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# PRESS RELEASE

# Navigating a Renewable Carbon Future with the Program of the $CO_2$-Based Fuels and Chemicals Conference 2024

## Redefining CCU Technology and Empowering Power-to-X Solutions

**Hürth, 6 February 2024**: With a current capacity of over 1.3 million tonnes for $CO_2$-based products and steadily growing demand, smart Carbon Capture and Utilisation (CCU) technologies are helping to establish $CO_2$ as a renewable carbon feedstock. Innovative technologies and materials are crucial to meet the increasing demand for fossil-free carbon, e.g. derived from $CO_2$ or biomass, especially in the chemical and fuel sector. Having established itself as a cornerstone in the evolution of this dynamic field, the $CO_2$-Based Fuels and Chemicals Conference has become a meeting ground, fostering connections and showcasing the latest advancements in $CO_2$ capture and utilisation.

For the 12th time the conference program presents a comprehensive overview of the status quo, delving into pivotal topics such as CCU, carbon capture technologies, biogenic $CO_2$ sources and green hydrogen production, Power-to-X for fuels, $CO_2$-based chemicals, materials, polymers, mineralisation, advanced technologies, advanced research for CCU, and the fascinating realm of artificial photosynthesis. A dedicated session on innovation, strategy and policy will delve into the crucial discussion of framework conditions necessary to stimulate incentives and investments within this rapidly expanding sector, offering valuable insights and future perspectives.

The $CO_2$-Based Fuels and Chemicals Conference 2024 will take place on **17-18 April 2024** in Cologne, Germany and online.

## From Green Hydrogen to $CO_2$ to Chemicals and Fuels – A Medley of CCU Technologies

### Day 1, 17 April 2024

**Innovation, Strategy and Policy**

Carbon Capture and Utilisation (CCU) enables the substitution of fossil carbon in sectors where carbon is necessary. It hereby supports the full defossilisation of the chemical and derived materials industries by creating a circular economy, reducing the emission gap, promoting sustainable carbon cycles, fostering innovation, generating local value, and stimulating job growth. CCU is much more than a carbon removal technology: the technology offers multiple solutions to pressing problems of our modern world and can support several UN Sustainable Development Goals if implemented properly. Thus CCU needs more political recognition and support, as its relevance as a central pillar for the transformation of the chemical and material industry is not yet acknowledged, especially in Europe.

- **Michael Carus** (nova-Institute) – *The Importance of CCU in a Renewable Carbon Economy – Making the Case for CCU*
- **Célia Sapart** ($CO_2$ Value Europe) – *The Contribution of CCU towards Net-Zero in EU*
- **Nicolas Hark and Matthias Stratmann** (nova-Institute) – *Policy and Sustainability in CCU – A Status Quo*
- **Volker Sick** (Global $CO_2$ Initiative) – *Policy Support for $CO_2$ Capture and Conversion in the USA*
- **Lena Friedmann** (CM Fluids) – *Renewable $CO_2$ – Biogas Sector's Perspective*

**Biogenic $CO_2$ Sources, Carbon Capture and Green Hydrogen Production**

To provide the full benefits of $CO_2$ conversion technologies, the use of renewable energy and hydrogen is indispensable and crucial for the production of $CO_2$-based transportation and aviation fuels, bulk and fine chemicals. Today, long established techniques as Fischer-Tropsch process for $CO_2$ conversion are now supported by electrochemistry for $CO_2$ reduction to e.g. ethylene. The use of $CO_2$ as a chemical feedstock for building blocks and polymers has been intensively diversified. Learn about the extensive and diversified use of $CO_2$ as a renewable carbon source for the chemical, materials and construction industry in Europe from leading research and industrial experts.

- **Caroline Braun** (Landwärme) – *A Value Chain for Biogenic $CO_2$*
- **Esther Hegel** (DECHEMA) – *$CO_2$ from Biogas Plants: A Future Feedstock for Biotechnology?*
- **Mehdi Hssein** (GIZ Morocco) – *Carbon Sources and Capture in Morocco: Challenges and Opportunities*
- **Oliver Ziegler** (PtX Lab Lausitz (ZUG)) – *Study Review: Scalable stand-alone Direct Air Capture System using Zeolites*
- **Ulrich Dietz and Ralf Gesthuisen** (CBL-Carbon Beyond Limits) – *Amino-acid Based Carbon Capture – A Novel, Efficient and Wide Range Applicable Carbon Capture Process Technology*
- **Marleen Rombouts and Ben Sutens** (Flemish Institute for Technological Research – VITO) – *$CO_2$ Capture Using Porous Structured Absorbents*

**Presentations of the Nominees for the Innovation Award "Best $CO_2$ Utilisation 2024"**

This session aims to honor and showcase pioneers in the field of CCU innovation. Six nominees will present their cutting-edge technologies, materials and services, while the winner will be chosen by the audience in a live vote.

