon hydrogen production via nuclear energy is technically feasible and can be done safely

Easier to be achieved with new-build plants (Small Modular Reactors and High Temperature Reactors) than with existing nuclear power plants in operation.

With current price of carbon dioxide certificates and the existing hydrogen infrastructure, low-carbon hydrogen production is not economically competitive compared to hydrogen from fossil sources.

Governmental support (national and EU-wide) is needed to foster low-carbon hydrogen production to reach real decarbonization goals.

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