

SNG FOR HEAT PRODUCTION, THE DUTCH POINT OF VIEW

Bram van der Drift





gas platform, DongHae-1

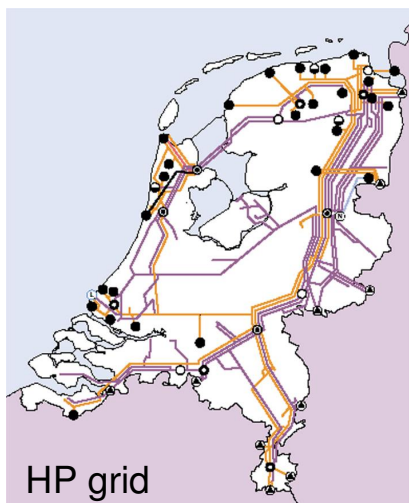


future gas platform?

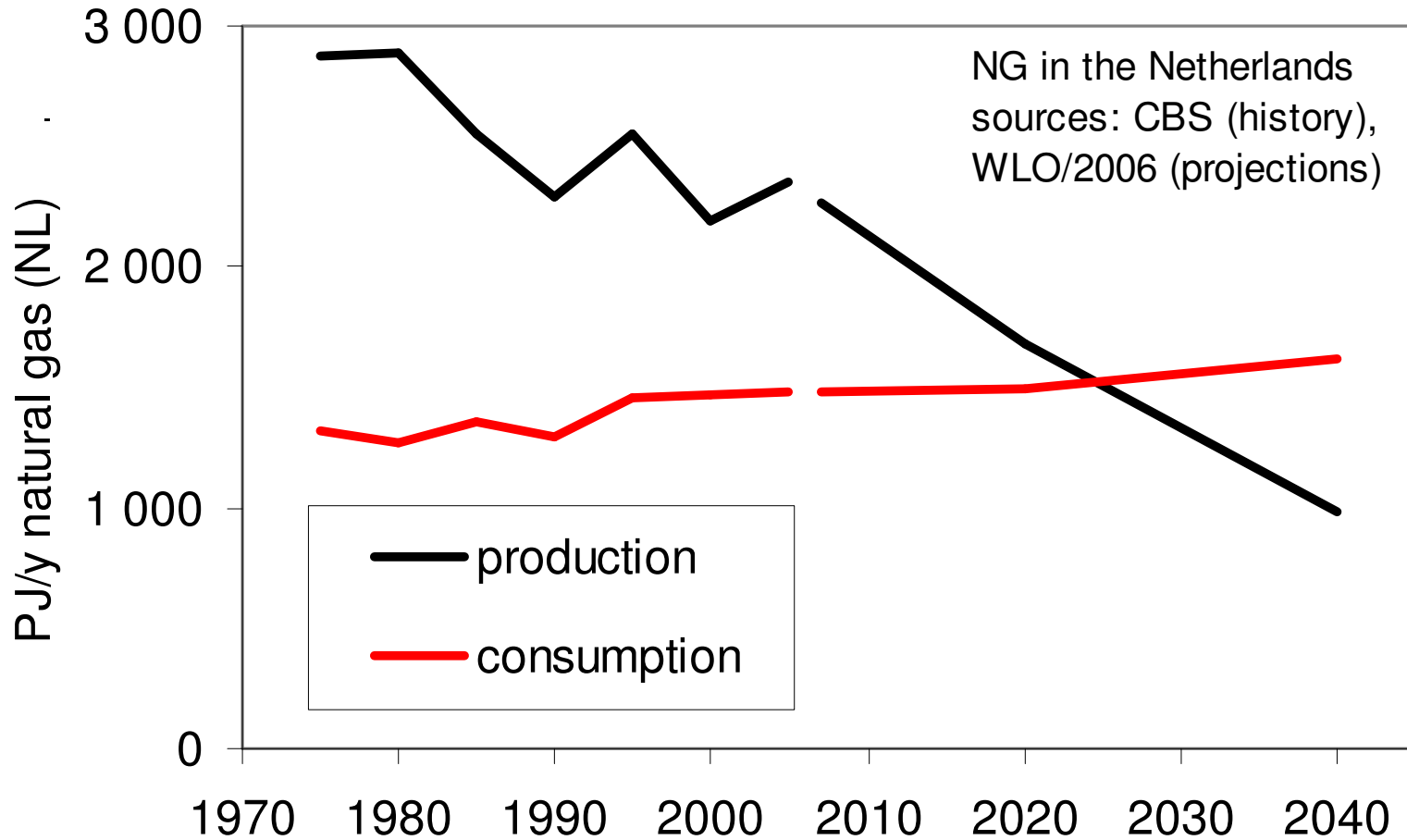
FACTS and FIGURES

natural gas in the Netherlands

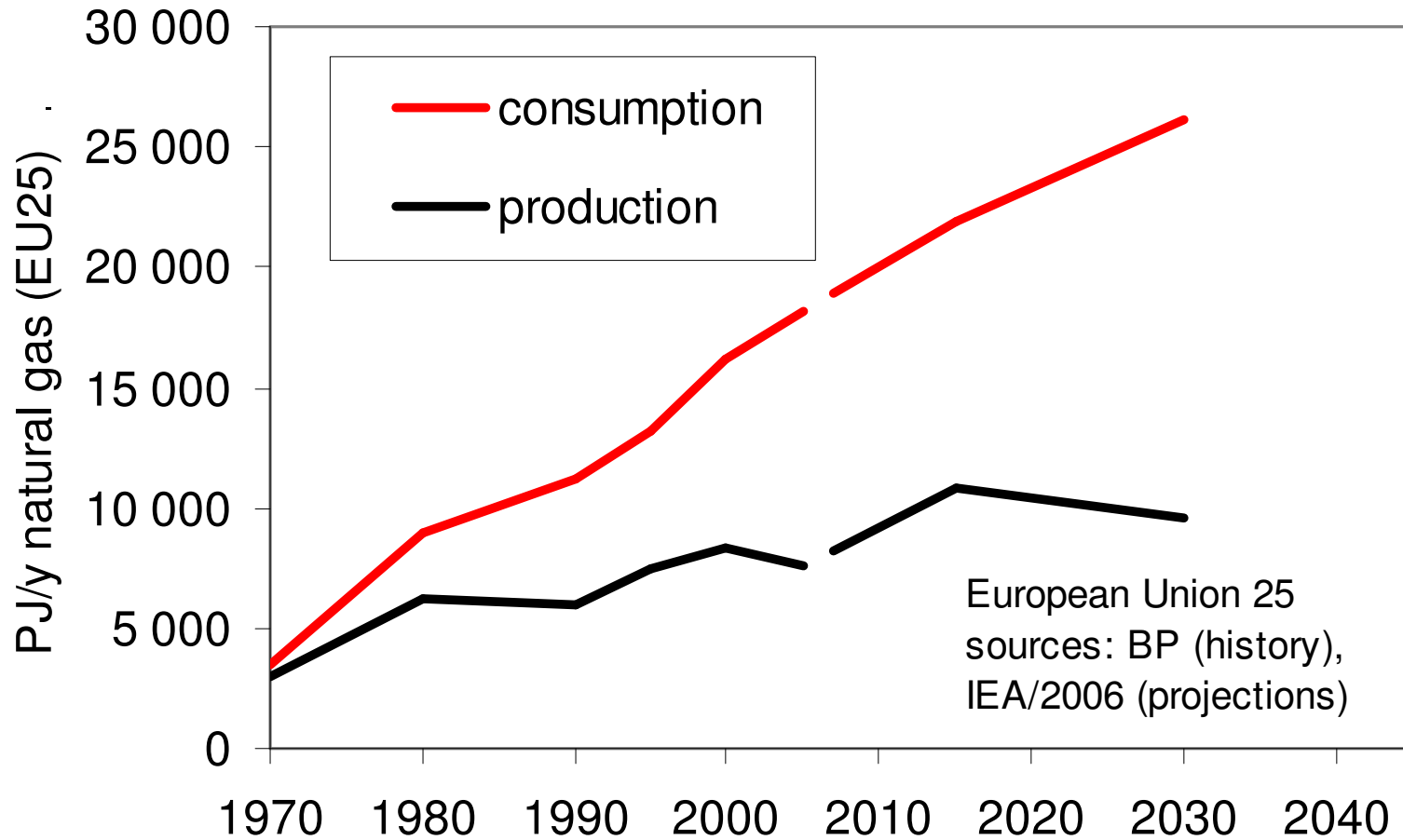
- almost 50% of primary energy is Natural Gas
