RVO Inspiratietour op 14 februari 2023:

- Elektrificatie als oplossing voor volle elektriciteitsnetten

Sappi Maastricht casus;

Hoe onze energiestrategie niet alleen leid tot reductie van CO2 uitstoot maar ook bijdraagt aan netstabiliteit

Bram Goorts –Utility manager

Ferdinand Koster – Mill Director

Even voorstellen en inhoud van de presentatie

- **Korte introductie Maastricht Mill**
- **Energietransitie strategie en de roadmap**
- **Transitie van de Energievoorziening**
- **Connectie naar de Grid “van een voorwaarde naar Symbiose”**
- **Vragen en discussie**

Bram Goorts – Utility manager

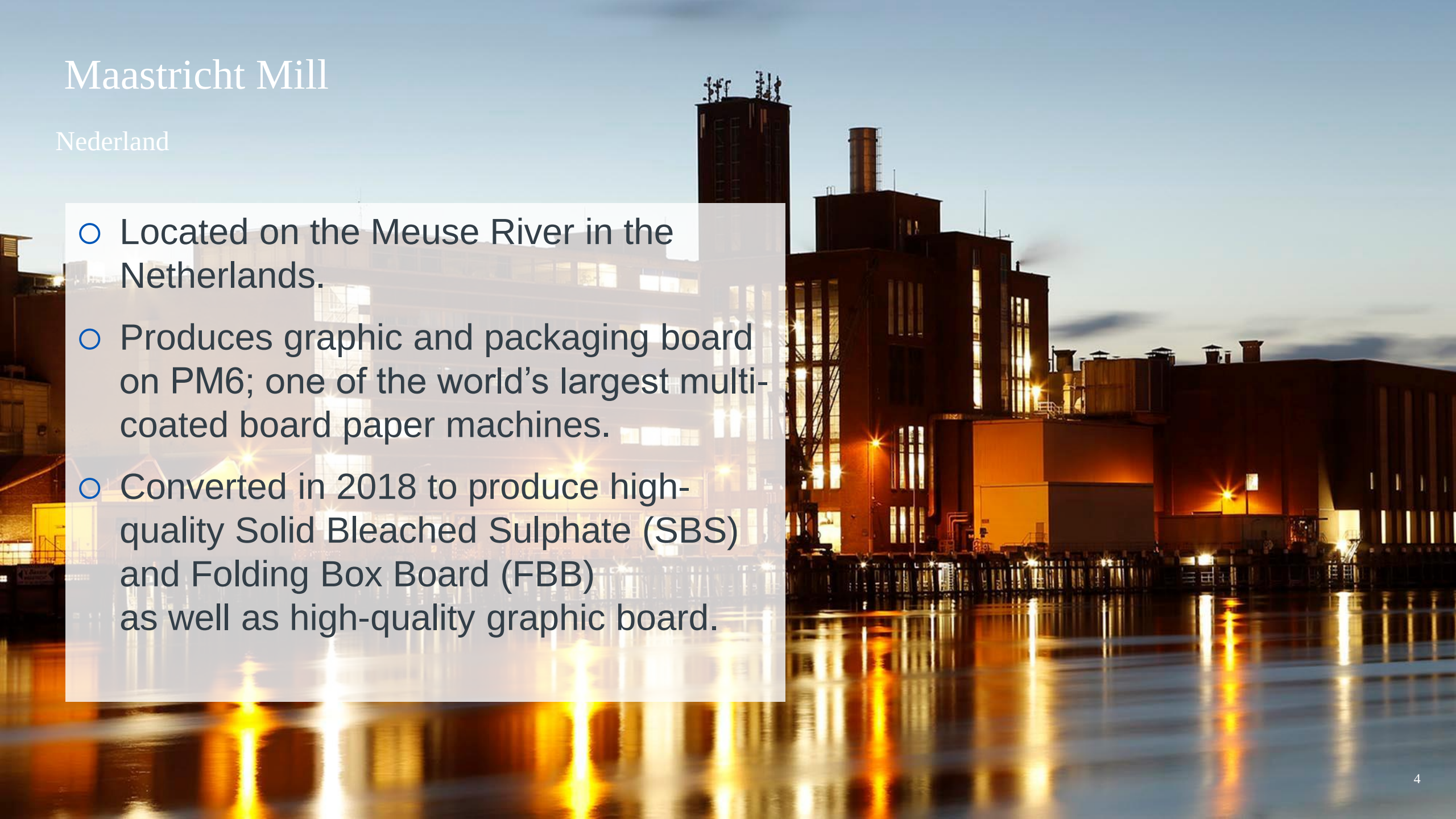
Ferdinand Koster - Mill Director

Maastricht Mill

- Korte introductie Maastricht Mill

Maastricht Mill

Nederland



- Located on the Meuse River in the Netherlands.
- Produces graphic and packaging board on PM6; one of the world's largest multi-coated board paper machines.
- Converted in 2018 to produce high-quality Solid Bleached Sulphate (SBS) and Folding Box Board (FBB) as well as high-quality graphic board.

Sappi Europe – Mill sold to Aurelius

Maastricht Mill (The Netherlands)

280,000 tons coated fine and speciality paper

Lanaken Mill (Belgium)

530,000 tons coated fine paper
165,000 tons bleached mechanical pulp

Stockstadt Mill (Germany)

225,000 tons uncoated and coated fine paper
145,000 tons bleached chemical pulp

