



# BIG-GreenGas (FFG Branchenprojekt)



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Biorefineries  
 Syngas Platform Technologies

## Introduction

The ÖVGW has committed to combat climate change and plans to completely convert the natural gas network to climate-neutral gases by 2040.

## Scope of the project

The goal of the BIG - GreenGas project is to research new processes for upgrading biogenic residues into green gas, thereby enhancing the regional potential for climate-neutral gases in Austria.

## Key facts

Project duration: 01.04.2022 - 31.05.2025

Project volume: 1 200 000 €

Funding: The project BIG - GreenGas is funded by the FFG in the course of the call "Collective Research" under the project number F0999891022.

## Objectives

- Regional availability of selected waste materials suitable for the production of green gases and subsequent synthesis
- Costs of production chains for biogenic waste to SNG (synthetic natural gas) and biogenic waste to H<sub>2</sub> (hydrogen)

- Identification of any necessary changes to existing ÖVGW guidelines for the integration of SNG and H<sub>2</sub> into existing natural gas pipelines to utilize existing infrastructure
- Creation of a data basis for a new ÖVGW guideline for green gas produced through thermochemical gasification.

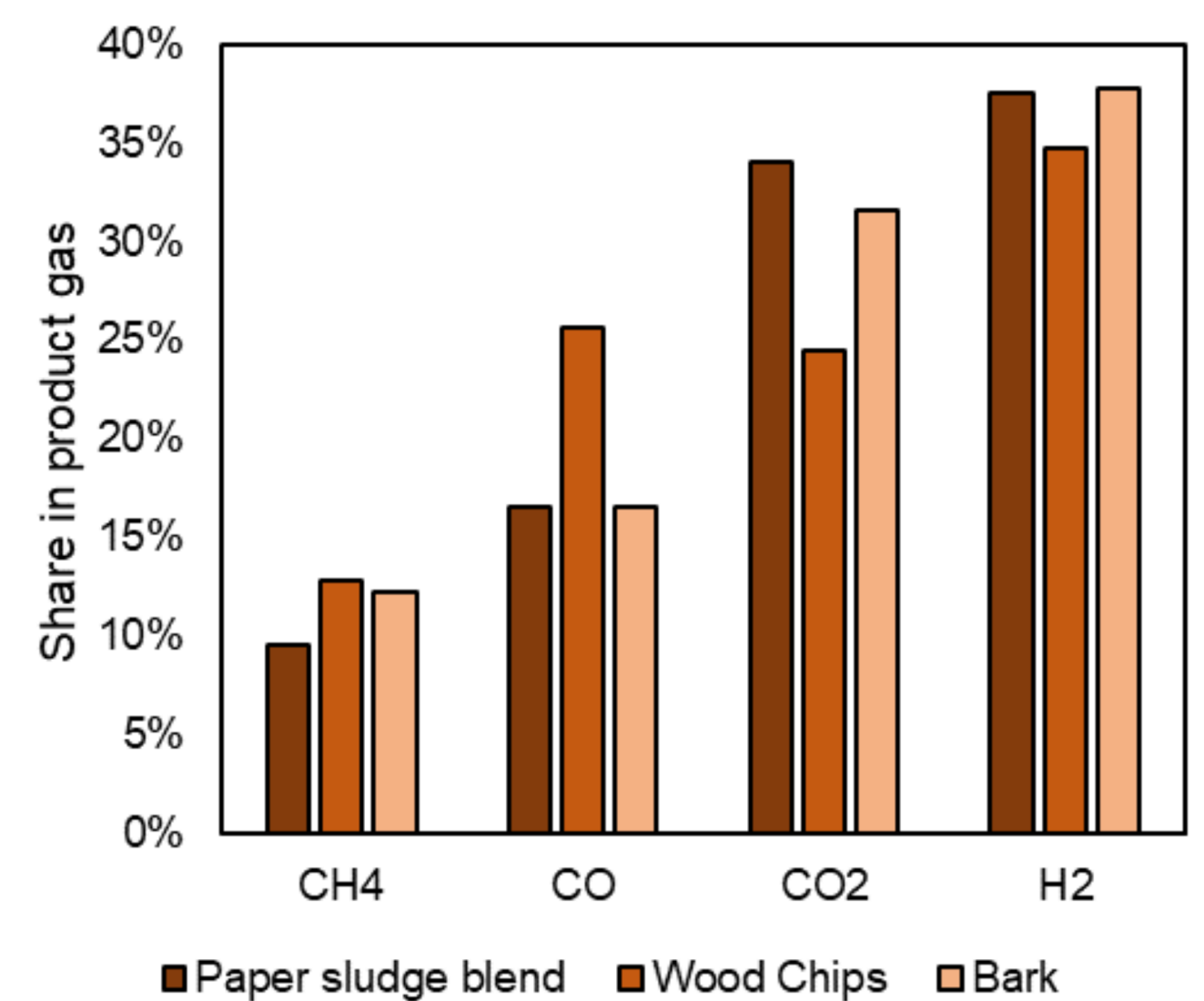


Figure 1: Product gas composition obtained for bark and paper sludge compared to wood chips

