nova-Institut GmbH
Leyboldstraße 16
50354 Hürth, Germany

Tel: +49 2233 460 14 00
Fax +49 2233 460 14 01
contact@nova-institut.de

nova-Institut GmbH (www.nova-institute.eu)

PRESS RELEASE

CO_2 Revolution 2025: Fueling the Future, Capturing Possibilities

Exploring Innovative Pathways in Green Hydrogen, Carbon Capture, and (Biogenic) CO_2 Utilisation at the CO_2-Based Fuels and Chemicals Conference

Hürth, 10 February 2025: The 13th edition of the **CO_2-based Fuels and Chemicals Conference,** scheduled for 29-30 April 2025, in Cologne, Germany, and online, is set to showcase the latest advancements in Carbon Capture and Utilisation (CCU) technologies. This year's event builds upon its established reputation as a cornerstone in the field, addressing the growing demand for CO_2 as a renewable carbon solution for the chemical and fuel sectors.

With global capacities for CO_2-based products now exceeding 1.5 million tonnes annually, the conference aims to foster connections and to present cutting-edge developments in CO_2 capture and utilisation. The program of the two-day event presents a comprehensive overview of the status quo, delving into pivotal topics such as Power-to-X for fuels, CO_2-based chemicals, materials, polymers, mineralisation, advanced technologies and groundbreaking advanced research for CCU. A dedicated session on innovation, strategy and policy will discuss framework conditions necessary to stimulate incentives and investments within this rapidly expanding sector.

A highlight of the conference are the presentations of the six nominees for the “Best CO_2 Utlisation 2025” innovation award. The award honours innovative technologies and advancements in the field of CCU.

The program presents over 30 international experts from leading institutions, initiatives and companies worldwide, showcasing established and emerging technologies for efficient valorisation of CO_2 as a renewable feedstock. Addressing the CCU industry’s need for long term CO_2 supply, this year's event will focus in particular on persistent biogenic CO_2 sources, efficient carbon capture technologies, and the constant supply of renewable hydrogen. These topics reflect the evolving landscape of carbon transformation and the industry's push towards more sustainable practices.

The full conference program is available at https://co2-chemistry.eu/program/.

From Policy to Practice: Advancing CCU Innovations Across the CO_2-Value Chain

As the world accelerates towards a low-carbon future, the CO_2-Based Fuels and Chemicals Conference continues to play a vital role in shaping the trajectory of sustainable carbon utilisation technologies. Dedicated sessions provide a unique platform for industry leaders, researchers, and policymakers to

exchange knowledge, showcase innovations, and forge collaborations that will drive the transition to a circular carbon economy.

Innovation, Strategy and Policy: CCU is more than just a carbon removal technology. The utilisation of CO_2 offers multiple solutions to pressing problems of modern societies and can support several Sustainable Development Goals if implemented properly. Yet, CCU requires more political recognition and support – especially in the EU – to establish it as a central transformation-instrument of the chemical and material industry. Experts from nova-Institute, CO_2 Value Europe, RSB, NRW.Energy4Climate and Holcim Deutschland will share insights on the current and future role of CCU in international and European policy and discuss key-topics such as sustainability, certification, and the value chain implementation.

Green Hydrogen Production, Biogenic CO_2 Sources and Carbon Capture: The success of CCU depends on securing steady sources of CO_2, improved capture methods, and ensuring sufficient supply with renewable energy and green hydrogen from water electrolysis and biogas production. These renewable elements are crucial for the transformation of CO_2 into chemicals, polymers and fuels. International companies like Endrava, EIT InnoEnergy, Fortum, Revcoo, Sypox and RWE Generation together with University of Liége will introduce software-based evaluation methods of biogenic CO_2 sources, validate their potential for CCU in case studies, and introduce cryogenic and mobile carbon capture solutions.

