# energy innovation austria

3/2024

Current developments
and examples
of sustainable energy
technologies

klima+ energie fonds

Federal Ministry
Republic of Austria
Climate Action, Environment,
Energy, Mobility,
Innovation and Technology

# Industry on the path to climate neutrality

## Focus: Circular economy

The decarbonisation of industry has an important role to play with achieving climate neutrality. The aim is to reduce emissions that negatively impact the climate and to use energy and resources sparingly and efficiently. New technologies and solutions for clean and competitive production are currently being researched and demonstrated in Austria. The circular economy is a pioneering concept for the sustainable transformation of industry.

Amine scrubber for the separation of $CO_2$, photo: voestalpine Stahl GmbH

Industry Linz Austria, photo: stock.adobe.com

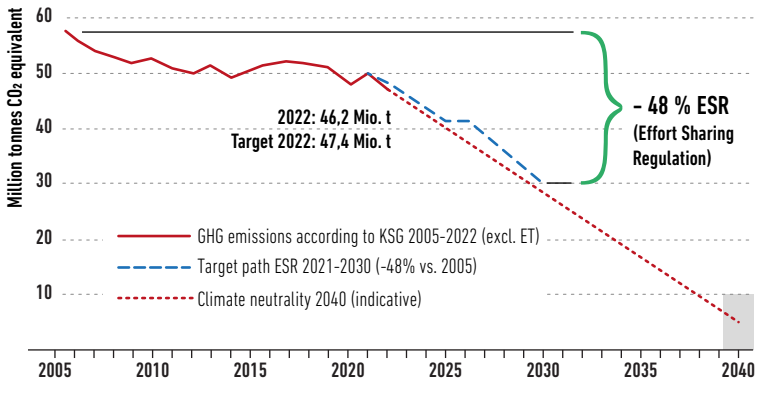
# Zero emissions

## Concepts and measures for climate-neutral industry

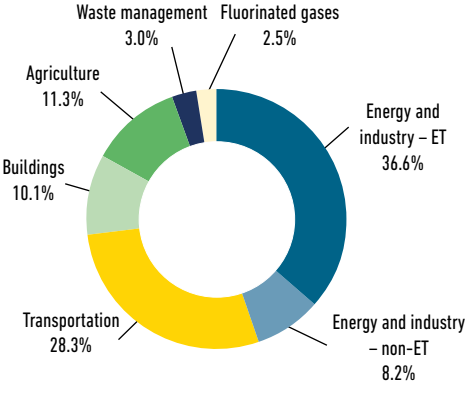
Achieving the national goal of "climate neutrality by 2040" requires that both the economy and society undergo comprehensive transformation processes. Austrian industry will play a central role in achieving this goal as industrial production, together with the energy sector, accounts for the largest share of climate-damaging greenhouse gas emissions. The greenhouse gas emissions of these two sectors amounted to 32.6 million tonnes of $CO_2$ equivalent in 2022, which corresponds to around 45% of total emissions (72.84 MT $CO_2$ equivalent) in Austria.[1]

Industry also consumes the largest share of energy. A total of 110 TWh of energy is required annually to power all the plants and processes at industrial sites in Austria. This accounts for around 27% of gross domestic consumption.[2] On the other hand, industry is an important driver of sustainable growth, jobs, innovation and quality of life in Austria. According to Statistics Austria, "industry and construction" include manufacturing, mining, energy and water supply as well as the construction industry, and with a share of around 29% of gross domestic product (GDP), this sector makes a significant contribution to Austria's economic output, employing almost one million people in over 67,000 companies.[3]

The transformation towards clean, resource-efficient and competitive production is one of the biggest challenges on the path to climate neutrality. Research and technology development play a central role here. Important starting points for the transformation process in industry are the topics of resources, energy, $CO_2$ and the circular economy.




*Greenhouse gas emissions according to the Climate Protection Act (KSG) 2005-2022 (excluding emissions trading) and target path, source: Environment Agency Austria*




*Shares by sector 2022, source: Environment Agency Austria*

## SHAPING THE TRANSFORMATION PROCESS

In recent years, great progress has been made in the development and demonstration of innovative technologies and concepts for the decarbonisation of industry. The task now is to integrate these into industrial processes in order to produce high-quality and competitive products in the long term.

