RENEWABLE MATERIALS CONFERENCE 2025

22–24 September • Siegburg/Cologne

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Table of Content

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Network ID nova-Conference

#2025RMC #2025RMC

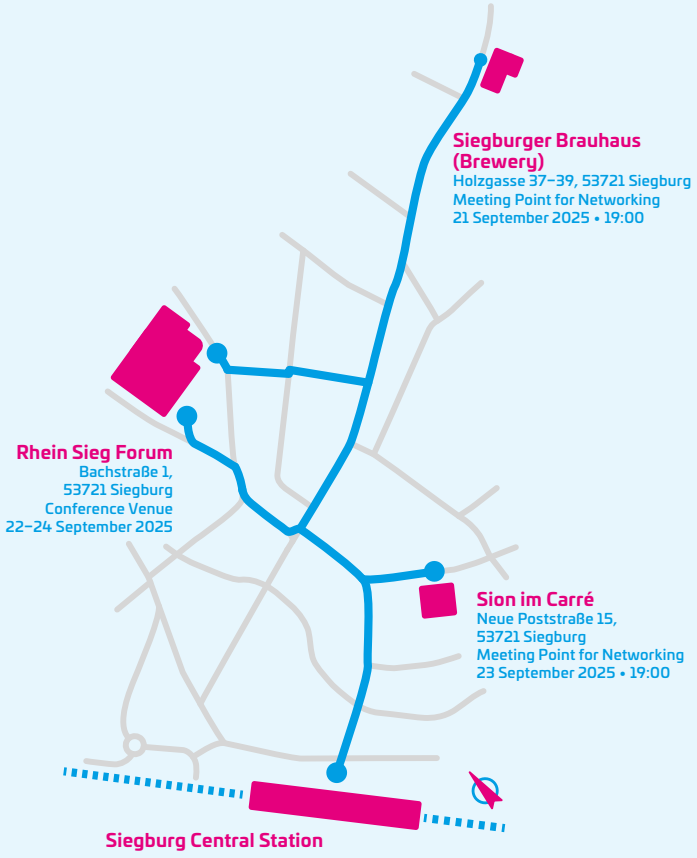
How to get to the Venue

By Train: Direct high-speed train connections from Brussels, Amsterdam, Cologne, Frankfurt, Berlin, Munich to Siegburg – without changing trains or with a maximum of one change at Cologne Central Station.

By Plane: The easiest way is to fly to Frankfurt and take the ICE direct from Frankfurt Airport to Siegburg (no change).

By Car: Car park next to the venue.

All locations are within walking distance via the pedestrian zone. Or take the bus from the Central Station to the Rhein Sieg Forum (3 minutes).



Meeting Point for Networking
Evening before the Conference, 21 September 2025 • 19:00
Siegburger Brauhaus (Brewery)
Holzgasse 37–39, 53721 Siegburg

Program

Day 1 • 22 Sep 2025
9:00–19:00 (CET)

P. 24

Grand Hall

Defossilisation of the Chemical Industry

—

Small Hall

Fine Chemicals

Lignocellulosic Biorefineries and Lignin Utilisation

—

Panel Discussion

The Future of the European Chemical Industry: Defossilised and Competitive, how can it work?

Day 2 • 23 Sep 2025
9:00–18:00 (CET)

P. 32

Grand Hall

Fossil-free Plastics

Markets and Applications, Bio-based Polymers

Bio-based and -attributed Polymers

—

Small Hall

Fossil-free Plastics

Sustainable Polymers

CO_2-based Polymers

Recycled Polymers

—

Grand Hall

Innovation Award for the “Renewable Material of the Year 2025”

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Day 3 • 24 Sep 2025
9:00–16:00 (CET)

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Grand Hall

Setting the Frame for Renewable Carbon

—

Small Hall

Biodegradation

Parallel Workshops

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20:00
Dinner Buffet
in the Conference Centre

21:00
Brass Band “Dicke Luft”

19:00
Meeting Point for Networking
Sion im Carré, Neue Poststraße 15, 53721 Siegburg

Join at sli.do
for real time questions and comments

Grand Hall
Main Sessions
#2025RMC

Small Hall
Parallel Sessions
#2025RMC-2

Find your perfect match!
We have sent the link to nova’s matchmaking platform to all on-site participants of the Renewable Materials Conference 2025.

All details: Please see Page 12.

Welcome to the Renewable Materials Conference 2025

Dear participants of the Renewable Materials Conference,

Two things are needed to achieve a net-zero chemical industry: decarbonisation of energy and defossilisation of feedstock. Firstly, the process energy – the chemical industry is one of the three largest energy consumers in the EU – must be generated sustainably. This can be achieved by electrifying steam generation and other process steps, for example through electric steam crackers. And yes, it will require large amounts of renewable electricity.

Secondly, the raw materials and thus the materials used in the chemical industry itself must be converted to renewable carbon. Renewable carbon can stem from biomass, CO_2 or recycling and will be the feedstock of the new chemical and material sector. The Renewable Materials Conference will focus on how far we have come and how this can be developed further, from technological, economic and environmental perspectives.

If the energy transition is implemented consistently, including grid expansion, (battery) storage and hydrogen, attractive electricity and hydrogen prices are on the horizon in the medium term. However, energy and raw material supplies are still far too dependent on fossil fuels such as oil, natural gas and coal, with imports accounting for 80–90% of the total. This makes European industry vulnerable in terms of access and prices. Simply put, the EU will never obtain fossil carbon at the price level of the producing countries and their allies. Since the most advanced technologies for the high-volume production of chemicals and plastics are available everywhere, countries with cheap access to oil and natural gas have a natural advantage. Europe cannot overcome this competitive disadvantage as long as the chemical and plastics industry relies on fossil carbon for over 90% of its feedstock.

Is there a way out? Yes, Europe can become a pioneer in defossilising the chemical and plastics industry through the use of renewable carbon, thereby freeing itself from the fossil fuels trap. Renewable carbon means carbon from the recycling of plastics, biomass and CO_2. Europe is well positioned in terms of research and development in all three areas. Unfortunately, however, only in a few cases has it been possible to scale up innovations towards market implementation (“implementation gap”). In most cases, conditions for actually building market-size plants for new innovations are better in other regions of the world.

However, European policymakers have been alerted to the issue, and many new strategies, action plans, directives and regulations are in the final stages of development. These will be published this year or early next year and will hopefully greatly improve conditions in Europe. Several presentations and workshops will address this issue.

Join us for the largest gathering of the New Renewable Carbon Economy. We hope you gain valuable insights and inspiration, and have the opportunity to network extensively with start-ups, chemical companies, brand manufacturers and investors. By working together, we can build a chemical and plastics industry that is strong, resilient, innovative and sustainable.

Kind regards

Michael Carus
Founder and CEO

Lars Börger
co-CEO

P.S.: Please find the full version of this text on page 18–22

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Brigitte Hellwig
Representative of the nova-Institute at Booth No. 3
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Registration

renewable-materials.eu/registration

Venue & Accommodation

Rhein Sieg Forum
Bachstraße 1
53721 Siegburg
Germany

Phone: +49 2241 – 102 71 00
info@rhein-sieg-forum.de
www.rhein-sieg-forum.de

Recommended Hotels
www.renewable-materials.eu/venue

Entrance Fee

3 Days • 22–24 September 2025
Ticket for on site (and online) attendance
incl. dinner buffet on the first day
1645 €

Day 1 • 22 September 2025
Ticket for on site (and online) attendance
incl. dinner buffet
845 €

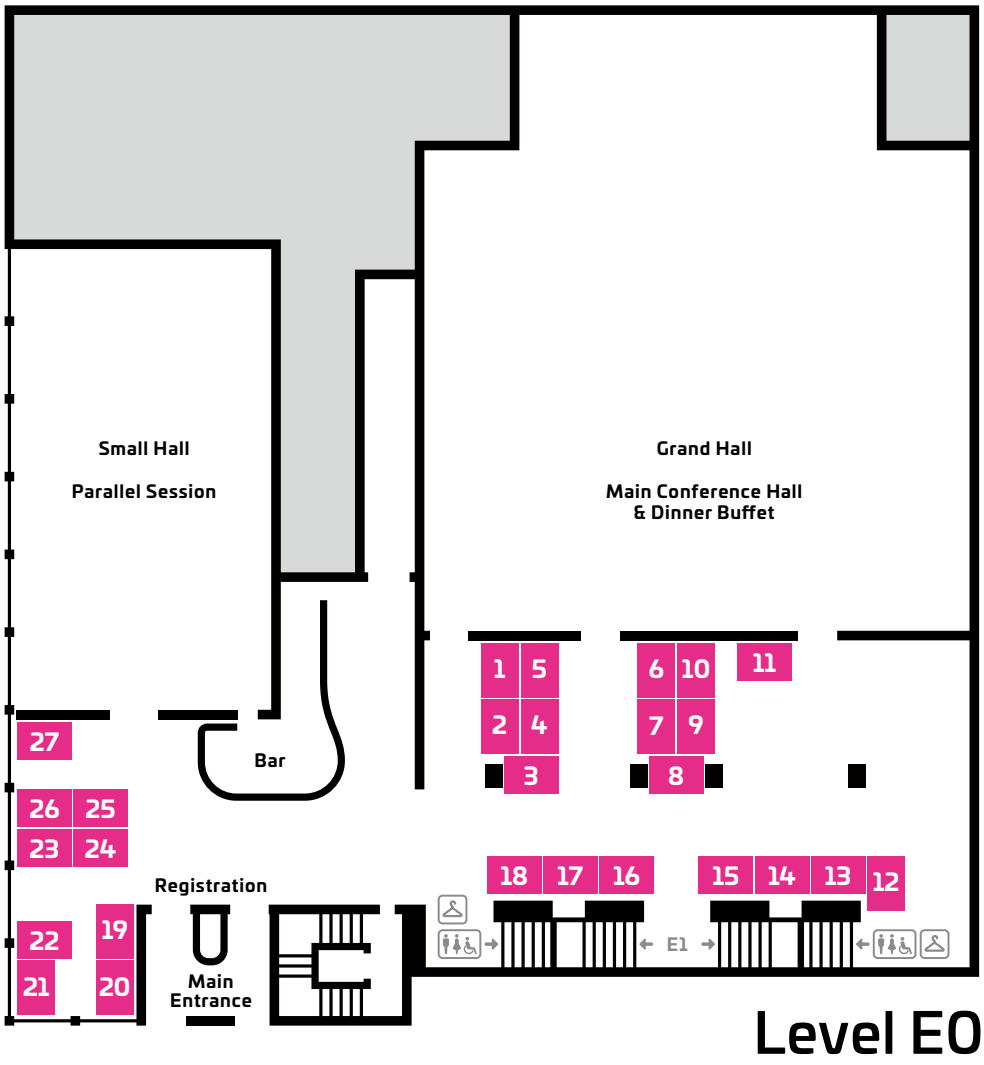
Day 2 • 23 September 2025
Ticket for on site (and online) attendance
795 €

Day 3 • 24 September 2025
Ticket for on site (and online) attendance
795 €

3 Days Online Ticket • 22–24 September 2025
Ticket for virtual attendance only
895 €

3 Days Student Ticket • 22–24 September 2025
Ticket for on site (and online) attendance
incl. dinner buffet on the first day
350 €

Floor Plan & Exhibition



List of Exhibitors

01 Future Materials Forum – Driving Circular Solutions in Plastics (DE)

02 BPC Instruments (SE)

03 nova-Institute (DE)

04 PYSOLO (EU-Project)

05 Innovation Award "Renewable Material of the Year 2025"

06 KlarTEXt (DE)

07 CO_2 Value Europe

08 TÜV Austria Belgium (BE)

09 Syklo (FI)

11 European Bioplastics (DE)

12 SGS Beta (US)

13 Verbio (DE)

14 TNO (NL)

15 LEAF BIOTECH (CN)

16 REDcert (DE)

17 Zhongke Guosheng Technology (CN)

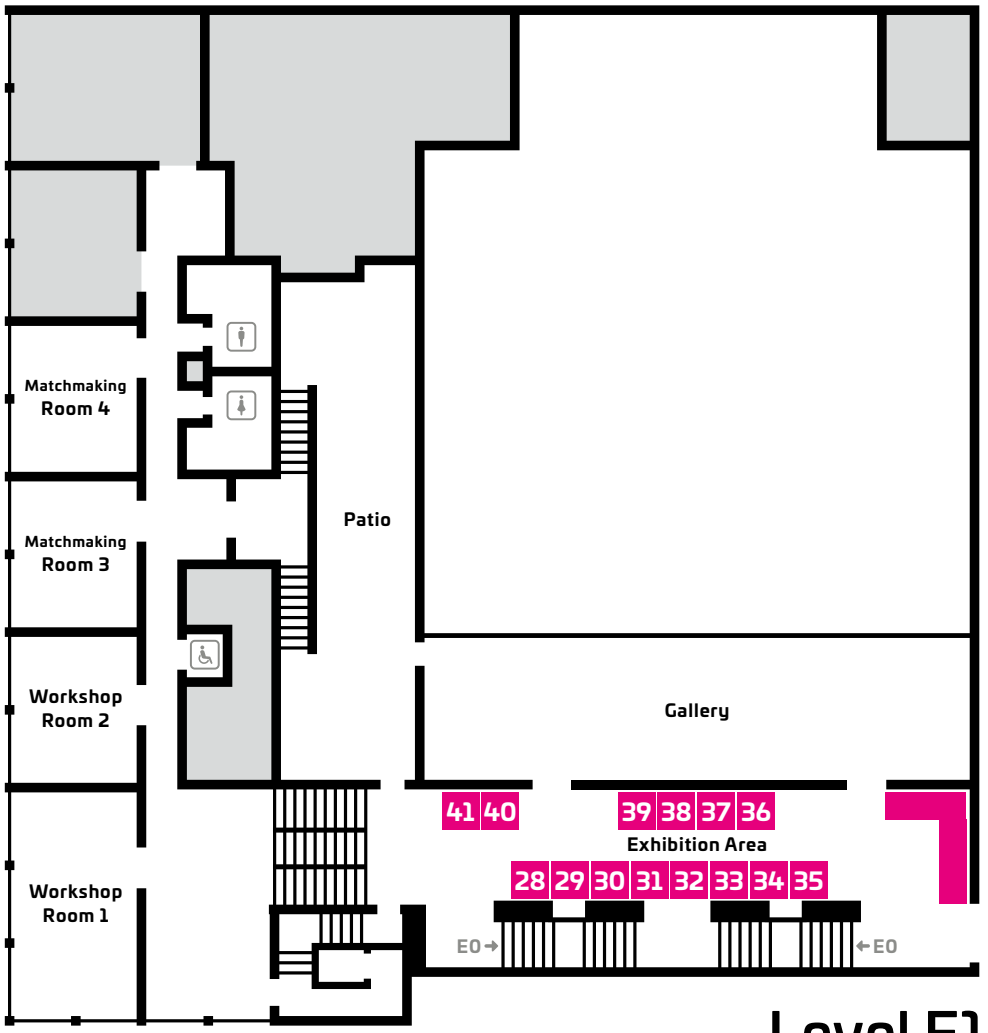
18 Uncountable (US)

19 Echo Instruments (SI)

21 UPM (DE/FI)

22 UPM (DE/FI)

23 Renewable Carbon Initiative (RCI) (DE)



24 J. Rettenmaier & Soehne (DE)

25 Covestro (DE)

26 AllocNow (DE)

27 Advanced Recycling Conference 2025 & Ai Circular Economy Conference 2026

28 World Bio Markets 2025 (NL)

29 Renewable Carbon Plastics Magazine (DE)

32 Poster Session

33 Poster Session

34 Poster Session

35 Poster Session

40 Media Table

41 Media Table

Book your Booth!

renewable-materials.eu/exhibition-booking

Poster Session

The poster session will take place at the first floor (booths 32–35) during the lunch breaks of Day 1 (12:50, CET) and Day 2 (12:40, CET).

AC Biode (DE)
Robert Kunzmann
Biochemicals from Palm Oil Waste

Elkem Silicones (NO)
Joséphine Munsch
Elkem is advancing the Circular Economy for Silicones, from innovative research to product development

ETB Global (FR)
Petri Mast
Bio-based Butadiene: a Sustainable Building Block for High Performance Plastics and Rubber

Fraunhofer CBP (DE)
Ulrike Junghans
The second life of paper towels – valuable feedstock for biotechnological production of basic chemicals

Fraunhofer CBP (DE)
Kerstin Thiele
Scale up of caranlactam synthesis

Fraunhofer IAP (DE)
Antje Lieske
Towards a Genuine Circular Production of Flexible PLA-Grades in Germany

Fraunhofer IFAM (DE)
Fawaz Al Hussein
Utilization of CO_2 as raw material for monomers and polymers

curenergy (DE)
Ricarda Görtz
Circular Industry

Green Pearl Innovation (DE)
Patricia Parlevliet
Biomanufacturing meets waste: how microbes help to create tomorrow's materials from waste

Institut für Kunststofftechnik Darmstadt (DE)
Katharina Grünheide
Mechanical Characterization of Coated Grass Fibres via Microindentation

Kemira (FI)
Marko Laakkonen
Defossilization of OCC Board Strength Application by Cationic Alpha-Glucan

Kompetenzzentrum Holz (DE)
Jürgen Leßlhumer
Fossil-free wood polymer composites for the next generation of terrace decking

Leibniz Institute for Catalysis (DE)
Gopika Nair
Depolymerization of biobased Polyethylene furanoate (PEF) and Polybutylene furanoate (PBF) through heterogeneous catalysis

Liquim (AU)
Velimir Pajic
Invisible Strength. Visible Impact: Liquim's Environmental Microfilm

L'Oréal (FR)
Julien Aupoil
Towards sustainable cosmetic ingredients and management of minerals in downstream industries with a new mineral resources abundance index

Northumbria University (UK)
Joseph Paros
Microbial chassis engineering for gram scale production of a pyruvate-derived chemical from CO_2

Northumbria University (UK)
Joss Prest
C. necator and sustainable fermentation, using 4th generation feedstocks for the production of industrially valuable compounds

Northumbria University (UK)
Ewan Waters
Upgrading waste carbon to value-added chemicals in a mixotrophic gas fermentation bioprocess

SYENSQO (BE)
Sergio Mastroianni
Sustainable Chemistries from Renewable Resources: How to defossilise chemical industry

SKZ – KFE (DE)
Philipp Wohlfahrt
CREATE: Innovating bio-plastics together – A network approach

VTT (FI)
Sari Rautiainen
Case examples of sustainable solutions at VTT: Valorisation of lignin, agricultural side streams and CO_2 into renewable chemicals and monomers

renewable-materials.eu/posters

Workshops

No Online Streaming from the Workshop Rooms
(only from Small and Grand Hall).



