

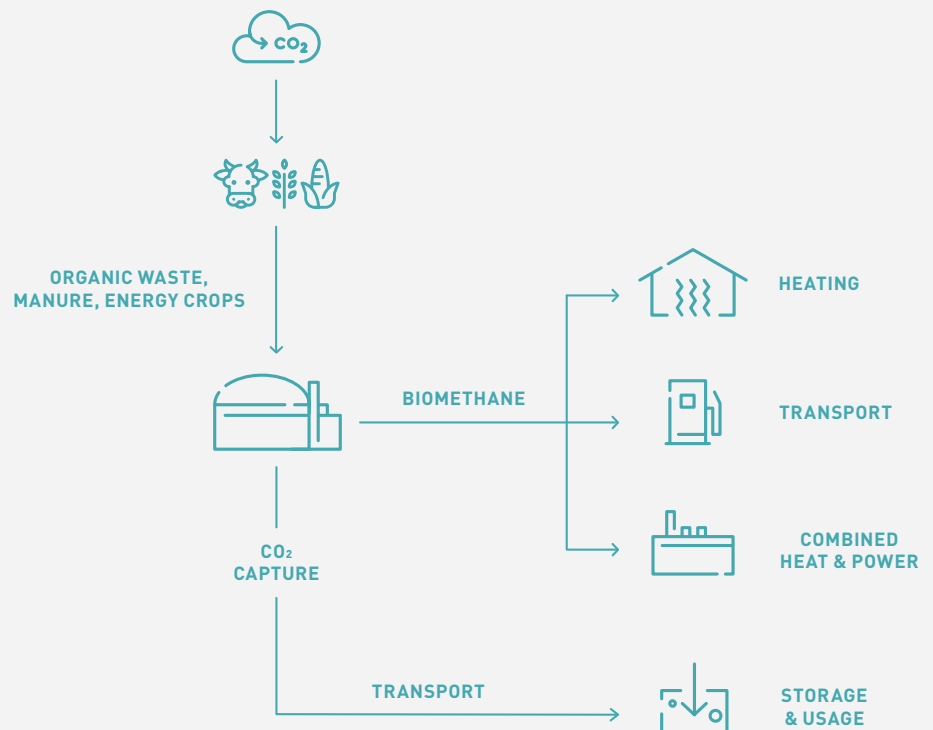


CARBON REMOVAL TODAY
**NEGATIVE EMISSIONS MADE
IN GERMANY**

BIOENERGY WITH CARBON CAPTURE AND STORAGE

The removal of carbon from the atmosphere is imperative to mitigate global warming. Carbon Capture and Storage (CCS) or Usage (CCU) at biomethane production sites hold untapped potential for carbon removal and can begin to deliver value today. It is both cost-effective and quickly deployable. With bioenergy carbon capture and storage (BECCS) we can make a significant impact for the climate by generating negative emissions right now.

THE PROCESS



HOW WE REMOVE CARBON FROM THE ATMOSPHERE

This is how our Carbon Dioxide Removal solution works: Plants absorb CO₂ throughout their lifespan. During the fermentation process of organic matter within biogas and biomethane production, the CO₂ is separated as an off-gas stream, which is subsequently liquified for transport. The CO₂ can be either utilized as a substitute to fossil CO₂ – for example in fire extinguishers or the beverage industry – or it can be permanently stored, including in demolished concrete or empty gas fields, generating negative emissions.

THE POTENTIAL: 55 MILLION TONS OF CO₂ REMOVED FROM THE ATMOSPHERE

- 2.5 million tons of CO₂ can be captured out of the atmosphere every year leveraging already existing biomethane plants in Germany.
- Up to 55 million tons of negative emissions can be achieved in Europe by 2030 aligning with the EU-goal of reaching 35 bcm of biomethane production by 2030.
- BECCS is the most affordable and scalable technology to create negative emissions right now.



LIGHTHOUSE PROJECTS: NEGATIVE EMISSIONS MADE IN GERMANY

FROM ORGANIC WASTE TO CARBON REMOVAL: SEQUESTRATION IN DEMOLITION CONCRETE

Drawing on our extensive expertise in the biomethane market, we strive for cross-industry innovation. Together with our two partners, Swiss-based neustark and German-based MVV, we are already actively sequestering CO₂ in Germany. In Dresden, MVV operates a biomethane plant processing the city's organic waste. The CO₂ captured is liquified for transport to Berlin. In Berlin, our partner neustark mineralizes the CO₂ in demolished concrete aggregate during a conventional concrete recycling process. In a cutting-edge procedure, the CO₂ from Dresden is injected and permanently bound to the concrete. Through negative emissions, our approach empowers two processes that are already environmentally friendly to become even greener.

THE BIOMETHANE PLANT OF THE FUTURE

At our biomethane plant in Reimlingen, Bavaria, our pioneering solution is set to remove about 9,000 tons of CO₂ from the atmosphere every year. We are scaling this solution to other plants throughout Germany, making a meaningful contribution to combating climate change.

In Reimlingen, another innovation enhances our plants' flexibility: The Reverion technology. An advanced power plant based on solid oxide fuel cells doubles the existing rate of electricity conversion. With its integrated reversibility, it can supply hydrogen and synthetic methane through electrolysis during periods of surplus electricity in the grid. This stored energy is especially important on days without sun and wind, as it can be electrified easily. Our joint Reimlingen project won the 2022 innovation prize for sustainable production from the German gas industry.



WHO WE ARE

As a biomethane supplier, service provider, and consultant in Europe, Landwärme is committed to achieving negative carbon emissions. By capturing biogenic CO₂ streams along the biomethane value chain, Landwärme establishes a pathway for these streams into storage. Handling project management, scaling, and financing, Landwärme leverages extensive expertise in the biomethane market and a vast network of partners and suppliers.

Landwärme GmbH
Ungererstr. 40
80802 München
landwaerme.de



Caroline Braun
Team Lead Business Development
& Carbon Removal
T +49 | 89 | 277 822 300
business-development@landwaerme.de