

Mo Industrial park

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VISION AND STRATEGIC POSITION

Mo Industrial Park has the aim of becoming a **green industrial park of world class**, and create values through focusing on environment-friendly and energy efficient services and solutions.

MIP SUSTAINABILITY

**ENERGY
EFFICIENCY**

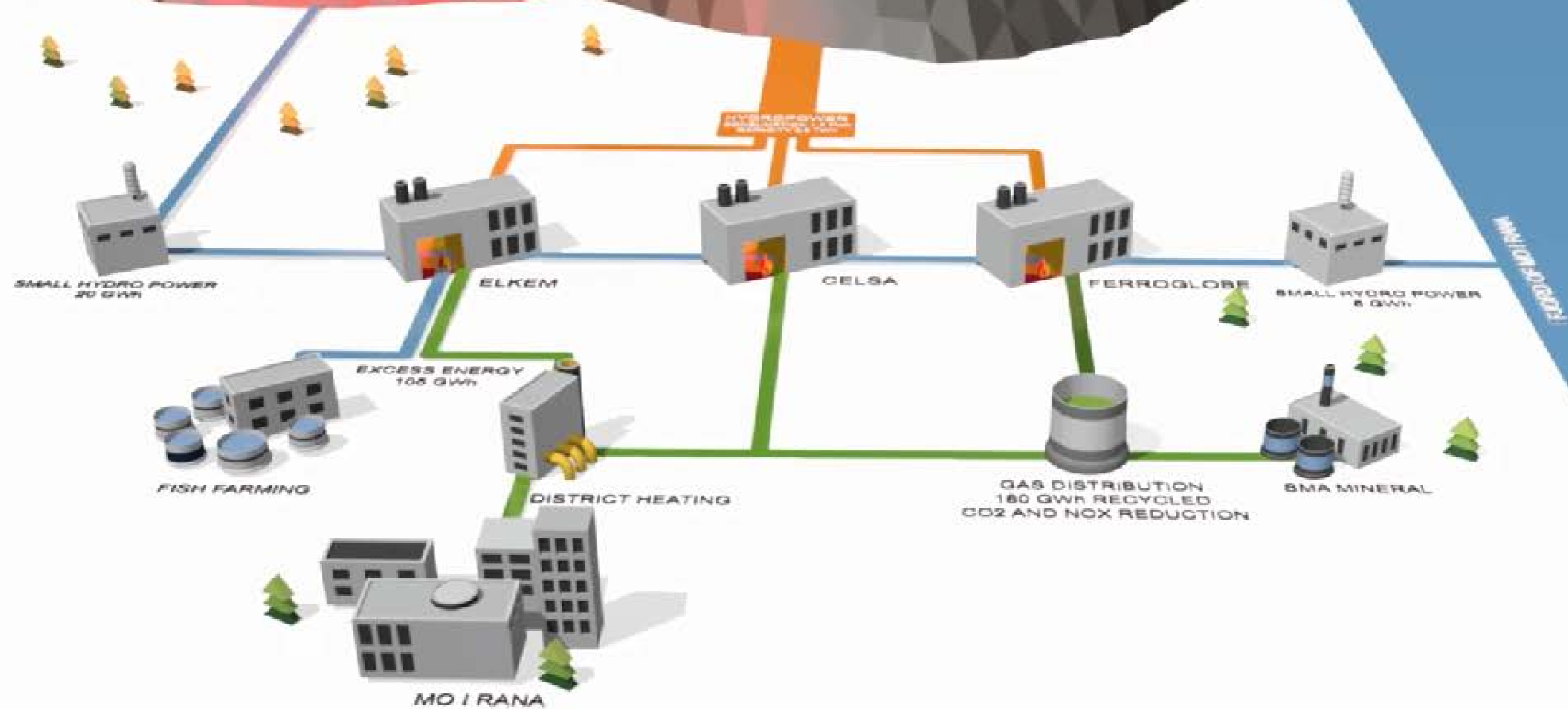


**CIRCULAR
ECONOMY**



**REDUCTION IN
EMISSIONS**





TOTAL RECOVERY:
400 GWh

ENERGY RECOVERY TARGET

620 GWH

=

1 ALTA POWER PLANT

The most important tool to attain the new target of 620 GWh annually in energy recovery is the partnership with FME HighEFF.

Long-term R&D collaboration with the aim to contribute towards creating the world's greenest industry through energy efficiency.

