

# Wasserstoff aus Holz mittels Dampf-Vergasung

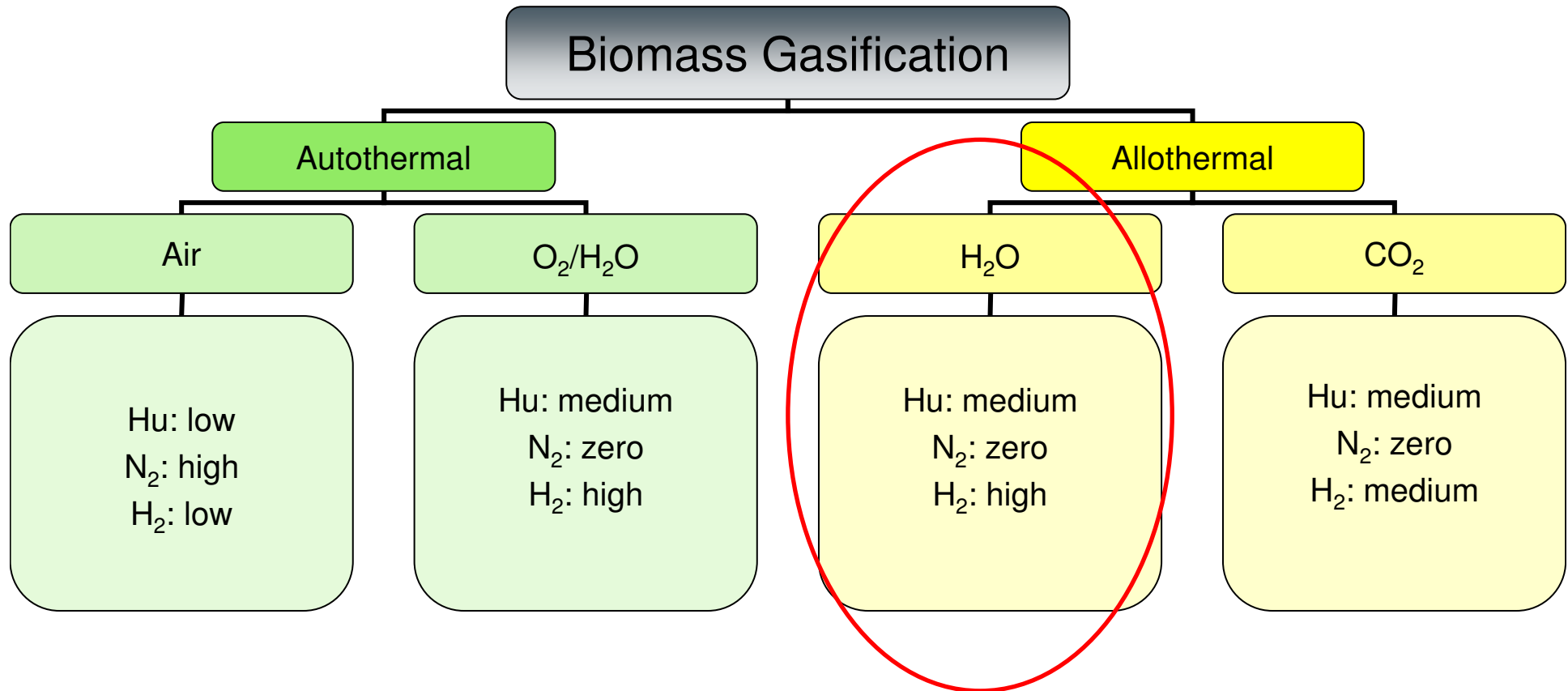
Dr. Reinhard Rauch

Wasserstoff und Brennstoffzellen-Projekte,  
F&E-Institutionen, Firmenstrategien und technologiepolitische  
Förderinstrumente in Deutschland und Österreich

