BIOMASS GASIFICATION: INNOVATIVE AND AMBITIOUS PROJECT FOR GREEN METHANE PRODUCTION

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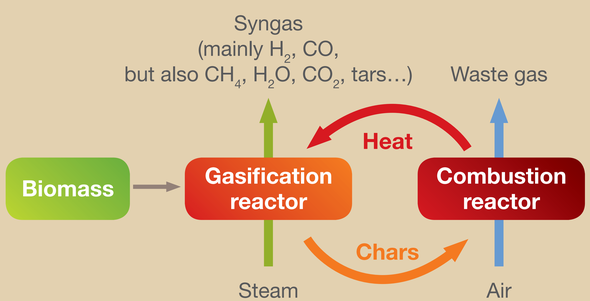
BIOMASS GASIFICATION: AN INNOVATIVE TECHNOLOGY WITH MULTIPLE STAKES

- **Environmental stakes (biomass: first renewable energy capacity)**
- **Geopolitical stakes**
- **Economic stakes**

PRINCIPLE OF GASIFICATION PROCESS



- **Principle of biomass gasification** = incomplete thermo-chemical oxidation, at elevated temperatures (> 700°C) with a gasification agent (air or steam), that produces fuel-gas

AN INNOVATIVE PROJECT COUPLING AN INDUSTRIAL PLANT AND A R&D PLATFORM

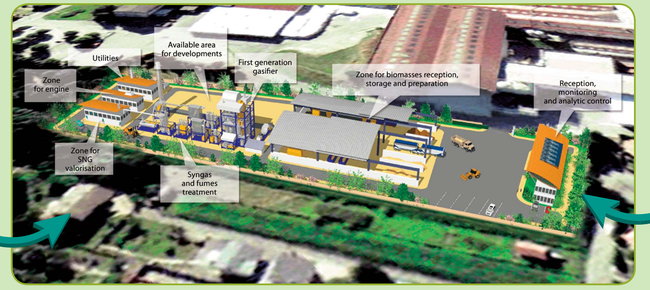
CéGaz: The first French industrial CHP plant based on biomass gasification

Different kinds of energy produced:

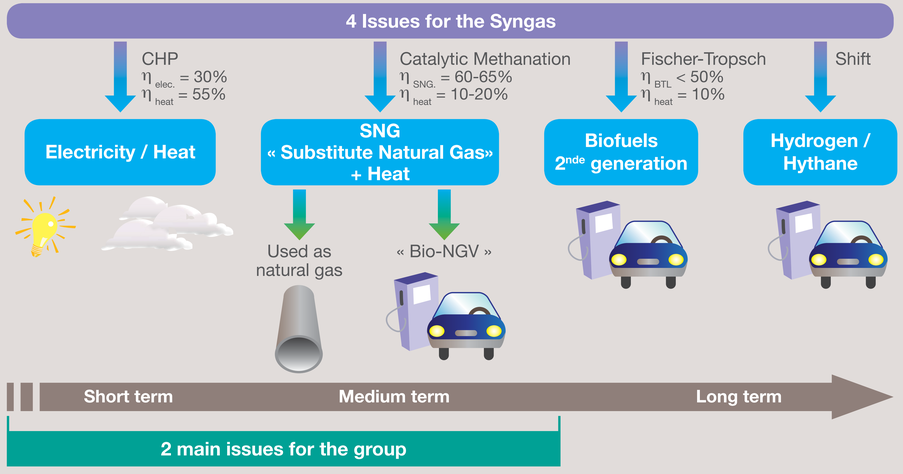
- Heat:
  - → vapour sold to a paper-maker: 10 t/h
  - → hot water for possible injection on heat grid: 2 MWth
- Electricity: 5,7 MWe

A collaborative R&D platform with demonstration plants on gasification and methanation

- Opened to partnership
- Project under construction



GASIFICATION: AN OPTIMIZED WAY FOR ENERGETIC VALORISATION OF BIOMASS WITH SHORT TO LONG TERM POSSIBILITIES



A R&D PROGRAM TO SOLVE TECHNICAL, ECONOMICAL AND ENVIRONMENTAL ISSUES

Biomass	▪ Determine biomass process flexibility ▪ Correlate biomass/syngas quality ▪ Evaluate pre-treatment interests on global chain
Gasification	▪ Improve efficiency and reliability ▪ Master and model reactions
Syngas	▪ Reduce tar production ▪ Clean/purify the syngas
Valorisation	▪ Develop methanation process ▪ Improve quality of syngas produced
Other issues	▪ Improve global efficiency ▪ Reduce costs

GDF SUEZ TARGETS

- **Bring innovative answers to solve climate issues and promote sustainable use of energies**
- **Promote development of green methane production through R&D platform opened to partnership**