Back in 2020, the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK), in cooperation with the Federation of Austrian Industries, launched the **dialogue process "Climate-neutral industry in Austria"**. The goal here was to enter into active dialogue with the largest Austrian industrial companies, discuss approaches for transforming the industry and develop corresponding strategies.
www.bmk.gv.at/themen/klima_umwelt/gruene-industriepolitik/klimafitte_industrie.html

The current study **transform.industry** conducted by the Austrian Institute of Technology (AIT) on behalf of the Climate and Energy Fund[4] addresses the question of how best to approach the process of decarbonising industry. In four scenarios applied to 13 industrial sectors, potential development paths were examined based on various decarbonisation measures and technologies.

In the "renewable gases" scenario, the sustainable transformation of industry is achieved by switching from fossil fuels to renewable energy sources. The "innovation" scenario entails a strong focus on implementing the best available solutions and breakthrough technologies, while the "sector coupling" scenario aims at utilising energy carriers as efficiently as possible, for example by using waste heat from industrial processes in other sectors. The "circular economy" scenario is based, among other things, on increased material efficiency and high recycling rates, which reduces the energy-intensive production of basic materials.

All these scenarios clearly show that the expansion of renewable energy must be a top priority in the coming years. In order to drive forward the decarbonisation of industry, companies also need planning security, faster approval procedures and ongoing technological development. The analyses show that all four scenarios have a positive effect on economic growth. According to the calculations, the transformation will generate additional GDP growth of around EUR 8 to 10 billion. Roadmaps for strategic research, technology and innovation as well as corresponding recommendations for action were developed based on the results.

www.klimafonds.gv.at/mediathek/studienpraesentation-transform-industry

Podcast of the Austrian Energy Agency on the study:

petajoule.podigee.io/62-transformindustry

## FOCUS ON THE CIRCULAR ECONOMY

The concept of the circular economy is a key solution for conserving energy and resources as well as avoiding climate-damaging emissions in industrial production. Significant impetus for researching and implementing this concept was generated by the adoption of the Circular Economy Strategy 2022 and the BMK's RTI focus on the circular economy, which was established in 2021 and is also explicitly addressing production technologies as of 2024 (see pages 4-5). In this issue, we present some Austrian RTI projects that are developing and demonstrating innovative solutions for the transformation of industry with a focus on the transition to a circular economy.

### NATIONAL SUBSIDIES

The federal government's climate and transformation campaign supports Austrian industrial companies in making their production processes climate-neutral. On the one hand, this strengthens value creation in Austria, and on the other, it leads to greater independence from fossil fuel imports. Funding totalling around EUR 5.7 billion will be available until 2030, of which EUR 320 million will go to the RTI initiative "Transformation of Industry". This initiave is implemented by the Climate and Energy Fund and supports the development and demonstration of innovative technologies that contribute to climate protection and sustainability and increase the competitiveness of the Austrian economy.
www.bmk.gv.at/themen/klima_umwelt/klimaschutz/ufi/industrie.html
www.klimafonds.gv.at/call/fti-transformation-der-industrie-2024

[1] Source: klimadashboard.at/emissions, total emissions Austria 2022: 72.84 MT $CO_2$ eq, industry share: 34.44% based on the CRF dataset of the Environment Agency Austria (data including 2022, open data)

[2] Source: Study "Climate neutrality in Austria by 2040 – Contribution of Industry" (AIT, EVT, Energy Institute JKU Linz, Austrian Energy Agency)

