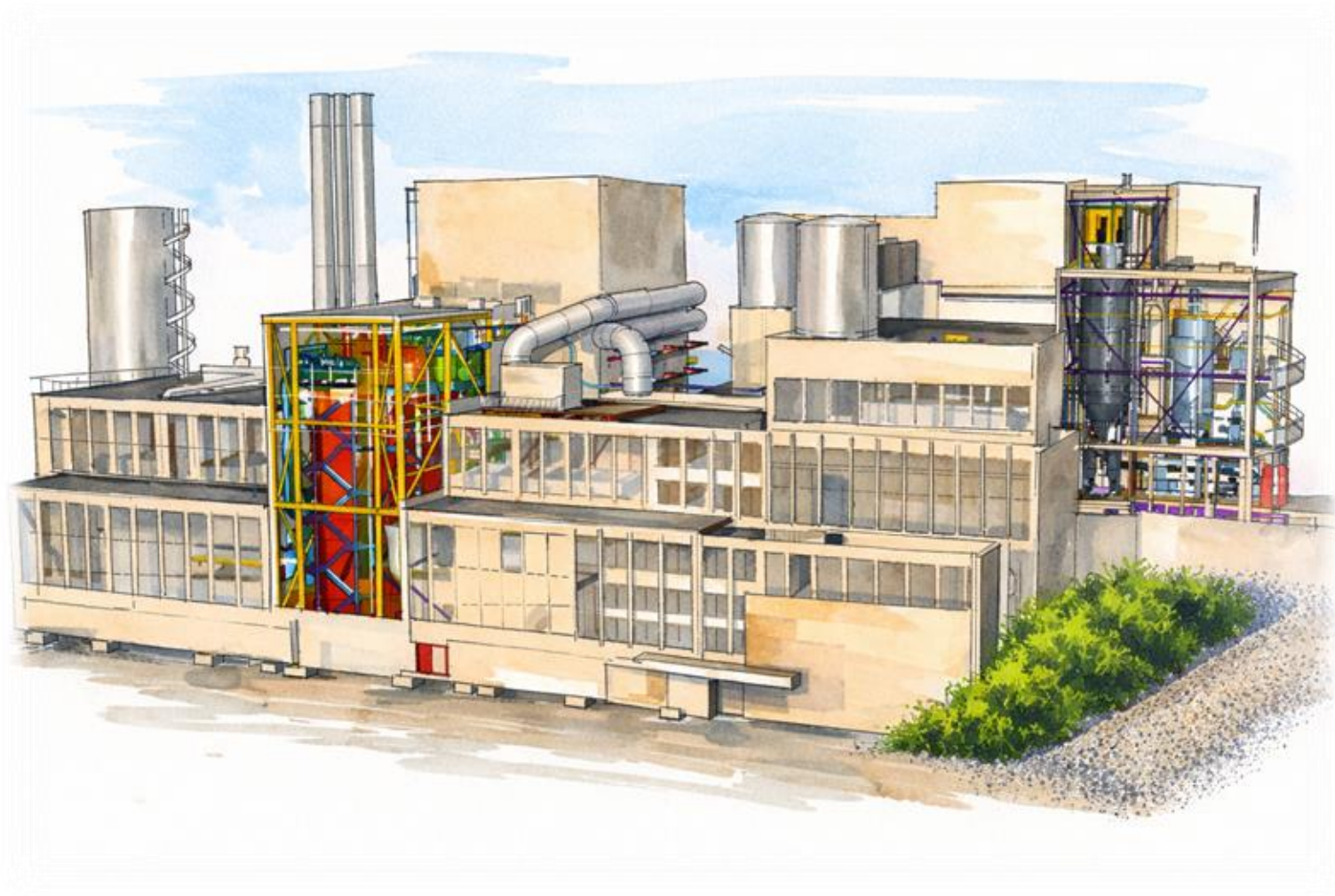


# Combined Fuel Operation, System Integration and Fuel Logistics in Urban Environments



**PETRO** **BIO**

**Daniel Persson**

**Mared**

**Thomas Magnusson**



**Mared**

**Mared Group is a family-owned group based in Huskvarna.**

**The journey started in the 60s and today we are five companies with operations in woodworking, recycling/green energy/feed & food, automation, component sales to industry and solutions in door automation.**