13.12.2007 TechGate Vienna

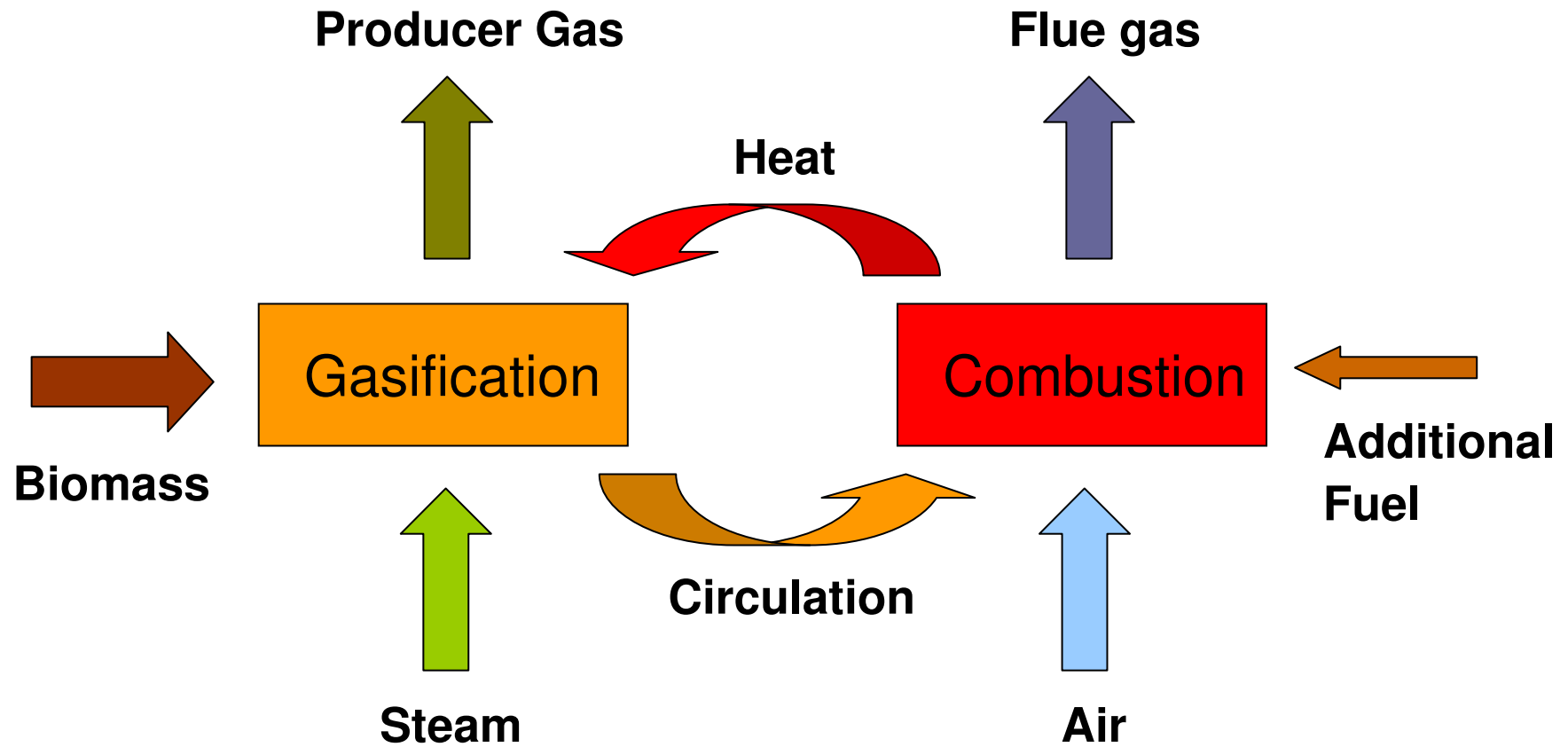
# Möglichkeiten der Vergasung

Rethinking Propulsion.