[3] Source: IV, www.iv.at/-en-/Austrian-Industry/austrian-industry.html

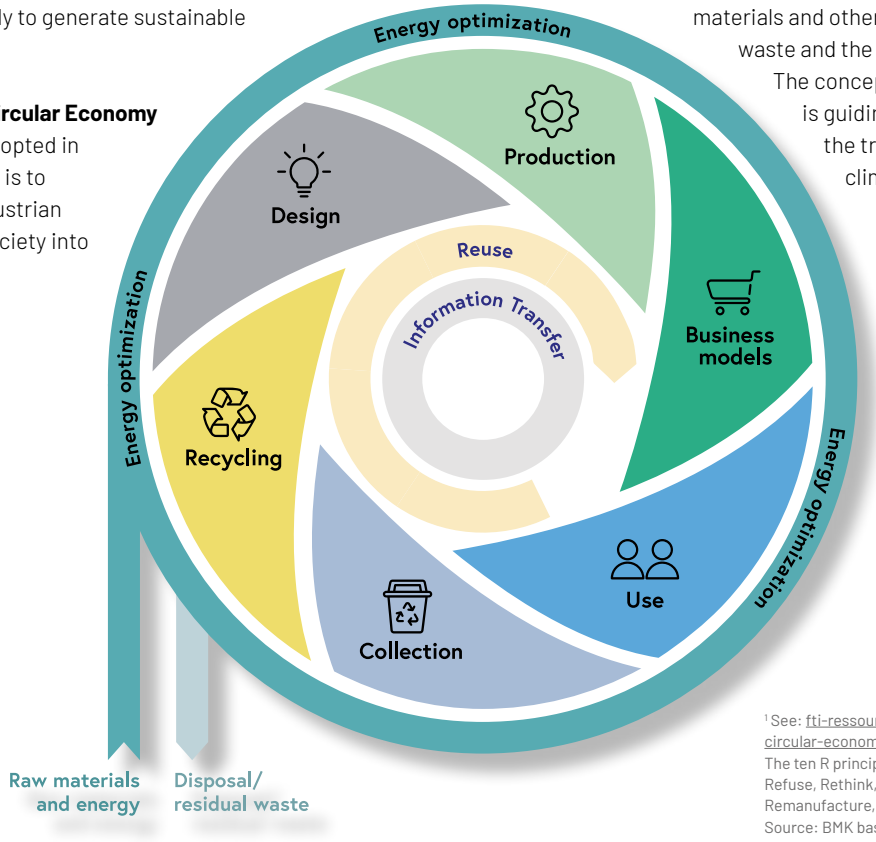
[4] **PROJECT PARTNERS:** Austrian Energy Agency, University of Leoben, Energy Institute at Johannes Kepler University Linz

# On the path to a circular economy

## Goals and activities

Every year, the earth's resources are becoming more and more scarce. Alongside the growing world population, one major reason for this is our linear economy, in which many valuable materials and resources are disposed of as waste. The concept of the circular economy is based on keeping the entire life cycle of resources and materials in mind. This means that all resources remain largely in economic circulation and are utilised productively to generate sustainable added value.

In Austria, the **Circular Economy Strategy** was adopted in 2022. The vision is to transform the Austrian economy and society into a climate-neutral, sustainable circular economy by 2050. The strategy is based on the ten principles of the circular economy.[1] These aim to reduce resource consumption and avoid pollution and waste while increasing added value and resource efficiency. The transformation is about closing the loop on resource flows in manufacturing, distribution and consumption processes and thus massively reducing the consumption of raw materials and other inputs, the volume of waste and the environmental impact. The concept of a circular economy is guiding industry on its path of the transformation to achieve climate-neutral production.




[1] See: fti-ressourcenwende.at/en/strategy/austrian-circular-economy-strategy/
The ten R principles of the circular economy: Refuse, Rethink, Reduce, Reuse, Repair, Refurbish, Remanufacture, Repurpose, Recycle, Recover.
Source: BMK based on Potting et al. (2017)

**BROCHURE –**
**CIRCULAR ECONOMY AND PRODUCTION TECHNOLOGIES**

This brochure provides insights into the highly diverse national funding activities to date in the area of RTI for circuar economy and production technologies. Competence centres and innovative funding projects from various RTI initiatives aimed at sustainable production and the transition to a circular economy are presented here. It also offers an outlook on how innovative projects are being driven forward in the interests of the resource transition.

### GOALS OF THE CIRCULAR ECONOMY STRATEGY

> Reduce resource consumption: by 2030, domestic material consumption (DMC) should be a maximum of 14 tonnes per capita per year; in 2018, this was 19 tonnes per capita per year. The material footprint (MF) should be a maximum of 7 tonnes per capita per year by 2050, compared to 33 tonnes per capita per year in 2017.
> Increase resource productivity by 50% by 2030
> Increase the circularity rate to 18% by 2030
> Reduce private household consumption by 10% by 2030

More than 600 specific measures and activities were developed in collaboration with numerous stakeholders for seven transformation priorities: the construction industry and structural infrastructure; mobility; plastics and packaging; the textile industry; electrical and electronic equipment; information and communication technologies (ICT); biomass, waste and secondary resources.
www.bmk.gv.at/en/topics/climate-environment/waste-resource-management/ces.html