- 135 000 km pipe line: in average *within 120 m*
- 94% of houses connected to gas grid
- ~70% of the gas is used for heating



THE END OF GAS EXPORT (NL)



OR EVEN WORSE (EU)...



SNG PRODUCTION from BIOMASS

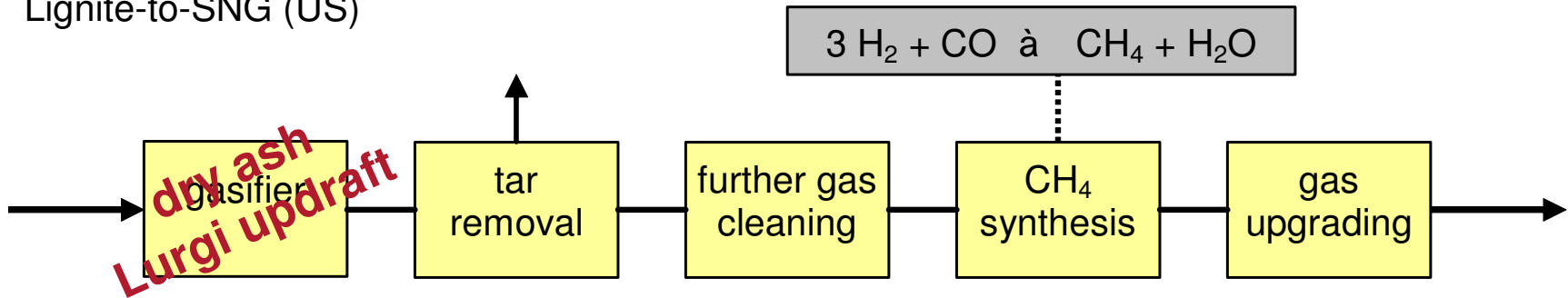
ECN approach

- use conventional technology (Great Plains Synfuels Plant, ND/USA)
- adapt for biomass
- focus on high efficiency (70%)