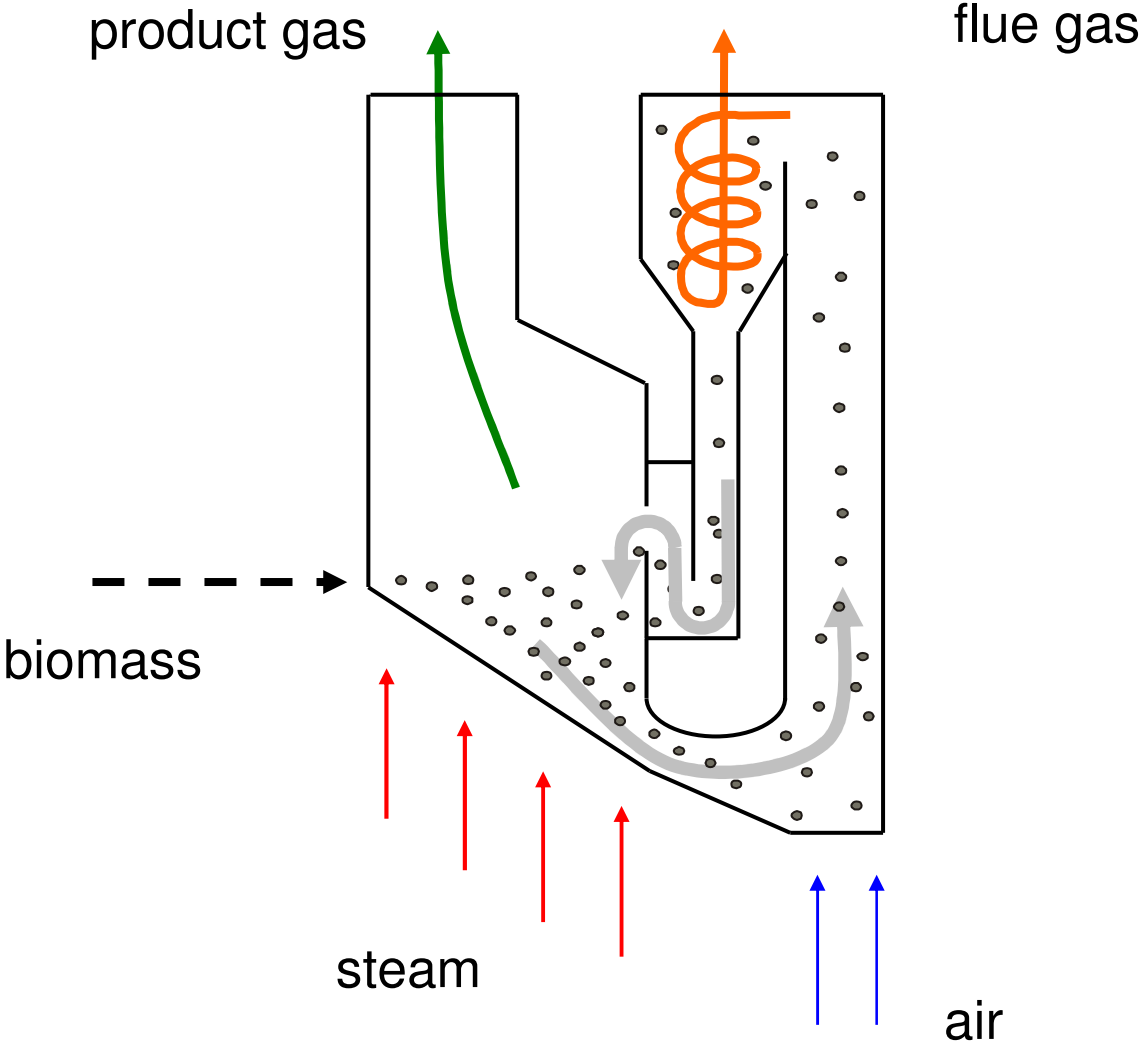
# Prinzip der allothermen Vergasung

Rethinking Propulsion.