**We have a turnover of approximately 80 -160 million SEK and around 40 employees.**

**We live by our values which are:  
Equal, Sustainable, Committed, Honest and Professional.**



# Mared

# Machines – Plants – Projects – Aftermarket – Services



**Green Energy**



**Waste & Recycling**



**Wood & Biomass**

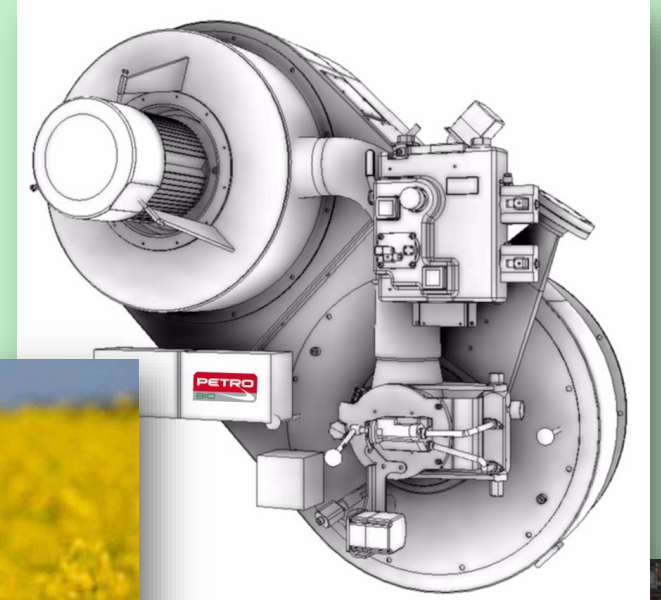
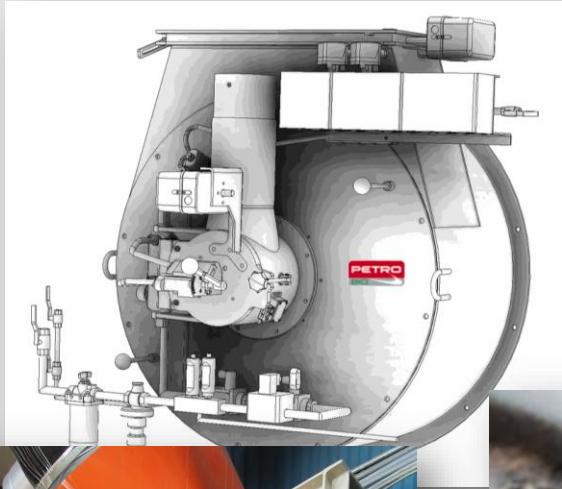


**Feed & Food**

# PETROBIO – SINCE 1964



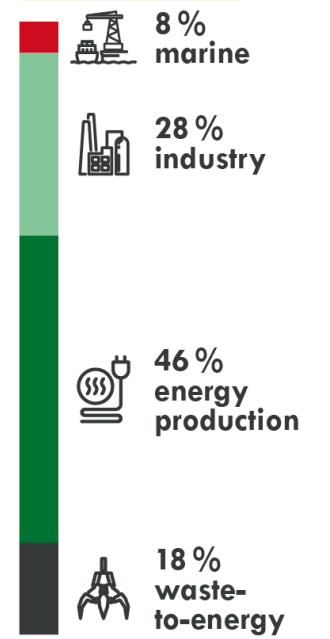
# PETROBIO FROM FOSSIL TO BIO FUELS



# WHO WE ARE



## INDUSTRIES SERVED



WHERE WILL YOU FIND US?



Göteborg, Sweden

Service in several locations  
Partners in Belgium and Finland  
Installations EU, Asia, US



PETROBIONEERS ~ 40



Turnover

100-120 MSEK = 10-12 M€

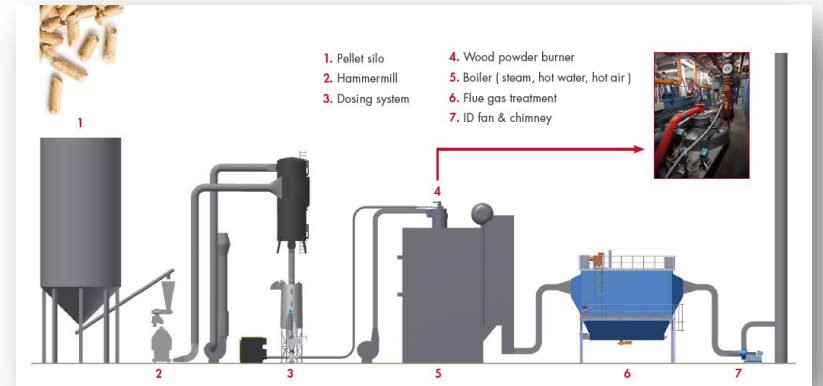
SOLID BIOFUELS



GASEOUS AND LIQUID BIOFUELS



GASEOUS AND LIQUID FOSSIL FUELS





## Combined partners with experience

- VYNCKE has chosen PetroBio and Mared as partners
- PetroBio first commercial pulverized fuel project in 1989
- Mared and Petro, 19 projects since 2010
- Together, the 'Team' can bring each company's core competencies into the project.

