

BIO4 FUELS



Norwegian Centre for Sustainable Bio-based Fuels and Energy



Norges miljø- og
biovitenskapelige
universitet



SINTEF

PFI



NTNU



HSN

Høgskolen
i Sørøst-Norge

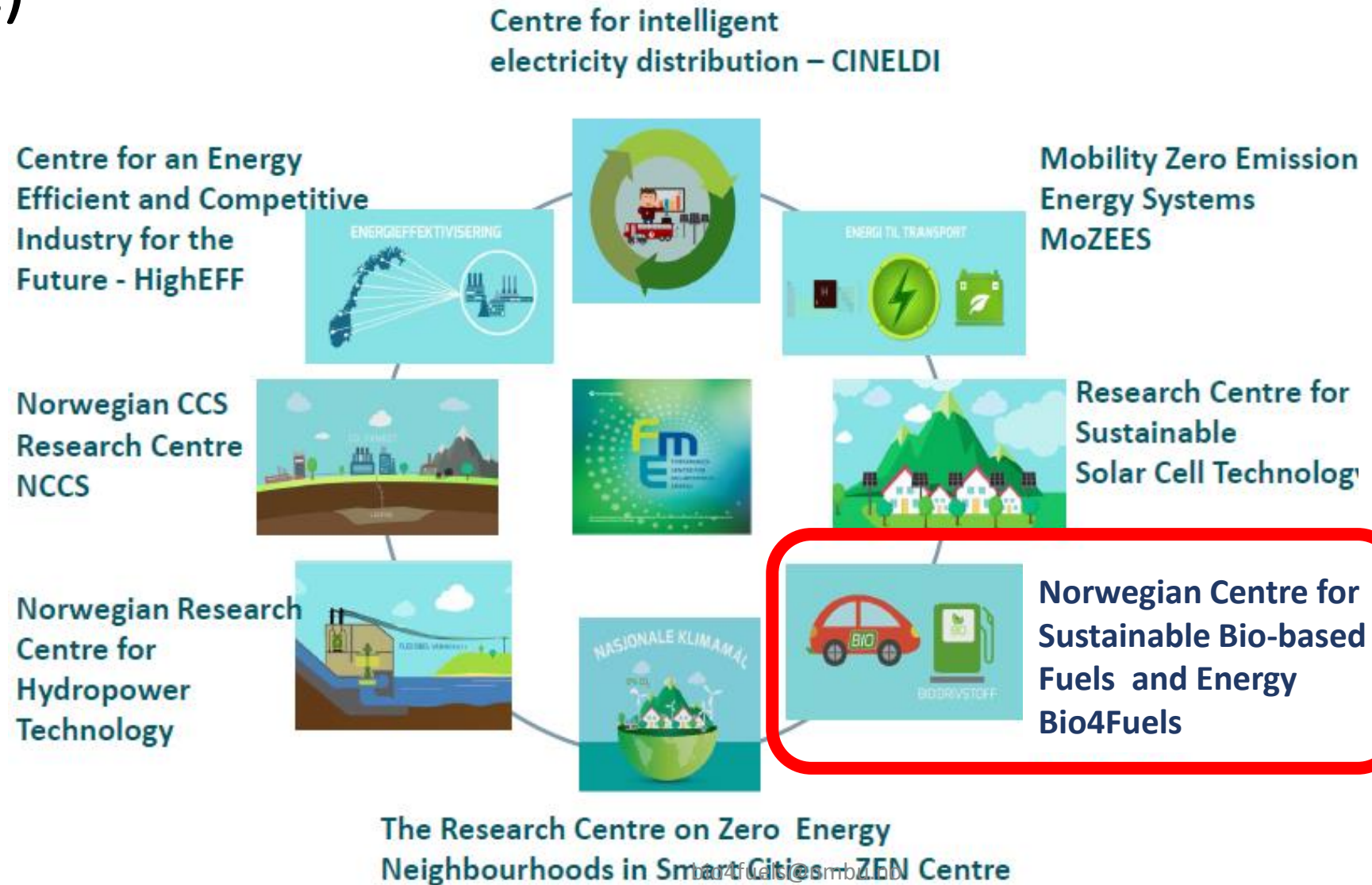


NIBIO

NORSK INSTITUTT FOR
BIOØKONOMI

bio4fuels@nmbu.no

National Centres for Environmentally Friendly Research (FME)