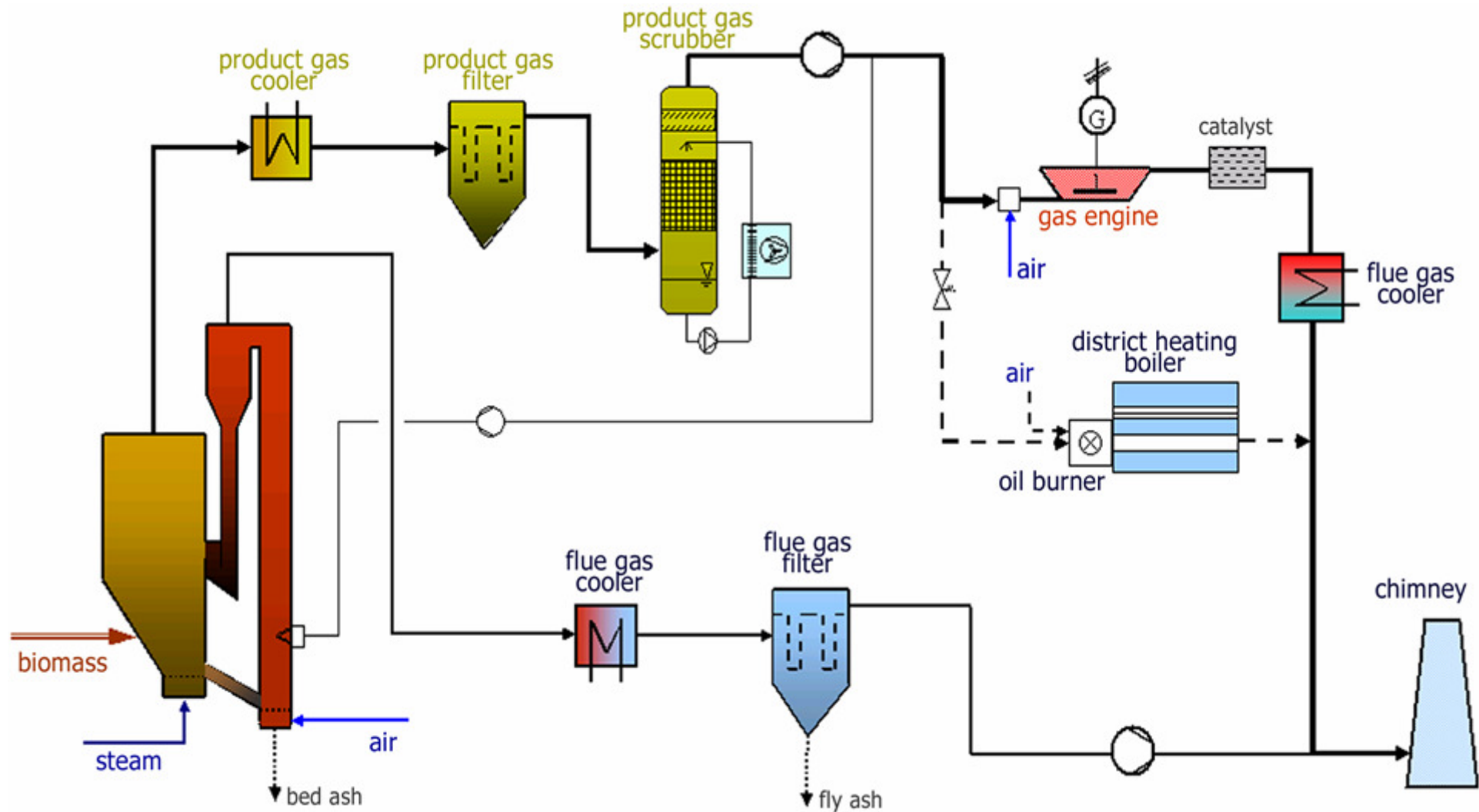
# Vergasungsreaktor

Rethinking Propulsion.



# Flowchart BHKW GÜSSING

Rethinking Propulsion.



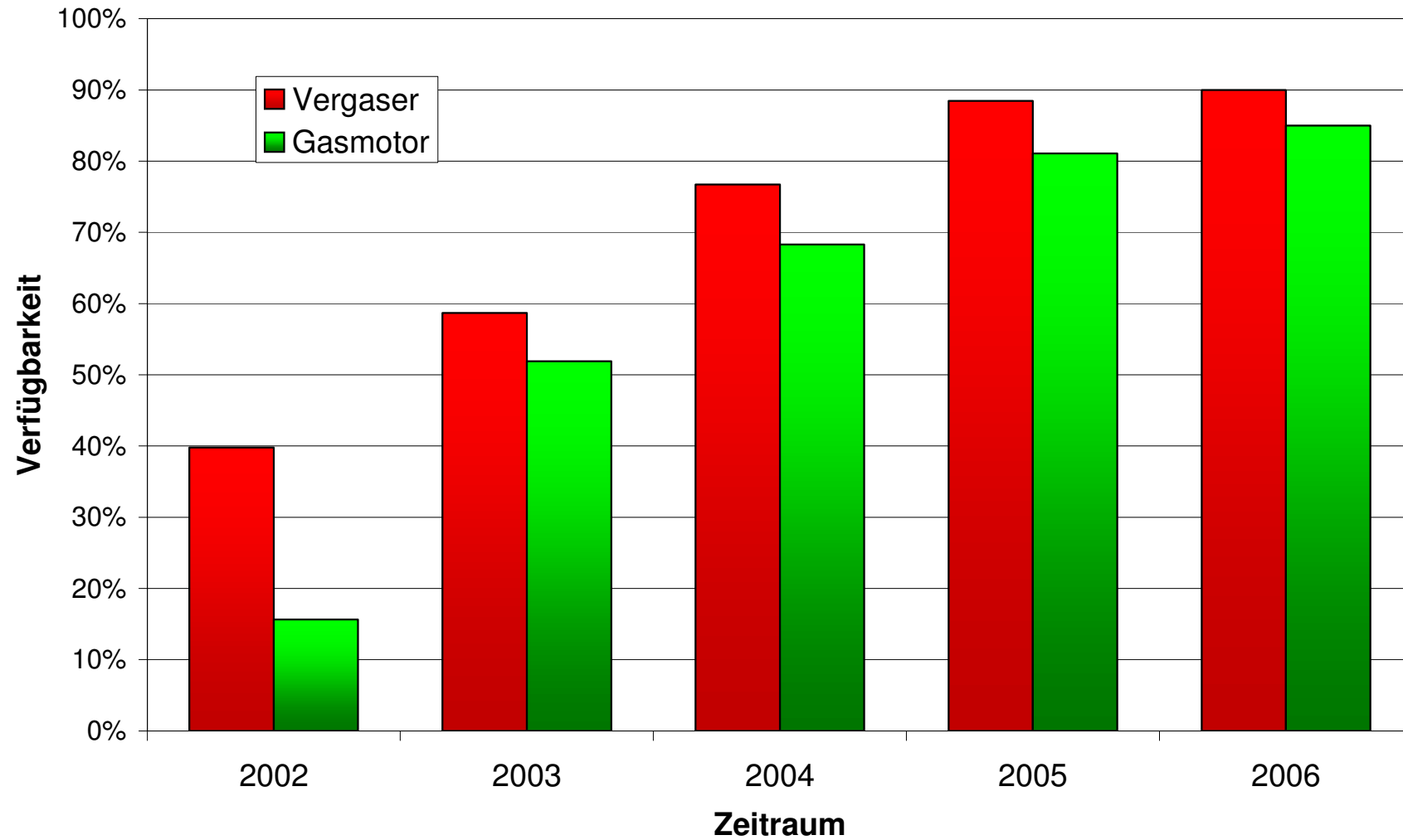
# BHKW GÜSSING, design data

Rethinking Propulsion.