Day 1
22 September 2025

11:30 (CET)

Room 1

Florian Kleinwächter, Holcim (DE)
Turning CO_2 into Business: Time to Walk the Talk with Holcim's Upcoming Opportunity

Room 2

Jokūbas Nikanorovas,
Invest Lithuania (LT)
Building the Bio-based Future: Competitive Site Selection and Growth

14:30 (CET)

Room 1

Irina Akhmetova & Lukas Horndasch,
PtX Lab Lausitz (DE)
Exploring Policy Tools to Drive the Sustainable Transformation of Petrochemical Clusters.

Room 2

Timo Ture & Markku Nikkila,
Syklo (FI)
From Waste to Wonders: New Industrial Concept for Recycling of Consumer Cardboard and Plastic Waste into Low-carbon Technical Biocomposite

16:30 (CET)

Room 1

Lars Börger, Narendar Raju Poranki & Gillian Tweddle,
nova-Institute (DE)
Business Plans for Renewable Chemicals and Materials for Start-ups and SMEs

Room 2

Mark Schmets, Dutch Ministry of Climate Policy and Green Growth (NL),
Benjamin Schoemaker, TNO (NL),
Peter van Hooft, Skytree (NL)
Frank Vergunst, Alta Group (NL)
Capturing Value from CO_2: From Policy to Practice; Dutch Innovations

Day 2
23 September 2025

9:20 (CET)

Room 1

Kai junge Puring,
Fraunhofer Institut UMSICHT (DE)
Air2Chem: Chemicals from Air. What Does it Need to Replace Fossil Chemicals with Chemicals Made from CO_2 from Air and how Does a Chemical Industry Look Like When Integrating Air as a Resource?

11:20 (CET)

Room 1

Michael Carus, RCI/nova-Institute (DE)
Biomass Availability World and Europe: RCI Report on CAPRI and TiMBA Modelling

Room 2

Stefanie Fulda & Dušica Banduka,
nova-Institute (DE)
From Challenges to Opportunities: Effective Communication Strategies for Renewable Chemicals and Materials

14:10 (CET)

Room 1

Kim Schoppink,
Science Based Targets Initiative (EU)
Refining the Path to Net Zero with SBTi. Discussion of the Key Proposed Improvements of the Revised Corporate Net Zero Standard.

Room 2

Miriam Weber & Christian Lott,
HYDRA Marine Sciences (DE)
Andreas Künkel, BASF (DE)
What can we Learn from Renewables for the Role of Biodegradable Materials in a Circular Economy?

Day 3
24 September 2025

9:20 (CET)

Room 1

Jan-Harm Urbanus & Pieter Imhof,
TNO (NL)
Application of AI for Polymer Design – Transforming the Adverse Effects of Plastics into Pioneering Material Solutions

Room 2

Matthias Stratmann & Lara Dammer,
nova-Institute (DE)
Renewable Carbon in LCA and Carbon Footprint Guidelines

11:20 (CET)

Room 1

Christopher vom Berg & Luciano Proto Cassina,
RCI/nova-Institute (DE)
Facilitating Change – Policy for a Renewable Carbon Transition
Workshop with External Experts:
- Richard Kempen, Dutch Ministry of Climate Policy and Green Growth (NL)
- Sebastian Kunz, Südzucker (DE)

renewable-materials.eu/workshops

Find your Perfect Match now!

Welcome to nova's Matchmaking System for the Renewable Materials Conference 2025.

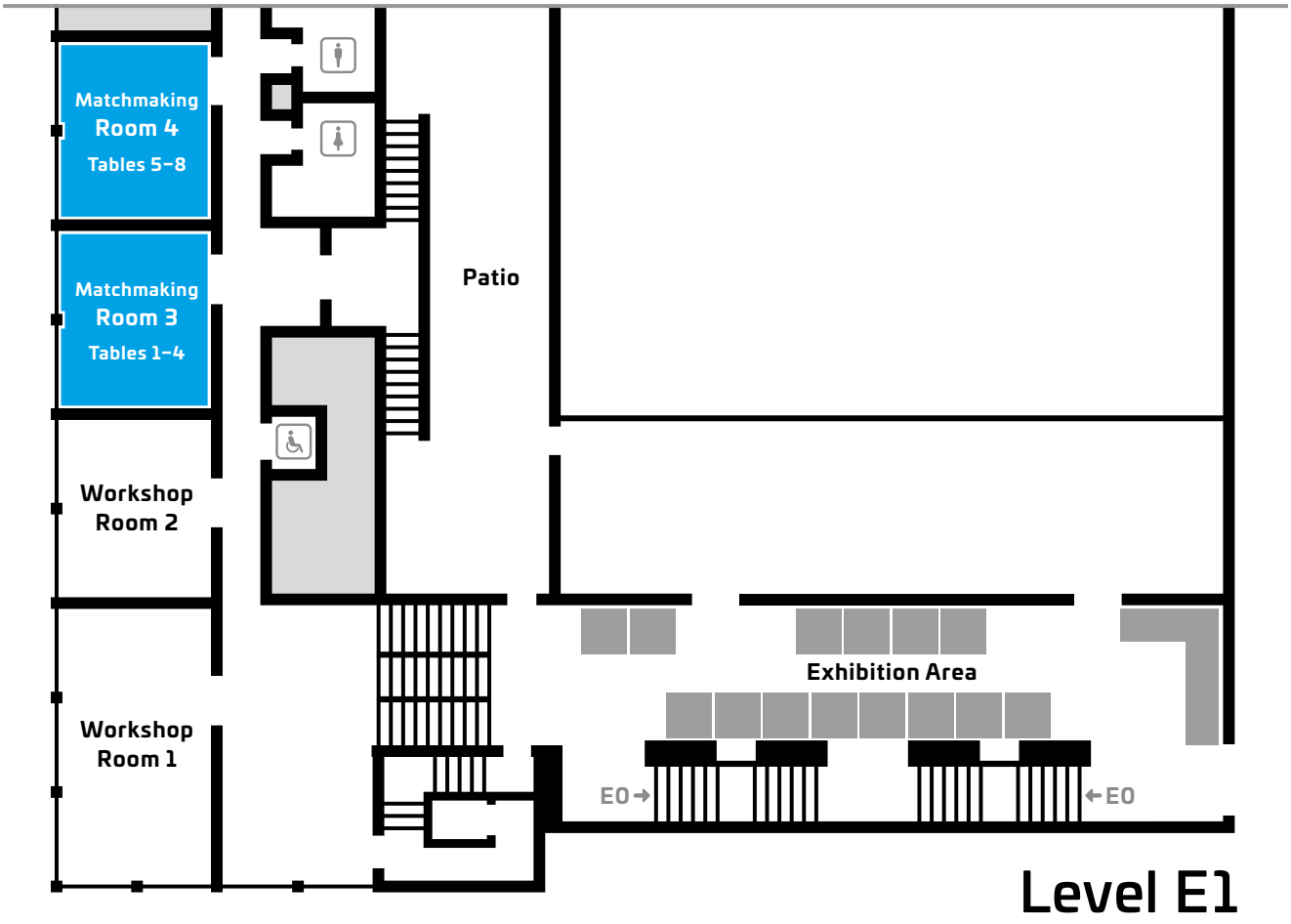
Through this Platform, you will have the Opportunity to:

- Schedule personalised 1:1 on site meetings with other attendees, speakers, and industry experts.
- Build valuable connections tailored to your professional interests and goals.
- The matchmaking system is web-based – easy access without an extra app is guaranteed.
- Save time by meeting the people who matter most to you.

Are you already registered for the matchmaking tool?
Arrange your appointments here: renewable-materials.eu/matchmaking

You are not registered yet, but want to take part in the matchmaking tool?
Please contact Mr Dominik Vogt: dominik.vogt@nova-institut.de

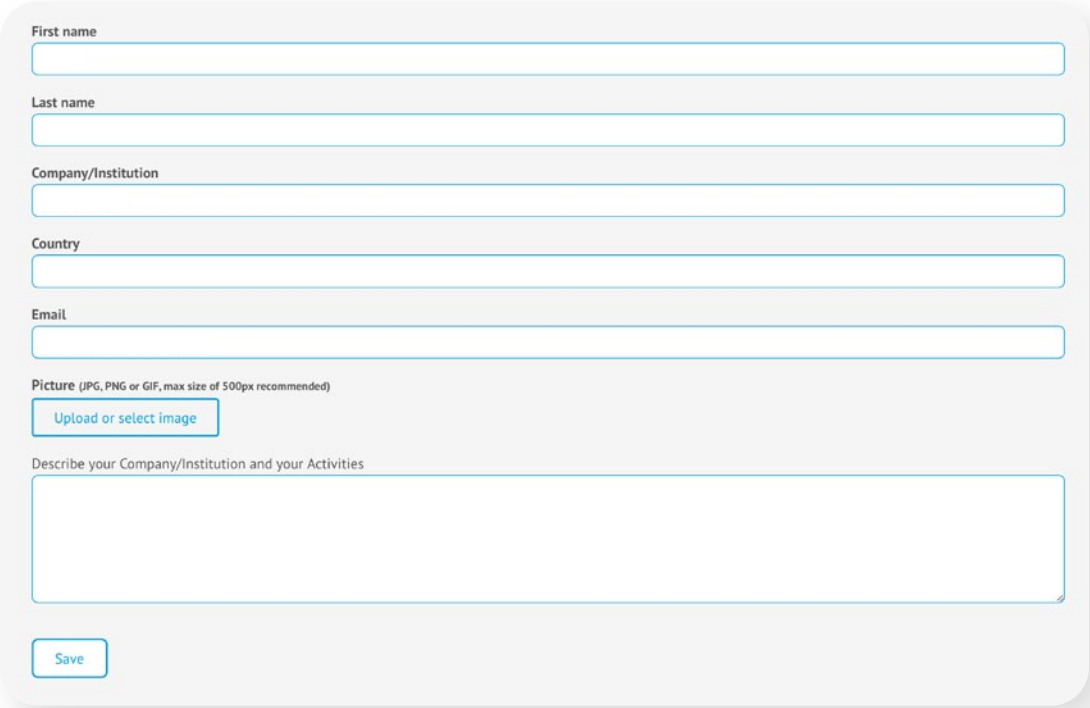
Matchmaking Room Overview



How to use the Matchmaking Tool:

1 Your Profile

Fill out your profile as completely as possible and describe your company/institution and your activities.
Briefly describe the cooperation opportunities and project collaboration you are looking for.

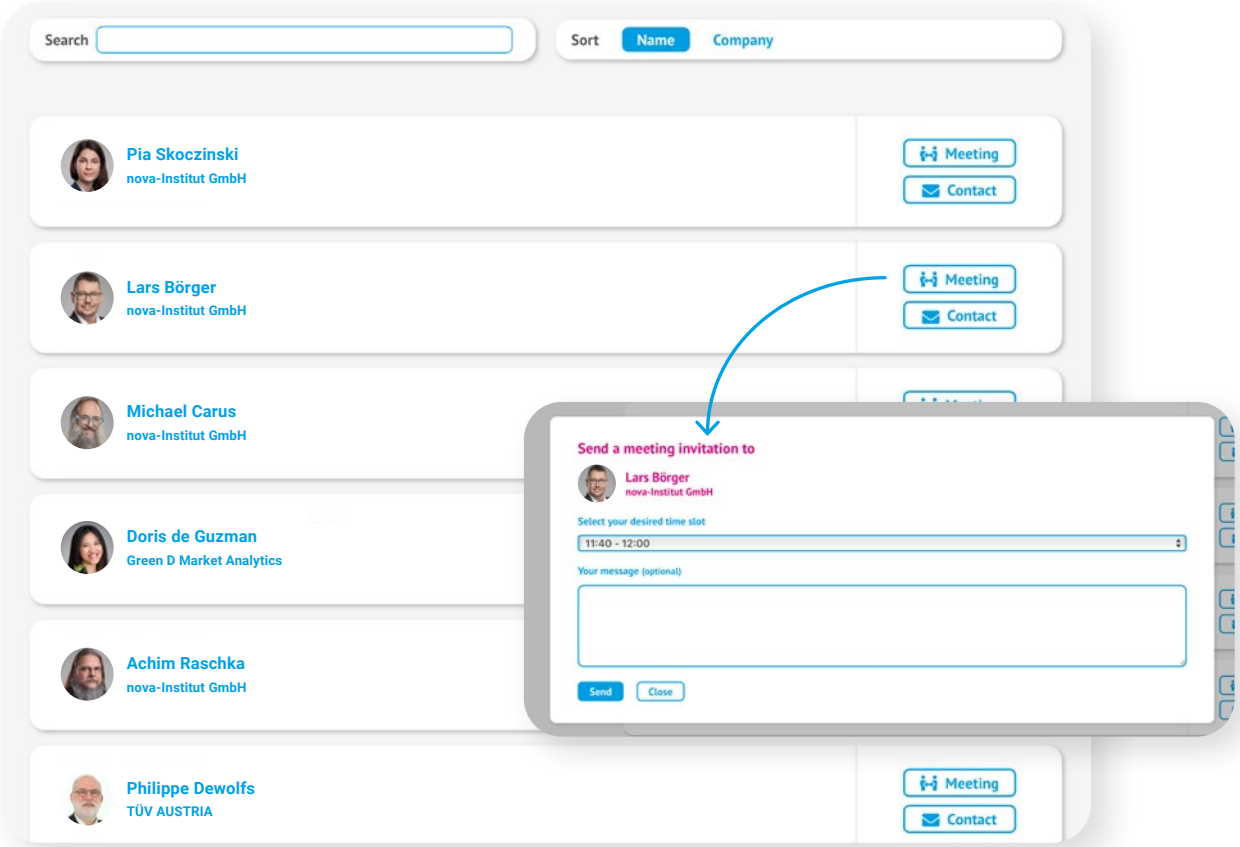


2 Your Availability

Please enter as many time slots as possible in which you could potentially have a meeting.
Please grey out the time slots that are not suitable for you.

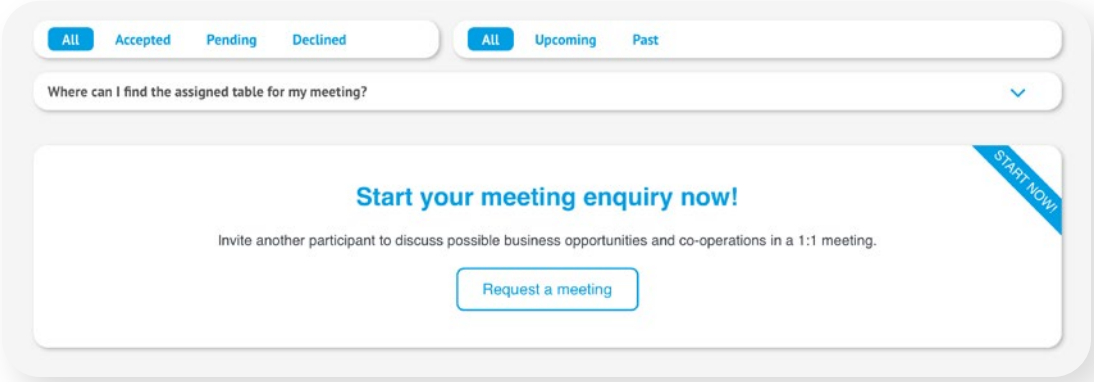
3 Request a Meeting

You can search for names, companies or keywords. The “Meeting” option will suggest time-slots you both are available. You can leave a message for the requested person in the contact field.



4 Your Meetings

All accepted, pending and cancelled meetings can be found in this overview.
Click on ‘Where can I find the assigned table for my meeting?’ to quickly find the location of the meeting room.



Don’t miss this opportunity to make meaningful connections!

September 22, 2025. From 2:30 p.m. to 4:00 p.m.

PtXLab LAUSITZ

Workshop:
Exploring policy tools to drive the sustainable transformation of petrochemical clusters

**Hosting: Dr. Irina Akhmetova (PtX Lab Lausitz),
Lukas Horndasch (PtX Lab Lausitz) und Clemens Schneider (Uni Kassel)**

Check out our PtX Lab Study **‚Fossil-Free Chemistry of Tomorrow'** which explains eight guiding principles for sustainable chemical production.

