

HIGHBIO - INTERREG NORD
2008 - 2011



Refining of new products and raw materials by gasification of biomass



HighBio 2008-2011

Ulla Lassi

9.11.2010





An Interreg IV A Nord project

Partners:

- Kokkola University Consortium Chydenius - FI
- University of Oulu (OU) - FI
- Central Ostrobothnia University of Applied Sciences (Centria) - FI
- Luleå University of Technology (LTU) - SE
- Energy Technology Centre (ETC) - SE



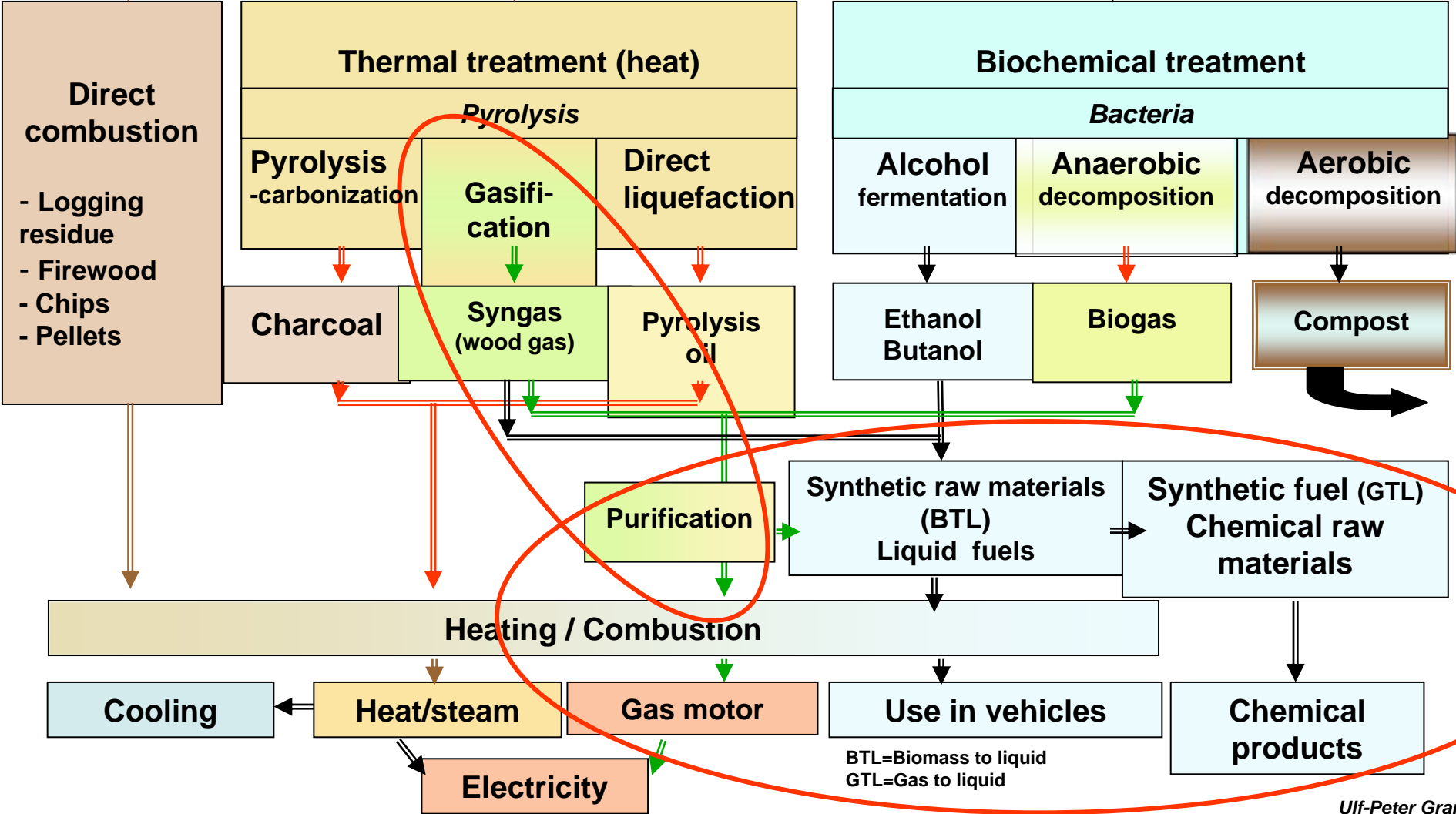
Refining of new products and raw materials by gasification of biomass

Content of presentation

- A short overview of HighBio
- Collaboration within the project - Benefits
- Advantages and challenges in the project
- Results achieved and good practices
- Where are the possibilities for future collaboration?

