

## **CAPTUS Demonstration Site 2: Carbon Capture Unit by Novis GmbH ready for deployment to Portugal**

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The EU-funded project CAPTUS has reached an important milestone in Demonstration Site 2: The Carbon Capture and Purification Unit developed by Novis GmbH has been successfully completed and is now ready for shipment to Portugal.

Housed in a modular container system, the unit has been fully installed and tested at Novis' facilities in Tübingen, Germany. In the coming weeks, it will be transported to the industrial site of HyChem SA, where it will serve as the first step of an integrated Carbon Capture and Utilisation (CCU) process.

At Demonstration Site 2, CAPTUS partners Novis GmbH, A4F – Algae for Future, and CIRCE – Centro Tecnológico are jointly demonstrating a complete value chain: from capturing CO<sub>2</sub> emissions from the chemical industry to cultivating microalgae and converting the resulting biomass into high-energy bio-oils via hydrothermal liquefaction.

### **From Emissions to Resource**

The Carbon Capture and Purification Unit developed by Novis captures CO<sub>2</sub> directly from industrial flue gas streams and purifies it to near 100% concentration. Instead of being released into the atmosphere, the captured carbon becomes a valuable feedstock for downstream biological and thermochemical processes.

A key feature of the technology is the use of an aqueous arginine solution to selectively bind CO<sub>2</sub>. Arginine, a naturally occurring amino acid commonly used as a food supplement, is environmentally safe and fully reused within the process. Through an electrodialysis step, the bound CO<sub>2</sub> is released in highly purified form, while the arginine is regenerated and recirculated – enabling an efficient and circular capture process.

The purified CO<sub>2</sub> will be supplied in a controlled manner to the algae cultivation unit operated by A4F in Portugal, where it will be converted into biomass. In subsequent processing steps, this biomass will be transformed into sustainable bio-oils with high energy content.

### **Ready for the Next Phase**

With the completion of the containerized capture unit, CAPTUS reaches a crucial implementation stage. The shipment to Portugal marks the transition from technology development to integrated system demonstration under real industrial conditions.





Ahead of the delivery, CAPTUS communication and dissemination partner Steinbeis Europa Zentrum visited Novis in Tübingen to document the technology and its development. During the visit, Novis CEO Thomas Helle provided insights into the system design and the role of carbon capture within the broader CAPTUS concept.

The upcoming installation at HyChem SA will enable the partners to validate the full CCU chain – demonstrating how industrial carbon emissions can be transformed from a climate challenge into a valuable resource for sustainable fuel production.

Watch the video including an interview with Novis CEO Thomas Helle [here](#).

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