

C-CED



Carbon-Cycle Economy Demonstration

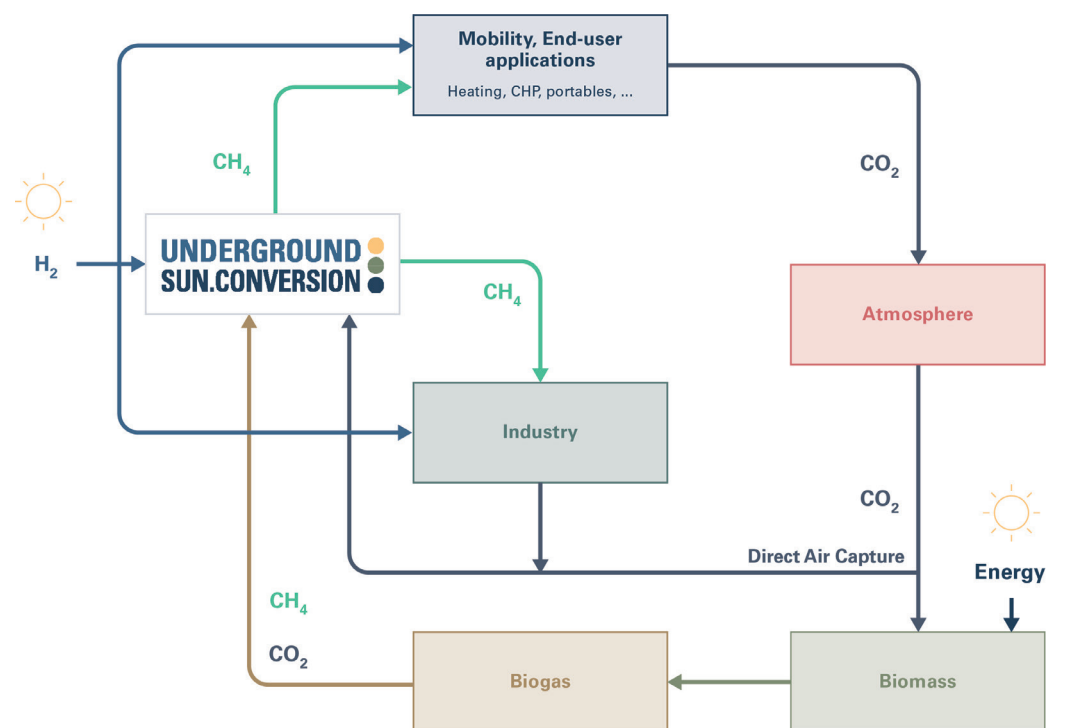
C-CED Carbon – Cycle Economy Demonstration

Establishing a sustainable and closed carbon cycle and thus making CO₂ usable as a raw material and storable as methane - this is being tested in the “Carbon - Cycle Economy Demonstration project” (C-CED). The technical-scientific investigations are supplemented by techno-economic analyses.

Various CO₂ capture and utilization technologies will be combined in the C-CED. For example, CO₂ is to be extracted on a pilot scale from various sources such as the air, exhaust gases from the steel industry or biogas and subsequently made storable by converting it into valuable, renewable methane (methanation).

Methane as a carbon-containing energy carrier, but also as a raw material, plays an important role in many industrial processes. From today's perspective, it is hardly conceivable to turn away completely from methane, even though CO₂ is often produced in these processes. This is because gaseous energy sources are characterized by a high energy density and can be stored excellently in the existing infrastructure, the former underground natural gas deposits.

Based on these considerations, it seems sensible to establish a carbon cycle economy that, with the inclusion of seasonal large-volume storage, at the same time creates the flexibility that we urgently need due to the switch to renewable energy production. In this way, energy will be available in the energy system of the future when it is needed.



The C-CED project is working on two main research areas:

1. research and demonstration of CO₂ capture from real gases:

- Amine scrubbers for CO₂ capture from steel industry waste gases.
- CO₂ separation by membrane separation processes
- Utilization of CO₂ contained in biogas
- Development of a novel Direct Air Capture (DAC) process

2. CO₂ utilization by methanation

Research and demonstration is carried out on the following technologies:

- Bioelectrochemical processes
- Flexibilization of geo-methanation from the Underground Sun Conversion project.

Project coordination: RAG Austria AG

Project leader: Stephan Bauer (stephan.bauer@rag-austria.at)

Project partners:



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