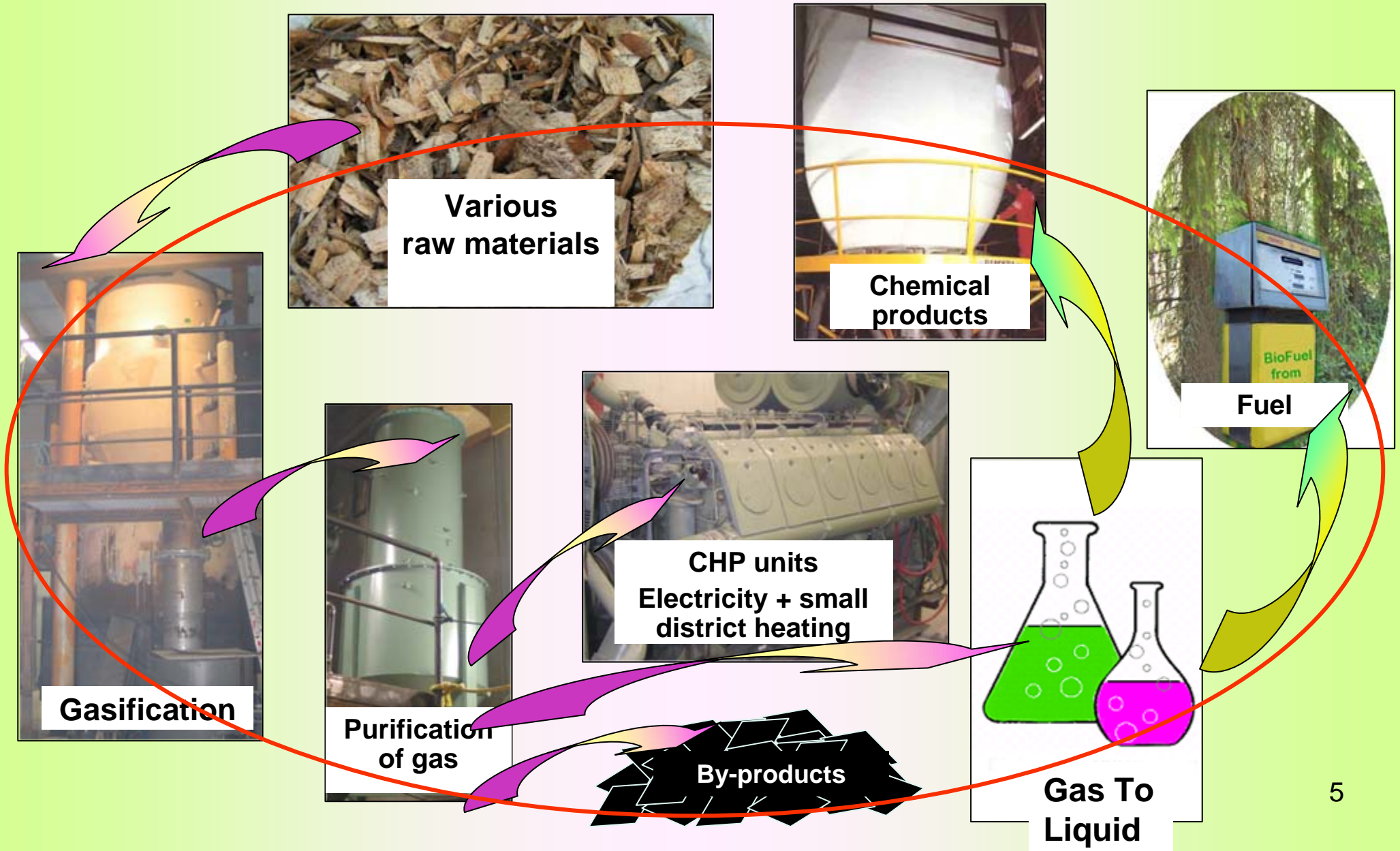
BIOENERGY

Bioenergy raw materials (forest biomass and agriculture)





Refining of new products and raw materials by gasification of biomass





Refining of new products and raw materials by gasification of biomass

Special expertise of each partner

- Chydenius: Catalysts, Catalytic conversion of biomass
- Oulu: Characterization of by-products, esp. ash
- Centria:
Small scale gasification for combined heat and power production (CHP units)
- LTU: Techno-economical evaluation, simulation programmes
- ETC: Fluidized bed gasification and combustion techniques





Refining of new products and raw materials by gasification of biomass

Collaboration benefits within the project:

- Gasification is a complex process
 - the development requires much resources →
- Responsibility is divided according to each organisation's expertise/strengths
- Sharing of knowledge between organisations (eg. Research visits, joint publications) and companies
- Processes can be tested from various perspectives (different types of gasifiers)



Refining of new products and raw materials by gasification of biomass

Challenges and opportunities in the project:

- (Novel) technologies should still be developed
- Long-term experiences are needed
- Academy-industry collaboration (new small-middle size companies)
- ➔ Focus should be in "core business"
- Knowledge that can be used in other EU and national projects (e.g. Bio4Energy, Suprabio, SusFuFlex)



Refining of new products and raw materials by gasification of biomass

Good practices and achieved results

- Novel solutions to energy integration, esp. in small-scale applications
- Basic, shared, information about the different processes in gasification
- Catalyst development, pilot environments
- Scientific papers
- Information delivery (INFO sheets, seminars, conferences)





Refining of new products and raw materials by gasification of biomass

Success stories –

”Birth of new companies”:

Commercial heat and power production units in small scale

- GASEK’s innovative wood gasifier (Finland)
- Meva Innovation AB biomass gasifier (Sweden)



Sustainable Energy Europe

A European campaign to change the landscape of energy

SUSTAINABLE ENERGY EUROPE



The project *HighBio: Refining of Novel Products by Biomass Gasification*.....

implemented by *Kokkola University Consortium Chydenius/University of Jyväskylä*.....

has been recognised as an Official Partner of the Sustainable Energy Europe Campaign
and contributes in the area of

Sustainable energy communities.....

On behalf of the European Commission

Brussels, Tuesday, the 23rd of June 2009.....

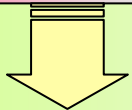
A handwritten signature in black ink, appearing to be 'A. M.', is written over the bottom right portion of the certificate.



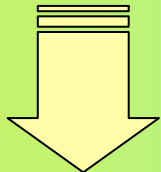
Official Partner's Certificate

Possibilities - Examples of energy integration

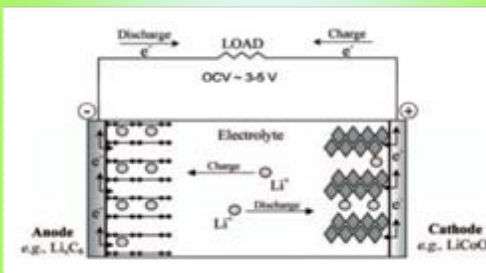
Mining industry



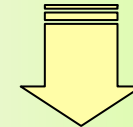
Production of battery chemicals and batteries