From plenary meeting
September 2 – researchers and industry
discussing details

Main objectives:

develop innovative technology and support industries to realize economic and sustainable conversion of lignocellulosic biomass and organic residues to transportation fuels, along with added value chemicals, heat and power”

The Bio4Fuels Concept

Bio-resources

Lignocellulose • Organic residues

Technologies

- Biochemical
- Thermochemical
- Chemical

Stakeholders

- Resource owners
- R&D institutes
- Industry
- Authorities
- NGOs

Bio-resource,
Environment, Climate

Primary Biomass
Conversion

Secondary Conversion and
upgrading

Process design and
End Use

SUSTAINABILITY

Markets

Aviation fuel • Heavy Diesel • Biogas • CHP • Valorised Side Streams

Project period: 5 + 3 years, start up 2017
 Budget: ~260 MNOK (total)

Secondary Objectives

- Establishing a **framework** for producing biofuels and bioenergy from renewable **Norwegian resources**, thereby enabling a **reduced global CO₂ footprint** from the energy and transport sector
- Identifying the **five most sustainable value chains**, bringing at least **two of them to pilot stage**
- Achieving up to **20% increase of overall product yield** and up to 30% reduced processing costs within the **main value chains** compared to the current state of the art
- **Integrating research fields** to develop at least **one new conversion technology** and at least **three processes for value added products** in a biorefinery setting
- Broadening feedstock for integrated and standalone heat and combined **heat and power**