**Mared**

# Project Norrenergi 70MW Bio Fuel

- Located in central Solna
- Transport of fuel through central districts.
- Norrenergi has been firing pellet fuel in pulverized form since 2003
- Existing infrastructure for reception and handling.
- In near future, the capacity of heat pumps will be reduced while the option to purchase district heating becomes limited.



# Fundamentals of powder combustion (for beginners)



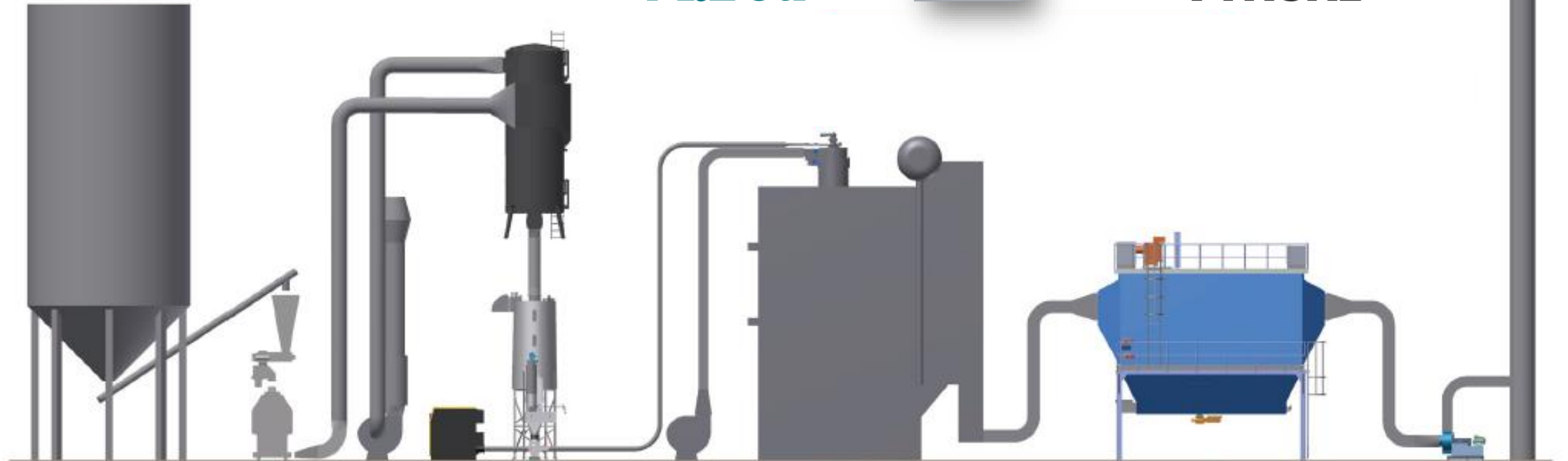
1

- Pellets reception
- Pellets conveying
- Milling
- Filtering
- Safety systems
- Auxiliary systems