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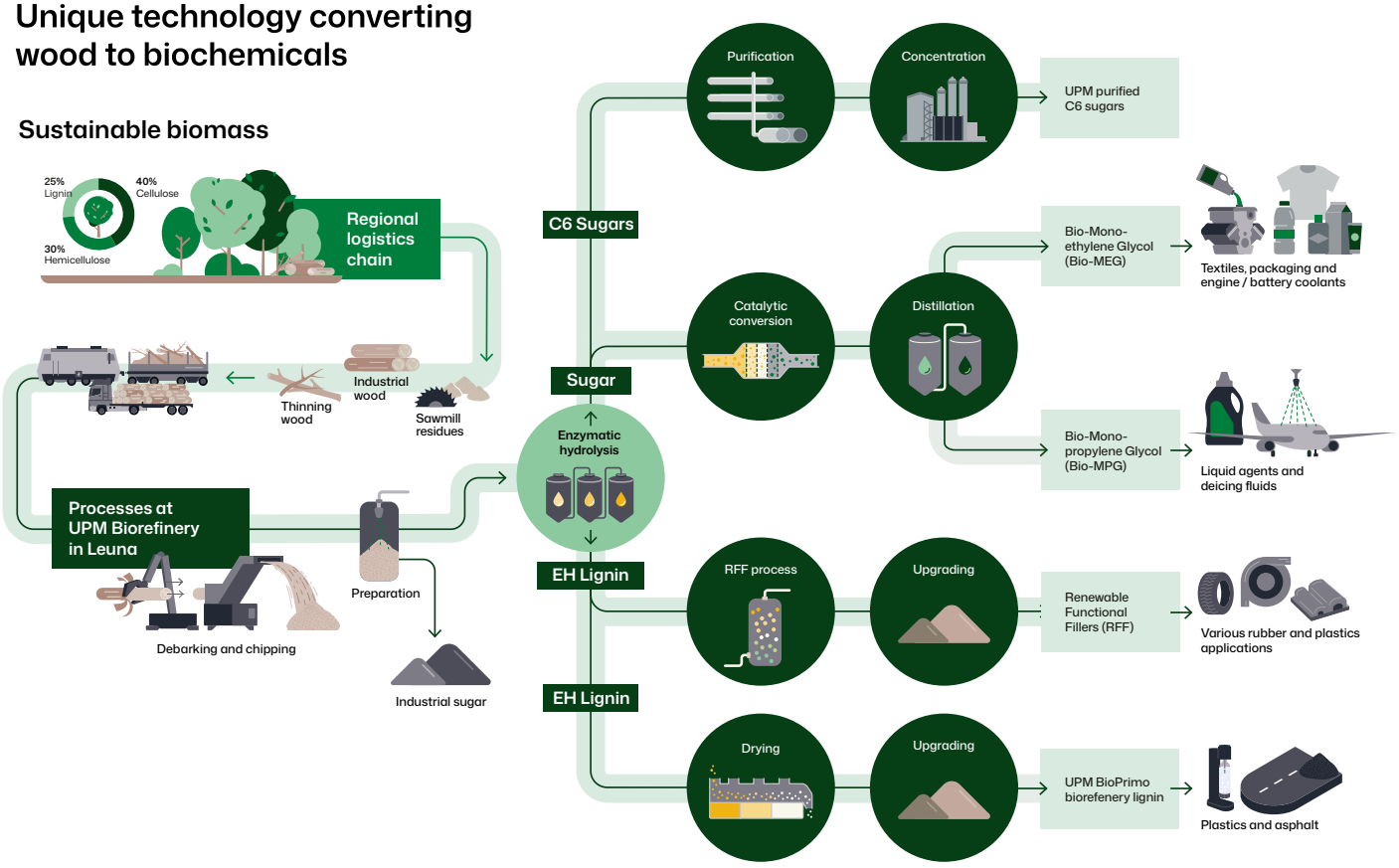
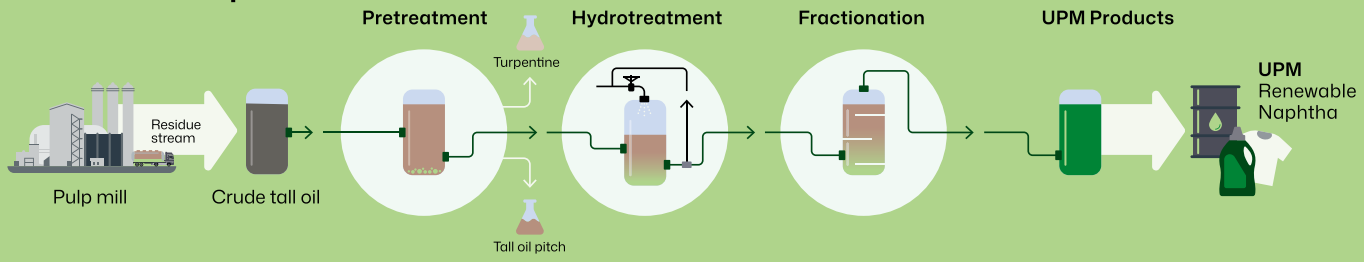


Production process of Renewable Naphtha



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Renewable Functional Fillers (RFF)
for rubber and plastics

Renewable Naphtha

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Meet the UPM team at our booth!
Join the key note!

Nicko Reuter,
UPM Biochemicals
Revolutionizing Packaging with UPM BioPET
Day 2, 23 September 2025 14:30

UPM

The Fossil Fuel Trap: Why Defossilising Chemistry is Essential – and Feasible!

Author:
Michael Carus,
Founder and CEO of nova-Institut GmbH in Hürth

Two things are needed to achieve a net-zero chemical industry: decarbonisation of energy and defossilisation of feedstock. Firstly, the process energy – the chemical industry is one of the three largest energy consumers in the EU – must be generated sustainably. This can be achieved by electrifying steam generation and other process steps, for example through electric steam crackers. And yes, it will require large amounts of renewable electricity. Secondly, the raw materials and thus the materials used in the chemical industry itself must be converted to renewable carbon.

It is not only important to maintain a strong, innovative and sustainable chemical industry in Europe, but to also prepare and transform it for the future, because chemistry is the backbone of all industrial production. In 2023, the chemical industry in the European Union had a turnover of around 665 billion euros (Statista 2025). This figure is twice as high when indirect effects are included. In many EU countries, the chemical industry is one of the most important sectors in terms of value added. When considered alongside the derived rubber and plastics industries, it is even the largest industrial sector in some member states. And together with the pharmaceutical sector, the chemical industry employs 3.4 million people, accounting for 12.3% of total employment in the manufacturing sector in the EU27 (CEFIC 2025). It is estimated that indirect jobs along the value chain number up to 20 million.

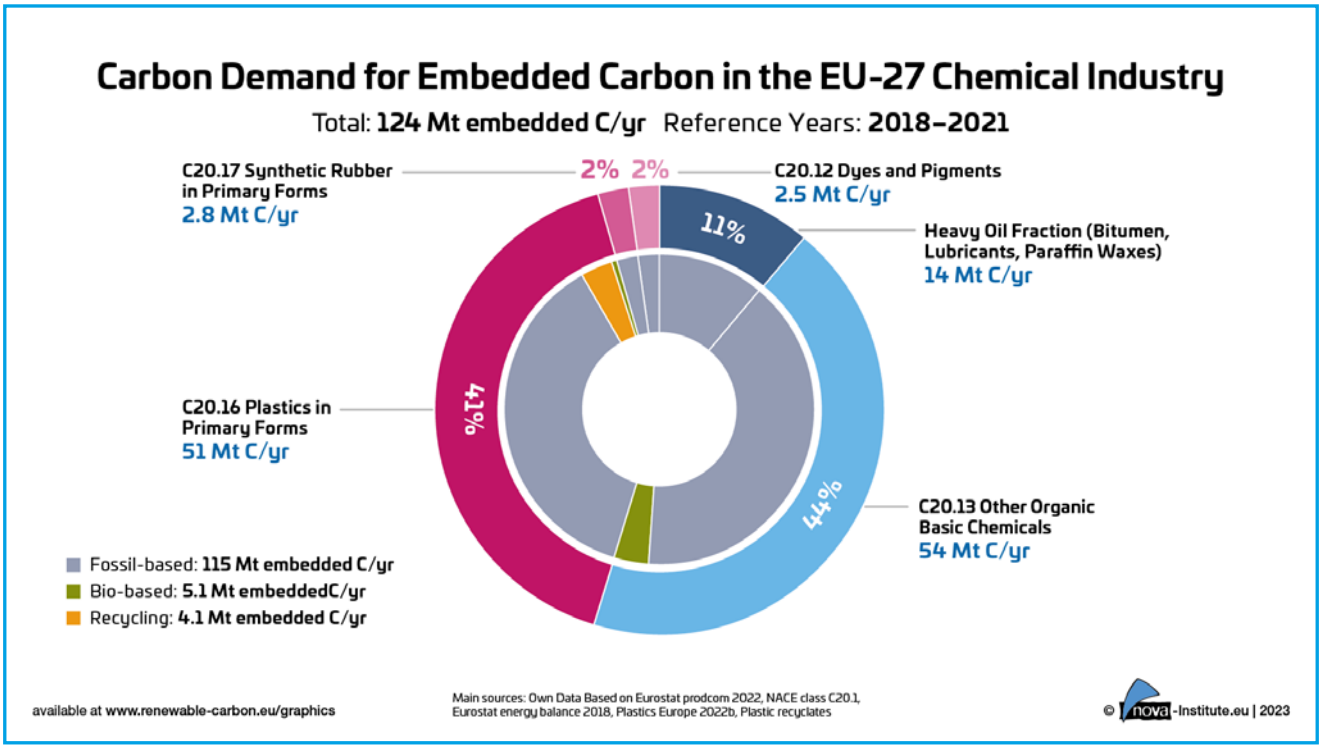
Fossil carbon, extracted from the ground in the form of crude oil, natural gas and coal, is not only the main cause of climate change, accounting for around 90% of emissions, it is also becoming an increasingly significant problem for the chemical industry in Europe. In particular, the continuing high demand for oil and natural gas makes Europe vulnerable, as it creates dependencies on imports and thus on the producing countries and the changing global political landscape. These, in turn, determine availability and prices.

Although oil consumption in the European Union fell from 400 million tonnes in 2014 to 355 million tonnes in 2023, imports still accounted for between 82–84% of consumption during this period. Depending on the EU member state, around 10 to 15% of oil is used for chemical and plastics production. Natural gas consumption also fell from 330 million tonnes in 2014 to 230 million tonnes in 2023. However, the EU's own production of natural gas has fallen even more sharply, with the import share rising from 83% in 2014 to 89% in 2023.

Nuclear energy cannot overcome this dependency. Demand for uranium has remained constant at around 12,000 tonnes per year in the EU for the past ten years, but is 95% based on imports – mainly from Russia and out of scope of any current sanctions or restrictions. The decline in demand for oil and natural gas is mainly due to the rise of renewable energies and efficiency measures, as well as the relocation of energy-intensive production outside of Europe, primarily to Asia. Nevertheless, this decline is still not sufficient to achieve net-zero targets by 2050.

The transition to a resilient and independent energy supply for the EU has so far only been successful in the electricity sector. Despite the increasing number of electric cars and heat pumps, electricity demand has fallen from 2,600 TWh in 2014 to 2,420 TWh in 2023, mainly due to efficiency measures and structural change in industry. At the same time, the share of renewable energies in the electricity sector has risen from 28–30% in 2014 to an impressive 46–47% 2024, with a further upward trend. A share of 66–69% is expected by 2030. The current target of the EU Commission's is even 90% by 2040. China has similar plans, with the share of renewable electricity set to reach around 95% by 2050.

Is the high share of renewable electricity generation the reason for the comparatively high electricity prices in Europe? Not at all. In fact, solar and wind power are the cheapest sources of electricity in the EU. However, these sources can only be realised on the market if the necessary infrastructure with powerful distribution networks, large (battery) storage facilities and electrolysis plants for hydrogen production is fully implemented. If the energy transition is implemented only hesitantly, the result would be the most expensive option: high investments in infrastructure are already made, but without full implementation we will not be able to harvest cheap renewable energy. This will jeopardise EU industrial production.



Cheap Renewable Electricity in Germany

Grid bottlenecks and the lack of battery, pump and pressure storage systems cost German taxpayers hundreds of millions of euros each year. For example, in 2024 renewable energy producers received compensation payments of 553.94 million euros from the federal government for wind and solar power that was not produced ("phantom electricity"). The reason was that operators had to shut down their plants because the electricity could not be fed into the grid due to bottlenecks in the power grid and a lack of demand – for example, from battery storage systems and electrolysers. At such times, solar and wind power prices fall below 5 cents per kWh, sometimes even reaching negative prices on the electricity stock exchange.

Cheap electricity from renewable energies is only possible over longer periods if Germany has large battery storage facilities – used electric car batteries are a cost-effective option – as well as electrolysers and hydrogen. A half-hearted implementation of the energy transition is the most expensive option. China has recognised this and is systematically expanding its battery storage facilities. The country already accounts for 50% of the world's battery capacity. However, the new German government is prioritising the construction of 40 natural gas-fired power plants instead.

The widespread use of battery, pump and pressure storage would enable a 24-hour price of 3 to 7 cents per kWh in Germany during the six summer months, with significantly lower fluctuations. This would stabilise and buffer prices. However, it would require accelerated expansion of storage capacity to over 100 GWh by 2030, as well as regulatory adjustments such as the Solar Peak Power Act, to promote direct marketing and grid-friendly storage management.

In order to make surplus solar energy from summer available for electricity and heating in the winter months, hydrogen (or methanol from green hydrogen and CO_2) is needed as a long-term storage medium.

Defossilisation is also essential to achieve the climate targets of a "net-zero" chemical industry. If "Scope 3" emissions of industry are also included in future CO_2 footprint calculations, the substitution of fossil carbon with renewable carbon in raw materials will play a central role.

What does this mean for the future of the plastics industry?

The future of the chemical and plastics industry in the European Union depends primarily on energy and raw material prices, research and development, and the scaling up of innovations in Europe. If the energy transition is implemented consistently, including grid expansion, (battery) storage and hydrogen, attractive electricity prices are on the horizon in the medium term. However, energy and raw material supplies are still far too dependent on fossil fuels such as oil, natural gas and coal, with imports accounting for 80–90% of the total. This makes European industry vulnerable in terms of access and prices. Simply put, the EU will never obtain fossil carbon at the price level of the producing countries and their allies. Since the most advanced technologies for the high-volume production of chemicals and plastics are available everywhere, countries with cheap access to oil and natural gas have a natural advantage. Europe cannot overcome this competitive disadvantage as long as the chemical and plastics industry relies on fossil carbon for over 90% of its feedstock.

Is there a way out? Yes, Europe can become a pioneer in defossilising the chemical and plastics industry through the use of renewable carbon, thereby freeing itself from the fossil fuels trap. Renewable carbon means carbon from the recycling of plastics, biomass and CO_2. Europe is well positioned in terms of research and development in all three areas. Unfortunately, however, only in a few cases has it been possible to scale up innovations towards market implementation ("implementation gap"). In most cases, conditions for actually building market-size plants for new innovations are better in other regions of the world.

Defossilisation is also essential to achieving climate targets through a net-zero chemical and plastics industry. Replacing fossil carbon with renewable carbon in chemicals and plastics will play a key role to tackle industry's Scope 3 emissions, as the embedded carbon is responsible for the majority of the carbon footprint of chemicals and plastics.

Mechanical, Physical and Chemical Recycling

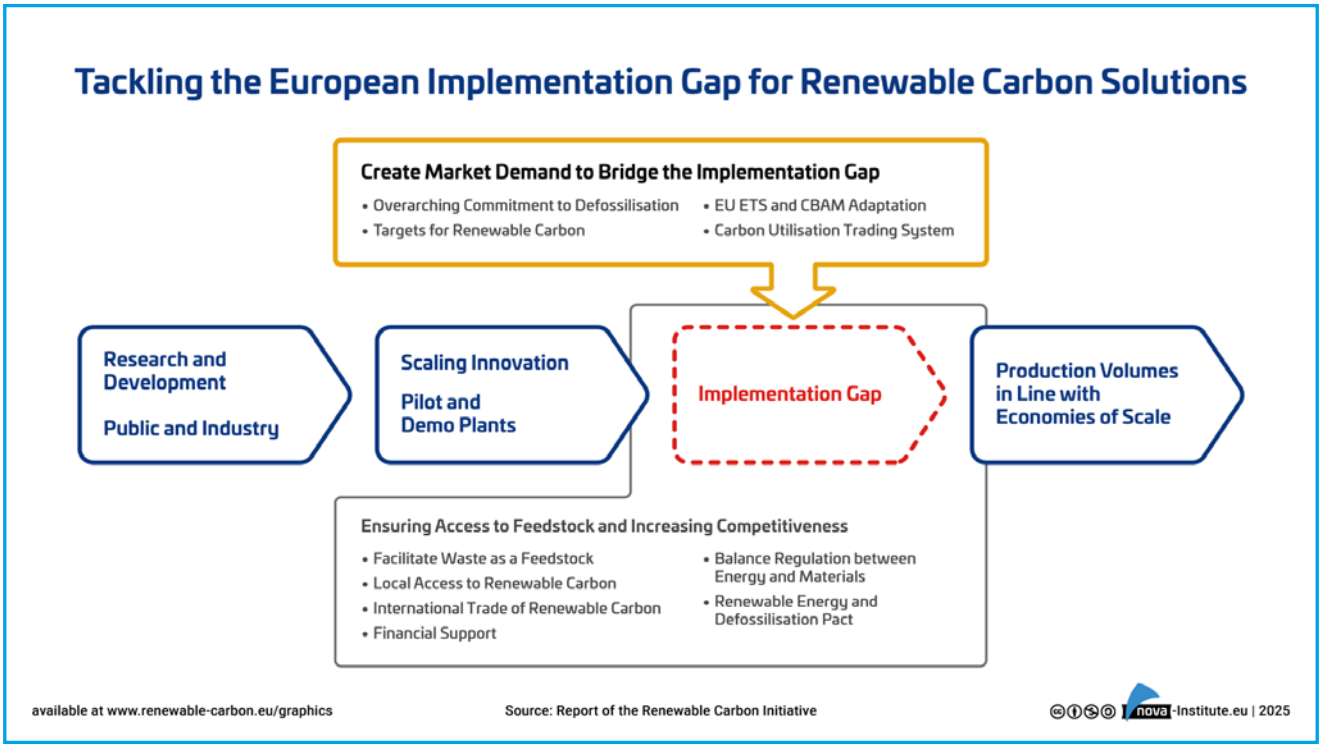
Approximately 50 million tonnes of plastics are used in the EU each year, most of which comes from domestic production. Around 10–15 million tonnes were imported in 2023 as primary plastics, semi-finished products or end products. In 2022, a total of around 16.2 million tonnes of plastic waste was generated in the EU in the packaging sector alone, of which 40.7% was recycled – however, 1.3 million tonnes of this was outside the EU.

