IEA Bioenergy
Technology Collaboration Programme

Boosting biomethane supply with biomass gasification

Current state of play

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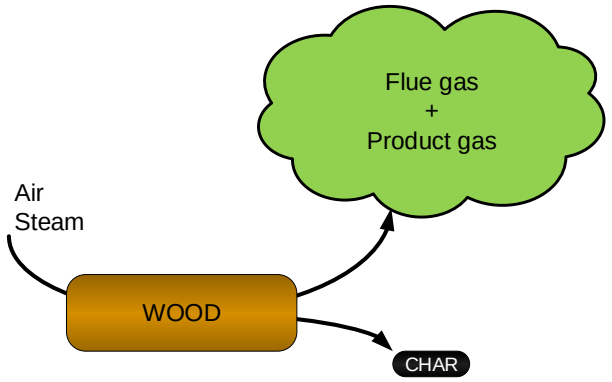
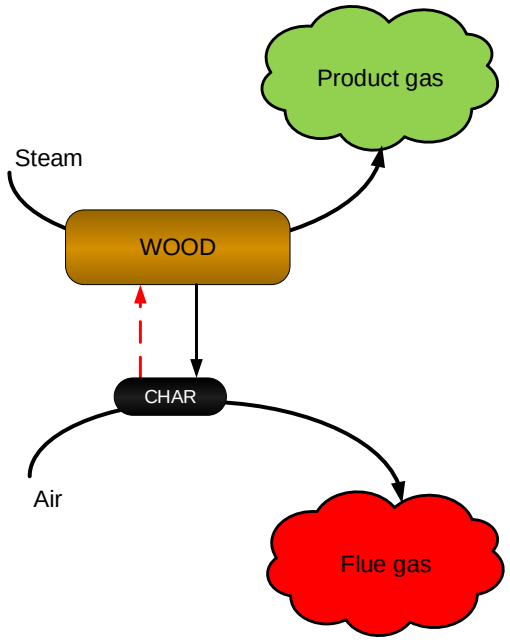
Gasification

Direct gasification



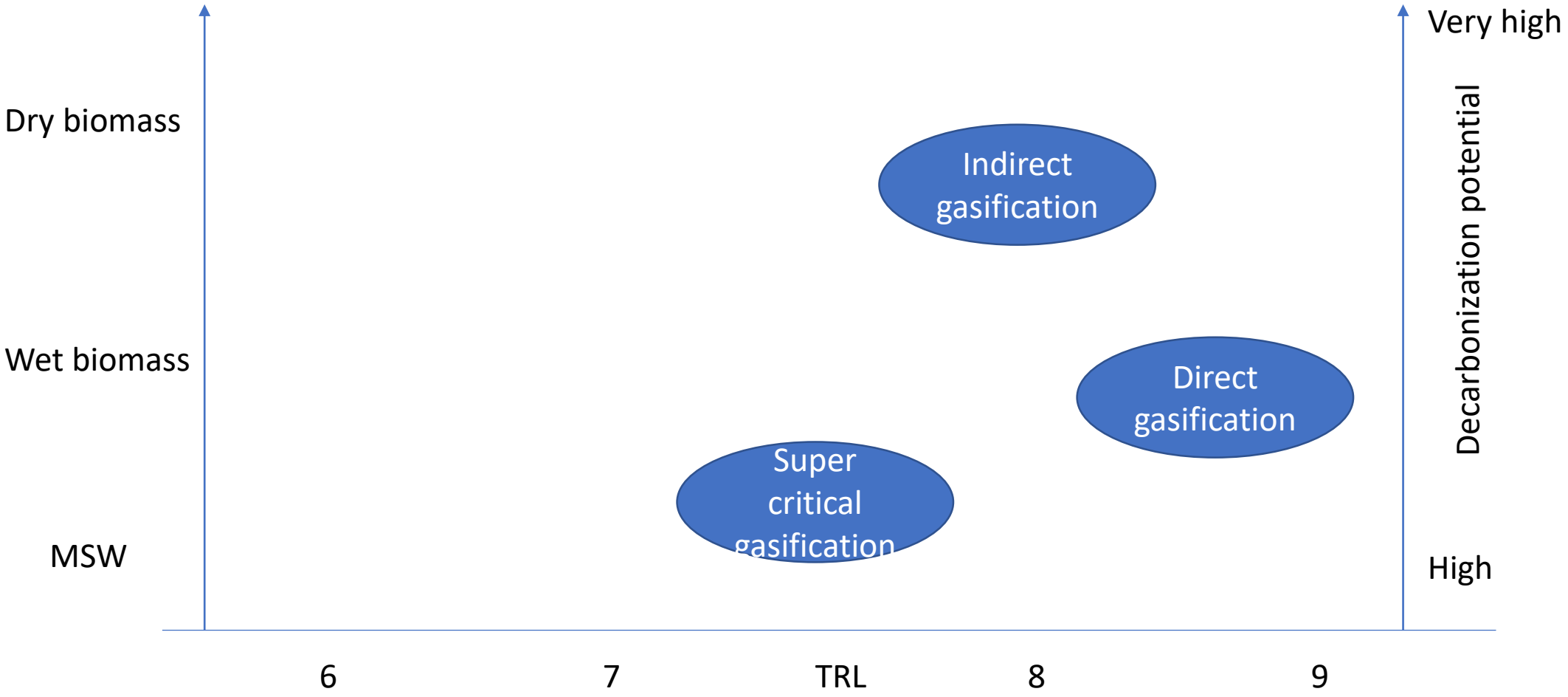
Heat + Feedstock (s) → Product (g) + Char (s)