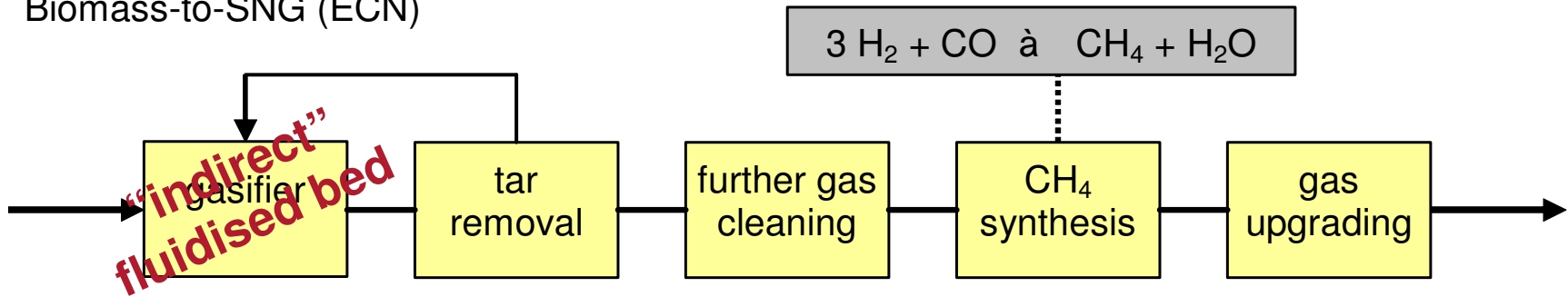


SNG PRODUCTION system

Lignite-to-SNG (US)

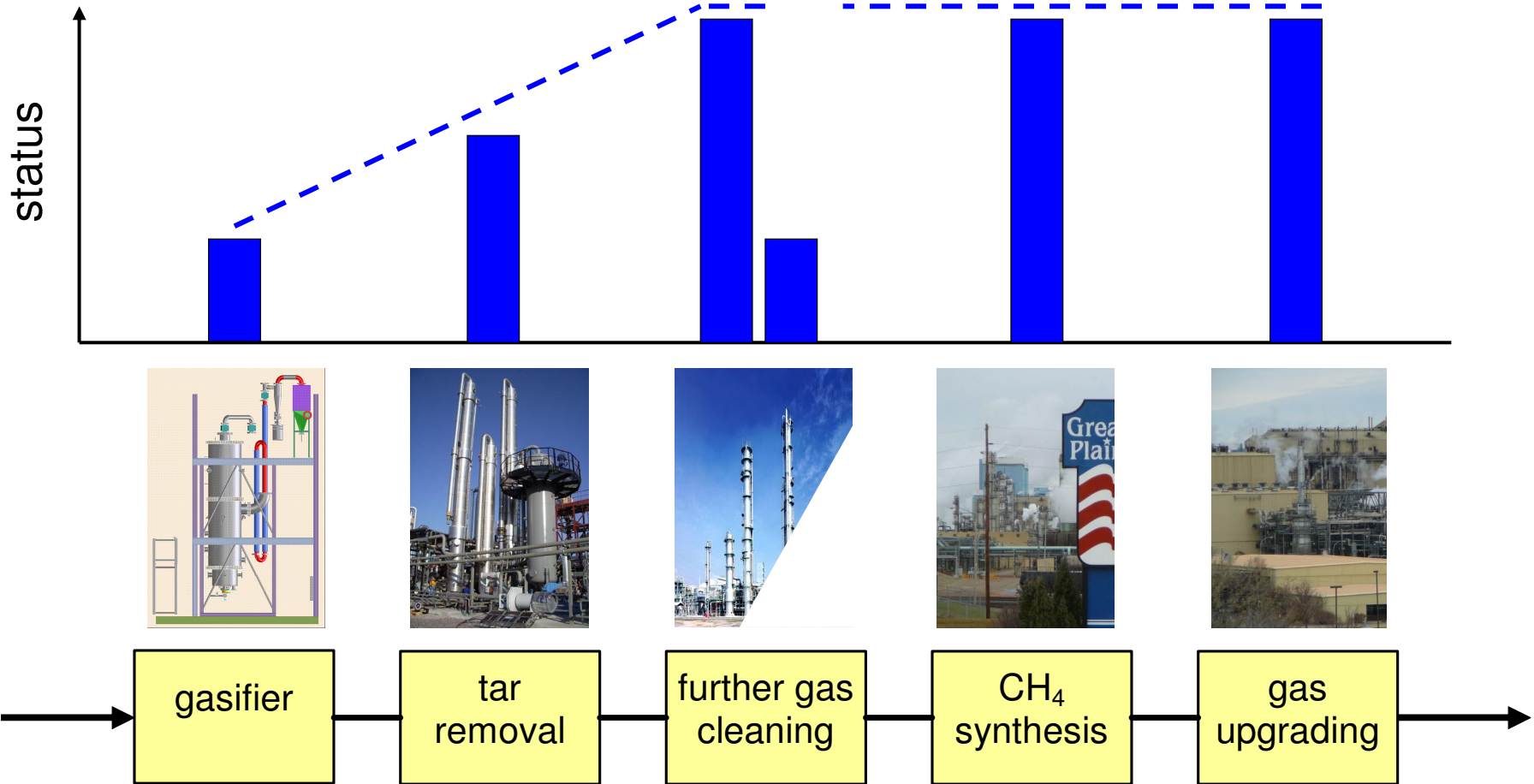


Biomass-to-SNG (ECN)