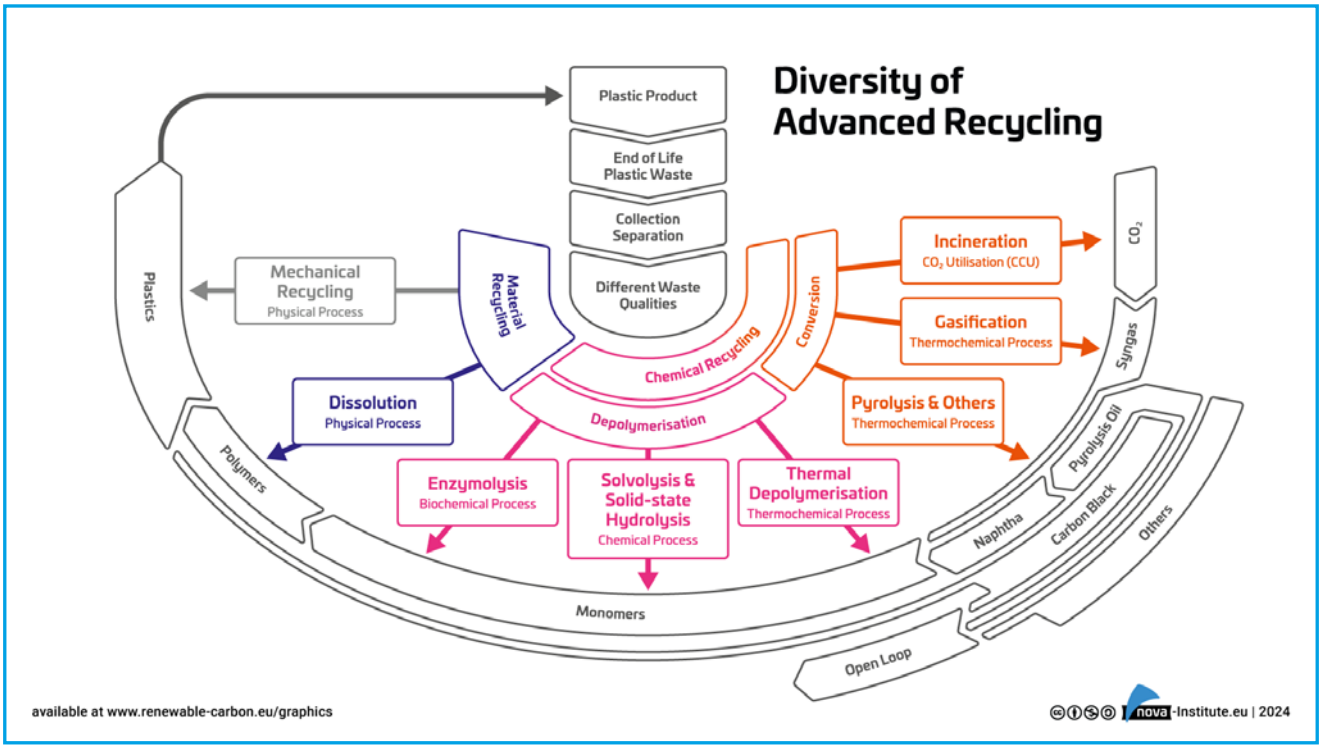
https://www.europarl.europa.eu/topics/en/article/20181212STO21610/plastic-waste-and-recycling-in-the-eu-facts-and-figures)

Plastic waste will therefore play a key role in the transition to renewable carbon, as it can replace significant amounts of imported fossil carbon. All plastics that reach the EU are valuable resources which should remain in the EU and be used as efficiently and to as high a standard as possible and kept in the loop, creating a circular economy.

What needs to be done to realise this potential? All recycling technologies – from mechanical recycling to gasification (see chart) – must be implemented quickly, as they are all needed for the various waste streams and target products. The substantial investments required for this require clear, reliable and demandgenerating framework conditions from policymakers. This includes introducing quotas in all areas of application, clarifying which recycling processes are accepted for quota fulfilment, and recognising massbalanced plastics within these quotas. In addition, harmonised standards for the labelling and transport of plastic waste within the EU are required.

Only then can the potential and importance of recycling be fully realised. The EU recycling industry is currently in a very difficult position due to unfavourable framework conditions and cheap imports of new materials. It is hoped that the EU will adopt the necessary framework conditions this year, which would lead to a sharp increase in investment.





Recycling Quotas in the EU for Packaging and Cars

The EU has already taken relevant steps to adapt the regulatory framework. For example, the EU Packaging Regulation (PPWR) introduced minimum quotas for the use of recycled raw materials in packaging for the first time: the recycling share of general plastic packaging must be 30% by 2030 and 65% by 2040. The Single-Use Plastics Directive (SUPD) contains targets for the proportion of recycled material in plastic beverage bottles. Specifically, the proportion of recycled material in PET bottles is to be increased to 25% by 2025 and 30% by 2030. The amendment to the End-of-Life Vehicles Directive (ELV-R) currently under discussion also proposes introducing a recycling quota for plastics. This is to apply from 2030, with the exact level (20–25%) still to be negotiated.

Bio-based and CO_2-based Plastics

Even in an ideal world, recycled carbon will never be enough to completely replace fossil carbon (see image). Today, only 10% of plastics are made from recycled materials. Under ideal conditions, this share could be increased to 50–70%. However, there will always be unavoidable losses during collection and processing. This means that additional non-fossil carbon sources are needed. These are biomass and CO_2.

Today, worldwide there are 17 commercially available bio-based plastics that can be used in almost all applications. Despite high R&D spending, Europe has been falling behind as a manufacturing location for bio-based plastics for years and is expected to only achieve a 13% market share in 2024 – compared to 59% in Asia. Investments are flowing into countries with the right political framework and, above all, where market demand has been created. Europe will need to follow suit quickly it it wants to exploit this option for defossilisation. Currently, Europe is discussing its first own bio-based quotas, initially looking to set a low quota (for example 5%) by 2030 or 2035 for packaging and potentially automobiles. These first steps must be introduced urgently if Europe does not want to fall behind in the bioeconomy. And in addition, further clear and reliable rules must be established: acceptance of the use of agricultural raw materials such as starch, sugar or vegetable oils (which actually increase food security as they can serve as emergency reserve), the use of established sustainability criteria from the biofuel sector, and acceptance of mass balance and attribution (MBA).

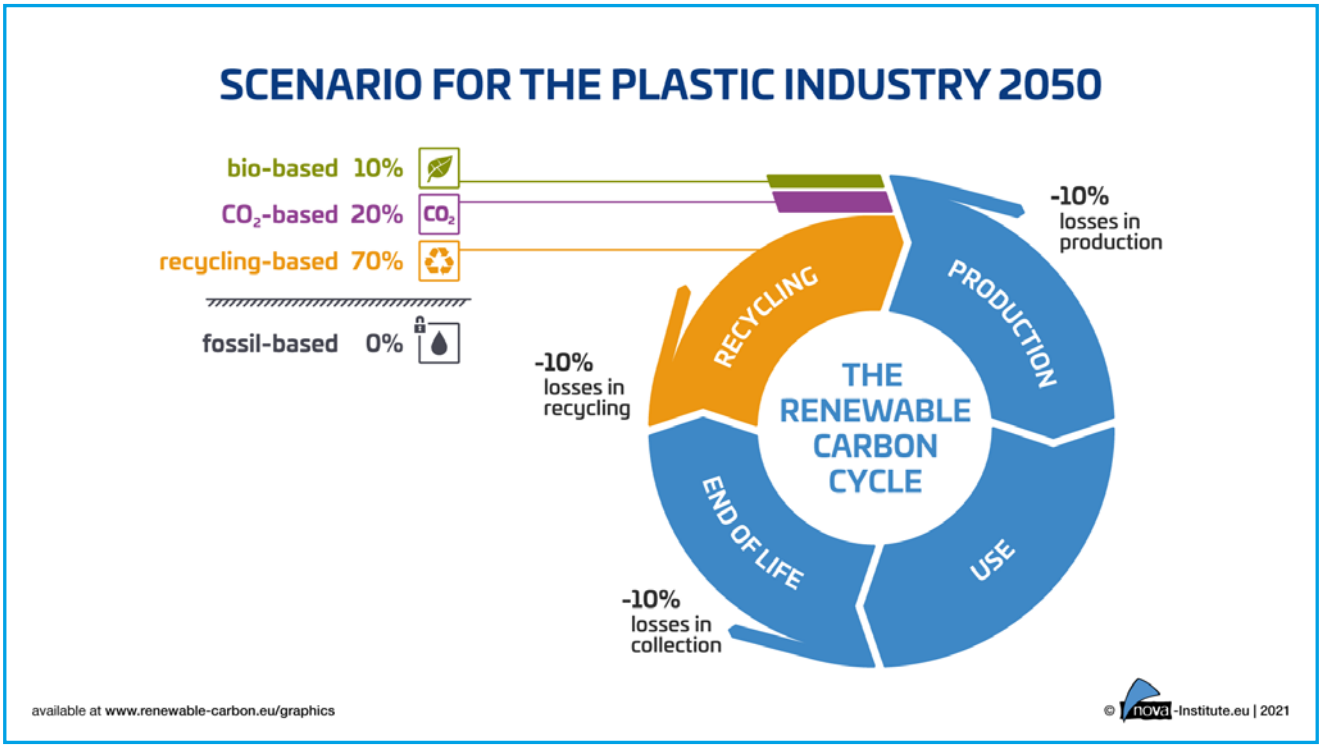
CO_2-based plastics should also be eligible for counting towards the quotas. This applies both to the use of fossil CO_2 in the recycling quota and to biogenic or atmospheric CO_2 in the bio-based quota, in order to give them market access as well. They do not yet play a role in the market, but with increasingly available, inexpensive solar and wind energy, they will become a real option. With an electricity price of 3–4 cents/kWh, hydrogen prices could fall so low that production from this hydrogen and CO_2 from point sources (fossil and biogenic, e.g. pulp and paper industry, bioethanol and food fermentation) would become competitive with biogenic or recycling routes. In addition to special routes, the methanol route is of particular interest as it can be used flexibly as either a fuel or a chemical raw material. Furthermore, side streams from the production of sustainable aviation fuels from CO_2 (secured by quotas) can be utilised in plastics production. It is important to open the doors early on in order to cover these expected side streams in a forward-looking regulatory manner.

Often overlooked, CO_2-based plastics should also be eligible for counting towards the quotas. This applies both to the use of fossil CO_2 (counted in the recycling quota) and to biogenic or atmospheric CO_2 (counted in the bio-based quota), in order to provide them market access as well. They do not yet play a role in the market, but with increasingly available, inexpensive solar and wind energy, they will become a real option. With an electricity price of 3–4 cents/kWh, hydrogen prices could fall so low that plastic production from this hydrogen and CO_2 from point sources (fossil and biogenic, e.g. pulp and paper industry, bioethanol and food fermentation) would become competitive with biogenic or recycling routes. In addition to many specific routes, the methanol route is of particular interest as it can be used flexibly either as a fuel or a chemical raw material. Furthermore, side streams from the production of sustainable aviation fuels from CO_2 (secured by quotas) can be utilised in plastics production. It is important to open the doors early on in order to cover these expected side streams in a forward-looking regulatory manner.

Conclusion

In the long term, recycling, together with biogenic carbon and CO_2, can completely replace fossil carbon from crude oil or natural gas as a raw material for plastics production. This will enable the European Union to become independent of fossil carbon imports and increase its resilience and competitiveness. To achieve this, it is crucial to shape the transition phase in a politically astute and rapid manner so that the transformation of the chemical industry in Europe is successful – after all, Europe is the birthplace of modern chemistry. This is the only way to prevent the EU from remaining stuck in a fossil fuel trap while other regions successfully transform their economies.

Europe was the innovation driver of the global chemical industry and can become so again – this time on the basis of its own raw materials, innovation and sustainability. This will allow a larger share of value creation to be retained in the EU, which will ultimately also support and protect Europe's political system.



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Day 1
22 September 2025
9:00–19:00 (CET)

9:00
Michael Carus
nova-Institute (DE)
Conference Opening

9:20–11:00
Defossilisation of the Chemical Industry
Grand Hall
Chairpersons: Lara Dammer & Christopher vom Berg, nova-Institute (DE)

9:20
Lars Börger
nova-Institute (DE)
The Future of a Resilient Chemical Industry in a Vulnerable World

9:40
Ruirui Zong-Rühe
Roland Berger (DE)
Heardwind or Tailwind – Defossilization in the Chemicals Industry

10:00
Eric De Deckere
CEFIC (BE)
How can the Chemical Sector Contribute to Sustainable Carbon Cycles

10:20
Samir Somaiya
Godavari Biorefineries (IN)
India's Transition to a Green Economy and the role of Godavari Biorefineries by Regenerative Biomass realising Commercial Scale Advanced Biochemicals (and Social Approach)

10:40
Panel Discussion with all Session Speakers

11:00 Coffee Break

11:30–15:00
Defossilisation of the Chemical Industry

Grand Hall

Chairpersons: Lars Börger & Narendar Raju Poranki, nova-Institute (DE)

11:30
Ortwin Ertl
Annikki (AT)
High-Volume Chemicals from Biomass – By Means of a Unique Fractionation Technology and Enzymatic Reactions

11:50
Andreas Kohl
Verbio (DE)
Vegetable Oil to Alpha Olefins: A New Direct Value Chain Emerges in the Chemical Industry

12:10
Reinier Grimbergen
Blue Circle Olefins (NL)
Defossilizing the Chemical Industry by Circular Methanol

12:30
Panel Discussion with all Session Speakers

11:30–15:00
Fine Chemicals

Small Hall

Chairpersons: Nadja Wulff & Gillian Tweddle, nova-Institute (DE)

11:30
Pramod Kumbhar
Praj Industries (IN)
Technology for Bio-based Cosmetic Ingredients – Bio-IDD and Bio-IHD

11:50
Katrin Schmidt
Evonik (DE)
Successful Converting of Bio-based Feedstock with Evonik Catalysts

12:10
Christos Rampotas
Kemira (FI)
Breaking New Ground with Polysaccharides in Sustainable Additives

12:30
Panel Discussion with all Session Speakers

12:50 Lunch Break, Networking & Poster Session

14:20
Lee Walko
Omni Tech International (US)
From Farm to Industry: U. S. Soybean Innovations Driving Chemical Defossilisation

14:40
Doris De Guzman
Green D Market Analytics (US)
Renewable Chemicals Market Update – Navigating Shifting Global Dynamics

14:20
Adrian Brandt
Henkel (DE)
Latest Renewable Carbon Developments at Henkel Adhesive Technologies

14:40
Frank Polzer
Celanese (US)
Carbon Capture and Utilisation at Celanese: Turning CO_2 Emissions Into Essential Chemicals and Plastics

11:30–13:00
Workshop

Room 1

Florian Kleinwächter, Holcim (DE)
Turning CO_2 into Business: Time to Walk the Talk with Holcim's Upcoming Opportunity

Room 2

Jokūbas Nikanorovas
Invest Lithuania (LT)
Building the Bio-based Future: Competitive Site Selection and Growth

14:30–16:00
Workshops

Room 1

Irina Akhmetova & Lukas Horndasch
PtX Lab Lausitz (DE)
Exploring Policy Tools to Drive the Sustainable Transformation of Petrochemical Clusters.
External Expert: Clemens Schneider, Uni Kassel (DE)

Room 2

Timo Ture & Markku Nikkila
Syklo (FI)
From Waste to Wonders: New Industrial Concept for Recycling of Consumer Cardboard and Plastic Waste into Low-carbon Technical Biocomposite

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info@redcert.de
www.redcert.org

15:00–17:50
Defossilisation of the Chemical Industry
Grand Hall

Chairpersons: Matthias Stratmann & Michael Carus, nova-Institute (DE)

15:00
Virginie Roux
Michelin Engineered Polymers (FR)
5-HMF: When a Sleeping Giant Wakes up

15:20
Pauline Rullière
Pili (FR)
Bio-based Aromatic Intermediates: Pioneering Sustainability to Decarbonise the Industry

15:40
Panel Discussion with all Session Speakers

15:00–17:50
Lignocellulosic Biorefineries & Lignin Utilisation
Small Hall

Chairpersons: Achim Raschka & Pia Skoczinski, nova-Institute (DE)

15:00
Balaji Sridharan
VITO (BE)
Scaling Up Reductive Lignin Depolymerization: A Sustainable Pathway towards Biomaterials and Green Chemicals

15:20
Viktor Odenbrink
Södra Skogsägarna (SE)
Södra Becomes the World's Largest Kraft Lignin Producer – How?

15:40
Panel Discussion with all Session Speakers

16:00 Coffee Break

16:30
Jean-Paul Lange
University of Twente (NL)
Recycling Cascade for Plastics Waste

16:50
Outi Teräs
Neste (FI)
The Future of Plastics is REnewable and REcycled

17:10
Marleen Ramakers & Uros Kresovic • Indaver Plastics2Chemicals (BE)
Indaver P2C: Closing the Loop with Cutting-Edge Advanced Recycling

17:30
Panel Discussion with all Session Speakers

16:30
Peep Pitk
Fibenol (EE)
Pioneering the Future of Bio-materials: Fibenol's Journey from Innovation to Industrial Scale

16:50
Fredrik Malmfors
Lignin Industries (SE)
Scalable, Processable, Renewable, Recyclable and Cost Effective – Lignin-based Plastic Ticks all of the Boxes

17:10
Marcus Elmer
Lixea Sweden (SE)
High Quality Lignin from Waste Biomass – A Crucial Carbon Source for the Future

17:30
Panel Discussion with all Session Speakers

Two Workshops
14:30–16:00, see Page 25

16:30–18:00
Workshops
Room 1

Lars Börger, Narendar Raju Poranki & Gillian Tweddle
nova-Institute (DE)
Business Plans for Renewable Chemicals and Materials for Start-ups and SMEs. What Does a Successful Business Plan Require? How can nova's Experts Support you? We Will Present Some Practical Examples.

Room 2

Mark Schmets, Dutch Ministry of Climate Policy and Green Growth (NL), Benjamin Schoemaker, TNO (NL), Peter van Hooft, Skytree (NL) & Frank Vergunst, Alta Group (NL)
Capturing Value from CO_2: From Policy to Practice; Dutch Innovations

18:00–19:00, Panel Discussion

The Future of the European Chemical Industry: Defossilised and Competitive, how can it work?

Small Hall

Chairpersons: Christopher vom Berg & Michael Carus, nova-Institute (DE)

Lars Börger
CEO
nova-Institute (DE)

Eric De Deckere
Sustainability Director
CEFIC (BE)

Algreit Dume
Policy Officer,
European Commission
DG GROW (BE)

Sucheta Govil
Board of Directors
Mondi (AT/UK)

Reinier Grimbergen
CEO
Blue Circle Olefins (NL)

Jean-Paul Lange
University of Twente
(NL)

Wibke Lölsberg
Corporate
Sustainability Strategy
BASF (DE)

Samir Somaiya
Chairman &
Managing Director
Godavari Biorefineries (IN)

Joel Tickner
Founder and Senior Advisor
Change Chemistry (US)

18:00 Networking with Local Beer (sponsored by TNO)

20:00 Dinner Buffet in the Conference Center

21:00 Musical Interlude with the Brass Band “Dicke Luft”

Founded in 1978 the “one and only brass orchestra” of Cologne “Dicke Luft” has its musical roots in the ‘New Brass Music Movement’ of the seventies. During the decades the band members changed and set new musical focuses. The repertoire has expanded over time, and today jazz, rock and global music belong in the concert programs as much as classical music and improvisation.

