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RESEARCH LAB ICHEC

Small scale biomass cogeneration (30 – 300 kW): Reaching market competitivity using a tar tolerant HCCI engine

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Context

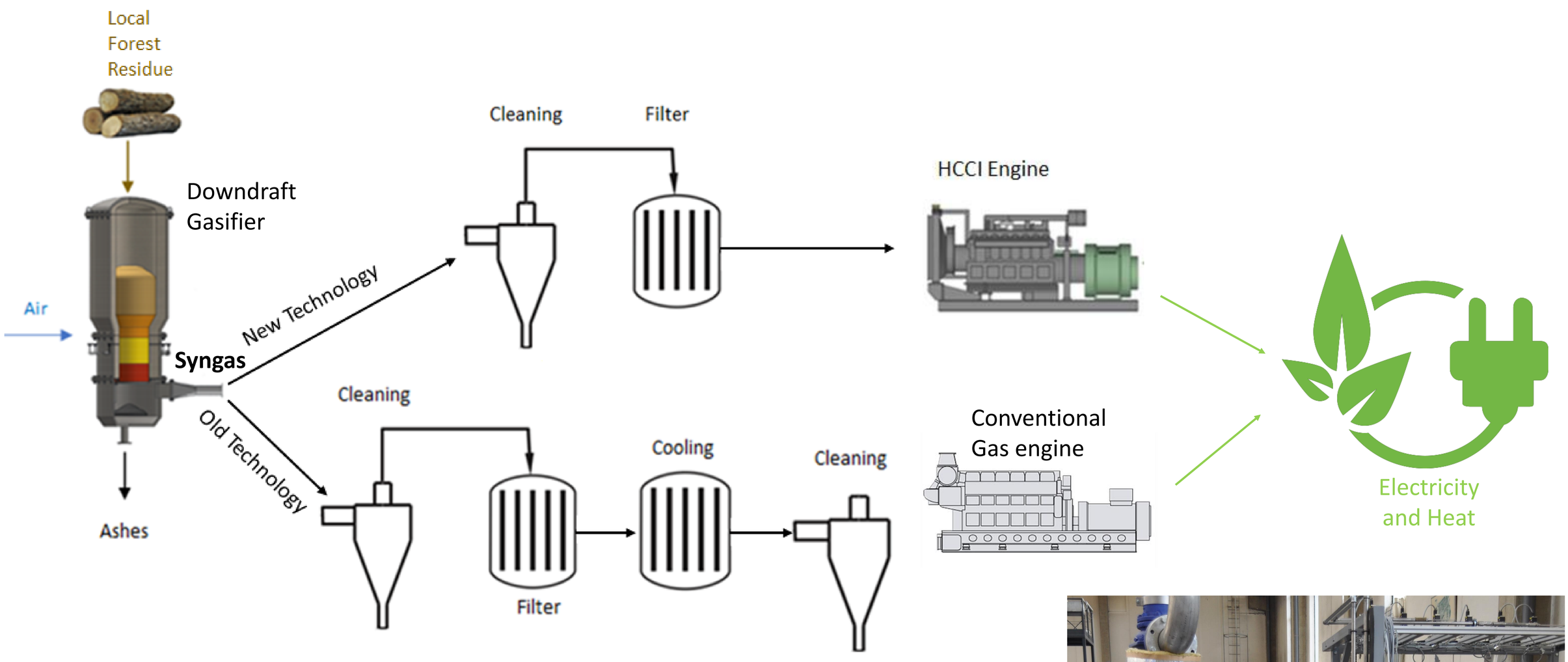
- Energy transition using local biomass residues
- Gasification produces tars
- Current biomass cogeneration is too expensive due to tar removal

Objectives

- Developing syngas HCCI combustion technology
- Avoiding tar cooling and cleaning process
- Cheaper energy from biomass

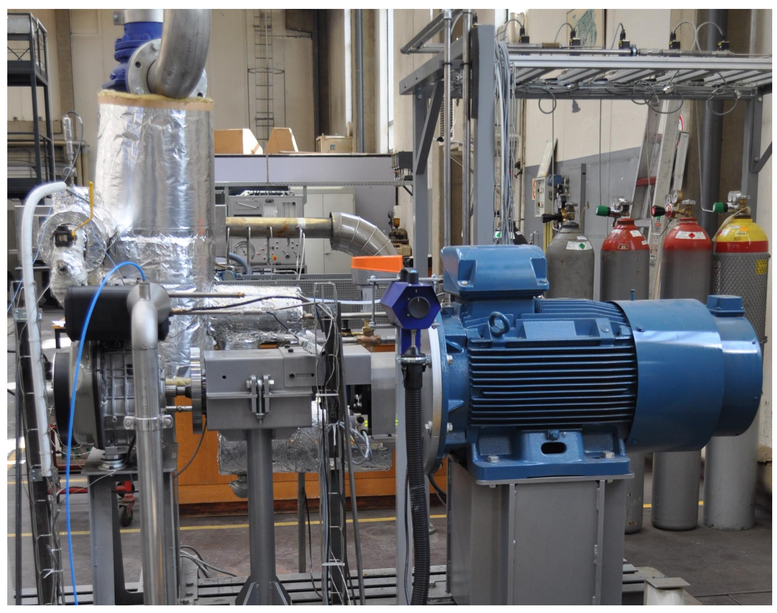
Perspectives

- HCCI engine is cleaner (No NO_X and PM) and more efficient (+5%)
- Cost reductions up to 30% (CAPEX & OPEX)



Some additional explanation …

Compared to gas engines, HCCI engines can admit higher intake temperatures, avoiding the need for syngas cooling and consequent tar condensation



Project time frame

2015 : Proof of concept : Bhaduri *et al.* https://doi.org/10.1016/j.fuproc.2016.10.011

2022-2025 : Win2Wal funding for an industrial demonstrator to be build at ECAM

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