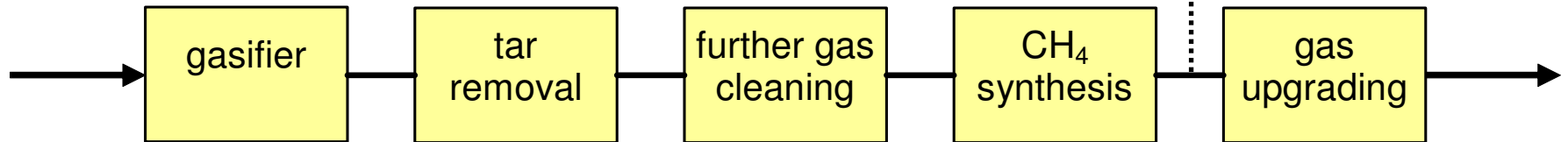
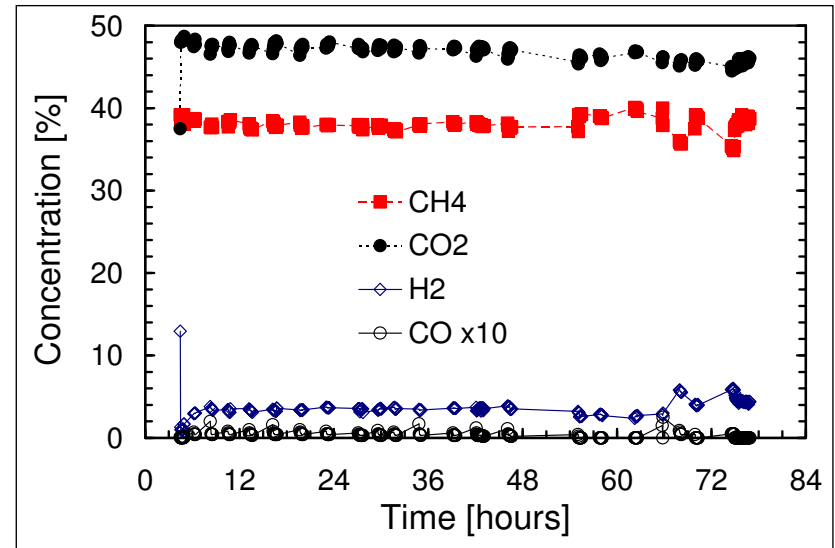
SNG PRODUCTION from BIOMASS