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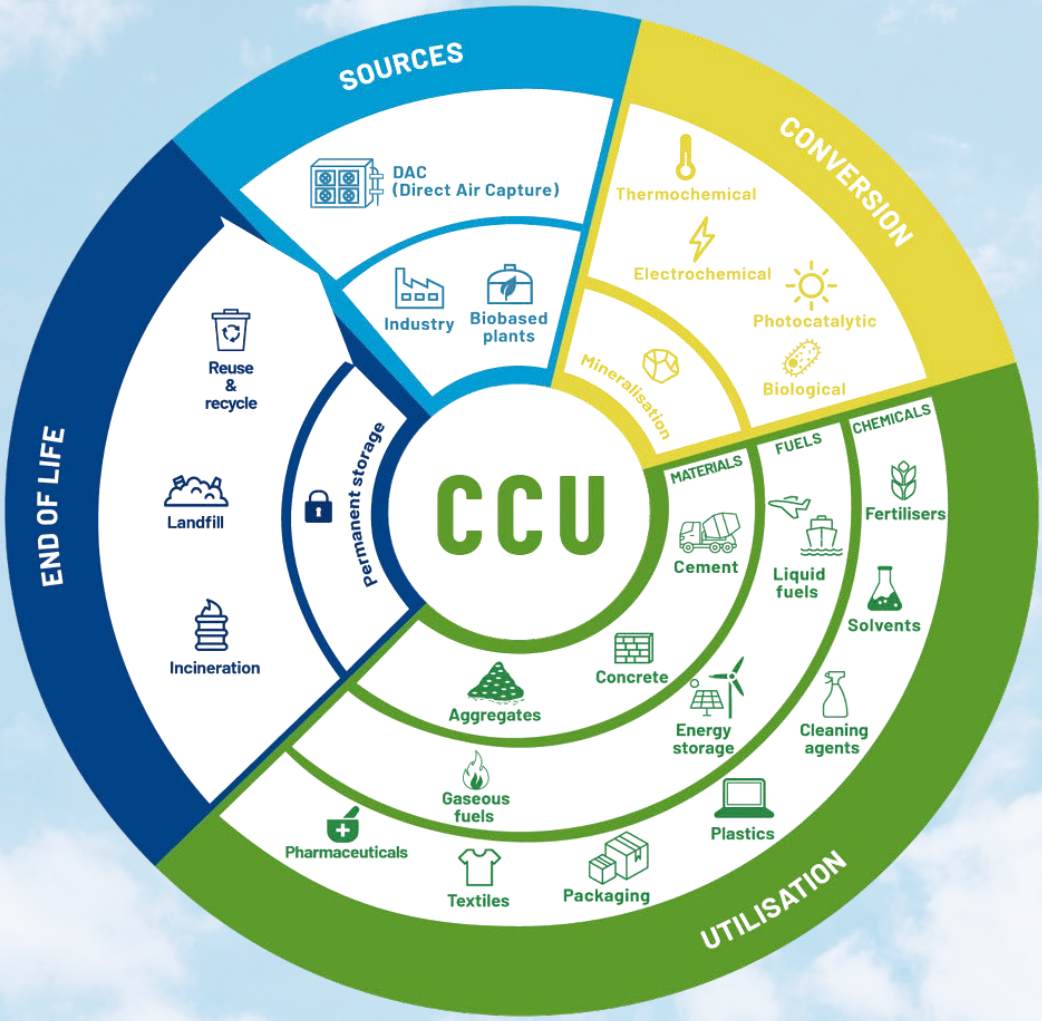

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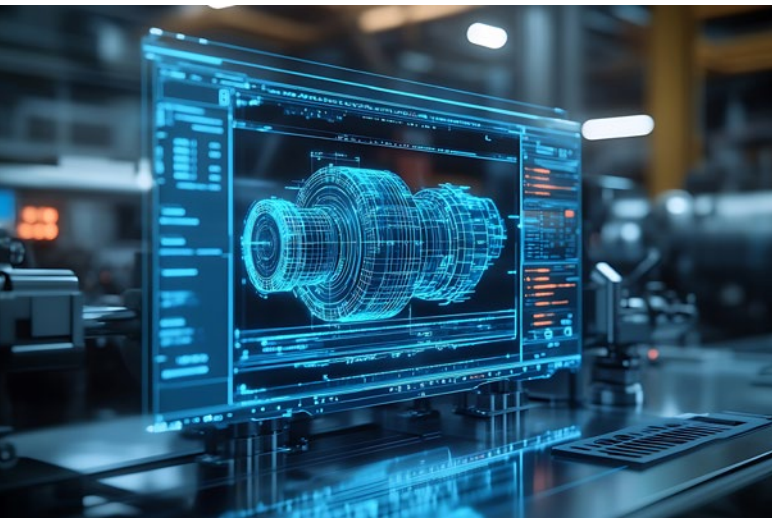
From Materials and Models: How AI is Revolutionising the Circular Economy

Gradually, but with unstoppable momentum, artificial intelligence (AI) is rewriting the rulebook of circular design, reducing years of trial and error to just weeks. Like a tireless research partner, AI generates millions of molecular structures, instantly predicts their properties, and swiftly identifies the most promising options - eliminating the need for time-consuming laboratory testing.

This transformation goes beyond speed; it fundamentally transforms the entire discovery process. By transferring much of the initial work to the digital domain, researchers can focus their laboratory efforts on the most promising options. AI creates a direct link between material design and circular economy goals by integrating durability, recyclability and lower carbon intensity as design parameters from the very start.



New Possibilities with Digital Twins

Digital twins – virtual replicas of physical systems that are updated in real time – are another game-changing digital tool. Beyond monitoring, they allow researchers and companies to simulate scenarios, optimise resource use, and predict wear or failure. In practice, this extends product lifespans, enables smarter recycling, and establishes feedback loops between production and use. Digital Twins are therefore becoming a vital bridge between the physical and digital worlds, supporting transparency and circular value creation.

AI-Powered Material Discovery: From Nobel-Level Breakthroughs to Self-Driving Science

The landscape of AI-driven platforms for materials discovery is evolving at remarkable pace: DeepMind's GNoME, already described as Nobel Price–worthy, has revealed millions of novel crystal structures; MatterGen and MatterSim have recently showcased how generative and simulation tools can accelerate the design of materials with tailored properties; further advances include AlphaMat, enabling large-scale property prediction, and MatterGPT, a generative transformer for multi-property design. Alongside these, industry platforms such as XtalPi, Orbital Materials, DP Technology, CuspAI, Lila Sciences, and Deep Principle are combining generative models with automated experimentation, pointing towards a new era of self-driving materials science.

These AI systems generate and virtually test thousands of material candidates in record time, reducing the discovery cycle from years to weeks. By combining generative design with high-fidelity simulation, they pave the way for sustainable, high-performance solutions in sectors such as energy, construction, and advanced manufacturing.

MLMD: No-Code Discovery for Sustainability

In parallel, researchers featured in Nature Scientific Reports introduced MLMD: a no-code platform combining active learning and surrogate optimisation. Unlike traditional methods, which depend on extensive prior datasets, MLMD can efficiently guide experiments even when information is scarce. This makes it particularly valuable for circular and sustainability-driven applications, where the rapid and cost-effective development of new materials is crucial.[1]

Taken together, these developments demonstrate that AI is not merely supporting material research, but actively reshaping it. The common thread is clear, from industry leaders like Microsoft to academic pioneers developing no-code platforms: artificial intelligence is accelerating the discovery of greener, more circular solutions at an unprecedented pace.

AI in the Renewable Carbon Economy

These breakthroughs represent more than just isolated research successes; they signal a broader transformation that is currently taking place. By combining digital discovery tools with practical material applications, AI is paving the way for the so-called renewable carbon economy. This concept encompasses bio-based, CO_2-based and recycled materials designed to replace fossil resources and maintain a cycle of carbon within closed loops. The following examples demonstrate how AI is already bringing this vision to life with tougher, longer-lasting plastics and low-carbon cement for sustainable construction.

Smarter Plastics Are Stronger Plastics

Researchers at MIT and Duke University demonstrated that artificial intelligence can transform polymer development by creating plastics that are up to four times tougher than traditional ones. The team identified iron-based mechanophores — molecules that respond to mechanical stress – that act as weak crosslinkers within polymers by applying machine learning. Contrary to expectation, these weak links strengthen the material overall, enabling cracks to divert and disperse energy rather than causing catastrophic failure. This AI-driven discovery accelerates a process that would otherwise take weeks of laboratory work and opens new pathways for developing more durable, recyclable and sustainable plastics. Extending the lifespan of plastic products reduces waste and the need for production, making this approach highly relevant for the transition to renewable carbon and a circular economy. AI is becoming a key enabler of sustainable material innovation, from designing bio-based and CO_2-based polymers to optimising recycling processes.[2]

Building a Low-Carbon Future with AI-Designed Cement

Artificial intelligence is now being used to address one of the world's biggest sources of CO_2 emissions: cement production. Researchers at the Paul Scherrer Institute (PSI) have developed an AI-driven approach to design new types of cement that are just as strong but much less carbon-intensive. By simulating complex molecular structures and reactions, the system speeds up the search for eco-friendlier formulations that could replace today's highly polluting cement production methods. As cement accounts for around 8% of global CO_2 emissions, these smarter materials could be pivotal in decarbonising the construction industry and enabling more sustainable infrastructure.[3]

These are just some of the most exciting examples of how AI is progressively revolutionising the circular economy. Together, these breakthroughs illuminate a future where AI-driven digital discovery and sustainable material design converge – helping build a truly circular economy with renewable carbon at its core.

[1] Nature. https://www.nature.com/articles/s41524-024-01243-4
[2] MIT News. https://news.mit.edu/2025/ai-helps-chemists-develop-tougher-plastics-0805
[3] PSI – Paul Scherrer Institute. https://www.psi.ch/en/news/media-releases/ai-paves-the-way-towards-green-cement

Day 2
23 September 2025
9:00–18:00 (CET)

9:00
Lars Börger
nova-Institute (DE)
Day Opening

9:10–10:50
Markets & Applications, Bio-based Polymers

Grand Hall

Chairpersons: Achim Raschka & Asta Partanen, nova-Institute (DE)

9:10
Pia Skoczinski & Pauline Ruiz
nova-Institute (DE)
Renewable Polymers from Biomass, CO_2 and Recycling – Status and Outlook

9:30
Julia Resch
IKT University Stuttgart (DE)
Bio-based Plastics in Technical and Long-Term Applications

9:50
Ed de Jong
Avantium (NL)
PEF, a Next Generation Packaging Material

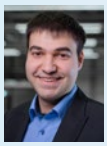
10:10
Susan Zhu
Zhongke Guosheng (Hangzhou) Technology (CN)
Sustainable Furan Bio-based Materials

10:30
Panel Discussion with all Session Speakers

9:10–10:50
Sustainable Polymers

Small Hall

Chairpersons: Niels de Beus & Nadja Wulff, nova-Institute (DE)



9:10
Alexander Hofmann
Fraunhofer Institut UMSICHT (DE)
InnoKuR – A Path to Climate-friendly Plastics by Replacing Fossil Raw Materials

9:30
Jan Harm Urbanus
TNO (NL)
This is How Polymer Informatics Can Help in Designing Novel Safe-and-Sustainable Polymers

9:50
Claudia Coelho
Technip Energies (FR)
The Path to Sustainable and Affordable Plastics

10:10
Andrew Richardson
Johnson Matthey (UK)
Sustainable Aromatics for Drop-in Bio-based Packaging, Fibres and Films

10:30
Panel Discussion with all Session Speakers

9:20–10:50
Workshop

Room 1

Kai junge Puring
Fraunhofer Institut UMSICHT (DE)
Air2Chem: Chemicals from Air. What Does it Need to Replace Fossil Chemicals with Chemicals Made from CO_2 from Air and how Does a Chemical Industry Look Like When Integrating Air as a Resource?

10:50 Coffee Break

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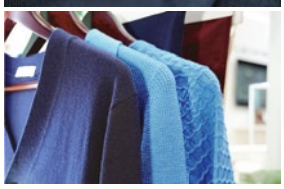
- **Moisture Management**
  3-5 times higher moisture regain than PET, with 60% faster drying performance.



ECOPEF™ Resin

High performance single-material solution.Comprehensively addresses diverse packaging applications e.g., Beer, Juice,Sugar-free Tea, and Carbonated Beverages.

- **Barrier Performance**
- **Circular Recycle**
- **Heat Resistance**

FDCA
The most promising bio-based platform chemical

FDCA(2,5-Furandicarboxylic Acid) is a next-generation bio-based monomer with broad application potential. Structurally similar to PTA, it is recognized as one of the most promising plant-based platform chemicals for the materials industry.

As a key building block derived from renewable resources, FDCA enables the production of a wide range of high-performance polymers, including polyesters, polyamides, polyurethanes, and specialty chemicals, Global leaders in consumer goods and chemical industries are accelerating the development and adoption of furan-based materials, with FDCA at the core.

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11:20–12:40
Markets & Applications, Bio-based Polymers

Grand Hall

Chairpersons: Pia Skoczinski & Narendar Raju Poranki, nova-Institute (DE)

11:20
Stefano Facco
Novamont (IT)
Renewable Monomers and Polymers, New Coating Technologies

11:40
Joris Vermunt
Corbion (NL)
Lactic Acid Solutions for a More Sustainable Future

12:00
Geoffroy Delvinquier
Futerro (BE)
Alternatives to Fossil-based Chemistry and Plastics: the Potential of Lactic-acid-based Chemicals and Polymers such as Polylactic Acid (PLA) for Sustainability, Circularity, and Innovative Applications

12:20
Panel Discussion with all Session Speakers

11:20–12:40
CO_2-based Polymers

Small Hall

Chairpersons: Lars Börger & Achim Raschka, nova-Institute (DE)

11:20
Alex Hogan
Vioneo (CH)
Pioneering Fossil Free Plastics

11:40
Tony Rehn
NG Nordic (FI)
Carbon2x – The Next Generation of Biodegradable Plastics from CO_2

12:00
Keith Wiggins
Econic Technologies (UK)
Repurposing CO_2: Polymers, Surfactants and Beyond

12:20
Panel Discussion with all Session Speakers

11:20–12:50
Workshops

Room 1

Michael Carus
RCI/nova-Institute (DE)
Biomass Availability World and Europe: RCI Report on CAPRI and TiMBA Modelling

Room 2

Stefanie Fulda & Dušica Banduka
nova-Institute (DE)
From Challenges to Opportunities: Effective Communication Strategies for Renewable Chemicals and Materials

12:40 Lunch Break, Networking & Poster Session

14:10–15:50
Bio-based and -attributed Polymers

Grand Hall

Chairpersons: Pia Skoczinski & Michael Carus, nova-Institute (DE)

14:10
Dirk Hölter
Cerdia (CH)
Cellulose Acetate – How a Material Predating Modern Polymer Chemistry Provides Solutions for Today

14:30
Nicko Reuter
UPM Biochemicals (DE)
Revolutionizing Packaging with UPM BioPET

14:50
Stephan Roest
Borealis (AT)
Borealis A/B/C Approach to Carbon Circularity for Plastics

15:10
Frank Eisenträger • **Ineos Styrolution Switzerland (CH)**
Making Bio-Attributed Styrenics a Reality: INEOS Styrolution's Path to Renewable Carbon and Net Zero

15:30
Panel Discussion with all Session Speakers

14:10–15:50
Recycled Polymers

Small Hall

Chairpersons: Pauline Ruiz & Gillian Tweddle, nova-Institute (DE)

14:10
Iris Elser
DITF (DE)
WhiteCycle : An Innovative European Project to Process and Recycle PET From Complex Waste

14:30
Gian De Belder
Procter & Gamble (BE)
Industry Partnerships for Solvent-based Cleaning Technologies for Polyolefin Recycling

14:50
Jean-Paul Lange
University of Twente (NL)
PU Depolymerization with Phosgene-free Recovery of Diisocyanate

15:10
Karin van der Helm-Rademaker
Cargill (NL)
Novel Recycled Based Polyols, Raising the Bar for More Demanding Polyurethanes Adhesives

15:30
Panel Discussion with all Session Speakers

14:10–15:40
Workshops

Room 1

Kim Schoppink
Science Based Targets Initiative (EU)
Refining the Path to Net Zero with SBTi. Discussion of the Key Proposed Improvements of the Revised Corporate Net Zero Standard.

Room 2



Miriam Weber & Christian Lott
HYDRA Marine Sciences (DE)
Andreas Künkel • **BASF (DE)**
What can we Learn from Renewables for the Role of Biodegradable Materials in a Circular Economy?

15:50 Coffee Break

16:20–18:00

Innovation Award "Renewable Material of the Year 2025"

Grand Hall

Chairpersons: Michael Carus & Asta Partanen, nova-Institute (DE)

16:20
Michael Carus
nova-Institute (DE)
Innovation Award Introduction

16:30
Jaydeep Mandal
Aakar Innovations (IN)
Success Story: Bio-Innovation Compostable Hygiene Solutions

16:40
Christoph Gürtler
Covestro (DE)
Importance of Innovation

The Six Nominated Companies

More Information on Page 40–45

16:50
Justine Charmillot
Bloom Biorenewables (CH)
The First Ever White Lignin

17:00
Katerina Liapis
Borregaard (NO)
Innovative Platform Technology Bright for Renewable Lignin-based Biopolymers

17:10
Maike Lambarth
Cyclize (DE)
Mixed Waste and CO_2 as Feedstock to Produce Syngas

17:20
Oliver Shafaat
Sci-Lume Labs (US)
Bylon – a Scalable, Circular, Biosynthetic Polyamide

17:30
Sarvesh Poddar
Sustanix Materialtech (NL)
Replacing PFAS & Plastics in Paper Packaging

17:40
Pascal Lakeman
Trinseo (IT)
Next Generation Recycled Content-Containing Acrylic Solutions

17:50
Online-Voting

18:00
Christoph Gürtler, Covestro (DE)
Innovation Award Ceremony

18:10
Networking at the Rhein-Sieg-Forum

19:00 Meetingpoint for Networking: Sion im Carré, Neue Poststraße 15, 53721 Siegburg

Please see Map on Page 4

Conference Advisory Board

We would like to thank the experts of the conference advisory board for their great help in selecting the best submitted papers and innovations.