- Dosing
- Pneumatic transportation
- Burners
- Control system

- Boiler
- SCR & CEMS
- ID-Fan
- Flue gas treatment
- Etc, Etc

Mared



2

3

5

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7

Mared



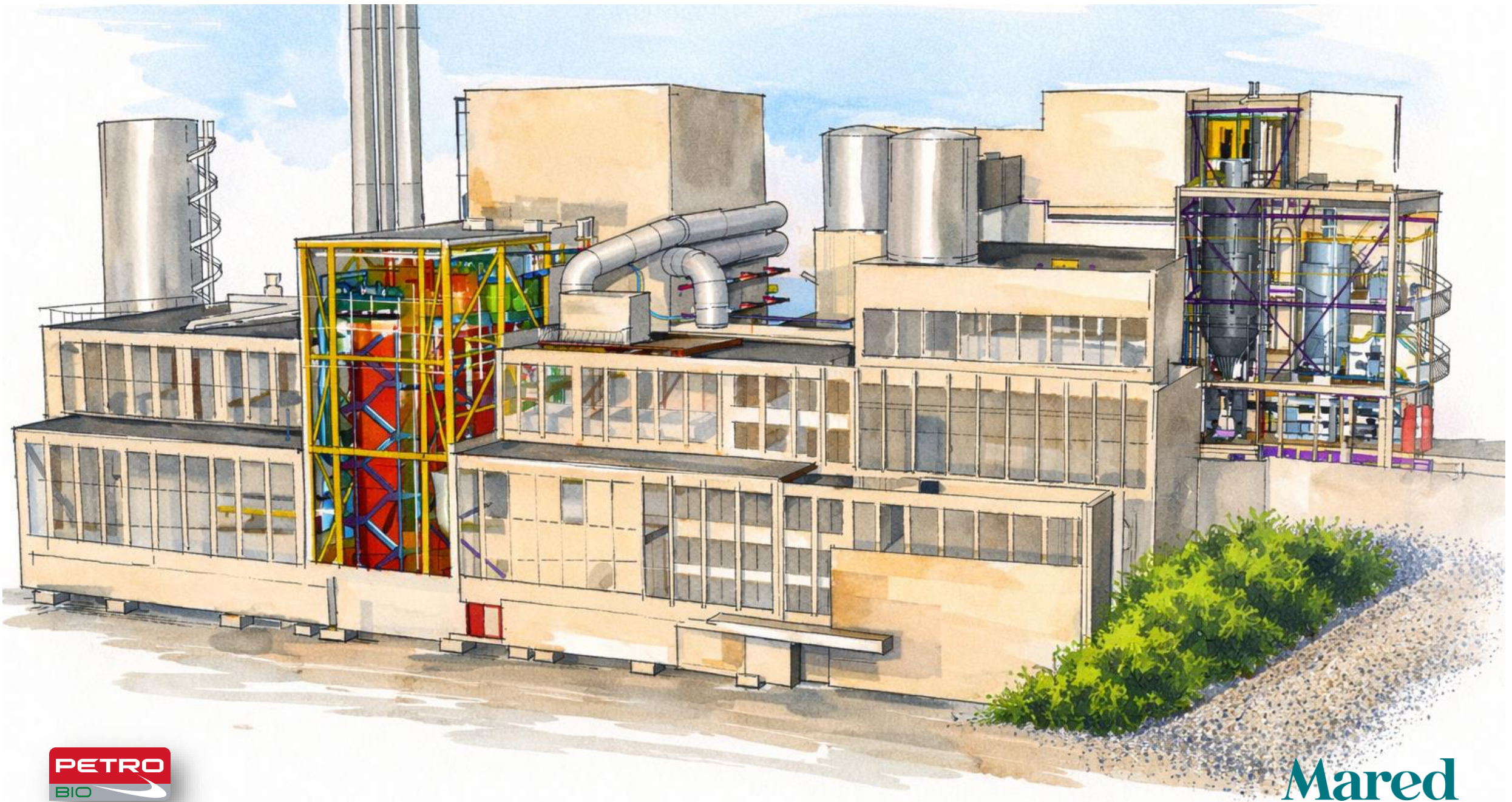
# Fuel flexibility

Eight different fuels, six liquid and two solid.

## Implications for Fuel Flexibility:

- DCS system is being installed
- Pump and preheater unit to handle variations and corrosiveness.
- Fuel handling to handle variations and contaminations.
- All systems designed in accordance with the variations in the fuel.
- Seamless fuel switch