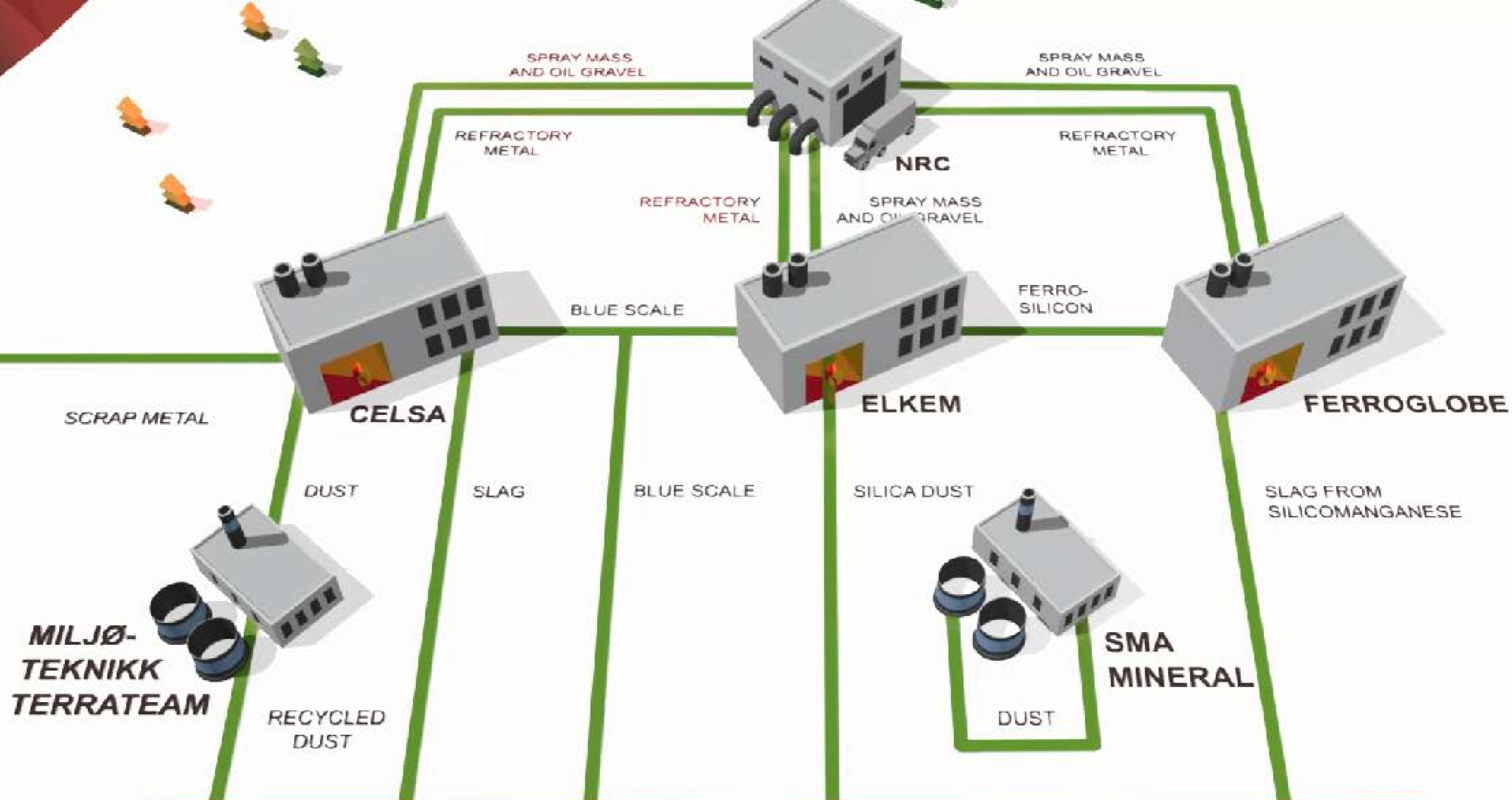


FME HighEFF

Centre for an Energy Efficient and Competitive Industry for the Future



- Represents a joint effort to create a competitive, energy efficient and environmental friendly industry
- Cross sectorial effort with 37 industry partners and 17 academic partners, period 2016 – 2024. Budget NOK 450 mill
- SINTEF is the Center Host
- Mo Industripark is represented in several case studies, e.g.
 - Efficient utilization of surplus energy
 - Thermal storage
 - Small scale power generation
 - Power generating cycles



COMMERCIAL MARKET AND EXPORT

TARGET SIDE STREAMS

Develop
international
special expertise
circular economy

Establishing SINTEF Helgeland centre, with substantial professional commitment to circular economy.

Collaboration with SINTEF, Nord university, Nordland Research Institute, The Arctic University of Norway, etc.

Aim for partnership in SFI Circular economy

Act for a national pilot scheme with research into new business models for the utilization of side streams.



