

Title:

Pioneering Innovations in CO₂ and Nitrogen Management and Valorisation at EIC Portfolio Meeting

Subtitle:

More than 30 representatives from eight projects presented and discussed innovations at the European Innovation Council's (EIC) CO₂ and Nitrogen Portfolio Annual Meeting in Helsinki.

Eight large-scale projects made up of 51 organizations from 12 EU Member States and 3 non-EU countries and funded by the European Innovation Council (EIC) under the Pathfinder Challenge 'CO₂ and Nitrogen Management and Valorisation', have shared their progress and discussed pioneering innovations at the 'EIC CO₂ and Nitrogen Portfolio'.

On June 17-18, 2024, members of the portfolio came together in an annual meeting held in Helsinki. The meeting, hosted by Finnish food technology company and project partner Solar Foods, has served to encourage and foster conversations aimed at reshaping Europe's environmental future.

The eight initiatives - CONFETI, DAM4CO₂, ECOMO, HYDROCOW, ICONIC, Mi-Hy, MINICOR, and SUPERVAL - are formed by multidisciplinary teams from universities, research and technology organizations, as well as small and medium-sized enterprises. Each project team has embarked on a common mission to pool their resources and expertise to transform pollutants and waste into economically and environmentally value-added products and energy.

The Role of Nitrogen in Sustainability

As the planet's climate continues to warm, the urgency for effective action increases. Emissions of CO₂ and nitrogen pollutants need to be suppressed but can also form crucial feedstocks for valuable products, where they can be combined to synthesize proteins and fertilizers. This sustainable and circular approach would enhance the effectiveness of sustainable practices towards a greener, more liveable future. In this context, the EIC launched the Pathfinder Challenge 'Carbon Dioxide and Nitrogen Management and Valorisation' in 2022, aiming to develop novel sustainable processes and technologies to capture and convert CO₂ and nitrogen into useful energy and products. Such innovations are crucial in the fight against climate change and for promoting sustainability and enabling resource circularity by reducing greenhouse gas emissions and strategically mitigating nitrogen losses.

This challenge focuses on new biological, chemical, thermochemical and physical routes that integrate the capture and/or recovery of CO₂ and nitrogen compounds as well as their conversion into value-added products or net-zero commodities, chemicals, fuels, energy vectors for different applications. The sustainable processes developed will make use of renewable energy sources and non-critical raw materials. Reaching these objectives requires multidisciplinary competencies and cross-sectorial approaches, with a strong focus on circularity and whole-life-cycle analysis.

Highlights of the Portfolio:

- **Technology Synergies:** Project teams shared knowledge and resources to accelerate technological advancements.
- **Regulatory Streamlining:** Collective efforts made between the portfolio partners and regulatory bodies ensured visibility of the combined research activities and their potential impacts.

- **Innovation Journey:** Focus on market exploitation strategies is catalysing a transition from advanced (or deep-tech) technological innovations to viable business models.

Technological Advances and Sustainability

As the portfolio developments advance, stakeholders can expect to see groundbreaking developments in areas such as hydroponics augmented by microbial metabolisms, electrobiocatalytic cascades, sustainable photoelectro- and thermo-chemical valorisation, CO₂ capture and long-term storage, gas separation and purification. These innovative technologies have the potential to transform waste streams into valuable resources, paving the way for a more sustainable and resilient future by closing the loops of resource circularity.

The creation of the 'EIC CO₂ and Nitrogen Portfolio' is a strategic move by the European Commission to 1) foster a collaborative environment to drive significant advancements in sustainable technologies that address global environmental challenges, 2) establish an entrepreneurial network for carbon and nitrogen management and valorisation businesses, and thereby, 3) reinforce EU leadership in sustainability.

Contact:

For more information about the EIC CO₂ and Nitrogen Portfolio, please visit <https://eic.co2nitrogen.eu>.