An RTI focus on the circular economy was firmly established in the BMK in 2021 and further expanded in 2024 to include production technologies in order to accelerate research into innovative technologies and solutions for the resource transition and, in particular, to convert the Austrian production landscape to a circular economy. In line with common goals in research, technology and innovation, a variety of measures are being implemented here that are anchored in various national funding initiatives and contribute to the mission of "Austria on the path to a sustainable and circular society".

fti-ressourcenwende.at/en/
fti-ressourcenwende.at/de/newsletter

# DIGITECH4CE

## Key digital technologies for circular production

The study DigiTech4CE[1] analysed key digital technologies for the circular economy in the context of discrete industrial production. The investigation was organised around the questions: Who are the stakeholders involved in the circular economy? What is the added value for producers and what are the competitive disadvantages of circular production? What regulatory framework is needed? What role does digitalisation play in this transformation and what are the key technologies? Digitalisation is an important tool for the circular economy because, ideally, not only the material flows but also the information flows are managed in a cycle.

Digital technologies enable data exchange, promote transparency and collaboration between different stakeholders and support the development of new business models as well as product and process innovations, among other things.
Digital applications are needed for tasks such as monitoring and location tracking services, tracking usage cycles and performance data, predictive maintenance, failure prediction and optimised spare parts management.

The study presents a technology catalogue that describes and classifies 15 key digital technologies by means of technology profiles. These include Industrial IoT, Artificial Intelligence, Distributed Ledger Technology and Cyber Security. The various technologies are assigned to different information categories, stakeholders and circular strategies.

Adapted to the needs of Austrian industry, the study identifies fields of activity and derives recommendations for action to promote circular production in Austria.

nachhaltigwirtschaften.at/en/projects/circular-economy/digitech4ce.php

[1] **PROJECT PARTNERS:** BRIMATECH Services GmbH (project management), Linz Centre of Mechatronics GmbH

**The study was carried out as an R&D service as part of the RTI initiative Circular Economy and Production Technologies.**

*Recycling of coffee capsules, photos: Seccon GmbH*

# $CO_2$-NEUTRAL WASTE RECYCLING

## with waste heat from industrial plants

Recycling secondary raw materials from waste is generally a complex as well as energy- and cost-intensive process. The Upper Austrian greentech start-up Seccon has recently developed an innovative process to extract high-quality raw materials from waste in a $CO_2$-neutral way with virtually no loss of quality. Plus, it makes use of waste heat from existing industrial plants. The patented process is based on a thermochemical process in which organic impurities in the input material are separated out by incineration or pyrolysis. Purified, recyclable mineral or metallic raw materials are recovered in this way. In order to achieve the high temperatures required for the process, hot exhaust gases from an upstream industrial process – such as a cement plant – are to be used in future. This makes the new process particularly energy-efficient and $CO_2$-neutral.

### TRIAL OPERATION WITH SCIENTIFIC SUPPORT

Seccon's first "small-scale demonstrator" was installed at the Pettenbach technical centre in Upper Austria at the end of 2023. As part of the NEFI project "TCP-to-Industry"[1], the process is being studied in trial operation with scientific support from the Montanunivertität Leoben. Among other things, coffee capsules are being recycled in the test facility to recover aluminium and biofertiliser. Other input materials can also be examined here on an industrial scale as the new technology makes it possible to purify and reprocess many different materials (from composites and plastics to sewage sludge or aluminium cans, etc.) in one and the same unit.

The project incorporates an investigation of the process itself as well as its combination with an industrial operation, i.e. the supply of waste heat from upstream production. Another goal is to analyse whether the pyrolysis gas produced in the recycling process can subsequently be used in the industrial production process in order to save primary energy.

### WORKING TOWARDS A LARGE-SCALE PLANT AT A CEMENT WORKS

Based on the experience gained from the trial operation, the project team will develop an integration concept for a "large-scale demonstrator". The plan is to realise a large-scale plant at a cement works as a follow-up project.

Economic aspects of the concept are also being analysed. The innovative Seccon process offers economic benefits for the operators of industrial plants as well. It saves costs, consumes virtually no additional energy and offers the opportunity for further diversification and safeguarding of existing industrial sites. The new technology has great potential for widespread implementation because waste is generated everywhere and the waste heat from many industrial processes still remains unutilised.

