

## PRESS RELEASE NR. 1

# JOINT EFFORTS OF 7 PARTNERS WILL LEAD TO THE VALIDATION OF A NON-THERMAL PLASMA TECHNOLOGY FOR PRODUCING HYDROGEN AT A LARGE SCALE

**ColdSpark® – Coldspark® - driven energy and cost-efficient methane cracking for hydrogen production** is a 42-month-long Horizon Europe project launched in June 2022. Its main objective is to validate a novel non-thermal plasma technology to produce hydrogen at an industrial scale from methane. The project consortium bringing together 7 partners with a mix of academic, research, and industrial expertise will use the best features of the existing technologies in the field, gliding arc and corona discharge, to ensure high efficiency and scalability and contribute to the global reduction of CO<sub>2</sub> emissions. The coordinator and initiator of the project are SEID AS, having 25 years of experience with Non-Thermal Plasma and high-voltage power systems.

*COLDSPARK® is a cost-efficient cold methane pyrolysis platform for sustainable Hydrogen production*

*In a world that needs to decarbonize sustainably, we must make the best of all available resources. Methane pyrolysis is most likely one of the better ways for a phased energy transition into a low-carbon society. This can be achieved by leveraging the trillions of dollars already invested into natural gas projects, including gas fields, and the existing global infrastructure. ColdSpark® can transform one of the worst climate gas, methane, into two valuable resources; sustainable hydrogen and high-value solid carbon. This will allow us far better utilization of the current and future low-carbon electricity from intermittent power. Hydrogen produced with 1/5 of the energy consumption of an electrolyser will be a crucial asset in decarbonization.*

*Terje Hauan, Director of Strategy, SEID*

Methane cracking is the non-oxidative breakdown of methane to solid carbon and H<sub>2</sub> and represents one of the most promising alternatives for H<sub>2</sub> production aiming at zero emissions to produce turquoise hydrogen. This promising technology has been intensively investigated. However, challenges to conventional cracking arise including the high temperature required to produce effective decomposition, blockings of the reactors due to the carbon deposits on the walls, rapid catalyst deactivation, as well as the release of CO<sub>2</sub>.

The ColdSpark® project aims to utilize new non-thermal technology for methane cracking at a larger scale developing an industrial-relevant reactor. The innovation addresses for the first time the critical step of matching the reactor with a pulsed power supply. It enables a perfect fine-tuning of the cracking process parameters, to find the right electron density and energy distribution in the plasma reactor, to maximize energy efficiency. A low energy cost (< 15 kWh/kg H<sub>2</sub> produced) without the need for catalysts and water, makes the proposed solution the most cost-competitive, environment-friendly, and less complex to implement.

HORIZON EUROPE, the program financing Coldspark<sup>®</sup>, is the main EU program supporting research and innovation in the current programming period 2021–2027 with a budget of EUR 95.5 billion. The ColdSpark<sup>®</sup> project application was submitted to Horizon Research and Innovation Actions, specific topic: HORIZON-CL5-2021-D2-01-09: Methane cracking to usable hydrogen and carbon.