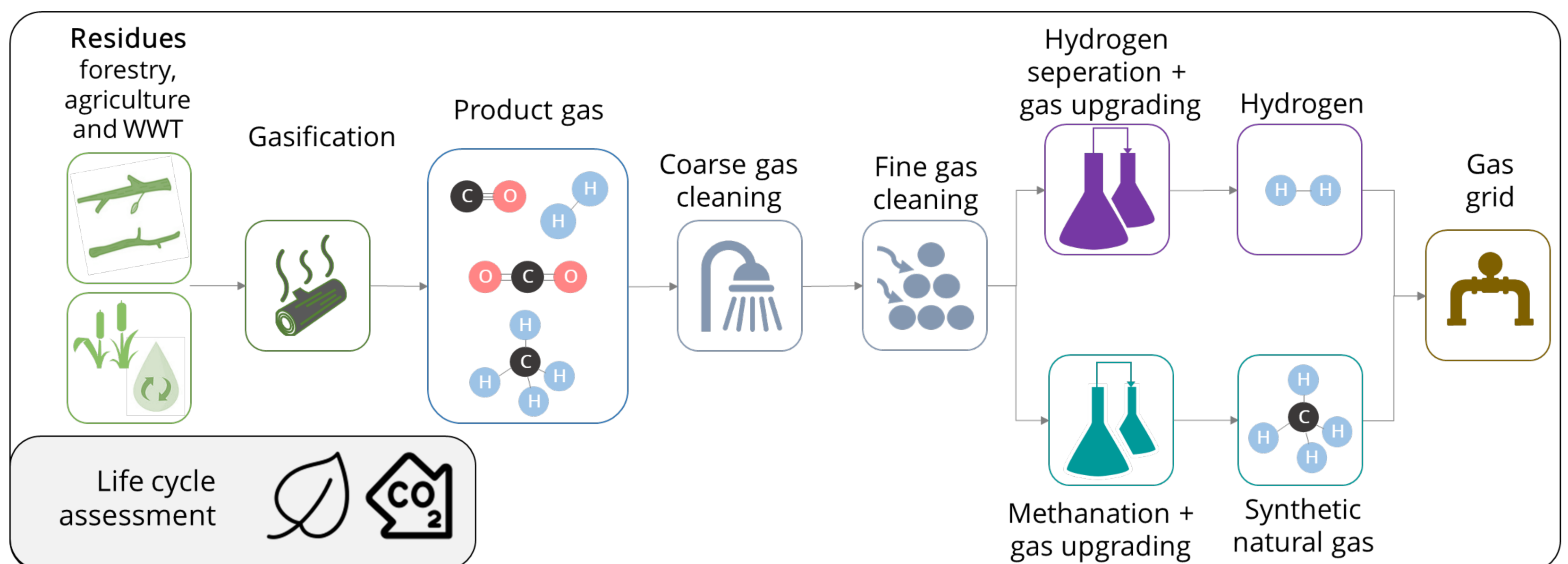


Figure 2: Project scheme - Production of SNG and H<sub>2</sub> from biogenic residues via gasification

## Results

- Technical biomass potential in Austria: 12 TWh of CH<sub>4</sub> per year, of which 55% is wood-based
- 15% of Austria's demand for green gases (SNG, H<sub>2</sub>) can be supplied through gasification
- Bark has the highest potential in Austria and was therefore chosen as the first feedstock for the demonstration at the 1 MW Syngas Platform Vienna
- Paper sludge from paper recycling was chosen as feedstock in the second project year. During the operation a H<sub>2</sub>:CO ratio of 2.3 could be reached
- The composition of product gas from both operations is comparable to product gas from wood chip gasification
- Operation of the methanation over 2 days showed promising results regarding raw SNG quality and catalyst

stability

- The main drivers of the process's global warming potential are electricity, the biodiesel used for tar removal and the amine used for CO<sub>2</sub> removal

## Outlook

In the final year of the project, the missing data (e.g., hydrogen production) will be generated to provide recommendations for an ÖVGW sustainability guideline for green gases. An additional campaign will be carried out and hydrogen separation from the stored paper sludge product gas will be performed. The results obtained will be incorporated into TEA and more detailed LCA evaluations, to determine the potential of gasification followed by synthesis for the Austrian gas network.

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