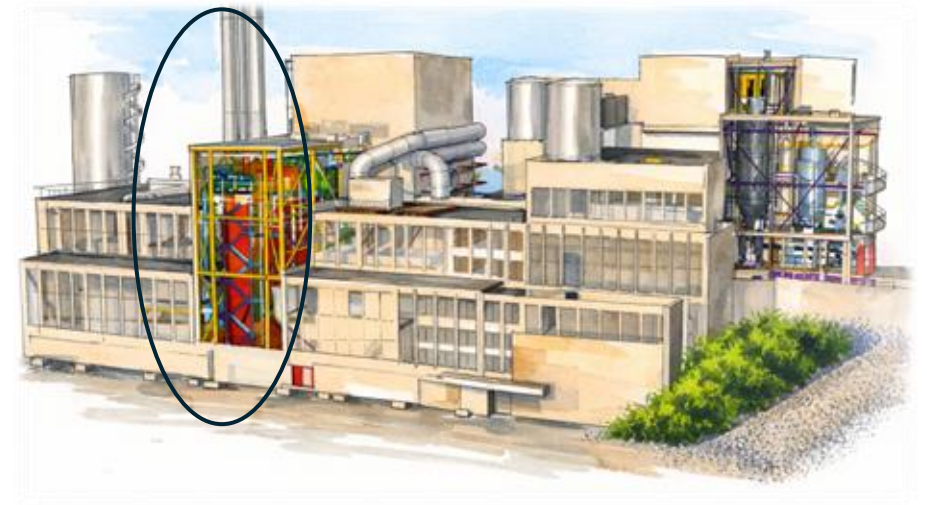
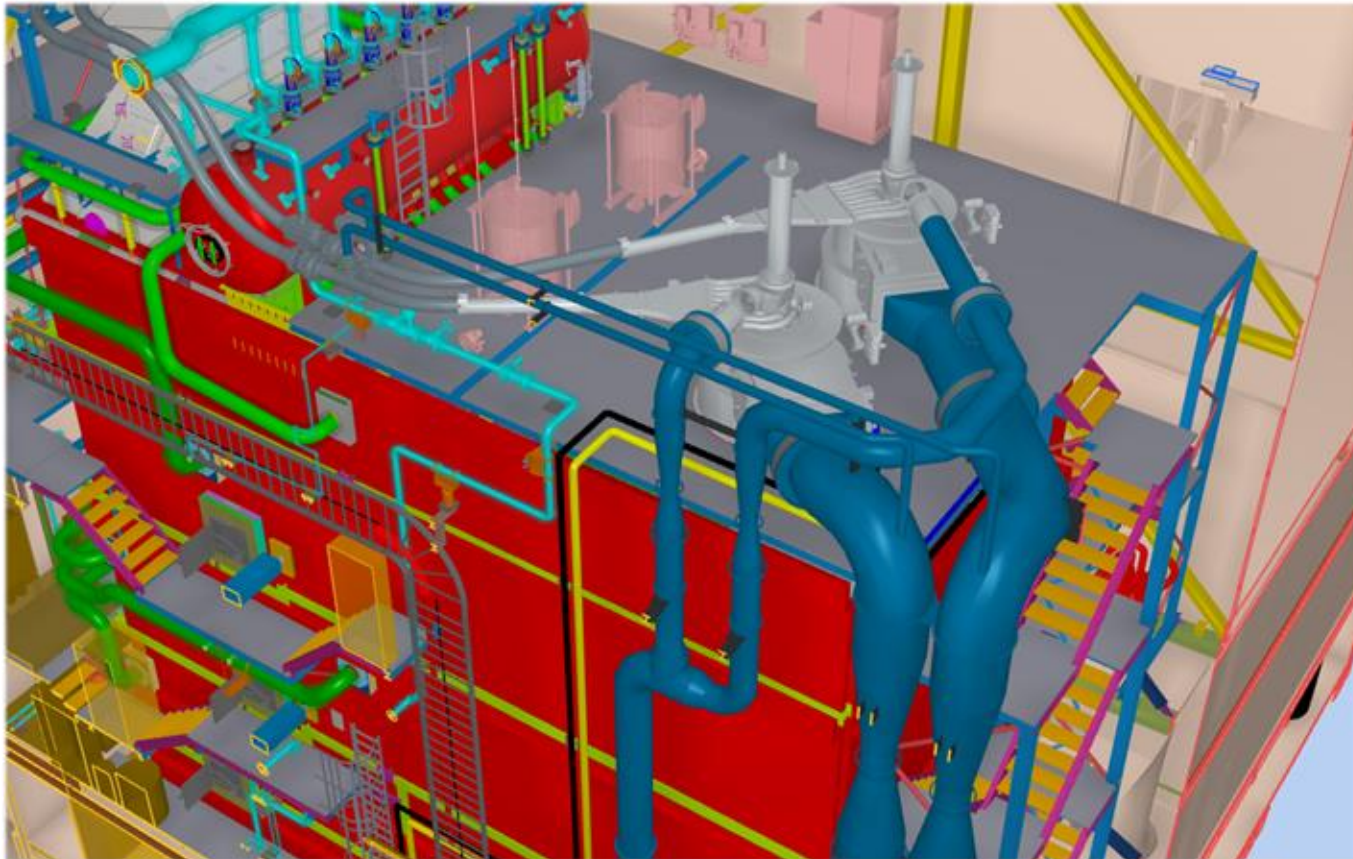




