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INSTITUTE OF ENERGY PROCESS ENGINEERING AND CHEMICAL ENGINEERING

PROFESSORSHIP OF ENERGY PROCESS ENGINEERING

GasUpgrade

Upgrading process gases with microwave plasma

CHALLENGE

Process gases, such as pyrolysis gases or biogas, often do not meet the requirements for material recirculation by means of subsequent synthesis due to low calorific values, high CO_2 content, or contamination with tars, higher hydrocarbons, or dust. They are therefore usually incinerated and often used to generate electricity and heat in combined heat and power plants. However, in many cases this method does not cover costs and also causes high CO_2 emissions.

OUR PROJECT

For the post-treatment of contaminated process gases (e.g., pyrolysis gas, biogas), a compact, transportable plant with a microwave plasma burner is being built as part of the project and tested in field trials. This produces high-quality synthesis gas, which can be processed into valuable substances such as methanol and returned to the material cycle. An ecological and economic comparison will be made between conventional recycling and the proposed solution.

PARTNERS

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FUNDING

Europäischer Regional Development Fund (ERDF), Sächsische Aufbaubank (FKZ: 100770480)

DURATION

June 2025 – November 2026 (1.5 years)

„Diese Maßnahme wird mitfinanziert mit Steuermitteln auf Grundlage des vom Sächsischen Landtag beschlossenen Haushaltes."

SACHSEN