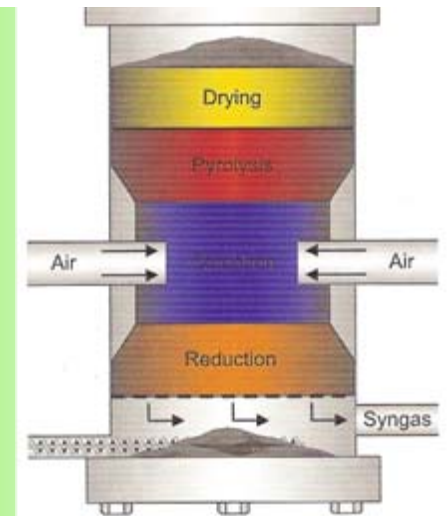
Electric cars, hybrid cars



Biomass



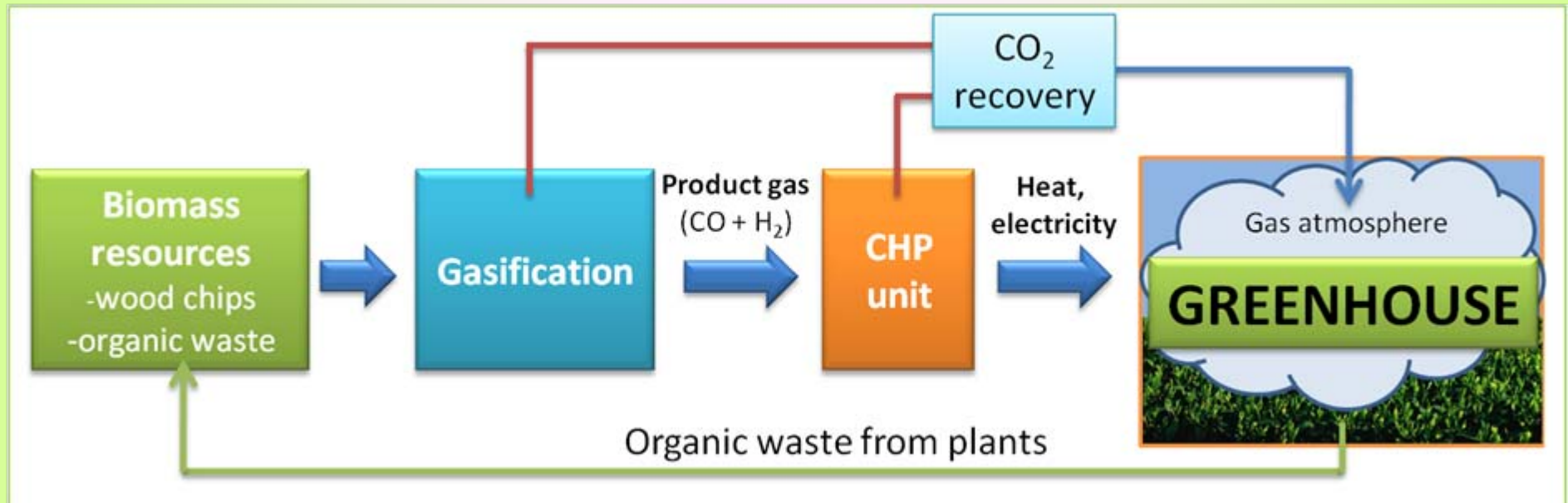
Biomass gasification





Refining of new products and raw materials by gasification of biomass

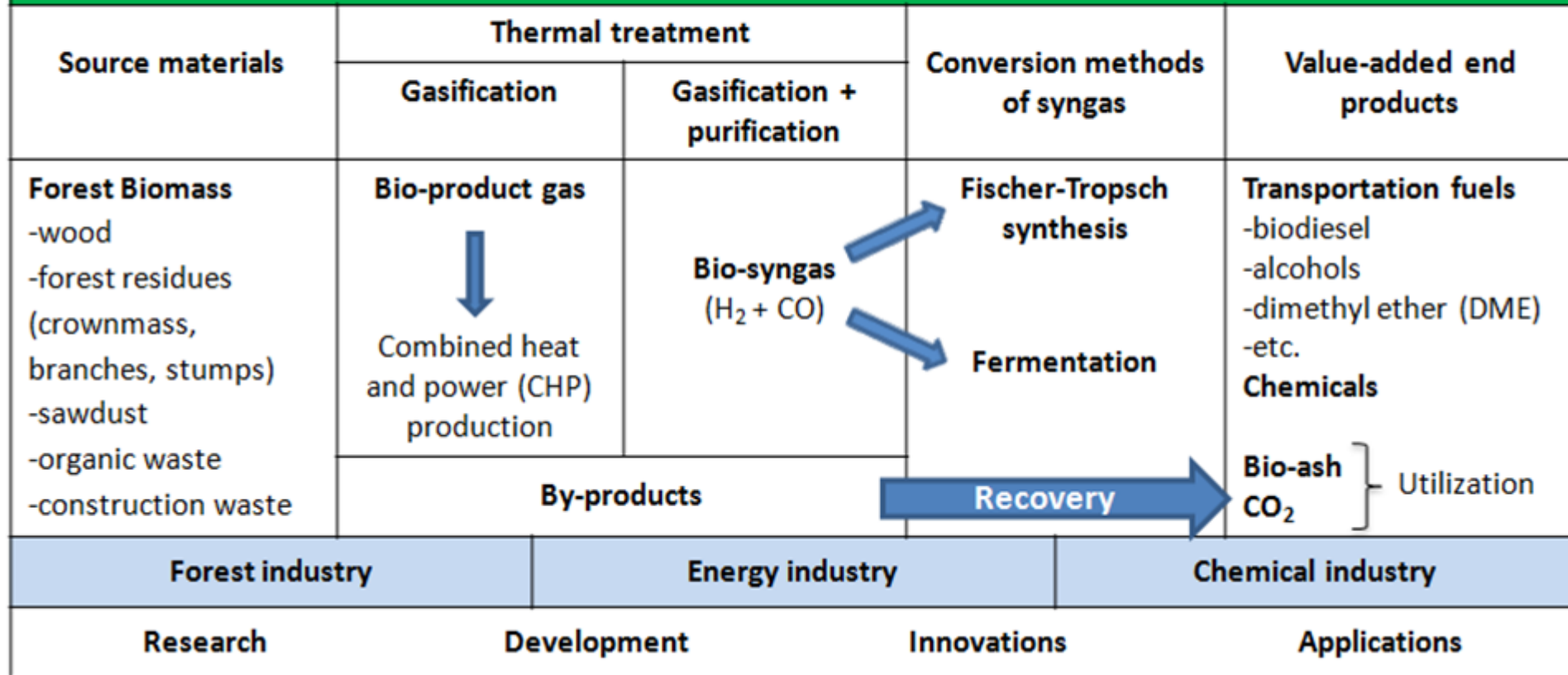
Possibilities - Example of energy and material integration in the greenhouse





Refining of new products and raw materials by gasifying of biomass

Added Value of the Refining of the Forest Biomass



**HIGHBIO - INTERREG NORD
2008 - 2011**



Refining of new products and raw materials by gasification of biomass

Thank You for Your attention!



More information about HighBio:

<http://www.chydenius.fi/Units/natural-sciences/research/projects>