## Day 2, 18 April 2024

**$CO_2$ to Chemicals and Fuels**

The production of e-kerosene is mainly stimulated by a coming quota: According to the ReFuel Aviation EU proposal, by 2030, 5 % of kerosene demand in the European Union would have to be met by sustainable aviation fuels (SAF), of which a minimum share of 0.7 % of synthetic aviation fuels. By 2035, the mandate is supposed to increase to 20 % SAF with a sub-quota of 5 % minimum of synthetic fuels.

- **Michele Tedesco** (TNO) – *Towards Industrial Ethylene Electrosynthesis: Upscaling Hurdles and Perspectives*
- **Florian Haakmann** (thyssenkrupp Steel Europe) – *Carbon2Chem® – $CO_2$ Emissions from Point Sources*
- **Lorenzo Cremonese** (PtX Lab Lausitz (ZUG)) – *Resource Demand of a GHG-neutral Aviation Sector in Europe: A Study on e-Kerosene*

**$CO_2$ to Polymers and Materials**

The use of $CO_2$ as a chemical feedstock for building blocks and polymers has been intensively diversified. Several successfully implemented technologies used at commercial level are in place and many more at the laboratory and pilot phase. Additionally, using $CO_2$ as a feedstock for the construction industry via inorganic and organic carbonates is on the rise. Learn about the extensive and diversified uses of $CO_2$ as a renewable carbon source for the chemical, material and construction industry in Europe from leading research and industrial experts.

- **Christian Holzleitner** (European Commision DG CLIMA) – *European Perspectives on Sustainable Carbon Cycles in Industry*
- **Pauline Ruiz and Pia Skoczinski** (nova-Institute) – *Status and Outlook for $CO_2$-based Products*
- **Simon Frølich** (Danish Technology Institute) – *From $CO_2$ to Polymers*
- **Cecilia Mondelli** (Sulzer Chemtech) – *$CO_2$-based Inorganic and Organic Carbonates to Green Up Construction and Transport Sectors*
- **Thomas Mairegger** (Net Zero Emission Labs) – *$CO_2$ Capture and Utilization Pave the Way Towards a Climate Neutral Cement Production*

**Advanced Research in CCU (Parallel Session)**

The portfolio of potential products from $CO_2$ and renewable energies instead of fossil resources is nearly infinite. Platform chemicals are produced from $CO_2$, but also specialities such as proteins and fatty acids made from $CO_2$ are on their way. International highlights on currently ongoing research in the field of Carbon Capture & Utilisation (CCU) are presented in this dedicated session.

- **Francesca Di Bartolomeo** (SINTEF AS) – *The PYROCO$_2$ Project. Advancing Carbon Capture and Utilisation for Climate-Positive Acetone Production in Europe*
- **Lili Zhang** (A*Star) – *Research in Singapore on Low-Carbon Technologies and Alternative Feedstocks for Sustainability*
- **Pegah Shakeri** (Coatema Coating Machinery) – *Innovative Approaches for Industrial Electrode Production: A WaterProof EU Horizon Initiative*
- **Eman Albaher** (Saudi Aramco) – *The Development of Iron-based Core-shell Materials for the Conversion of $CO_2$ into Hydrocarbons*
- **Verena Süß** (Fraunhofer ICT) – *Further Developments in Heterogeneous Catalyzed Ethanol Synthesis*

## Registration

The registration is available at https://$CO_2$-chemistry.eu/registration/.

## Partners and Sponsors

The $CO_2$-based Fuels and Chemicals Conference 2024 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), C.A.R.M.E.N. e.V. (DE), ChemCologne (DE), CLIB – Cluster Industrial Biotechnology (DE), $CO_2$Value Europe (EU), Global $CO_2$ Initative (International), IN4climate.NRW (DE), IBB – Industrielle Biotechnologie Bayern Netzwerk (DE), kunststoffland NRW (DE), Plastics Europe (DE), Renewable Carbon Initiative (International), VoltaChem (NL).

The Innovation Award “Best $CO_2$ Utilisation 2024” is co-organised by nova-Institute and $CO_2$Value Europe and sponsored by Yncoris. GIG Karasek supports the event as Bronze Sponsor.

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

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**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 $CO_2$ utilization/ 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 $CO_2$ utilization 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 defossilization of the industry and for a climate neutral future. More information at: nova-institute.eu – renewable-carbon.eu

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