Indirect gasification



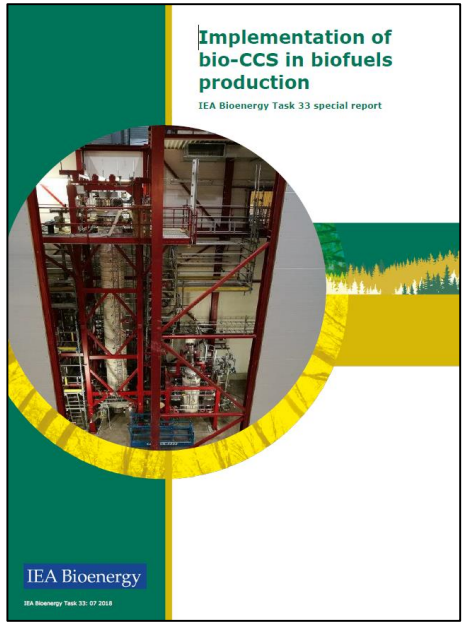
Heat + Feedstock (s) → Product (g) + CO_2 (g)

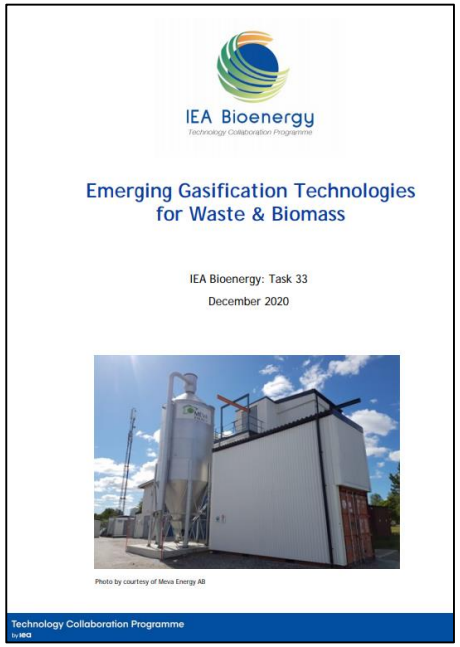
Gasification based systems towards SNG
- Possible value chains -



Gasification based systems towards SNG
- Projects / Suppliers / Promotor -

Ambigo (project)
GoBiGas (project)
Bio2Go (project)
ABSL (supplier)
SCW (supplier)
Torrgas (supplier)
Engie (promotor)
Gaya (project)
TUV and BEST (project)
Sungas Renewables (supplier)
Synova (supplier)
BEN (supplier)