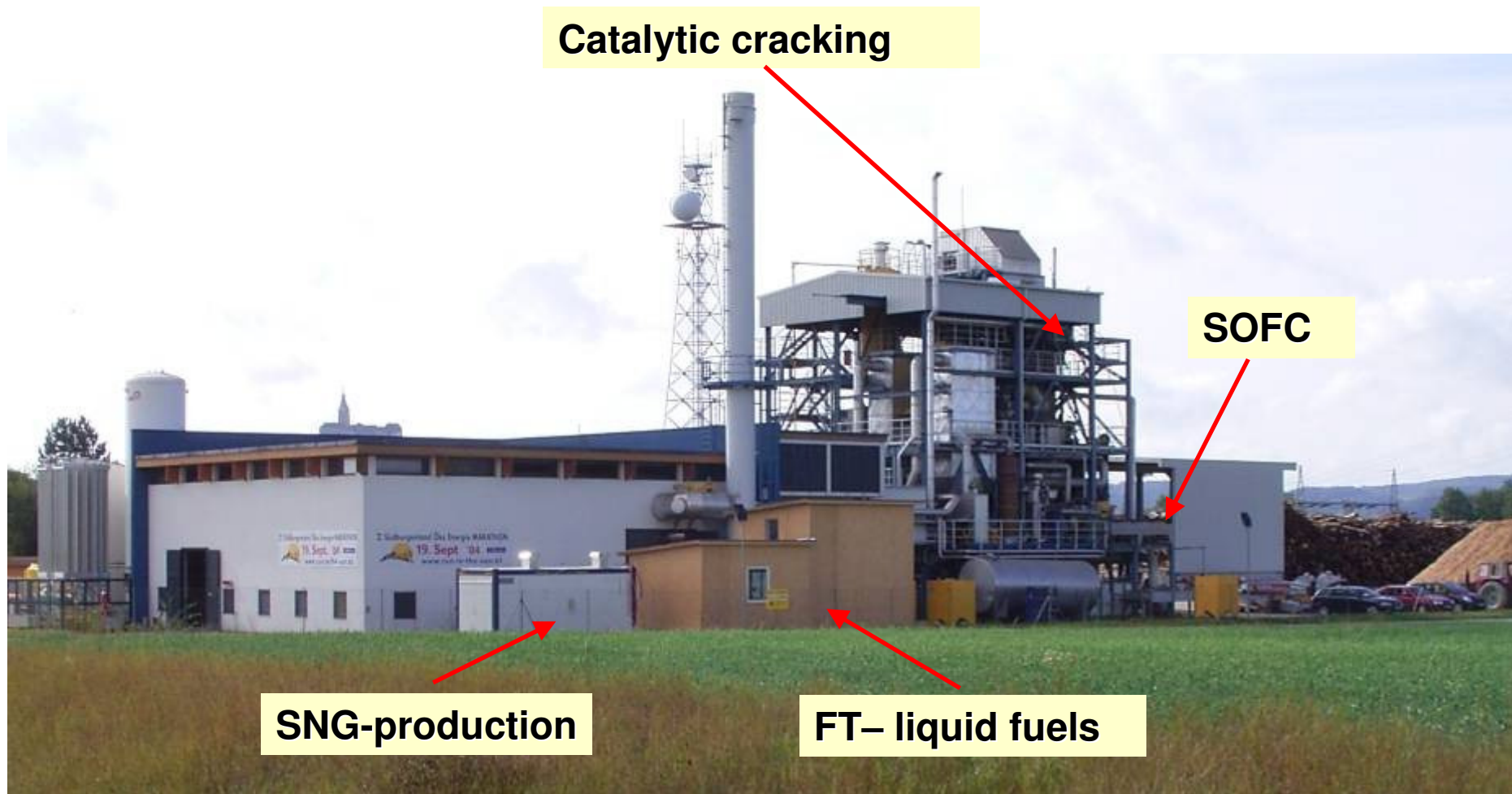
- Baubeginn September 2000
  - Inbetriebnahme Jänner 2002
  - Brennstoff 2,2 to/h (Waldhackgut)
  - Wassergehalt 10-15 % (30-40%)
  - Brennstoffwärmeleistung 8 MW
  - Elektrische Leistung 2 MW
  - Fernwärme 4,5 MW
  - Elektrischer Wirkungsgrad 25 % (20%)
  - Gesamtwirkungsgrad 80 %
  - Besitzer und Betreiber Biomassekraftwerk Güssing GmbH&Co KG
-

# Verfügbarkeit

Rethinking Propulsion.