Network for R&D based development:

"Circular economy as a starting point for cross-sectorial industrial development in Nordland"



Other ongoing projects and initiatives

MIP SUSTAINABILITY



CO₂-Hub Nordland

- Process Industry towards Zero Emissions

- **Application to Climit Demo granted April 17th 2018**
 - Design of capture plants on selected cases/locations
 - Site-specific evaluation of capture technologies
- **Specification of CCS cluster solutions for the region a "CO₂-hub" for capture, conditioning and intermittent storage connected to national infrastructure for geological storage**
- **Site-specific evaluation of CCU options and pathways**

CO₂ Hub Nordland (Climit Demo + Industry funding)
2018-2020

Demonstration of technologies
2020-2022

Concept phase/pre feed/Feed
Full scale CO₂ capture
2022-

Prosjektbeskrivelse

CO₂-Hub Nordland

-Mot Nullutslipp i Prosessindustrien

Søknad til CLIMIT Demo
12. februar 2018



Mo Industripark as



SINTEF



ALCOA



Elkem
A Bluestar Company



celsa
nordic



Ferroglobe



OLJE OG GASSKLYNGE
HELGELAND



sma
mineral



NORCEM
HEIDELBERGCEMENT Group



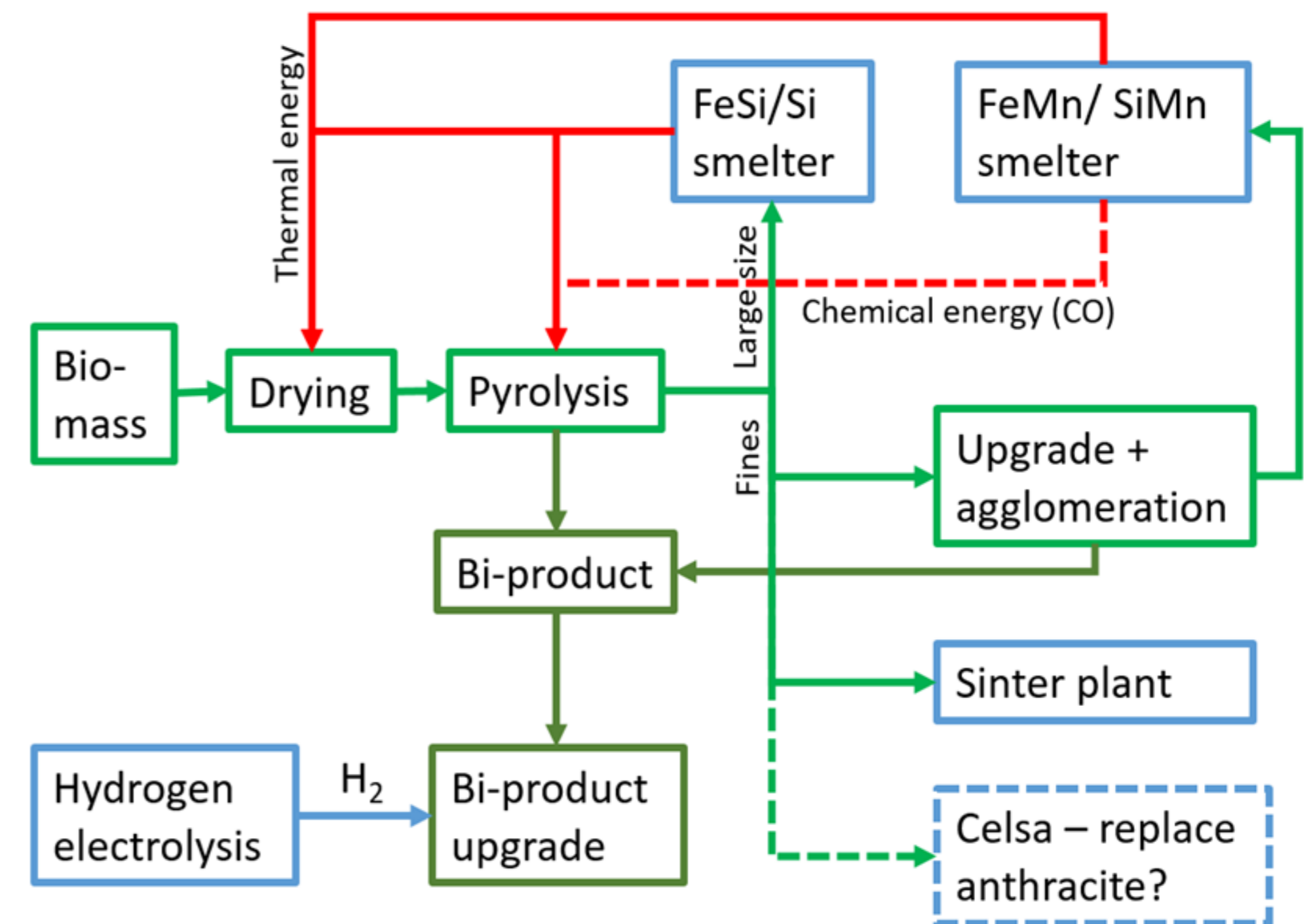
NorFraKalk



Mo Industripark as

A circular economic approach to production of biocarbon for the metallurgical industry

