Call for applications for the award of 1 Research Contract pursuant to art. 22 of Law no. 240/2010, in the Contract Scientific-Disciplinary Group 09/ICHI-02 – Chemical Plants and Technologies - Scientific Disciplinary Sector ICHI-02/A – Chemical Plants, at the facilities of the Research Unit for Process Engineering and the Departmental Faculty of Engineering of Università Campus Bio-Medico of Rome.

Competition code: CDR/02_26

Number of Research Contracts	1
Departmental Faculty/Research Unit of affiliation	Departmental Faculty of Engineering Research Unit for Process Engineering
Place of activity	Università Campus Bio-Medico of Rome Via Alvaro del Portillo 21, 00128 - Rome
Scientific Disciplinary Group	09/ICHI-02 – Chemical Plants and Technologies
Scientific-Disciplinary Sector	ICHI-02/A – Chemical Plants
Project title	Development, Modelling, and Techno-Economic and Environmental Analysis of Integrated Systems for the Production and Industrial Use of Renewable Hydrogen
Description of the research project	The research project aims to develop and model the HyCOMB prototype, an integrated system for the production, storage, and on-site utilization of electrolytic hydrogen in an industrial environment. The successful candidate will be involved in the modelling of the main subsystems, the definition of mass and energy balances, the analysis of operational performance, and the study of the integration between renewable energy generation, energy storage, the plant's energy demand, and the use of hydrogen in thermal processes. The research will also include process and environmental analysis of the system, with particular emphasis on reducing natural gas consumption, quantifying the environmental footprint through the Life Cycle Assessment (LCA) methodology, and comparing the proposed solution with conventional scenarios. The effects of hydrogen–methane blending on operating conditions, combustion stability, emissions, and safety will also be investigated. The study will identify techno-environmental key performance indicators (KPIs) and optimization scenarios to assess the scalability and replicability of the prototype in other industrial contexts.
Scientific Supervisor	Prof. Vincenzo Piemonte
Maximum number of publications	5
Language knowledge and skills	Good proficiency in written and spoken English
Date, time and place of interview	September 10th 2026, 11:00 a.m. **Remote candidates on Microsoft platform**

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