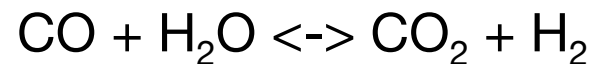
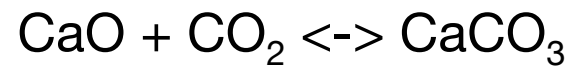
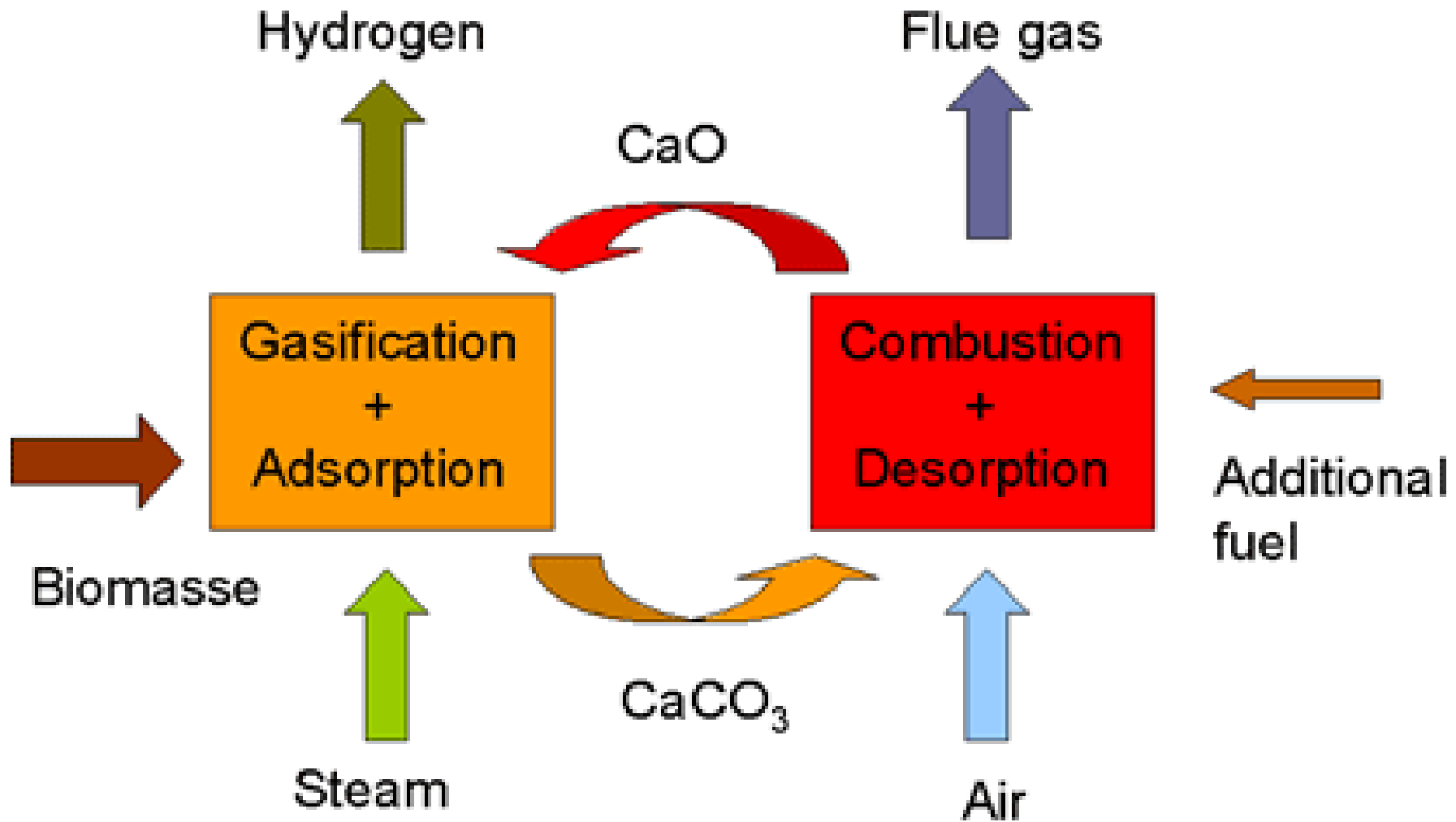