Tanver Ali
Independent Consultant (UK)

René Bethmann
VAUDE Sport (DE)

Lars Börger
nova-Institute (DE)

Michael Carus
nova-Institute (DE)

Martin Clemesha
Braskem (NL)

Doris de Guzman
Green D Market Analytics (US)

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BASF (DE)

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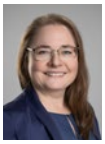
CO_2 Value Europe (BE)



Anke Schwarzenberger
nova-Institute (DE)

Pia Skoczinski
nova-Institute (DE)

Gillian Tweddle
Stripe Consulting (BE)

Christopher vom Berg
nova-Institute (DE)

Miriam Weber
HYDRA Marine Sciences (DE)

Ann Zhang
nova-Institute (CN)

Nominees for the Innovation Award

“Renewable Material of the Year 2025”

nova
Organiser

covestro
Award Sponsor

1

Bloom Biorenewables (CH)

The First Ever White Lignin

Lignin has been tested in cosmetics for decades due to its advanced anti-UV, antioxidant and antimicrobial properties. However, its use has been hampered by its dark colour and odour. Bloom's selective extraction process can now extract lignin without degradation, preserving it as it is found in a tree. Using breakthrough technology, Bloom can now whiten this ultra-pure lignin while maintaining the integrity of the lignin structure. Bloom's white lignin could be the key to unlocking the use of lignin as a multifunctional ingredient for sustainable cosmetics. This cosmetic ingredient will be launched in 2026.

More information: bloombiorenewables.com

2

Borregaard (NO)

Innovative Platform Technology Bright for Renewable Lignin-based Biopolymers

Bright is an innovative platform technology that enables the transition from fossil carbon polymers to renewable lignin-based biopolymers. It tailors lignin properties for different applications by precisely adjusting the biopolymer charge and molecular weight. Bright has introduced LignoBrite, the first lignin-based ingredient for home care products such as dishwashing detergents, which replaces persistent polycarboxylates, reduces white deposits and improves shine.

More information: borregaard.com

3

Cyclize (DE)

Mixed Waste and CO_2 as Feedstock to Produce Syngas

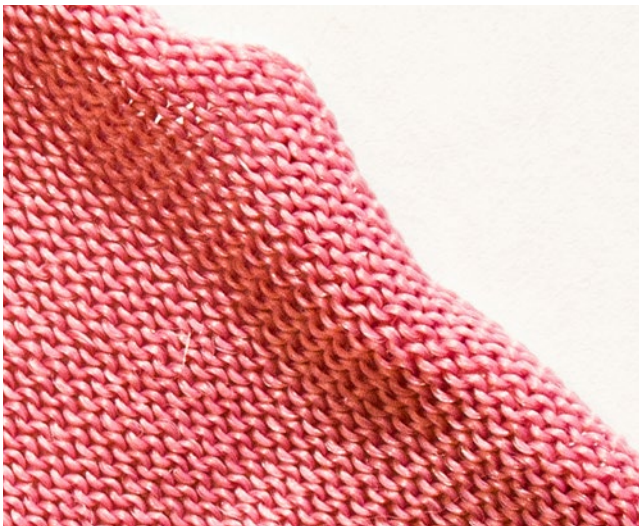
Cyclize enables a circular economy of carbon by using mixed waste and CO_2 as feedstock to produce syngas. Syngas is a key building block in the chemical industry and is currently produced primarily from fossil sources. The patented plasma reformer requires only a third of the electrical energy of electrolysis. This advantage makes the production of syngas cost-competitive with fossil syngas. The syngas produced by Cyclize can replace natural gas and thus defossilise the chemical industry without a green premium.

More information: cyclize.de

4

Sci-Lume Labs (US)

Bylon – a Scalable, Circular, Biosynthetic Polyamide



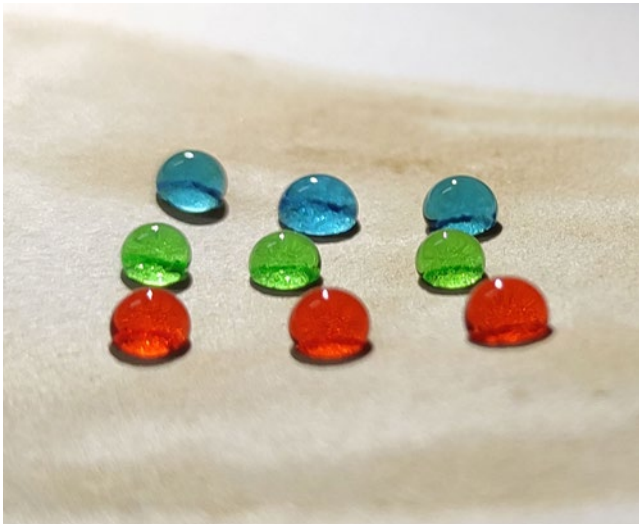
Bylon is a scalable, circular, biosynthetic polyamide from protein-rich agricultural waste through a three-step chemical process. First, protein hydrolysis breaks down the waste. Next, novel chemistry at mild temperatures valorises the intermediate into Bylon's monomer – a reaction with > 90 % monomer yield. Finally, ring-opening polymerisation creates the Bylon polymer. Bylon is melt processed with a Tm of ~ 260˚C and a Tg of ~ 90˚C. The entire production process uses existing infrastructure, offering the scale and cost advantages of traditional petrochemical plastics with the added benefits of using biogenic carbon and being degradable and recyclable at the end of its life.

More information: sci-lumelabs.com

5

Sustanix Materialtech (NL)

Replacing PFAS & Plastics in Paper Packaging



Stands for proprietary polymers and formulations for 100 % plant-based coatings and additives with excellent hydrophobic and oleophobic properties, and proven industrially recyclable. The new coating technology enables consumer brands and packaging companies to comply with regulations on microplastics, PFAS and packaging waste. It offers a sustainable alternative that is compatible with existing machinery and scalable to over 100 tonnes per month. Replacing PFAS, polyacrylates, microplastics and styrene latex in paper packaging ensures safer food contact and a circular value chain.

More information: sustanix.com

6

Trinseo (IT)

Next Generation Recycled Content-Containing Acrylic Solutions

The next-generation depolymerisation demonstration plant (June 2024) expands the types of acrylic waste that can be recycled. The plant uses a proprietary thermolysis process to produce recycled methyl methacrylate (rMMA) that is over 99 % pure, making it a comparable substitute for virgin feedstock. The resulting polymeric recycled acrylic solutions have a 47 % reduction in global warming potential compared to the virgin counterpart. Trinseo plans to scale up this technology in the coming years.

More information: trinseo.com

List of Further Innovations Submitted (Selection)

for the “Renewable Material of the Year 2025”

Lignin Industries (SE)
Re-shaping the future of plastics through the power of lignin: explore Lignin Industries’ biobased thermoplastic material Renol® used in ABS, PP and PE-applications. Easily integrated and processable, scalable, high-performing and truly sustainable.
www.lignin.se

AC Biode S.à r.l. (LU)
Low temperature chemical recycling of mixed plastic/organic waste into useful chemicals such as Hydrogen, Methane, Propane, Butane, Ethylene, Methanol, Acetone, Acetic Acid, Formic Acid etc.
www.acbiode.com

curenergy GmbH (DE)
Electrification of Carbon Black production by recycling rubber products saving ~80% CO_2 emissions at competitive costs and performance close to N550 virgin Carbon Black. #Waste2Resources&Energy
www.curenergy.de

Oleon QLOE (BE)
QLOE is a pioneering brand dedicated to revolutionizing data center cooling solutions through immersion cooling.
Oleon’s immersion cooling liquids are plant-based and designed with safety, sustainability, and performance at their core.
www.oleon.com/markets/server-immersion-cooling

Bioscovery (DE)
Sustainable Toy Innovation - A next generation of doll production
www.biofibre.de

Blue Circle Olefins (NL)
Development of a commercial Methanol to Olefins (MTO) production facility in the Netherlands to produce circular ethylene and propylene from renewable methanol.
www.bluecircle-olefins.com

CovationBio (NL)
CovationBio® bio-PTMEG is a 100% bio-based raw material made from non-food plant feedstock such as corn cobs. It has outstanding low carbon footprint to enable drop-in applications in many high performance polymers to redefine what’s possible.
www.covationbio.com/bioptmeg

Winners of the Innovation Award

"Renewable Material of the Year 2024"

Again (DK)
Acetic Acid and Other Chemicals Derived from CO_2

Reselo (SE)
Rubber Made from 100% Birch Bark

VAUDE Sport (DE)
First-ever Wood-based Polyester Textile Product

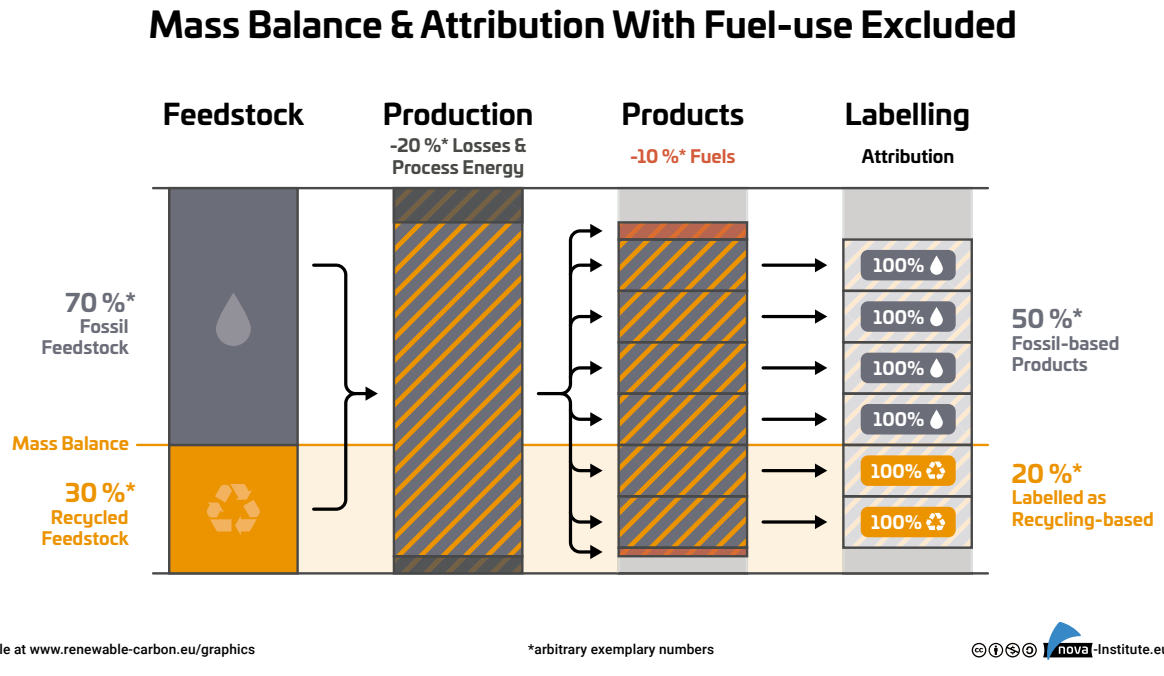
Mainstreaming Mass Balance and Attribution (MBA) – Fast-Growing Acceptance, Demand and Production

For the first time ever, the new nova report provides detailed data on mass balance attributed intermediates and polymers, including 180 MBA building blocks and 50 MBA polymers produced by 49 companies at 189 locations.

The acceptance and accessibility of mass balanced attributed (MBA) chemicals, building blocks and polymers is a major issue for the chemical and plastics sectors, as well as for brand owners. MBA products could provide more options, better availability and reduced costs for the defossilisation compared to dedicated bio-based solutions.

However, both the MBA concept and the political regulations are crucial for scaling up, but difficult to understand. Furthermore, discussions about potentially misleading communication on the concept are confusing stakeholders. In addition, no production volumes are available.

The new report "Mainstreaming Mass Balance and Attribution (MBA): A solid concept, increasing acceptance and growing demand – with more than 50 certified polymers and multiple hundred thousand tonnes produced in 2024, adoption is increasing across polymers,



producers and applications" highlights this evolving landscape. The first part of the report covers terminology, the historical development, the rationale and acceptance, and the latest regulatory environment in Brussels. The second part is dedicated to the underlying data.

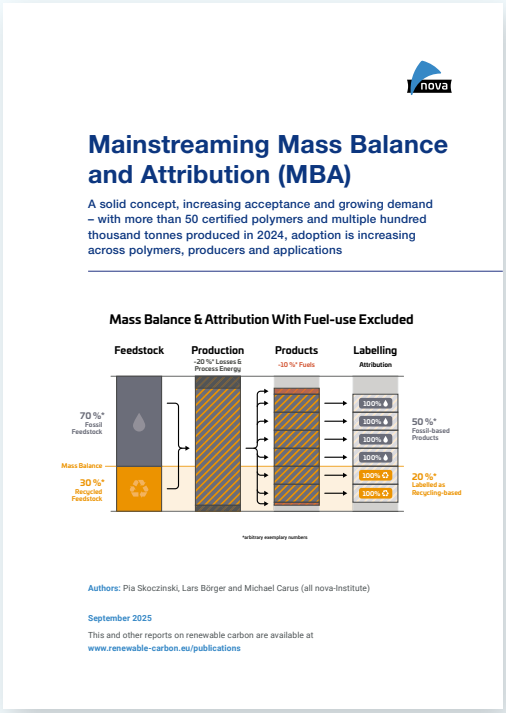
It covers feedstock used for certified MBA products, as well as the most frequently produced MBA chemicals and polymers (PE is No. 1). The leading producers (BASF is No. 1) and regions are identified, with 60 % of demand from Europe, and the largest share stemming from Germany, Belgium and France.

Conclusion

The increase in the numbers of products, sites, volumes, and companies shows that the MBA is becoming more relevant and entering the mainstream. The biggest obstacle to further growth is uncertainty on further regulation, particularly within the EU. Today, Europe as a region and major chemical producers are dominating the MBA market. Comparing the proportion of mass balance products within the total chemicals market (i.e. the fossil market) supports the hypothesis that MBA is used for more specialised applications is correct.

Despite the lack of clear political support for the approach, it can be stated that the number of companies, chemicals, sites and polymers is growing quickly. This indicates that there is clearly a demand for more sustainable solutions and that market players are searching for viable ways to meet this demand, even in an unfavourable environment. This should encourage policy makers to support such approaches, including MBA and renewable carbon technologies, as well as market-building measures in general.

The report is available for € 500 (€ 1.000 for enterprises):
https://renewable-carbon.eu/publications/product/mainstreaming-mass-balance-and-attribution-mba-pdf/



Day 3
24 September 2025
9:00–16:00 (CET)

9:00
Christopher vom Berg
nova-Institute (DE)
Day Opening

9:10–10:50
Setting the Frame for Renewable Carbon
Grand Hall
Chairpersons: Christopher vom Berg & Lars Börger (DE)

9:10
Marc Borghans • **ING (NL)**
Renewable Carbon Economics: Navigating Defossilisation Amid Europe's De-Industrialisation

9:30
Janine van Kampen
Dutch Ministry of Climate and Green Growth (NL)
Drafting a National Vision on Sustainable Carbon Chemistry in the Netherlands

9:50
Anastasios Perimenis
CO_2 Value Europe (BE)
Chemicals and Materials from CCU: The EU Context Packaging Material

10:10
Aurel Ciobanu-Dordea
European Commission, DG ENV (BE) • Update on the Coming Bioeconomy Strategy

10:30
Panel Discussion with all Session Speakers

9:10–10:50
Biodegradation
Small Hall
Chairpersons: Miriam Weber, HYDRA Marine Sciences (DE) & Achim Raschka, nova-Institute (DE)

9:10
Pauline Ruiz
nova-Institute (DE)
Where does Biodegradation Make Sense?

9:30
Christian Lott
HYDRA Marine Sciences (DE)
Rethinking Compostability: Why we need Environmentally Biodegradable Plastics

9:50
Maarten van der Zee
Wageningen University & Research (NL)
How to Quantify the Impact Biodegradable Materials can have?

10:10
Andreas Künkel
BASF (DE)
Biodegradability as End-of-Life Option in a Circular Economy: Value and the Path Forward

10:30
Panel Discussion with all Session Speakers

9:20–10:50
Workshops
Room 1


Jan-Harm Urbanus & Pieter Imhof
TNO (NL)
Application of AI for Polymer Design – Transforming the Adverse Effects of Plastics into Pioneering Material Solutions

Room 2


Matthias Stratmann & Lara Dammer
nova-Institute (DE)
Renewable Carbon in LCA and Carbon Footprint Guidelines

10:50 Coffee Break

11:20–12:40
Setting the Frame for Renewable Carbon

Grand Hall

Chairpersons: Stefanie Fulda & Mika Plum, nova-Institute (DE)

11:20
Miriam Freudenberger & Benjamin Mees
CropEnergies (DE)
Bio-based Chemicals: Yes, we can!? What is it About? What are our Experiences? Which Framework Conditions are Decisive?

11:40
Philippe Dewolfs
TÜV AUSTRIA (BE)
OK renewable – What's New?