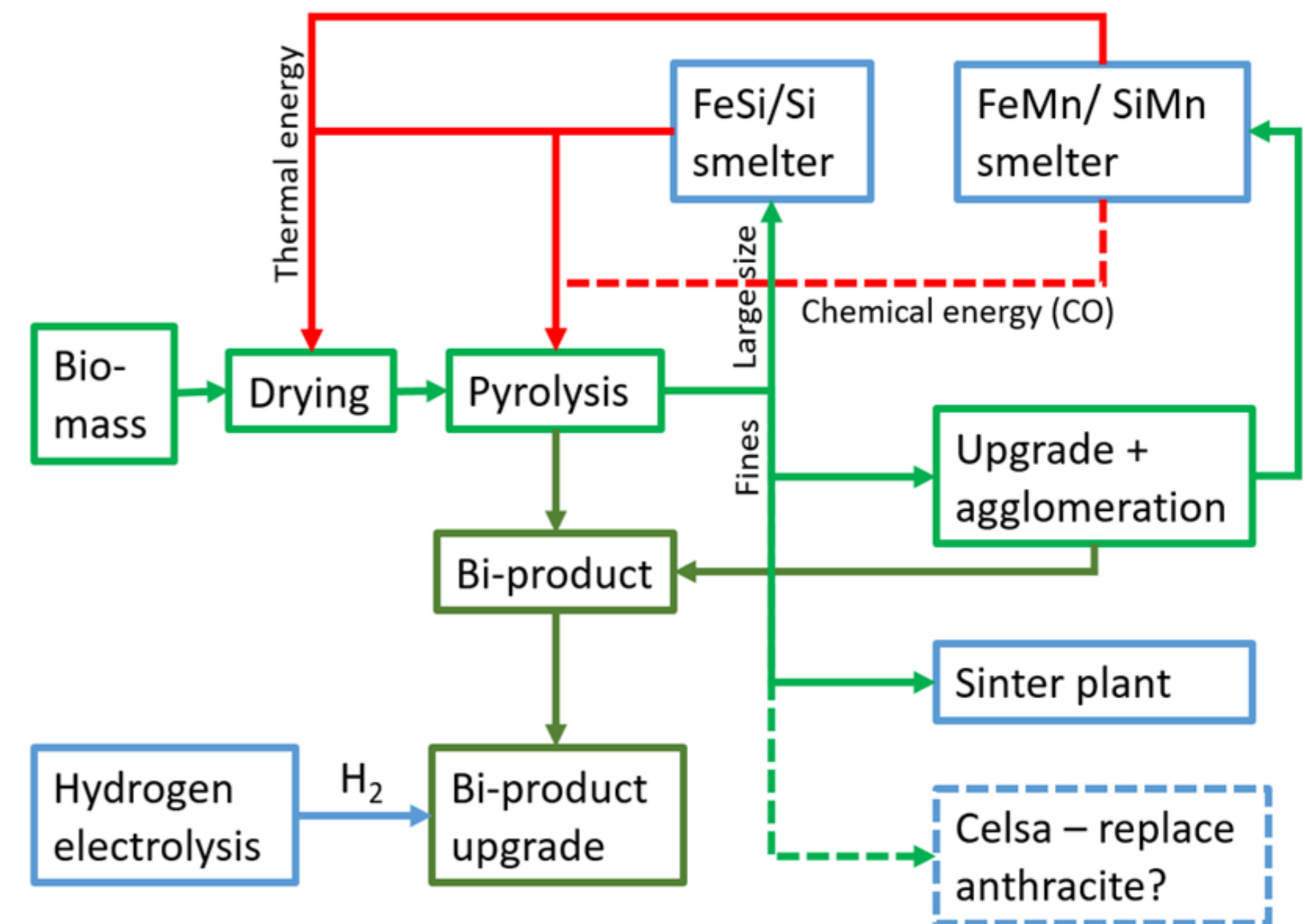
- Carbon from coal and coke: key raw materials for the silicon and ferroalloy industry
- High focus on green transition of the process industry of Norway, where bio-based resources are central
- Biocarbon is the lowest hanging fruit for reducing CO₂ footprint of the Si and ferroalloy industry today
- Utilization of energy streams within clusters can increase resource efficiency of the charcoal process



A circular economic approach to production of biocarbon for the metallurgical industry

- Increased focus on by-products
 - Higher total income
- Pyro gas and oils
 - Upgrade by use of H₂ to high-value products
- Understanding of important balance
 - Properties of reductant vs by-products
- MIP ideal case: Elkem + FerroGlobe
 - Several sources of different quality energy
 - Use of all size fractions
- Pre-project: 2018

Partners: Elkem, FerroGlobe, Mo Industripark and SINTEF





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