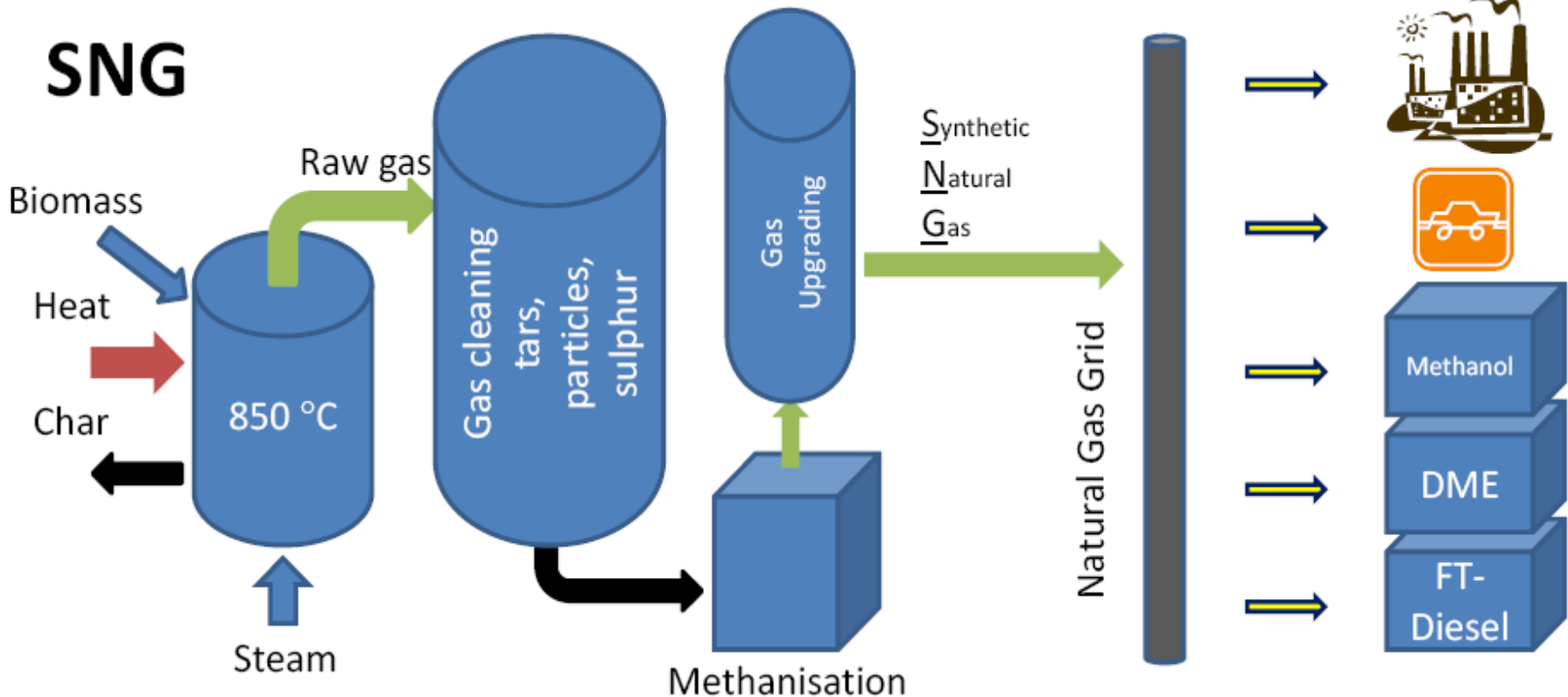


Results and possibilities from the gasification research plant at Chalmers



Why gasification?