# Laufende Forschungsprojekte





# AER Concept



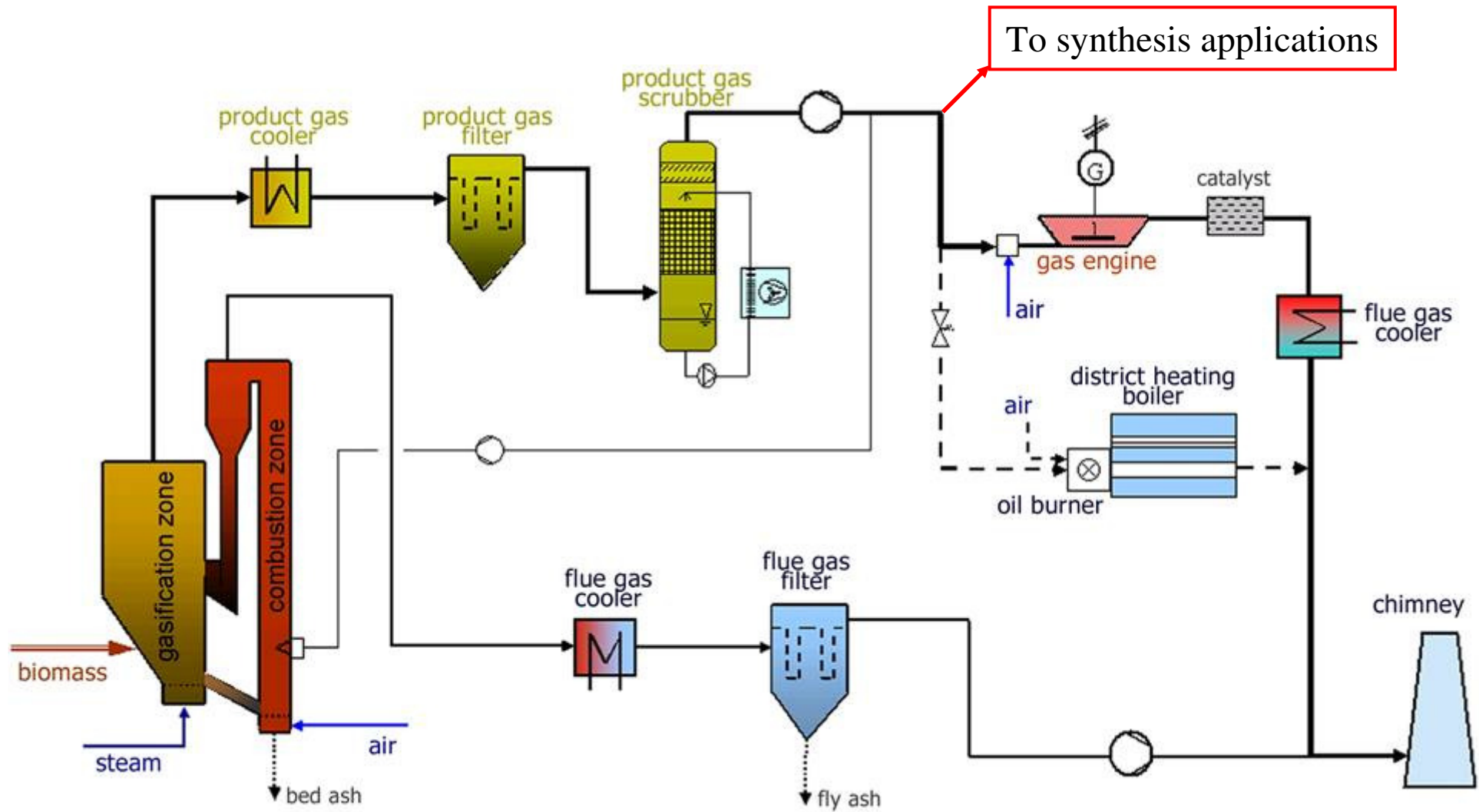
# Gaszusammensetzung

Bed material		Olivine	Calcite (AER-Process)	Catalyst (Nickel)
Gasification temperature		850 °C	640 °C	840 °C
<b>H<sub>2</sub></b>	[mol%]	37.7	<b>67.5</b>	43.9
<b>CO</b>	[mol%]	29.1	<b>3.3</b>	27.2
<b>CO<sub>2</sub></b>	[mol%]	19.6	<b>10.3</b>	18.8
<b>CH<sub>4</sub></b>	[mol%]	10.4	13.1	<b>8.3</b>
<b>C<sub>2</sub>H<sub>4</sub></b>	[mol%]	2.8	1.7	<b>1.3</b>
<b>C<sub>2</sub>H<sub>6</sub></b>	[mol%]	0.3	3.0	<b>&lt; 0.1</b>
<b>HC (C<sub>3</sub>-C<sub>5</sub>)</b>	[mol%]	0.1	1.1	<b>&lt; 0.1</b>