CO_2 to Chemicals, Fuels, Polymers and Materials: The use of CO_2 as a feedstock for chemicals and polymers has been significantly diversified, with several technologies already operating at a commercial scale. In particular, the production of synthetic aviation fuels is gaining momentum, driven by political initiatives such as the EU's ReFuel Aviation proposal. This policy mandates that by 2030, 5 % of the EU's kerosene demand must come from sustainable aviation fuels (SAF), including a minimum of 0.7 % from synthetic fuels. By 2035, this requirement is supposed to increase to 20 % SAF, with at least 5 % from synthetic sources. In this session, the Global CO_2 Initiative will outline advantages of CO_2 utilisation for sustainable aviation fuels, with companies like SynataBio, Electrochaea, Air Liquide, and Celanese demonstrating successful methods of using CO_2 as a feedstock for chemicals and fuels. Meanwhile, research institutes such as SINTEF and IFAM, along with startups like UP Catalyst, are exploring innovative applications for CO_2 in areas such as food production, polyurethanes, nanotubes, and graphite.

CO_2 Utilisation Technologies: The use of CO_2 in valuable chemicals, fuels, polymers and materials is enabled via chemical conversion, electrochemical conversion and biotechnological conversion. These conversion technologies harbour an incredible diversity of specific, high potential solutions for efficient CO_2 utilisation. Researchers from Lawrence Berkeley National Laboratory, TNO, NORCE Norwegian Research Centre and VTT, as well as experts from companies such as Carbogenesis, GIG Karasek, eChemicals, Skylea and Colipi will introduce innovative approaches for CO_2 valorisation.

Advanced Research in CCU: The portfolio of potential products from CO_2 and renewable energies reaches from platform chemicals to cross-sectoral and value chain overarching approaches. This session highlights current research in the field of CCU presented by researchers from AIMPLAS, COWI and Aalborg University, Università di Bologna, University of Liverpool and Toulouse Biotechnology Institute.

Mona Neubaur, Minister for Economic Affairs, Industry, Climate Protection and Energy of the State of North Rhine-Westphalia has once again taken on the patronage of the conference.

For more information and registration details, please visit https://co2-chemistry.eu

Partnerships and Sponsoring

The CO_2-based Fuels and Chemicals Conference 2025 is supported by numerous industry and trade associations, non-profit organisations, research institutions and interest groups, that are thematically linked to the conference: BCNP Consultants (DE), BBE – Bundesverband Bioenergie (DE), BioBase

(AT), C.A.R.M.E.N. e.V. (DE), ChemCologne (DE), Chemie-Cluster Bayern (DE), CLIB – Cluster Industrial Biotechnology (DE), CO_2 Value Europe (EU), Global CO_2 Initiative (International), IN4climate.NRW (DE), IBB – Industrielle Biotechnologie Bayern Netzwerk (DE), kunststoffland NRW (DE), Plastics Europe (DE), Renewable Carbon Initiative (International).

The Innovation Award "Best CO_2 Utilisation 2025" is co-organised by nova-Institute and CO_2 Value Europe and sponsored by Yncoris.

Holcim and GIG Karasek support the event as sponsors.

More information on sponsoring and exhibition is available at https://co2-chemistry.eu/sponsoring/.

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Responsible for the content under German press law (V. i. S. d. P.):

Dipl.-Phys. Michael Carus (Geschäftsführer)
nova-Institut für politische und ökologische Innovation GmbH

Leyboldstraße 16 Tel: +49 2233 460 14 00
50354 Hürth Fax +49 2233 460 14 01
Germany contact@nova-institut.de

nova-Institut GmbH has been working in the field of sustainability since the mid-1990s and focuses today primarily on the topic of renewable carbon cycles (recycling, bioeconomy and CO_2 utilisation/ CCU).

As an independent research institute, **nova** supports in particular customers in chemical, plastics and materials industries with the transformation from fossil to renewable carbon from biomass, direct CO_2 utilisation and recycling.

Both in the accompanying research of international innovation projects and in individual, scientifically based management consulting, a multidisciplinary team of scientists at **nova** deals with the entire range of topics from renewable raw materials, technologies and markets, economics, political framework conditions, life cycle assessments and sustainability to communication, target groups and strategy development.

50 experts from various disciplines are working together on the defossilisation of the industry and for a climate neutral future. More information at: nova-institute.eu – renewable-carbon.eu

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