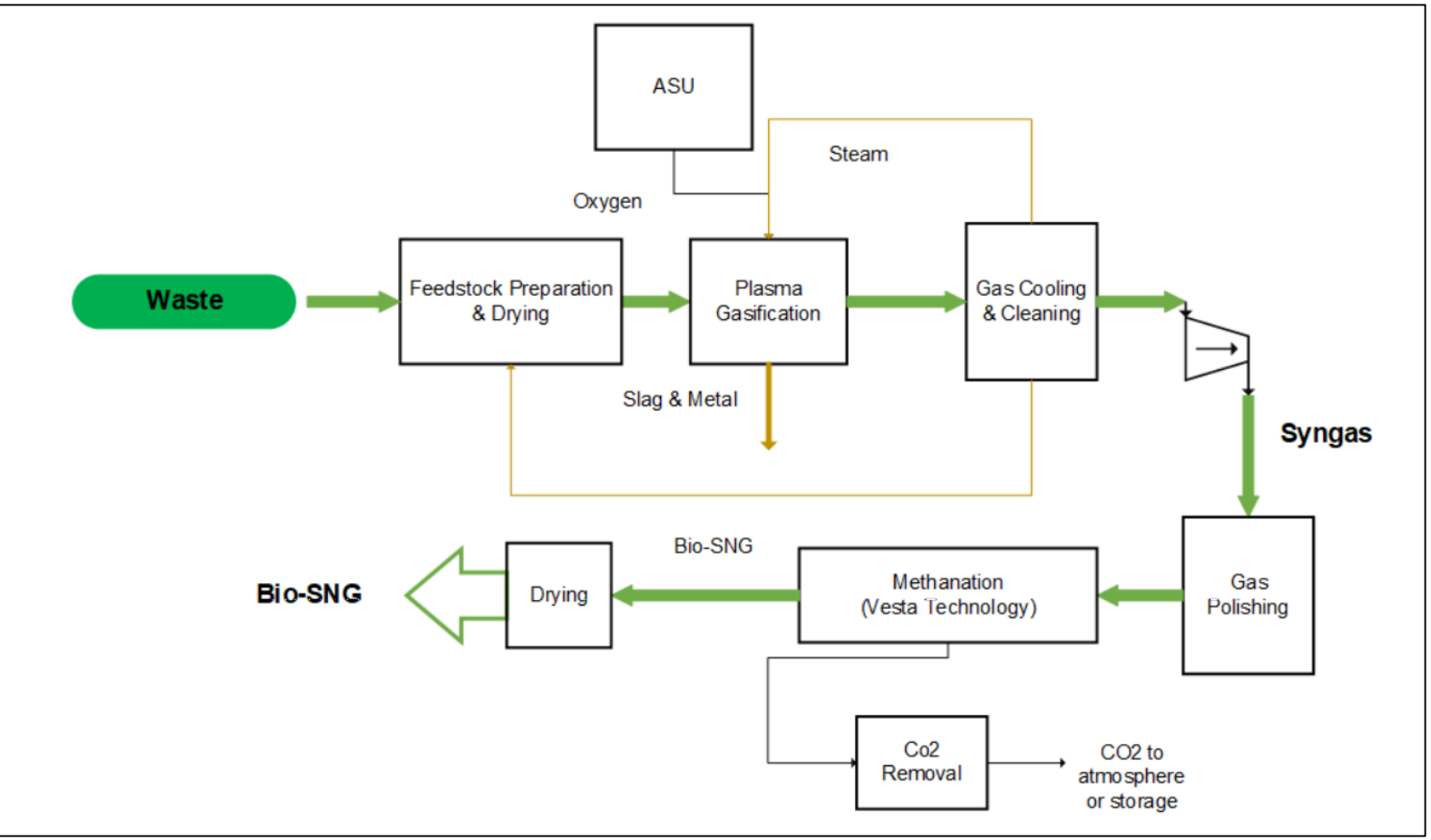
GoBiGas project

Technical Success

1. Gasifier
2. Combustor
3. Cyclone
4. Post Combustion Chamber
5. Product Gas Cooler
6. Product Gas Filter
7. RME-Scrubber
8. Adsorbent beds
9. Flue Gas Train
10. Lock hoppers
11. Compressor
12. Olefin hydrogenatio
13. H_2S Scrubber
14. Guard bed
15. Water Gas Shift Reactor
16. Pre-Methanation
17. CO_2 Scrubber
18. Methanation
19. Dryers

https://research.chalmers.se/en/publication/509030

ABSL project in Swindon



- RDF conversion to syngas using an oxygen steam FB plasma gasification
- 22 tpd of waste material converted into syngas
- Construction complete
- Commissioning ongoing

https://www.linkedin.com/company/advanced-biofuel-solutions-ltd/

Conclusions on SNG via Gasification

1. Several technologies being developed for the complete range of biogenic waste streams
2. Technically ready → Large scale applicable
3. SNG injected from woody biomass, from sludge and soon from RDF
4. Promising CO_2 balance → high potential to produce negative CO_2 emissions
   ALWAYS (if possible) INCLUDE CCS

Main challenges are:

- Poor governmental support with subsidies
- Large investments needed

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www.ieabioenergy.com