### FOCAL POINTS OF THE TCP-TO-INDUSTRY PROJECT

- Characterisation of the input and output material fractions
- Concept for the integration of the small-scale demonstrator (SSD) into an industrial plant
- Operation and measurement of the SSD in an industrial plant
- Evaluation and improvement of the energy models
- Integration of industrial waste heat
- Integration concept for the large-scale demonstrator (KPC project)
- Quantification of multiplier effects and techno-economic analyses
- Analysis of the macroeconomic effect in Austria

www.nefi.at/en/project/tcp_to_industry

[1] **PROJECT PARTNERS:** Montanuniversität Leoben / Chair of Energy Network Technology (project management), OÖ Energiesparverband, Seccon GmbH, WSA – waste service GmbH

**The project is part of the NEFI (New Energy for Industry) model region, which is promoting the decarbonisation of industrial companies driven by innovation and technology development.**
www.nefi.at/en/

# International collaboration

## for the decarbonisation of industry

Austria is also working actively at an international level to accelerate the transformation of industry through research and technology development. Within the framework of the global Mission Innovation initiative, Austria has partnered with Australia to lead the **"Net-Zero Industries" mission** (NZI) since 2022. The aim is to mobilise investments to drive forward the development of key technologies for the complete decarbonisation of industry. The NZI is designed to ensure that reliable, cost-effective and emission-free production is possible by 2030 in high-temperature processes in the steel, cement and chemical industries. Over this period, the participating countries want to develop and trial solutions with a technology readiness level of TRL 6 or higher. The climate-neutral production methods are expected to be scalable and able to compete with established technologies by 2050.

mission-innovation.net/missions/net-zero-industries-mission

As part of the activities of the International Energy Agency, Austria participates in the technology programme **"Industrial Energy Technologies and Systems" (IETS)** and is leading the project **"Decarbonizing industrial systems in a circular economy" (Task 21)**. Energy conservation and reduced $CO_2$ emissions by means of the circular economy, especially directly through carbon circularity, alongside increased resource and energy efficiency through industrial symbiosis[1] represent two key approaches to decarbonising industry.

The **"Circular Carbon" subtask** deals, for example, with how carbon capture and utilisation (CCU) (i.e. the capture and subsequent use of $CO_2$) can be depicted in a life cycle analysis and how CCU technologies can be established effectively and efficiently in various industries. Among other measures, a survey is being conducted in Austria on how CCU is perceived by industrial companies. The **"Industrial Symbiosis" subtask** seeks to define the term scientifically and theoretically in order to identify best practice examples and derive suitable business models as a means to establish the concept more broadly. Further efforts are focused on identifying and comparing potential collaborations that span various subtasks and harness new value chains on the basis of Austrian and international projects.

nachhaltigwirtschaften.at/en/iea/technologyprogrammes/iets/
nachhaltigwirtschaften.at/en/iea/technologyprogrammes/iets/iea-iets-task-21.php

[1] Industrial symbiosis is a circular economy concept referring to the economic coupling of neighbouring enterprises in order to use resources more efficiently. This can include, for example, the exchange of materials, energy, water and waste materials or by-products as well as the joint utilisation of infrastructure, services and social facilities in order to generate competitive advantages.
[2] www.nefi.at/en/, www.wiva.at
[3] project-cactus.at

**"The term decarbonisation actually means that no $CO_2$ is released into the atmosphere. 'Carbon' remains a central topic, however: There are industries that manufacture carbon-based products and others that will continue to produce carbon as a residual material, despite the use of renewable energy sources. At the international level, we are discussing the extent to which CCU can be considered climate-neutral. We are also discussing the coupling of unavoidable carbon sources with carbon utilisation made possible by industrial symbiosis. The Austrian projects of the flagship regions NEFI and WIVA P&G[2] as well as the CACTUS project[3] are providing valuable insights in this area."**

SIMON MOSER,
ENERGY INSTITUTE AT JKU LINZ

*Photo: Energy Institute at JKU Linz*

voestalpine steelworks in Linz, photo: Peter Pauer Photo Linz

# Carbon-Cycle Economy Demonstration

## Lead project for a closed carbon cycle

Strategies for the decarbonisation of industry aim to avoid the production of $CO_2$ as far as possible in the future. However, in many branches of industry, such as steel production, carbon is still a technologically indispensable component of the production process. Innovative solutions are therefore being sought to capture and sustainably utilise the climate-damaging gas produced in these processes.

