HYDROGEN USAGE/MARKET UPTAKE

Solutions, technologies related to:

- hydrogen usage in the transport/mobility
- electric vehicles with or without hydrogen extender (developing/already developed/ with or without extender or with intention to be developed/is being developed, or any similar idea/plans/development in the future).
- hydrogen as a storage (fuel cell).
- secure usage/transport of hydrogen.
- any step within security of hydrogen transport or storage

Applicants having certifications, relevant experience and/or skills related to electromobility or/and usage of hydrogen in transport will be prioritized.

1) FIBERS – FABER

Innovative solutions and technologies:

- To improve the manufacturing of vessels and containers for safe hydrogen transportation
- For hydrogen safe storage and transportation
- For fibres winding (glass, carbon or other fibres)
- To improve impregnation of winding process, or other similar processes

Applicants need to demonstrate a deep understanding of composite materials and offering or developing composite materials or any other related processes. The solution, or technology, could already be developed for hydrogen applications, or potentially applicable to it.

2) Catalyst Design – SERICHIM

Innovative solutions for catalyst design in the hydrogenation–dehydrogenation domain, with a focus on overcoming current limitations in durability and efficiency.

Applicants with experience in catalyst replacement and ability to regenerate catalysts directly on site will be prioritized.

3) Design & Compactness – SERICHIM

Innovative solutions for improving the design and compactness of the DHR (Dynamic Hydrogen Releaser) and enhancing its scalability for a wide range of future applications. Proposed solutions should demonstrate capability to introduce upgrades to the current DHR design — for example, hybrid systems for energy recovery and storage that support improved start-up performance or meet peak-power demands.

Technical information on the DHR and its functionalities will be made available by the relevant NACHIP partners upon signed confidentiality agreements.

4) PROCESS OPTIMISATION (DSP TOOL) - University of Zagreb Faculty of Electrical Engineering and Computing – FER

Innovative solutions related to assessment of components of the DST (decision support tool), such as definition of technical and economic parameters related to energy sector.
Applicants with experience in component models or who have already developed simple models of prototype components will be prioritized.
Applicants with an already created international list of components needed in the hydrogen segment (e.g electrolyzers producers in each EU and non-EU country, hydrogen storage solutions, with already available technical and economic characteristics, etc.) will be also prioritized.

5) RFNBO HYDROGEN CERTIFICATION SERVICES FOR THE NACHIP VELENJE PILOT – ECUBES

Solutions supporting the RFNBO certification of the hydrogen produced within the NACHIP Velenje pilot, led by ECUBES together with the Municipality of Velenje, KSSENA and ETRA. The proposed solution should cover both island and grid-connected production modes, including the applicable additionality, temporary correlation and geographical-correlation requirements. The proposed solutions should also address Guarantee of Origin management, metering and data infrastructure, registry and reporting integration, and ongoing compliance monitoring.
Applicants with proven expertise in RFNBO certification under Delegated Regulations (EU) 2023/1184 and (EU) 2023/1185 and the CertifHy EU RFNBO Scheme will be prioritized.

6) RENOVATION APPROACH AND TECHNICAL SOLUTIONS FOR DERISKING HYDROGEN DEPLOYMENT – KSSENA

Innovative technical solutions and modular renovation approaches to support the integration of NACHIP-based energy supply and storage systems into existing public buildings.
The proposed solutions could address fire, explosion and hazardous-release risks, with the aim of supporting regulatory compliance, reducing safety distances and simplifying the integration of hydrogen systems with existing buildings and energy infrastructure.
The proposed solutions may also cover hydrogen production, storage, conversion, energy management and integration with renewable energy systems. They should demonstrate their potential to provide services such as space heating, domestic hot water, electricity generation and storage, peak shaving and improved energy resilience.
Expected outputs may include feasibility studies, engineering designs, safety and regulatory assessments, digital models, techno-economic analyses, implementation roadmaps, equipment specifications and investment concepts suitable for the Municipality of Velenje pilot or another representative public building exceeding 1,000 m^2.