status



SNG PRODUCTION from BIOMASS

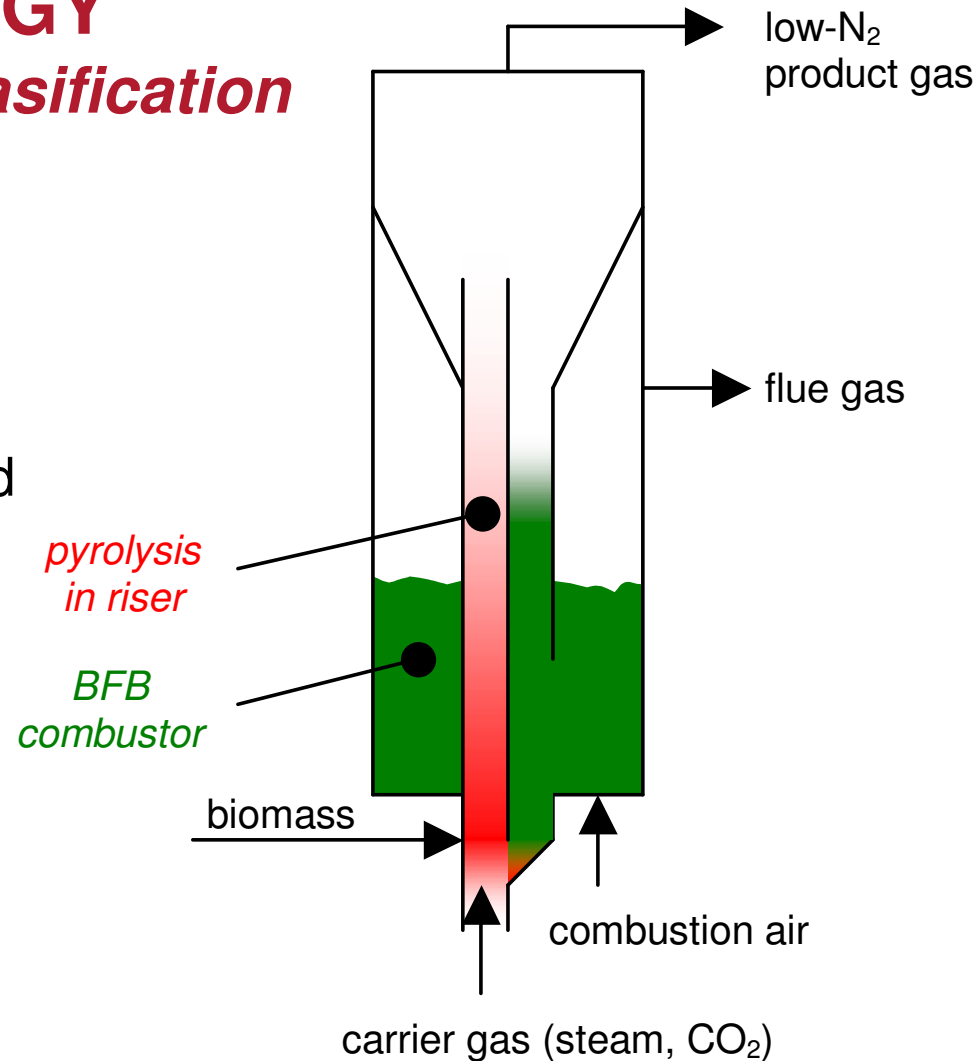
lab-scale test



MILENA TECHNOLOGY

indirect fluidised bed gasification

- indirect gasifier
- developed for high efficient SNG-production
- can be operated as “SilvaGas” and “Güssing” and BFB
- 25 kW available, 800 kW under construction



SNG PRODUCTION from BIOMASS

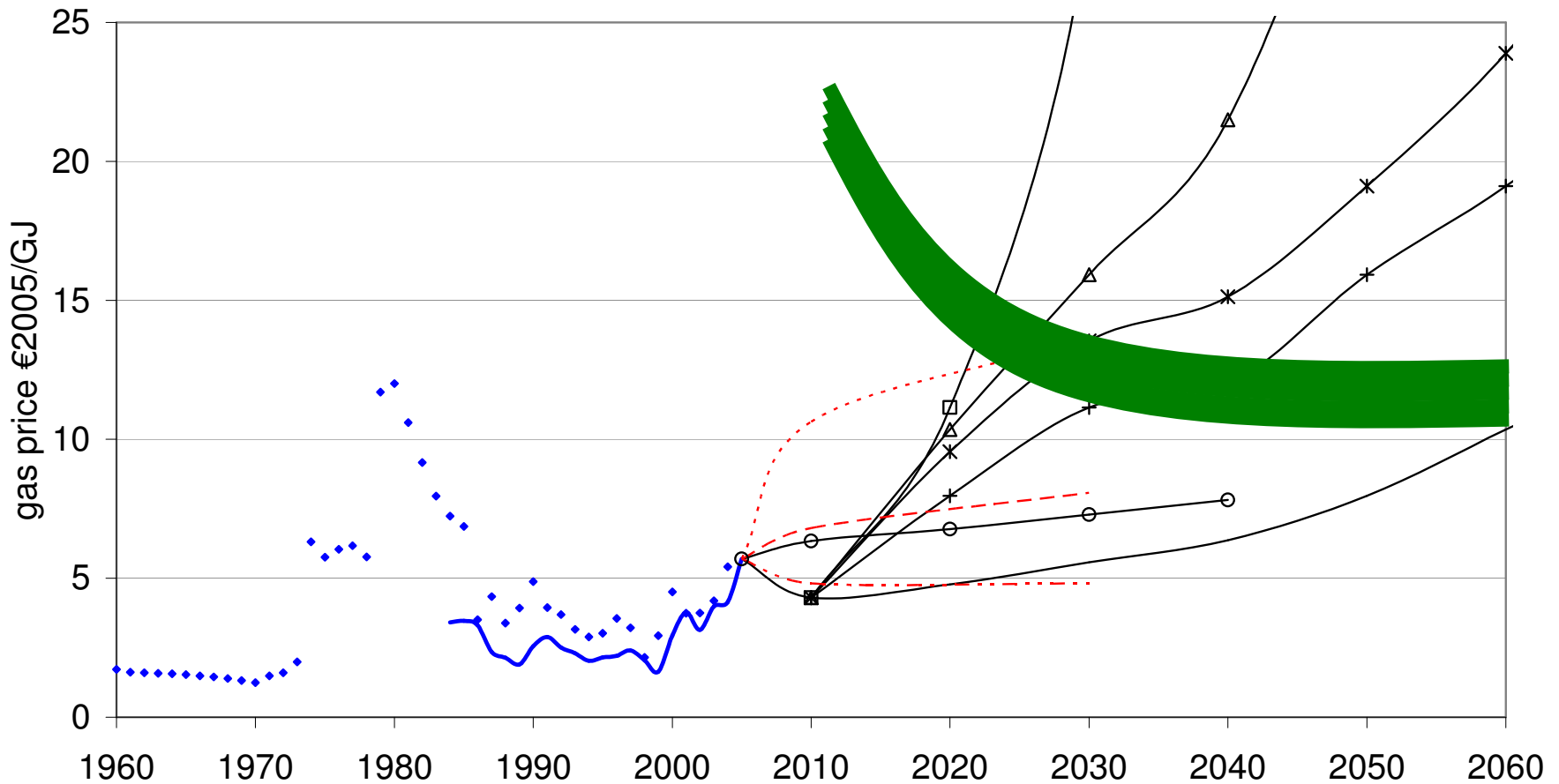
economics

- large-scale (~1 GW)
- situated in NL harbor
- imported biomass
- IRR 12%/10 years