In the Carbon-Cycle Economy Demonstration (C-CED) lead project, which is being carried out by RAG Austria AG together with industrial and research partners[1], various $CO_2$ capture and utilisation technologies and their interactions are being researched for the first time. The aim is to establish a sustainable closed carbon cycle. $CO_2$ is captured on a pilot scale from various sources, e.g. from the exhaust gas streams of voestalpine steel production, and subsequently converted into valuable methane. The technical and scientific investigations are supplemented by techno-economic analyses.

### SUSTAINABLY UTILISING $CO_2$

The concept envisages pumping the captured $CO_2$ in a concentrated and compressed state together with green hydrogen into natural underground storage facilities whose original content, natural gas, has been extracted. At a depth of around 1,000 metres, microorganisms living there combine the two gases in a biological process to produce renewable methane, the main component of natural gas. The sustainably produced methane can then be extracted and used in industry or to generate electricity. This once again produces $CO_2$, and the cycle begins anew.

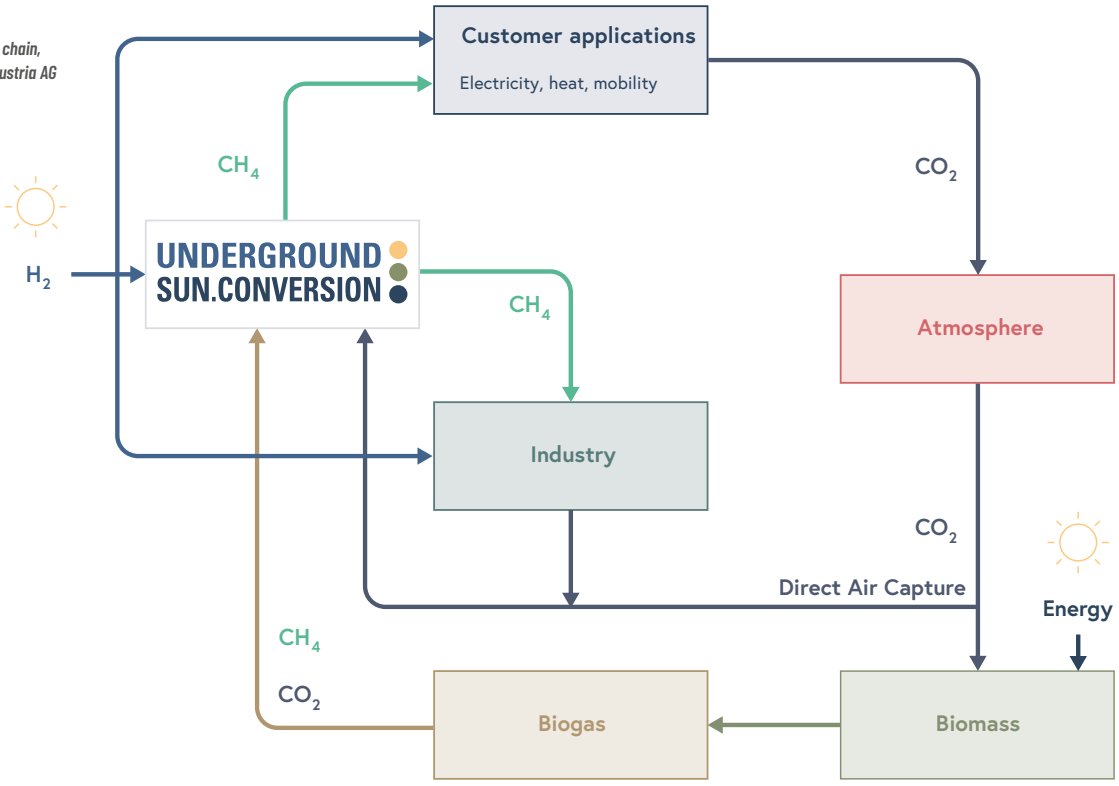
The technology developed by RAG Austria AG for the injection and storage of green hydrogen in underground storage facilities and the concept of subsurface methanation have already been tested in previous projects (see articles in eia issues 4/2023, 5/2021 and 4/2017). The aim is now to establish a closed carbon cycle economy. The C-CED project builds on the investigations of RAG's USC FlexStore project[2]. The inclusion of seasonal large-volume storage systems helps to create the flexibility required in a renewable energy system.