Key technology to several renewable industries



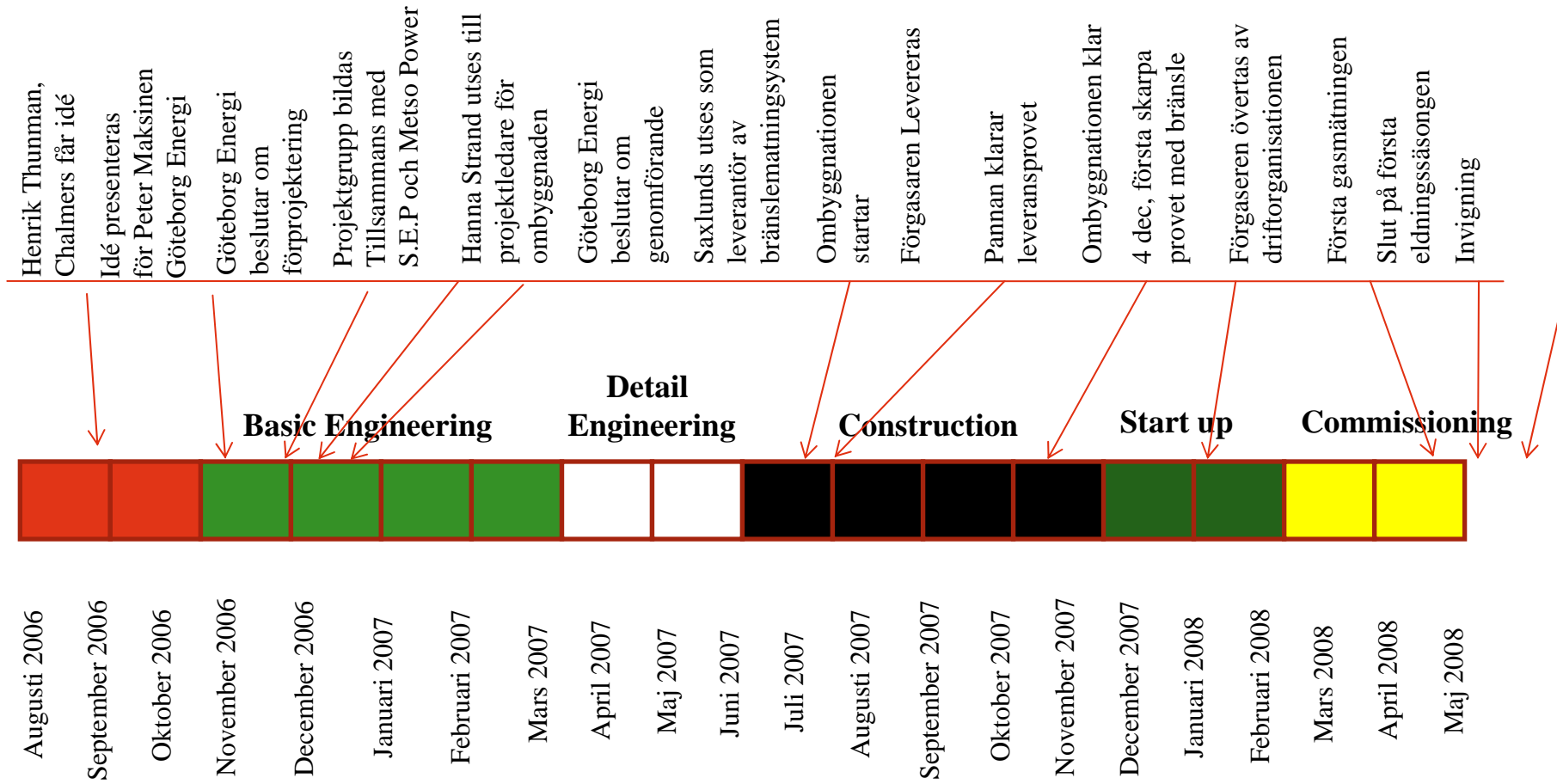
Why research at Chalmers?