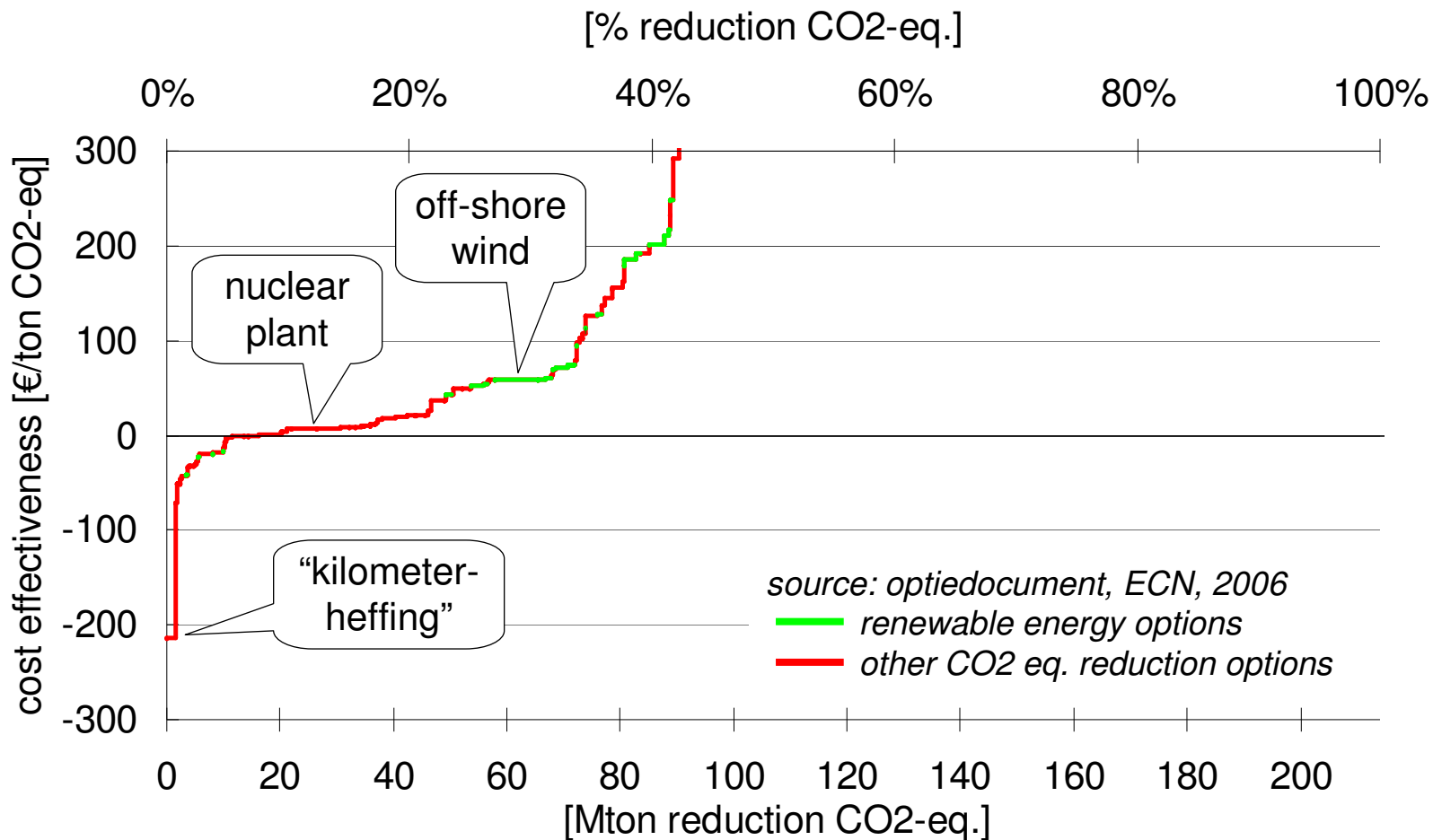


SNG PRODUCTION from BIOMASS

[€/GJ] SNG versus NG

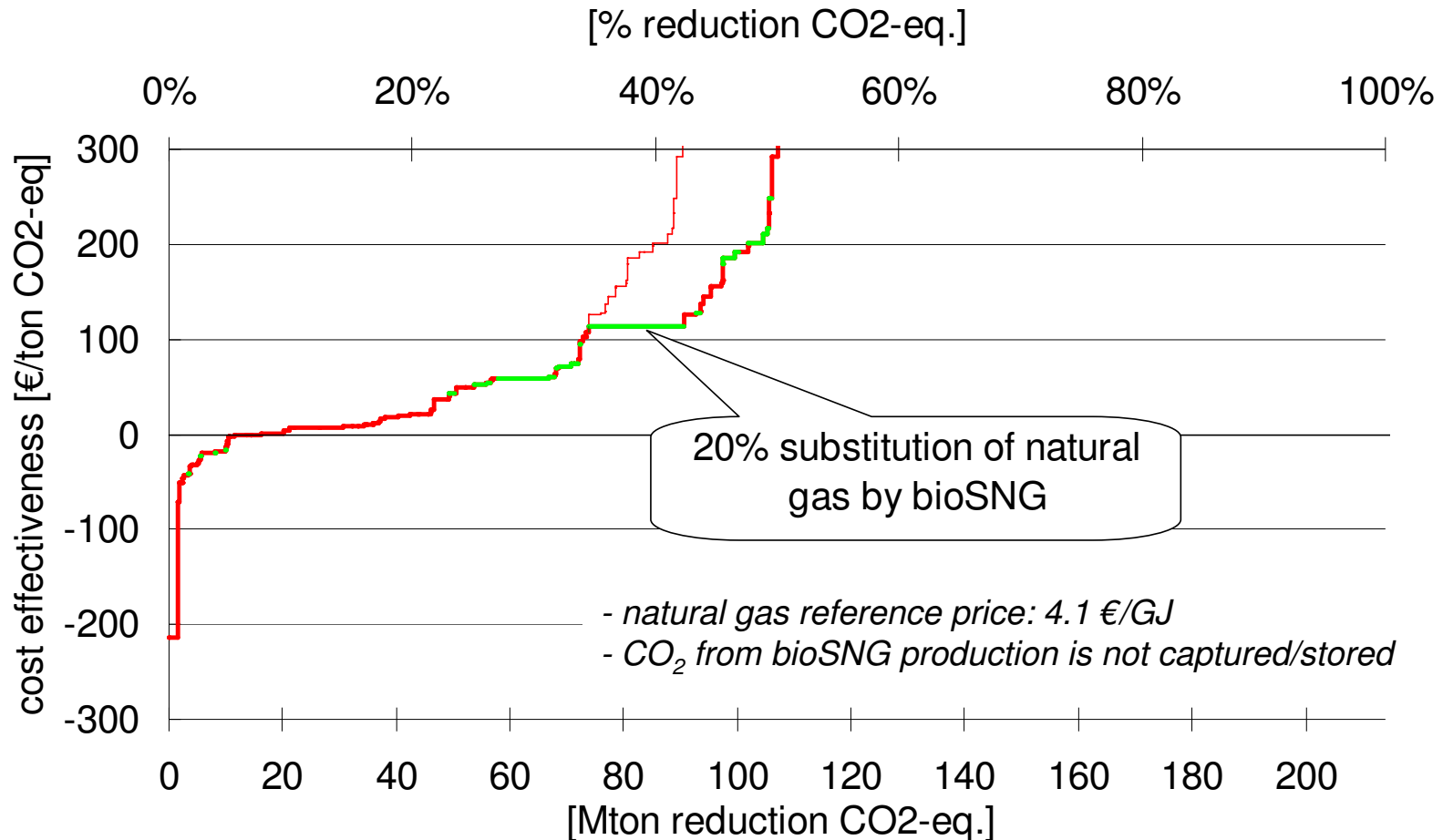


AVOIDING CO₂ (eq) IN THE NETHERLANDS