**FOCAL POINTS OF THE C-CED PROJECT**

Research and/or demonstration of $CO_2$ capture from real gases
- > Amine scrubber for $CO_2$ capture from steel industry waste gases
- > $CO_2$ capture via membrane separation process
- > Utilisation of $CO_2$ contained in biogas
- > Development of a new direct air capture (DAC) process

$CO_2$ utilisation through methanisation
- > Bioelectrochemical processes
- > Flexibilisation of geomethanation in RAG's "Underground Sun Conversion" project


Underground Sun Conversion, photo: RAG/Karin Lohberger Photography




*C-CED process chain, graphic: RAG Austria AG*

## voestalpine AMINE SCRUBBER FOR $CO_2$ CAPTURE

One source of $CO_2$ in the C-CED project is exhaust gases from the voestalpine steelworks in Linz. A pilot plant for $CO_2$ capture was put into operation at this site in the first half of 2023. The flue gas containing $CO_2$ is extracted directly from a power plant chimney and fed into the separation plant, the eighteen-metre-high amine scrubber.

In the first step, the $CO_2$ forms a chemical compound with the amine washing solution. In a second step, the washing solution containing the $CO_2$ is heated. The $CO_2$ then leaves the solution and can be recovered in almost pure form as a product. The washing solution is continuously circulated without being used up. The $CO_2$ obtained in this way is then bottled and used in the project for further investigations into geomethanisation.

Amine scrubbers are state of the art in the natural gas and biogas industry. They have hardly been researched in steel production to date. The goals of the C-CED project include acquiring operating experience, investigating new absorption media and optimising processes.

🔗 www.wiva.at/project/c-ced/?lang=en

*The plant uses an amine process to separate carbon dioxide from the flue gases resulting from iron production, photo: voestalpine Stahl GmbH*

[1] **PROJECT PARTNERS**: RAG Austria AG (project coordination); ACIB GmbH; Axiom Angewandte Prozesstechnik GmbH; Energie AG Upper Austria; Energy Institute at JKU Linz; K1-MET GmbH; University of Natural Resources and Life Sciences, Vienna, Department IFA Tulln Institute of Environmental Biotechnology; WIVA P&G; voestalpine Stahl GmbH

2 www.rag-austria.at/en/research-innovation/carbon-cycle-economy-demonstration.html

**The project is being carried out as part of the Hydrogen Initiative Energy Flagship Region Austria Power & Gas (WIVA P&G).**
www.wiva.at

# Biomass as an energy carrier

## for paper and pulp production at Sappi/Gratkorn

*Paper machine 11, photo: Sappi Austria GmbH*

*Wood chip storage, photo: Sappi Austria GmbH*

The Gratkorn plant near Graz is the largest production site within the Sappi Europe industrial group. The Styrian paper and pulp mill produces 950,000 tonnes of top-grade, multi-coated paper every year, which is used for high-quality publications all over the world. The company also produces 250,000 tonnes of completely chlorine-free bleached pulp per year. Around 95% of the plant's production is exported.

The production of paper and pulp is an energy-intensive process, which in the past was partly dependent on coal at the Gratkorn plant. As part of Sappi Europe's decarbonisation roadmap, a power plant boiler was converted in 2021/22. The former coal-fired boiler 11 has since been operated with biomass and natural gas. The modernisation has made it possible to reduce the $CO_2$ footprint by almost 30%.

The biomass used by Gratkorn comes from various sources. Wood residues from pulp production as well as black liquor, which is a by-product of pulp production, are used to generate energy. Work is currently underway to further increase the proportion of biomass. Residual materials from regional forestry and the forest industry value chain are to be utilised as biomass sources. The aim is to use only renewable and $CO_2$-neutral fuels at the Gratkorn site in the long term.