- Solve problems with gas cleaning
- Improve efficiency
- Test different fuels and their properties when gasified
- Achieve research synergies from other research ex CLR
- Reactor development
- Status: Commercially available within a few years
- Use existing infrastructure

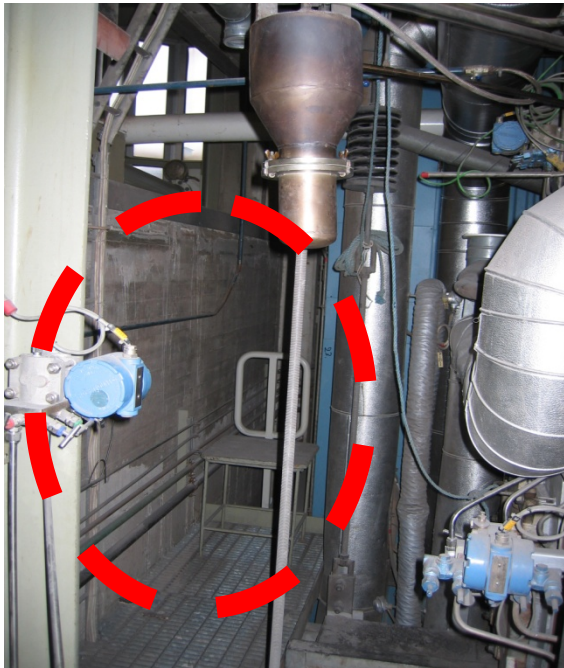
Fluidised Bed



Timeline for construction of Chalmers gasifier



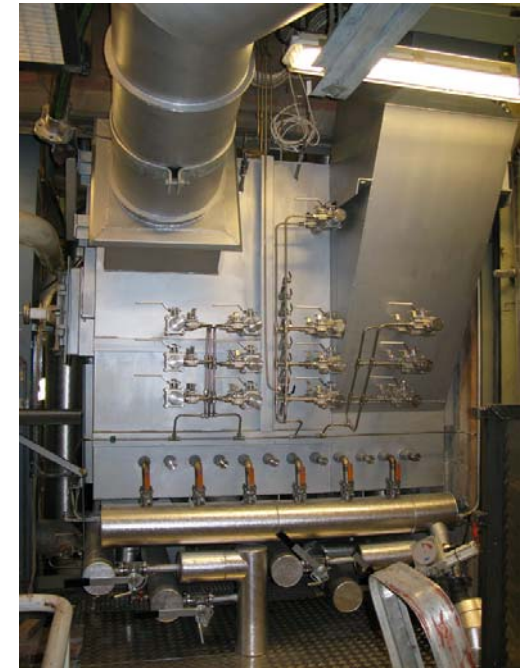
Integration of biomass gasification on existing boiler infrastructure



Before June 2007



August 2007



November 2007

Specification of gasifier

Gasifier flexibility

Optional fluidization media

- Steam
- Flue gases
- Air

Temperature 550-950 °C

Controlled residence time

- Adjustable solid flux
- Adjustable bed height

Fuel flexibility

- Dry pellets
- Wet biomass

Optional bed material

Classification of product gas:

Fixed installation for measurements
and research downstream gasifier

Online solid flux measurement

Online measurement of fuel feed

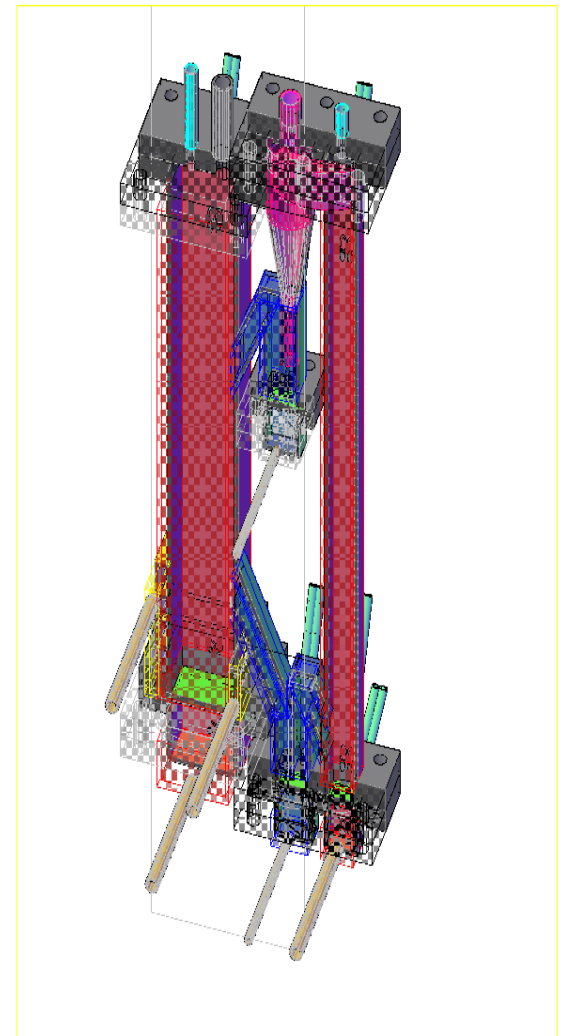
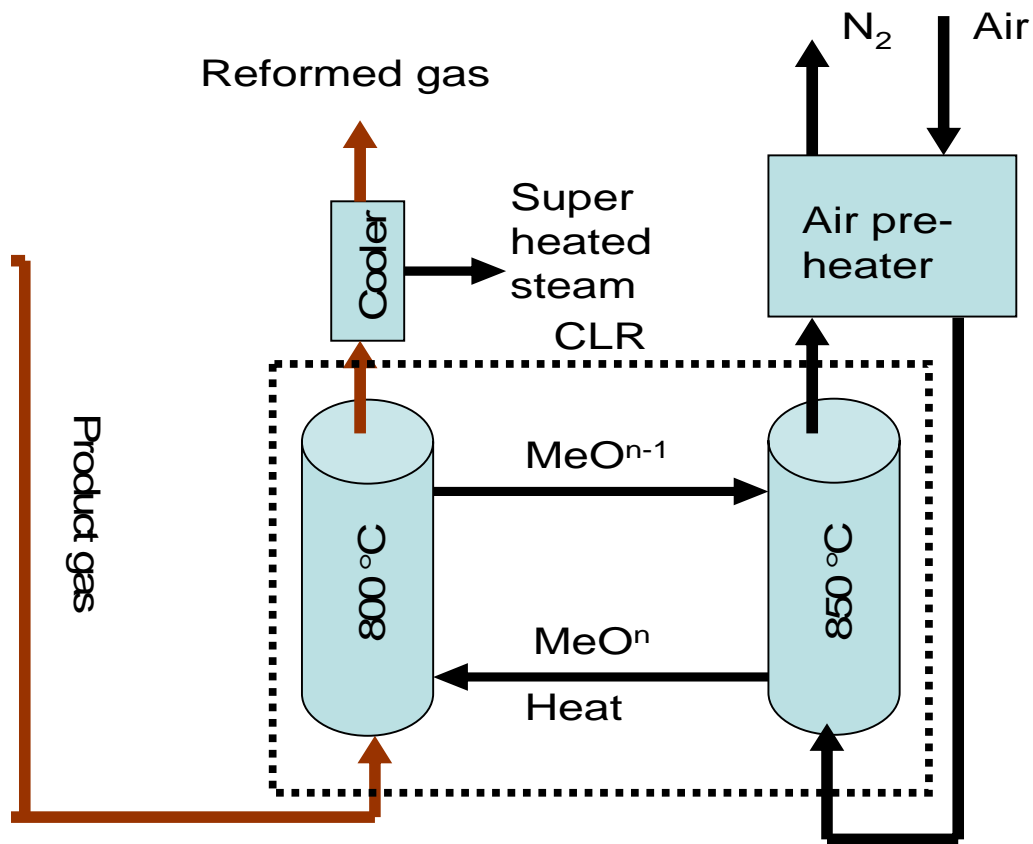
Temperature measurement at
10 positions

Detailed monitoring of pressure in the gasifier

16 Measurement holes for gas analysis and
bed sampling

Extraction of gas slip flow up to 300 kW

Gas cleaning via Chemical Looping Reforming



Achievements first season

Successful demonstration on how to integrate a biomass gasifier on an existing boiler

Obtained the first experimental unit of industrial scale to investigate biomass gasification in detail

Goals for this season

Test several different fuels

- Different types of wood and bark pellets

- Waste

- Forest residues

Work on optimisation