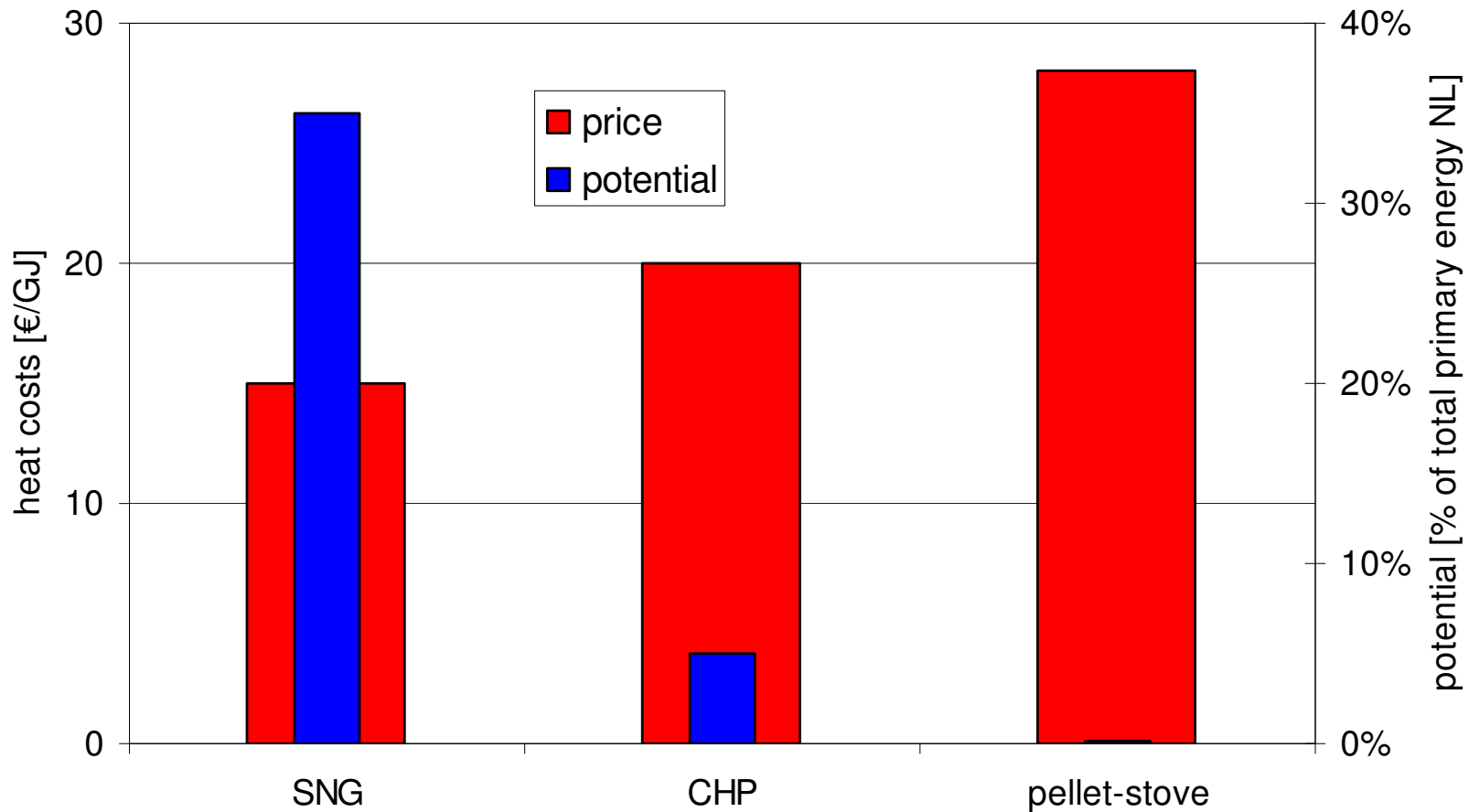
AVOIDING CO₂ (eq) IN THE NETHERLANDS

where is SNG from biomass?



HEAT from BIOMASS

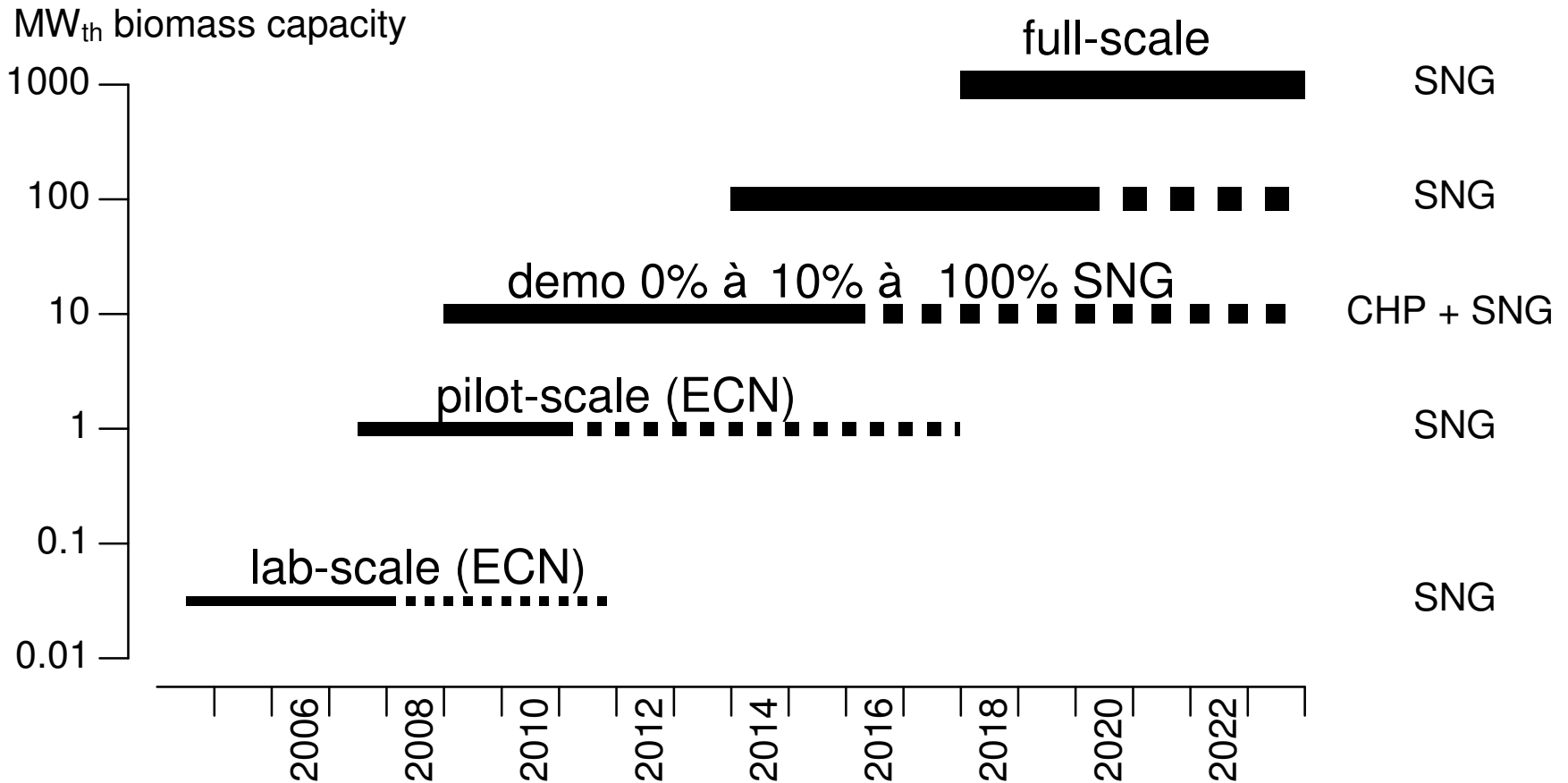
via SNG and other biomass alternatives



source: ECN-report ECN-E-07-001

IMPLEMENTATION TRAJECTORY

“ECN-concept”





MORE INFORMATION

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Tar dew point calculation tool: www.thersites.nl