### EXPANSION OF THE INFRASTRUCTURE FOR THE USE OF BIOMASS

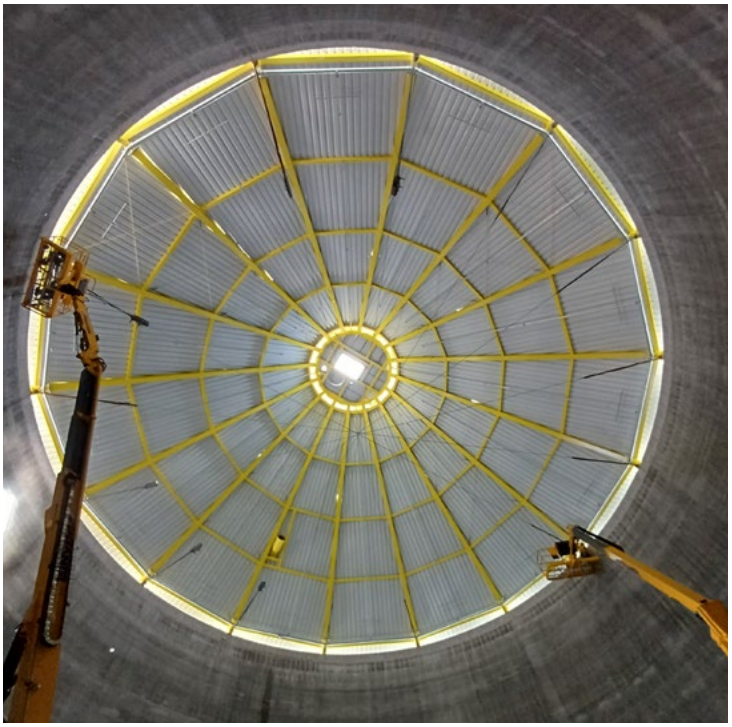
As part of the EU-funded BioFit Step 1 and Step 2 projects[1], the company is now taking the next step on the road to decarbonising production. The infrastructure is to be expanded to increase the capacity for handling the delivery, sorting and processing of larger quantities of biomass. The increased utilisation of renewable energy sources requires improved biomass handling at the plant. Decentralised interim storage terminals are also needed in the surrounding regions.

The aim of the BioFit project is to be able to provide approx. 300,000 tonnes of biomass per year for boiler 11. To achieve this, the logistics for delivery by rail and lorry and for transporting and handling the biomass at the plant must be set up. A double-digit million euro sum is being invested at the Gratkorn site.

[1] BioFit Step 1 and Step 2 are being funded as part of the Climate and Energy Fund's "Transformation of the Economy" programme. The funds come from the European Union's Recovery and Resilience Facility (RRF), the centrepiece of NextGenerationEU, and are anchored in the Austrian Recovery and Resilience Plan 2020-2026 (ÖARP). www.klimafonds.gv.at/transformation-der-wirtschaft-gefoerderte-projekte

Funded by the European Union
NextGenerationEU

*Biomass silo (exterior view), photo: Sappi Austria GmbH*



*Biomass silo (interior view), photo: Sappi Austria GmbH*

## REALISATION IN TWO STEPS

The biomass handling system is being developed as part of BioFit Step 1. This includes the delivery and processing of the biomass at the plant, storage in two silos of 10,000 $m^3$ each and in an open storage area of 5,000 $m^2$ as well as the installation of biomass conveyor belts.

At the centre of BioFit Step 2 is the implementation of the railway infrastructure, i.e. the construction of the unloading tracks and a container terminal. In addition, a third silo with a capacity of 10,000 $m^3$ is to be built for biomass storage, and a photovoltaic system is to be installed.

## OUTLOOK

Commissioning of the biomass reception and processing facilities and the first silo is planned for autumn 2024. The entire infrastructure is to be realised by mid-2025. The project thus lays the foundations for reducing the use of natural gas at the Gratkorn plant and significantly increasing the proportion of biomass. This aims to reduce $CO_2$ emissions by a further 100,000 tonnes per year, which corresponds to a reduction in the $CO_2$ footprint of around 25%. Together with the modernisation of boiler 11, this amounts to a total of approx. 55%. The company also aims to sustainably reduce energy costs and its dependence on international energy markets by switching to regionally available biomass.

www.sappi.com/gratkorn-mill

**”Sappi’s decarbonisation roadmap shows the path we need to take towards a carbon-neutral future. With this project, we are creating the necessary infrastructure at one of Austria’s largest biomass energy plants in order to continue to consistently replace fossil fuels. The associated expansion of the rail terminal will also reduce the burden on road infrastructure and thus the environment. With BioFit, we can save a further 100,000 tonnes of $CO_2$ a year.“**

PETER PUTZ,
MANAGING DIRECTOR OF SAPPI AUSTRIA GMBH

*Photo: Sappi Austria GmbH*

You can also visit us at:

www.energy-innovation-austria.at

## INFORMATION

**DigiTech4CE – Key digital technologies for circular production**
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