12:00
Melanie Williams
SCS Standards (US)
Lower Carbon Chemicals and Packaging: A Certification Standard for Defossilising the Chemicals Industry

12:20
Panel Discussion with all Session Speakers

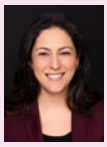
11:20–12:40
Biodegradation

Small Hall

Chairpersons: Pauline Ruiz, nova-Institute (DE) & Christian Lott, HYDRA Marine Sciences (DE)

11:20
Robert Dierkes
University Hamburg (DE)
Identification of Microbial Enzymes for Plastic Degradation: Possibilities and Limitations

11:40
Katrin Schwede
INAK (DE)
Making Compostability Work: Aligning Biodegradable and Compostable Plastics with EU Policy Goals



12:00
Afsaneh Nabifar
CbDP (DE)
Compostable by Design Platform: Boosting a Circular Economy with Cross-value Chain Collaboration

12:20
Panel Discussion with all Session Speakers

11:20–12:50
Workshop

Room 1

Christopher vom Berg & Luciano Proto Cassina
RCI/nova-Institute (DE)
Facilitating Change – Policy for a Renewable Carbon Transition
Workshop with External Experts:
Richard Kempen,
Dutch Ministry of Climate Policy and Green Growth (NL)
Sebastian Kunz, Südzucker (DE)

12:40 Lunch Break & Networking

14:10–15:50
Setting the Frame for Renewable Carbon

Grand Hall

Chairpersons: Matthias Stratmann & Asta Partanen, nova-Institute (DE)

14:10
Matthias Stratmann
nova-Institute (DE)
Case Studies Based on Peer-reviewed Life Cycle Assessments – Carbon Footprints of Different Carbon-based Chemicals and Material

14:30
Leif Rohrbach
Carbon Minds (DE)
Transformation to a Greenhouse Gas Neutral Chemical Region in the Rhineland

14:50
Tim Börner
Empa – Swiss Federal Laboratories for Materials Science and Technology (CH)
A Prospective Framework to Assess the Potential for Environmental and Technical Net-Benefits of Early-Stage Bio-Manufacturing Routes Using Renewable Carbon

15:10
Martin Clemesha
Braskem Netherlands (NL)
The EU Bioeconomy Strategy, Go Fast to Go far, a Call for Swift Action

15:30
Panel Discussion with all Session Speakers

14:10–15:50
Biodegradation

Small Hall

Chairpersons: Andreas Künkel, BASF (DE) & Lara Dammer, nova-Institute (DE)

14:10
Daniel Steinitz
"bündnis mikroplastikfrei" (AT)
Joint Approaches to Reduce Persistent Microplastics in Austria

14:30
Glauco Battagliarin
BASF (DE)
Assessing the Biodegradability of Water-soluble Polymers

14:50
Anju Massey-Brooker
Royal Society of Chemistry (UK)
Sustainable Polymers in Liquid Formulations (PLF's) Catalysed by the Royal Society of Chemistry

15:10
Amy Goddard, Croda (UK)
& Steve Howdle
University Nottingham (UK)
Sustainable Polymers for a Clean Future, Prosperity Partnerships

15:30
Panel Discussion with all Session Speakers

15:50
Final Get-together

16:00 End of Conference

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Global Bio-Based Polymer Market to Grow 13% Annually Through 2029, Led by Asia and North America

New report reveals: Capacity expansions in Asia and North America drive growth – Europe continues to lag behind

The new market and trend report "Bio-based Building Blocks and Polymers – Global Capacities, Production and Trends 2024–2029", written by the international biopolymer expert group of the nova-Institute, shows capacities and production data for 17 commercially available, bio-based polymers in the year 2024 and a forecast for 2029. The full report for € 3.000 and a free short version are now available here: https://renewable-carbon.eu/commercial-reports

Comprehensive Market Report on Bio-Based Polymers and Building Blocks

The just released, annually updated market report by nova-Institute includes the following features on 434 pages: Coverage of 17 bio-based building blocks and all 17 commercially available bio-based polymers, comprehensive information on the capacity development from 2018 to 2029, as well as production data for the years 2023 and 2024, per bio-based polymer and analyses of market developments and producers per building block and polymer, allowing readers to quickly gain an overview of developments that go far beyond capacity and production figures.

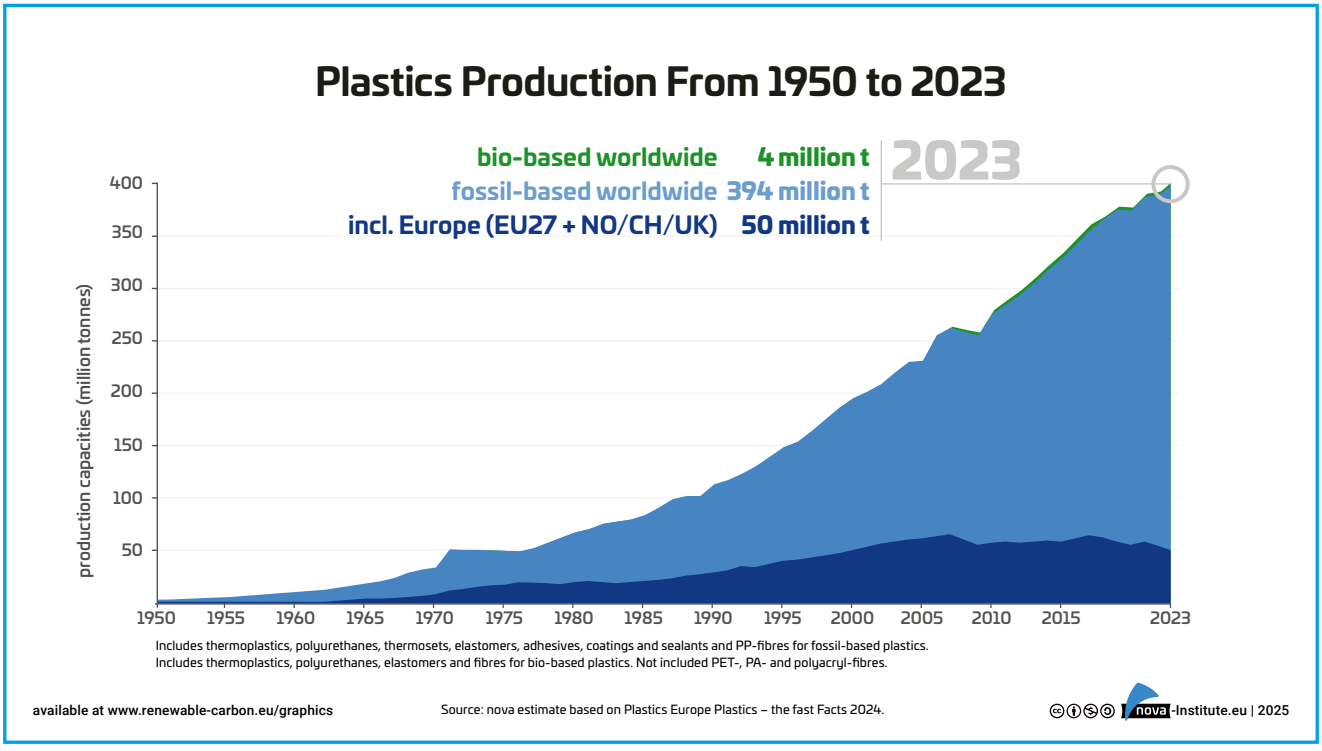

Figure 1: Plastics Production From 1950 to 2023

In addition, the market study includes a statistical report on "Mass Balance and Attribution (MBA)" products available worldwide, based on an extensive analysis of the ISCC database, a detailed review of current European policy landscape for bio-based polymers, as well as a comprehensive summary of biodegradability and biodegradable polymers. This information is supported by 60 figures, 50 tables and 218 company profiles.

The data published annually by European Bioplastics and the data published by Plastics Europe for 2023 are taken from the market report published by the nova-Institute, but with a smaller or different selection of bio-based polymers, based on different scopes.

Strong Growth for Bio-Based Polymers until 2029

2024 was a respectable year for bio-based polymers, with an overall expected CAGR of 13 % to 2029. Overall, bio-based biodegradable polymers have large installed capacities with an expected CAGR of 17 % to 2029, but the current average capacity utilisation is moderate at 65 %. In contrast, bio-based non-biodegradable polymers have a much higher utilisation rate of 90 %, but will only grow by 10 % to 2029.

Epoxy resin and PUR production is growing moderately at 9 and 8 %, respectively, while PP and cyclic APC capacities are increasing by 30 %. Despite a decline in production of biodegradables, especially for PLA in Asia, capacities have increased by 40 %. The same applies to PHA capacities. Commercial newcomers such as casein polymers and PEF recorded a rise in production capacity and are expected to continue to grow significantly until 2029.

Additionally, the total production volume of bio-based polymers has been 4.2 million tonnes in 2024, which is 1 % of the total production volume of fossil-based polymers, and the CAGR of bio-based polymers is, with 13 %, significantly higher than the overall growth of polymers (2–3 %). This development is expected to continue until 2029 (Figure 1). With these growth rates, the share of bio-based polymers will increase up to 2 %.

Of the total 4.2 million tonnes of bio-based polymers produced in 2024, cellulose acetate (CA), with a bio-based content of 50 %, and epoxy resins, with a bio-based content of 45 %, account for more than half of the bio-based production, 26 % and 32 %, respectively. This is followed by 30 % bio-based polyurethanes (PUR) with 9 %, 100 % bio-based polylactic acid (PLA) with 8 %, polyamides (PA) (60 % bio-based content) with 7 % and polytrimethylene terephthalate (PTT) (31 % bio-based content) with 6 %. (Figure 2). The share of aliphatic polycarbonates (APC; circular and linear), poly(butylene adipate-co-terephthalate) (PBAT), polyethylene (PE), polyethylene terephthalate (PET), polyhydroxyalkanoates (PHA) and starch-containing polymer compounds (SCPC) was less than 5 %. Casein polymers (CP), ethylene propylene diene monomer rubber (EPDM), polybutylene succinate (PBS), polyethylene furanoate (PEF) and polypropylene (PP) accounted for less than 1 % of the total bio-based polymer production volume and are not shown.

The increase in production capacity from 2023 to 2024 is mainly due to the expansion of PLA capacity and epoxy resin production in Asia, as well as a global increase in PUR production. Also, Asian expansions for PHA and PTT were already included in the report from 2024. PP, PHA and PEF are particularly expected to grow continuously by 65 % on average until 2029. While PHA capacities will increase mainly in Asia and PEF in Asia and in Europe, PP capacities will increase mainly in North America.

Demand for Bio-based Feedstock and Land Use

Considering the steadily increasing demand for bio-based polymers, the need for biomass feedstocks should be considered as an important factor. This is particularly true for the recurring debate on the use of food crops for the production of bio-based polymer. The total demand for biomass was 13.6 billion tonnes for feed, bioenergy, food, material use, biofuels as well as bio-based polymers. While the majority of biomass (56 %) is used for feed production, only 0.023 % is required for the production of bio-based polymers (Figure 3).

This results in a biomass feedstock demand of 3.2 million tonnes for the production of 4.2 million tonnes of bio-based polymers and reflects a land use share of only 0.013 %. This is due to the fact that the main feedstocks used in the production of bio-based polymers are sugars (25 %) and starch (20 %), which are obtained from high-yield crops such as sugar cane and maize, resulting in a high area efficiency.

In addition, the protein content of these crops is used not only for polymer production but also for animal feed, so only the corresponding part is allocated to polymer production. Glycerol (31 %), a biogenic by-product of biodiesel production, is a biomass with only an indirect, passive land use. This glycerol is mainly used in the production of epoxy resins via epichlorohydrin as an intermediate. The biomass used also included 12 % from non-edible plant oils, such as castor oil, 9 % from cellulose (mainly used for CA) and 3 % from edible plant oil.

Of the 4.2 million tonnes of bio-based polymers produced (fully and partially bio-based) 2.2 million tonnes were actual bio-based components of the polymers (52 %), meaning that almost 1.6 times more feedstock was required than was actually incorporated into the final product. The 1.4 million tonnes (36 %) of feedstock that did not end up in the product is due to the high number of conversion steps and the associated losses of feedstock and intermediates, as well as the formation of by-products.

Global Shift to Renewable Carbon Needed to Handle Regional Challenges for Bio-Based Polymers

The key market drivers in 2024 are several global brands that have adapted their strategic agendas to transition the polymers, plastics and chemicals industry to become sustainable, climate-friendly and part of the circular economy, thus offering their customers green solutions and alternatives to petrochemical products.

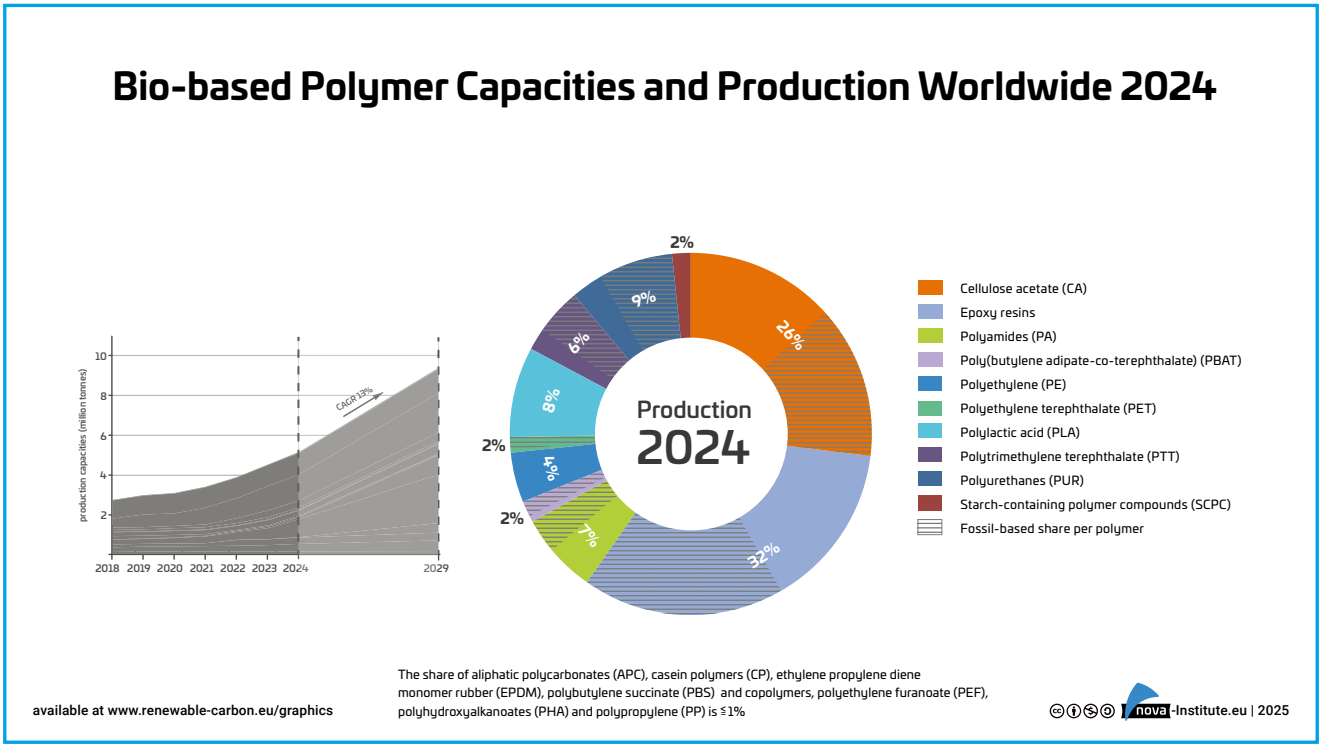

Figure 2: Bio-based Polymer Capacities and Production Worldwide 2024

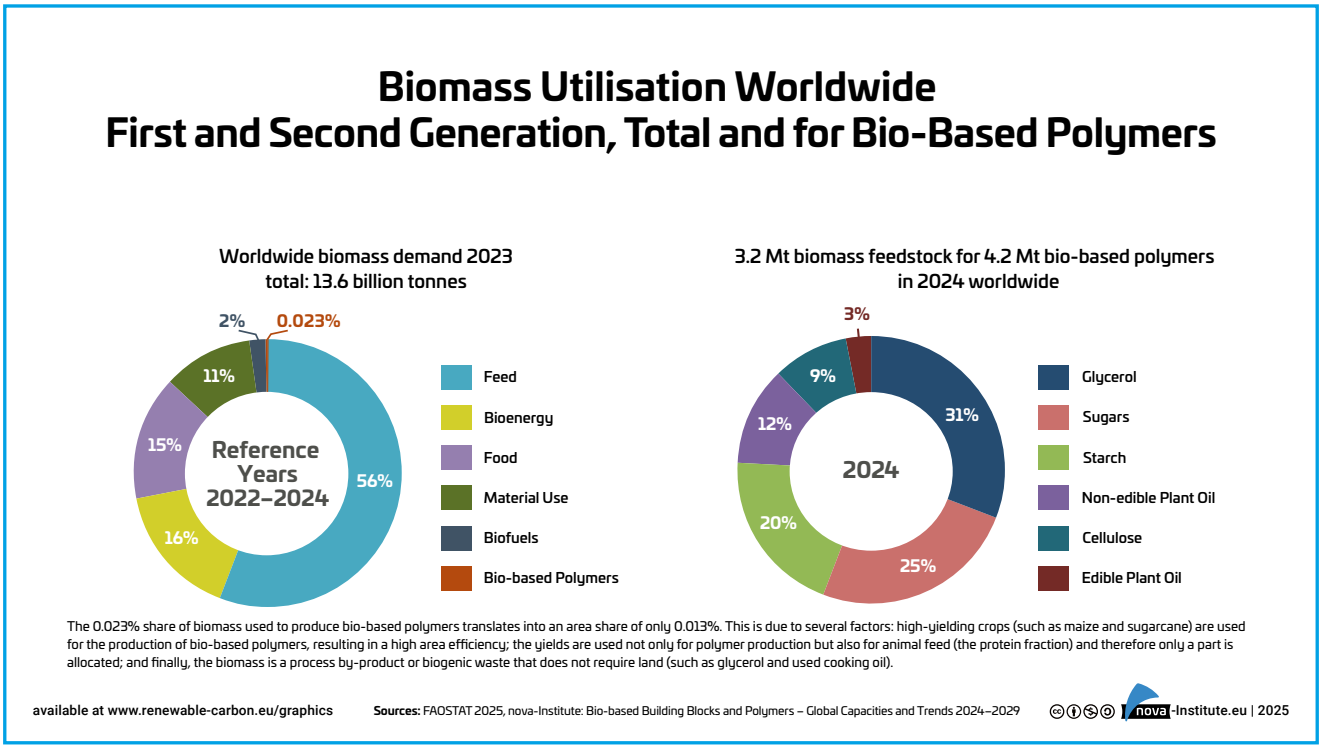

Figure 3: Biomass Utilisation Worldwide

The only way to achieve this successful transition is to fully replace fossil carbon with renewable carbon from alternative sources: biomass, CO_2 and recycling (www.renewable-carbon.eu). By expanding their feedstock portfolio to include renewable carbon in addition to fossil-based carbon, these brands are leading the way from a market perspective. In particular, the use of biomass has increased and will continue to increase the supply of bio-based polymers.

Nevertheless, the market remains challenging, especially in Europe. While Asia and North America will continue to strengthen their global role in the supply of bio-based polymers, Europe's market share is expected to decline by 2029. With new investments in several large-scale bio-based polymer production capacities, Asia and North America will increase their market share by 4 % and 5 %, respectively, and together they will account for more than 80 % of the global supply of bio-based polymers.

