



IEA Bioenergy
Technology Collaboration Programme



Belgium Country Update

IEA Bioenergy T33 Meeting

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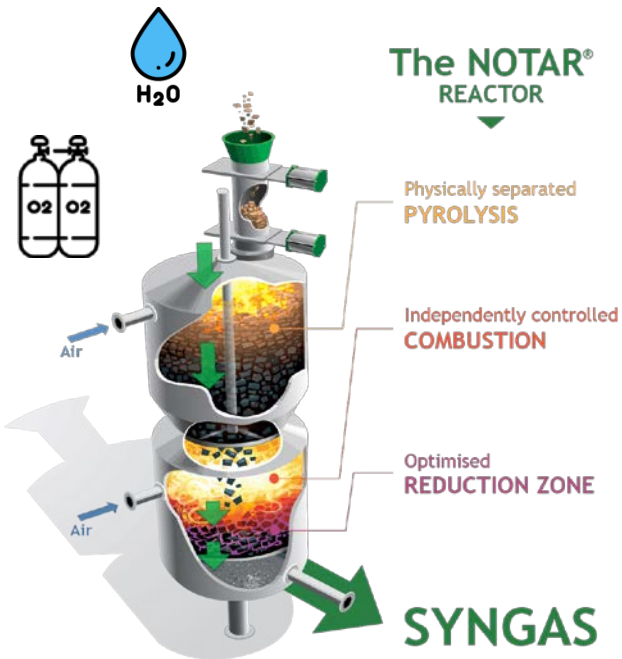
Lyon, October 2023

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State of gasification in Belgium

- Project at ECAM till 2025
- Project at UCLouvain just finished and no view on near-term perspectives
- Xylergy delivered one plant in Japan and it will be critical for their development

Enerbio - gasification with steam + oxygen



Experiments on a 200 kW_{th} pilot **two-stage downdraft gasifier**,

with **secondary** air combined with steam and/or replaced by oxygen

- Syngas **LHV** increased by +65% using oxygen improving energy density and AFT for CHP or high-temperature burner applications
- **Carbon conversion** enhanced by steam injection, and CGE improved by both steam and oxygen
- Oxygen raises the **oxidation zone temperature**, but steam compensates that effect
- Oxy-steam gasification yield more **class III and IV tar** but the amount remains very low (<120 mg/Nm³ excl. benzene)

Enerbio

- End of PhD thesis at UCLouvain
- Paper in Biomass and Bioenergy preprint available at : https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4463732
- Interests for full O2 research (in pyrolysis zone too instead of just oxidation) but no follow-up projects at the moment

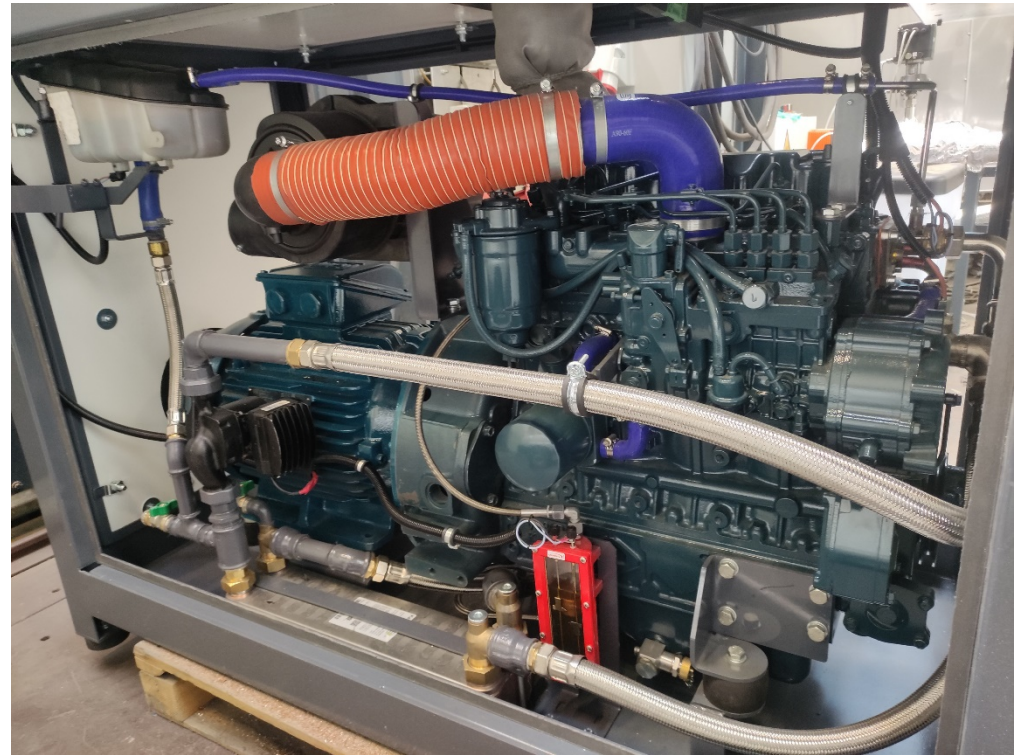
Project TTCogen

- Start of year 3 of 4
- Gasifier from CMD (IT)



Project TTCogen

- Cogeneration engine from Cogengreen partner (BE)
- ~~First experimental campaign expected Sept 2023~~
- First experimental campaign expected March 2023



BELGIUM – Mont-Godinne

First Belgian Hospital with Trigeneration renewable energy

Project Key Data	
Location	Mont-Godinne Hospital, Belgium
Owner	Mont Godinne Green Energy
Application	Combined Heat & Power for hospital energy consumption
Capacity	1.8 - 2 MW LHV 650 kWe
Technology	NOTAR®
Feedstock	Woodchips
Commissioning	Q1-2018
Running hours	7000 oh/y



Xylergy



- Engine reached end of lifetime (60 000 hours)
- New engine, same manufacturer (GE Jenbacher)
- Increased electricity efficiency to 37%
- Power increased to approx. 700 kWe
- Commissioning delayed - expected end 2023

Japan – Matsumoto

First NOTAR® in Asia !

Project Key Data

Location	Matsumoto, JAPAN
Owner	Air Water Inc
Application	Combined Heat & Power in a circular economy
Capacity	0,45 MW LHV 180 kWe
Technology	NOTAR®
Feedstock	Woodchips and Briquettes
Commissioning	Q3-2022
Running hours	-



- End of piping and assembling (transported in several parts)
- First tests in November 2023



Thank you for your attention

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