# Synthesegasanwendungen

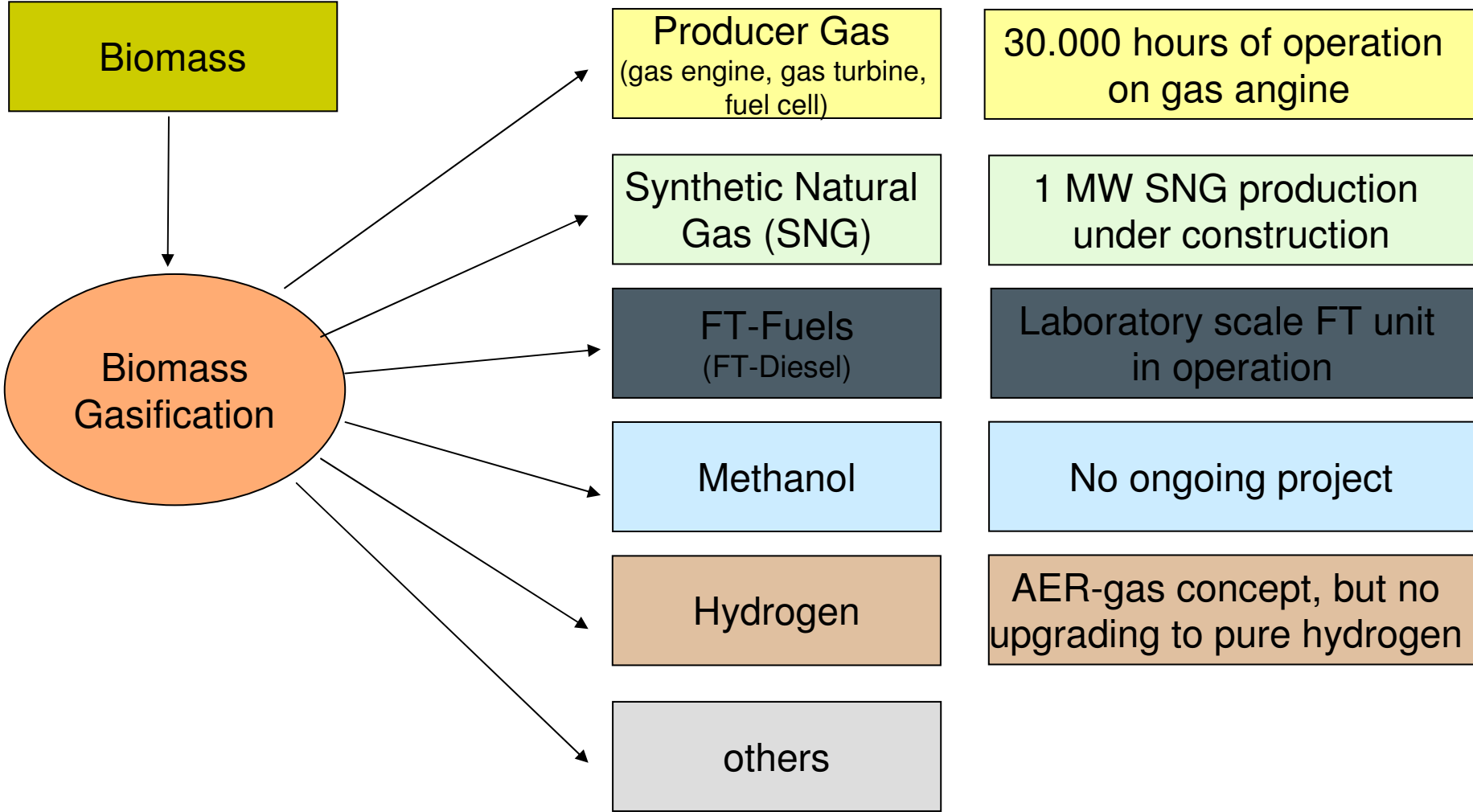
Rethinking Propulsion.

To synthesis applications



# The basic concept – “Green Chemistry”

Rethinking Propulsion.



# Kontakt

Dr. Reinhard Rauch

Technische Universität Wien,  
Institut für Verfahrenstechnik, Umwelttechnik  
und techn. Biowissenschaften

Anschrift:	Getreidemarkt 9/166 1060 Wien
Tel:	+43-1-58801-15954
Fax:	+43-1-58801-15999
web:	<a href="http://www.vt.tuwien.ac.at">www.vt.tuwien.ac.at</a>
Email:	<a href="mailto:Reinhard.Rauch@tuwien.ac.at">Reinhard.Rauch@tuwien.ac.at</a>

Rethinking Propulsion.



It ain't easy to be green...

**BioFIT**  
BIOMASS-TO-FISCHER-TROPSCH

&

**BioSNG**  
BIOMASS-TO-SYNTHETIC-NATURAL-GAS