Although some new large-scale plants are also planned in Europe, this will not be enough to prevent Europe's market share from falling from 13 % today to 10 % in 2029. Although, the European policy landscape for bio-based polymers is constantly evolving, it does so not yet provide a consistent policy framework that sufficiently incentivises the benefits, properties and applications of bio-based polymers – unlike other regions of the world.

Valuable Quotes

Ortwin Ertl
Annikki (AT)
"Where information on renewables starts shaping markets."

Andreas Künkel
BASF (DE)
"The Renewable Materials Conference is an excellent opportunity to discuss topics for a circular economy from an overarching perspective to tangible case studies."

Afsaneh Nabifar
BASF (DE)
"Joining the Renewable Carbon Initiative is a commitment to practical solutions – driving the shift from fossil to renewable carbon through innovation, collaboration, and real-world impact."

Reinier Grimbergen
Blue Circle Olefins (NL)
"Defossilization is the future of the EU Chemical Industry."

Stephan Roest
Borealis (AT)
"The Renewable Materials Conference from nova-Institute is a must-attend event, uniting top minds to showcase the future of sustainable development and the latest advancements in renewable materials."

Martin Clemesha
Braskem (NL)
"If you want to listen, see and talk to the thought leaders and innovators in renewable materials, this conference is for you."

Karin van der Helm-Rademaker
Cargill (NL)
"A great chance to meet fellow innovators creating sustainable, bio-based solutions that are good for performance – and the planet."

Leif Rohrbach
Carbon Minds (DE)
"Advancing the chemical industry's transition in Europe requires knowledge and a common vision – this conference offers one valuable piece of the broader puzzle."

Frank Polzer
Celanese (DE)
"The RMC is bringing together a tremendous number of experts sharing progressive concepts for a more sustainable future and therefore it is a great forum for Celanese to present our solutions around CCU technology."

Dirk Hölter
Cerdia (CH)
"The conference offers a unique opportunity to share the latest developments and expertise in the field of renewable materials and to connect the stakeholders."

Joris Vermunt
Corbion (NL)
"Our commitment to renewable materials like lactate esters and lactide is not just about creating sustainable solutions; it's about changing chemistry for a greener tomorrow."

Amy Goddard
CRODA (UK)
"The Renewable Materials Conference is an important platform to celebrate, collaborate and exchange knowledge within the renewable materials sector."

Miriam Freudenberger
CropEnergies (DE)
"As CropEnergies, we are committed to sustainable carbon. The Renewable Materials Conference brings together leading minds from industry, politics, and research to advance this topic. I look forward to being part of this exchange."

Keith Wiggins
Econic Technologies (UK)
"The annual Renewable Materials Conference is Europe's premier event for emersion into the world of renewable carbon."

Tim Börner
Empa (CH)
"Indispensable event to meet, learn, and discuss with various stakeholders of the renewable carbon value chain and the latest developments in R&D, industries and policies."

Geoffroy Delvinquier
Futerro (BE)
"Defossilizing the chemical industry is no longer optional: It's the key to EU environmental survival and industrial sovereignty."

Peep Pitk
Fibenol (EE)
"It is a real pleasure to be on stage and share Fibenol's progress at the RMC Conference, exactly nine years after my first visit. That moment marked the beginning of my journey with this strong community of believers, and it continues to feel just as inspiring today."

Adrian Brandt
Henkel (DE)
"The RMC is the world's leading conference dealing with the transformation from fossil to renewable carbon in the materials industry."

Katrin Schwede
INAK (DE)
"To truly reduce microplastic pollution, we must align innovative compostable and biodegradable materials with smart policy, starting where they add real value."

Marleen Ramakers & Uros Kresovic
Indaver Plastics2Chemicals (BE)
"Join us to discover how waste becomes opportunity in the future of sustainable innovation."

Frank Eisenträger
INEOS (CH)
"I'm looking forward to the event, the who is who of the plastics industry will present the latest status of defossilisation and bio (attributed) polymers."

Julia Resch
Institut für Kunststofftechnik Stuttgart (DE)
"Bioplastics from renewable materials are a key part of the solution to reducing Europe's carbon footprint and building a more sustainable future."

Andrew Richardson
Johnson Matthew (UK)
"I'm excited to share what Johnson Matthey can do to help the materials industry meet its sustainability goals."

Fredrik Malmfors
Lignin Industries (SE)
"There is an urgent need to include bio-based materials in EU legislation (like PPWR) as circular and to allow for bio-based materials in open recycling streams."

Marcus Elmer
Lixea (SE)
"RMC is a fantastic venue to network and discuss biobased opportunities together with likeminded, motivated people. I've been leaving the previous conferences with a lot if inspiring ideas and new contacts."

Outi Teräs
Neste (FI)
"Renewable Materials Conference provides a broad array of solutions for replacing fossil resources with renewable carbon from the biosphere, technosphere or atmosphere."

Stefano Facco
Novamont (IT)
"For many years we have been attending this conference, a fertile environment for networking."

Tony Rehn
NG Nordic Finland (FI)
"At the intersection of innovation and impact, the Renewable Materials Conference empowers leaders to transform carbon challenges into sustainable solutions."

Lee Walko
Omni Tech (US)
"From groundbreaking ideas to transformative discussions, the Renewable Materials Conference is where the future of sustainable materials takes shape."

Pauline Ruillère
Pili (FR)
"Decarbonizing the chemical industry is essential to meet EU regulations, and Pili contributes to this goal by producing ton-scale biobased aromatic intermediates."

Gian De Belder
Procter & Gamble (BE)
"I am looking forward to contribute to the Renewable Materials Conference by providing more insights onto the 3rd R (recycled carbon) by sharing the latest on feedstock control and our solvent-based purification technologies."

Ruirui Zong-Rühe
Roland Berger (DE)
"Defossilization of the chemicals industry is not just an environmental necessity; it's an economic and strategic imperative. It enables climate action, fosters innovation, supports a circular economy, and future-proofs one of the most crucial sectors of the global economy."

Anju Massey-Brooker
Royal Society of Chemistry (UK)
"Achieving the ambition to de-fossilize polymers in liquid formulations by 2040 demands that the industry develop and scale biodegradable PLFs and advance circular economy infrastructure by 2030."

Melanie Williams
SCS Standards (US)
"The Renewable Materials Conference is an ideal forum to present SCS's new 'Carbon Assured' certification program, which will drive decarbonization in the chemicals industry."

Claudia Coelho
Technip Energies (FR)
"Great conference to attend where big companies, start-ups and academia meet to shape together a renewable future."

Robert Dierkes
University Hamburg (DE)
"Biodegradation strategies for plastics, as presented at the Renewable Materials Conference, are an important contribution to reducing pollution and promoting circularity."

Jan Harm Urbanus
TNO (NL)
"RMC successfully integrates content, networking and fun in the domain of renewable & sustainable materials – looking forward to it!"

Steve Howdle
University Nottingham (UK)
"I'm at this conference because I like working with industry and I want my research to make a difference that will impact positively on society and our environment."

Philippe Dewolfs
TÜV AUSTRIA (BE)
"Undoubtedly the place to be when it comes to renewable carbon."

Jean-Paul Lange
University of Twente (NL)
"I'm looking forward to meeting colleagues that are as passionate as me to defossilize the chemical industry."

Andreas Kohl
Verbio (DE)
"The best conference worldwide to discuss and learn about markets, technology and trends in the renewable and biobased chemicals area is the Renewable Materials Conference. Join us this year if this is of interest to you to make it again an exciting event."

Balaji Sridharan
VITO (BE)
"I look forward to learning about new breakthroughs in transforming lignin, biomass and other underutilized carbon waste into tomorrow's sustainable materials."

Maarten van der Zee
Wageningen University & Research (NL)
"At Wageningen University & Research we believe in the power of biobased and biodegradable plastics. Not as a one-size-fits-all solution for every plastic challenge the world faces, but as a major element of a future in which human's needs are met, while the production and end-of-life usage of plastics wreaks less environmental havoc."

Susan Zhu
Zhongke Guosheng (Hangzhou) Technology (CN)
"RMC is a leading professional conference in the industry, boasting years of expertise and a dedicated audience of professionals."

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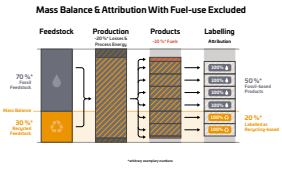

Authors: Pia Skoczinski, Lara Börger and Michael Carus (all nova-Institute)

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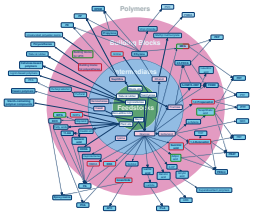
Bio-based Building Blocks and Polymers

Global Capacities, Production and Trends 2024–2029



Authors: Pia Skoczinski, Michael Carus, Gillian Tweddle, Pauline Ruiz, Lara Dammer, Ann Zhang, Narendar Poranki, Lara Börger, Doris de Guzman, Rick Passenier, Tanver Ali, Harald Käb, Matthew Hartley and Achim Raschka

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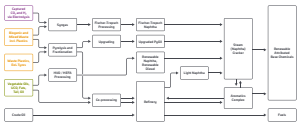

Authors: Gillian Tweddle, Lara Krause, Pauline Ruiz, Achim Raschka, Aylin Özgen, Nicolas Hark and Michael Carus

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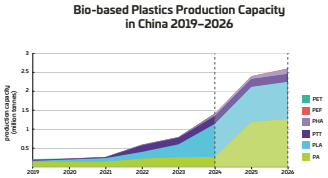

Authors: Ann Zhang and Michael Carus

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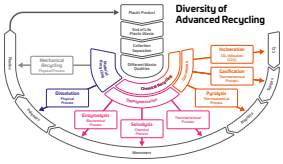
Providers, Technologies, Partnerships, Status and Outlook



Authors: Lara Krause, Aylin Özgen, Jasper Kern, Sreeparna Das, Michael Carus, and Achim Raschka

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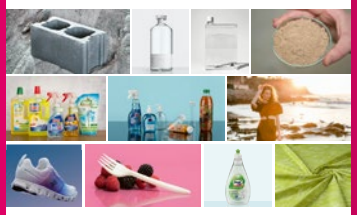
Technologies and Market, Status and Outlook, Company Profiles



Authors: Pauline Ruiz, Pia Skoczinski, Achim Raschka, Nicolas Hark, Michael Carus. With the support of: Aylin Özgen, Jasper Kern, Nico Plum

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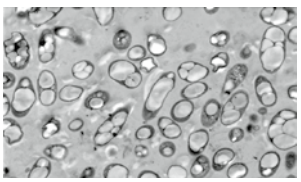

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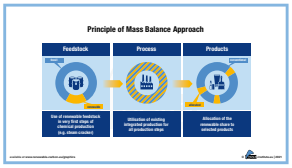

Authors: Michael Carus, Doris de Guzman and Harald Käb

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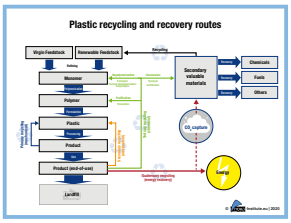
Technologies, Sustainability, Policy and Key Players



Author: Lars Krause, Florian Dietrich, Pia Skoczinski, Michael Carus, Pauline Ruiz, Lara Dammer, Achim Raschka, nova-Institut GmbH, Germany

November 2020

This and other reports on the bio- and CO_2-based economy are available at www.renewable-carbon.eu/publications

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Bio-based CO_2-based Recycling

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WHY JOIN RCI?

RCI is an organisation for all companies working in and on renewable chemicals and materials – plastics, composites, fibres and other products can be produced either from biomass, CCU or recycling. RCI members profit from a unique network of pioneers in the sustainable chemical industry, creating a common voice for the renewable carbon economy.

To officially represent the RCI in Brussels, the RCI is registered in the EU's transparency register under the number 683033243622-34.

LinkedIn:
www.linkedin.com/showcase/renewable-carbon-initiative
#RenewableCarbon

Executive Managers:
Christopher vom Berg & Michael Carus
Contact: Verena Roberts
verena.roberts@nova-institut.de

JOIN NOW

Become a part of the Renewable Carbon Initiative (RCI) and shape the future of the chemical and material industry
www.renewable-carbon-initiative.com

Find all current RCI members at:
www.renewable-carbon-initiative.com/network

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ADMINISTRATIVE OFFICE

nova-Institute

- Initiator and scientific backbone
- Organisation, management and coordination of RCI

MEMBERS

Board

- Strategic direction
- Budget allocation
- Highly active
- Max. 20 members

General assembly

- 2–3 main representatives per member
- Identify / define priorities of RCI
- Decide on future projects

PARTNERS

- Support and promote each other
- Advise on specific topics

ACTIVITIES

- Advocacy
- Scientific background reports
- Position papers
- Networking

WORKING GROUPS - Involvement of all interested members

WG Labelling

- Development of a renewable carbon share (RCS) certificate and label

WG Policy

- Position papers
- Factsheets
- Stakeholder dialogues
- Public consultations of regulations

WG Recycling

- Chemical and mechanical recycling
- Position papers
- Strategic reports

WG Sustainability

- Deep understanding and harmonisation of sustainability assessment and reporting
- Position papers
- Strategic reports

MEMBERSHIP BENEFITS

Advocating for renewable carbon

RCI is at the forefront of advocating for the transition from fossil to renewable carbon. As a member, you'll actively contribute to shaping future policy and driving the transition, ensuring your voice is heard in the movement towards defossilisation.

Contribute to leading scientific reports and positions

RCI's publications are instrumental in advocating for renewable carbon. As a member, you contribute your knowledge and insights, shaping the discourse and decisions that are transforming our economy.

Connect with a vibrant network

Joining RCI means connecting with a diverse network spanning the entire value chain, fostering collaboration and innovation. Supported by our partners, you'll be at the heart of a growing community that drives positive change in the renewable carbon landscape.

Shape the future of the RCI

Your membership gives you the opportunity to shape the direction of RCI, by proposing new ideas, participating in ongoing projects or joining the board. Your membership funds RCI's activities, actively enabling collaboration towards a sustainable future.

Join specialised working groups

Engage in specialised working groups focused on critical aspects such as policy, labelling, recycling, and sustainability. Together, as a trusted pool of expertise, you'll tackle challenges and drive solutions forward.

Increase your visibility

As an RCI member, you'll be recognised as a leader in the transition to renewable carbon. Benefit from increased visibility through our communications activities and share your own successes to build credibility on your path to sustainability.

Enjoy exclusive discounts

Benefit from exclusive discounts on conferences and commercial market reports by nova-Institute, along with additional benefits through our partners. Your membership brings added value beyond just networking and collaboration.

Get cloud access to internal RCI documents

Gain access to the internal RCI cloud, containing draft documents, policy consultations, presentations, and factsheets. It's everything you need to stay ahead of the curve.

THE AIM

The aim of the Renewable Carbon Initiative (RCI) is to support and speed up the transition from fossil carbon to renewable carbon for all organic chemicals and materials.

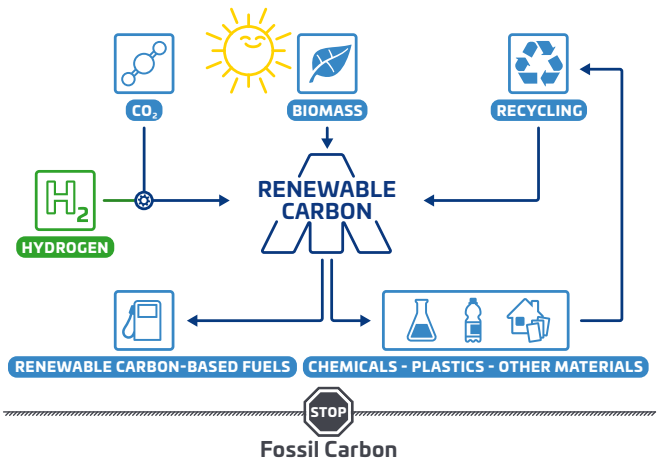
RCI addresses the core problem of climate change, which is extracting and using additional fossil carbon from the ground that will eventually end up in the atmosphere. Companies are encouraged to focus on phasing out fossil resources and to use renewable carbon instead.

The initiative wants to drive this message, initiating further actions by bringing stakeholders together, providing information and shaping policy to strive for a climate-neutral circular economy.

THE VISION

Fossil carbon shall be completely substituted by renewable carbon, which is carbon from alternative sources: biomass, CO_2 and recycling.

RENEWABLE CARBON



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Achim Raschka (achim.raschka@nova-institut.de)

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Communications
Stefanie Fulda (stefanie.fulda@nova-institut.de)

- Comprehensive Communication & Dissemination in Research Projects
- Communication & Marketing Support
- Network of 60,000 Contacts to Companies, Associations & Institutes
- Targeted Newsletters for 19 Specialty Areas of the Industry
- Conferences, Workshops & nova Sessions
- In-depth B2C & Social Acceptance Research

Sustainability
Matthias Stratmann (matthias.stratmann@nova-institut.de)

- Life Cycle Assessments (ISO 14040/44, PEF Conform)
- Carbon Footprint Studies & Customised Tools
- Initial Sustainability Screenings & Strategy Consultation
- Holistic Sustainability Assessment (incl. Social & Economic Impacts)
- GHG Accounting Following Recognised Accounting Standards
- Critical Reviews for LCA or Carbon Footprint Reports
- Sustainability Reporting & Claims (CSRD, Green Claims)

Economy & Policy
Lara Dammer (lara.dammer@nova-institut.de)

- Strategic Consulting for Industry, Policy & NGOs
- Political Framework, Measures & Instruments
- Standards, Certification & Labelling
- Micro- & Macroeconomics
- Techno-Economic Evaluation (TEE) for Low & High TRL
- Target Price Analysis for Feedstock & Products

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nova-Institute is a private and independent research institute, founded in 1994. nova offers research and consultancy with a focus on the transition of the chemical and material industry to renewable carbon.

What are future challenges, environmental benefits and successful strategies to substitute fossil carbon with biomass, direct CO_2 utilisation and recycling? What are the most promising concepts and applications? We offer our unique understanding to support the transition of your business into a climate neutral future.

Our subjects include feedstock, technologies and markets, economy and policy, sustainability, communication and strategy development. Multidisciplinary and international team of 45 scientists.

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