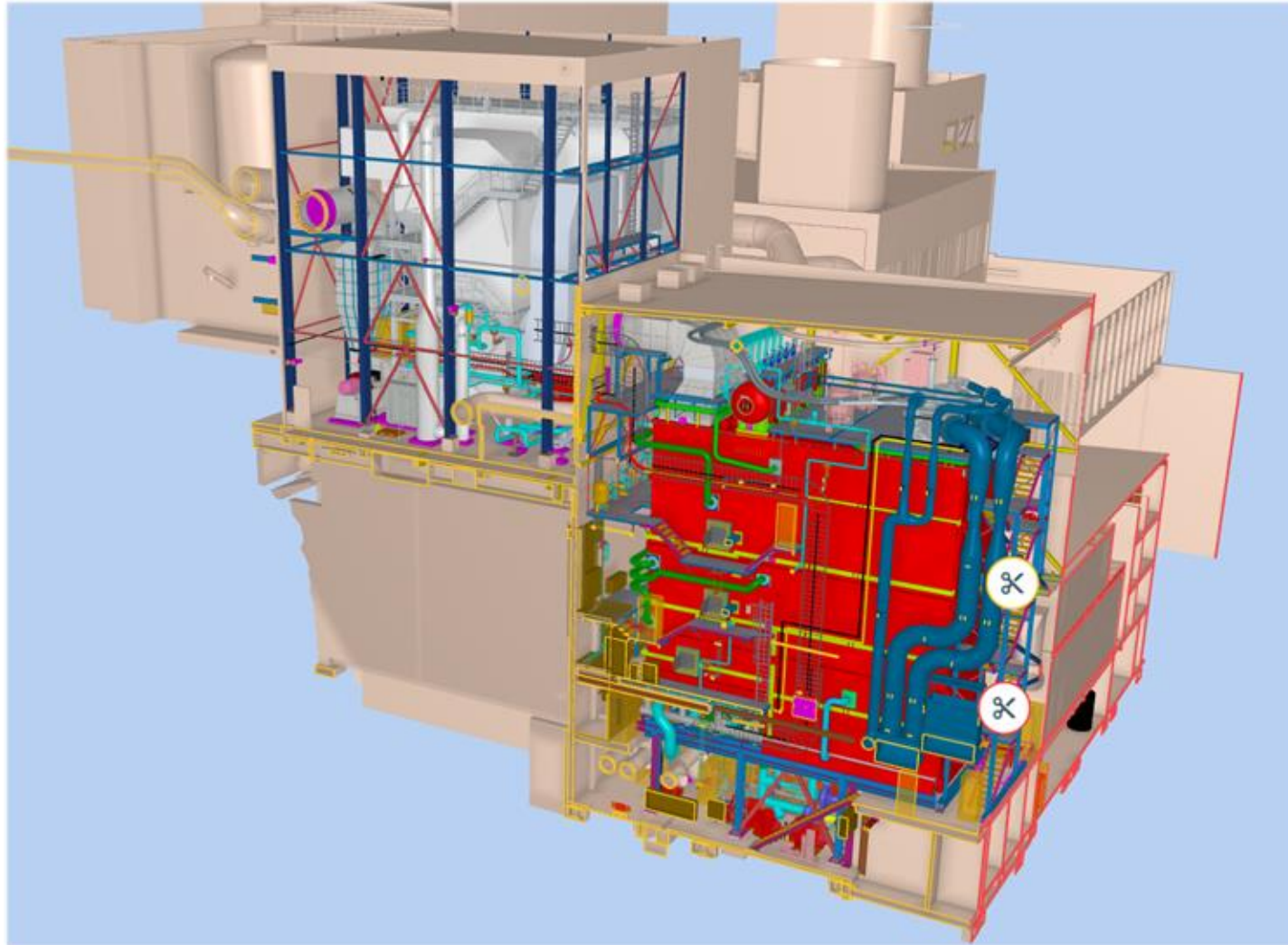
# Fuel Handling and Fuel Preparation



# Burner and Boiler



# Bag house and Fluegas Treatment





## Activity's

- **Contract date** Summer of 2025
- **Existing plant to be prepared to accommodate the new 70 MW plan.** On going
- **Materials to be delivered and above all, coordinated** Spring 2026
- **Installation (mechanical followed by the electrical)**
- **Start up**
- **Tuning & fine tuning**
- **Total of 20 months from contract to completed project.**

*"This project marks an important milestone in Norrenergi's transition toward fully fossil-free production. By replacing an old oil-fired boiler with a modern pellet-fueled one, we are reducing our CO<sub>2</sub> emissions while strengthening the reliability and sustainability of our energy supply to customers."*

Thanks for your time!