Bio-resource Availability & management
NIBIO

Benchmarking of Environmental performance
NTNU

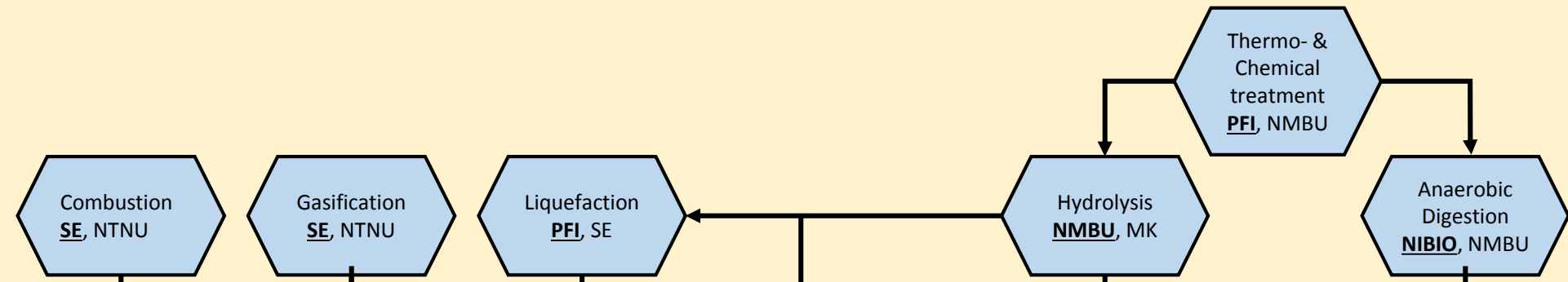
Economics & Policy
NMNU

Bio-resources

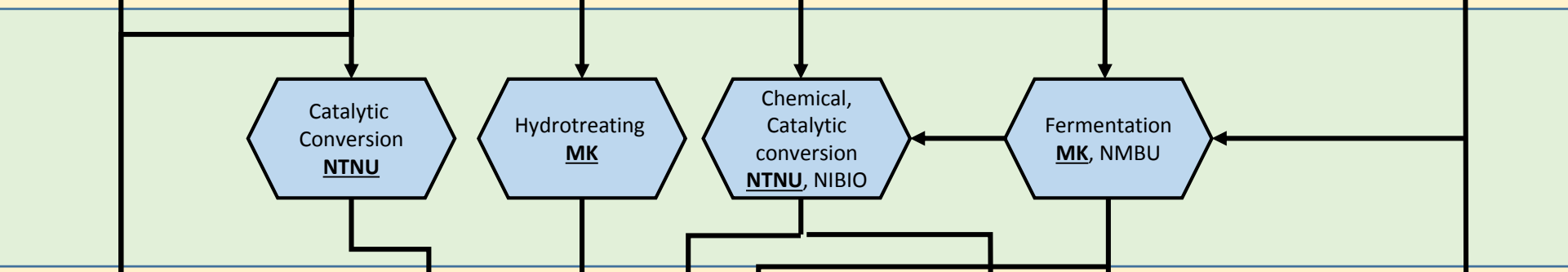
LIGNOCELLULOSIC BIOMASS

OTHER ORGANIC RESIDUES

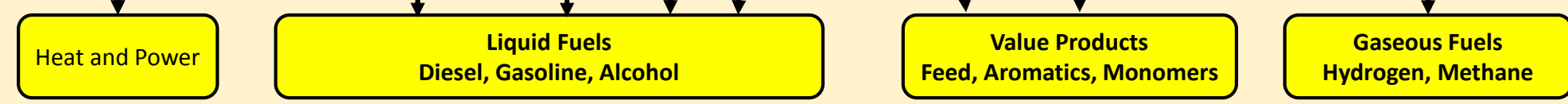
Primary Conversion



Secondary Conversion & Upgrading



Products & End Use



Process Design & Integration
NTNU

Techno-Economic Evaluation
MK

Preparing for Piloting & Up-scaling
FSN

Product quality & End Use
NTNU

Partners: Industry, NGO's, public bodies, international

Alginor AVINOR at biovarme BIOKRAFT

CAMBI ECOB ecopro EGE
- recycling energy 800-1100 ecologic bioproducts Energigjenvinningsetaten

GAS & DIESEL POWER HERØYA INDUSTRIPARK JMC LOGE
POWER GENERATION SPECIALIST WHERE BUSINESS GROWS LIND CONSULTING ENGINEERING

Norske Skog novozymes Perstorp
Rethink Tomorrow WINNING FORMULAS

Statens vegvesen Statkraft steeper ENERGY

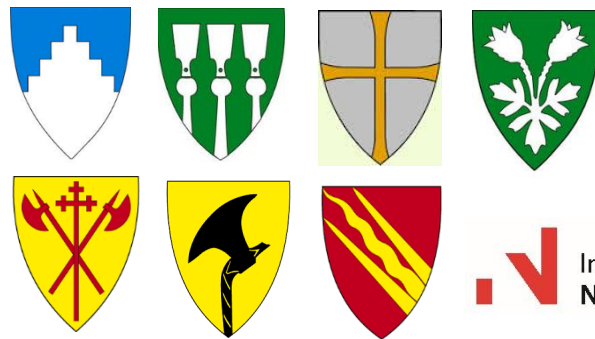
btg BIOZIN AS NORGES BONDELAG
biomass technology group - Circular energy solutions -

enova folle rådnet FTIRscreen

NeoZeo AB nobio nopco NORSE BioTech
Innovations to structure powders Norsk Bioregenerering

PERVATECH RAGN SELLS NORGES SKOGEIERFORBUND
En del av kredsløpet

UM OE VOLVO ZEG Power ZERO



ABENGOA RESEARCH

DTU Chemical Engineering
Department of Chemical and Biochemical Engineering

NC STATE UNIVERSITY

UNIVERSITY of York

