Session	Decarbonizing the Glass Industry (I)
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Chair	Serkan Şahin

From Natural Gas to Hydrogen mixtures: Challenges and Opportunities in Combustion for Sustainable Glass Furnaces

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Biography

Elisa Gerali
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I am a mechanical engineer specializing in energy and aeronautics. I earned my bachelor's degree in mechanical engineering in 2020 and my master's degree in energy and aeronautics in 2023 from the University of Genoa. My master's thesis focused on CO_2 capture, reflecting my strong interest in sustainable technologies and energy innovation.
Since April 2023, I have been working at Stara Glass in the research and development department, where I focus on industrial process optimization and sustainability in the glass sector. I am actively involved in the Life SUGAR project, an innovative project aimed at enhancing energy recovery from industrial waste gases. The project utilizes the recovered heat to power an exothermic steam methane reforming (SMR) reaction, enabling the production of syngas from natural gas, with the goal of improving energy efficiency and reducing environmental impact.

Annick Lachance Nyiringango
R&D Engineer, Stara Glass, Italy

Abstract

The shift from traditional NG combustion to the use of hydrogen mixtures represents a pivotal transition in the pursuit of sustainable industrial processes. This presentation explores the advantages and challenges posed by new fuel sources, particularly in glass furnace applications, where reducing CO_2 emissions is a priority. While hydrogen and syngas offer a low carbon footprint that can enhance a better environmental impact, their adoption is hindered by evolving regulatory frameworks and safety concerns. A focus will be placed on the diverse production pathways for hydrogen and syngas and the need for consolidated international standards to support their integration into industrial practice.