Condino Mill (Italy)

60,000 tons speciality paper

Carmignano Mill (Italy)

100,000 tons speciality paper

Rockwell Solutions (United Kingdom)

100 million m^2 coated barrier film and paper

Kirkniemi Mill (Finland)

750,000 tons coated paper
300,000 tons bleached mechanical pulp

Alfeld Mill (Germany)

275,000 tons speciality paper
120,000 tons bleached chemical pulp

Ehingen Mill (Germany)

280,000 tons coated fine and speciality paper
140,000 tons bleached chemical pulp

Gratkorn Mill (Austria)

980,000 tons coated fine paper
250,000 tons bleached chemical pulp

Maastricht Mill

Facts and figures

280 Kton

Paper machine 6

Off-coater

Sheet Finishing

6 sheeters

2 ream wrapping

480 employees

60 mega Watt

Boiler house

Productportfolio

Grafical papers

- Silk & Gloss
- 200 – 450 GSM

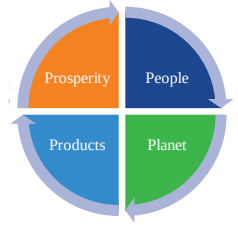
Specialities

- Low gloss, High bulk, High Brightness
- 220 – 380 GSM

Maastricht Mill

- Energietransitie strategie en de roadmap
- Transitie van de Energievoorziening
- Connectie naar de Grid “van een voorwaarde naar Symbiose”

Maastricht Mill - Strategy 2025



People:

- 0 Incidents and an intrinsic safety culture
- Sustainable employability & Employer of Choice

Planet:

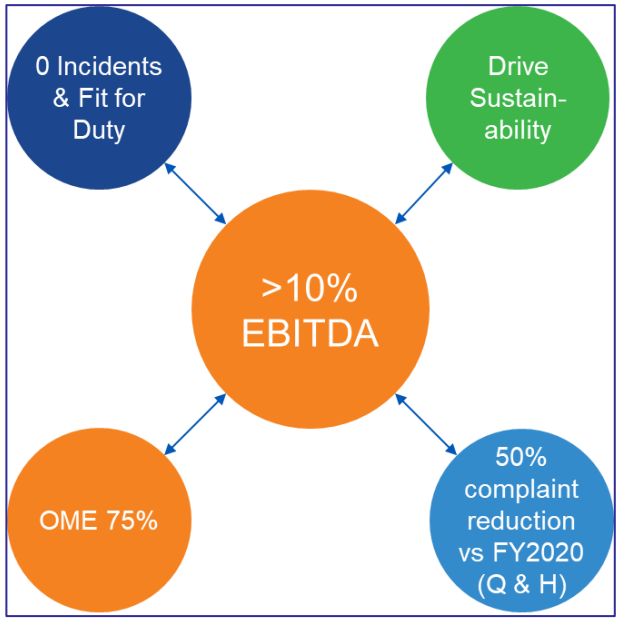
- Comply with environmental legislation and drive sustainability and efficiencies
- Strategy to reduce Carbon Footprint

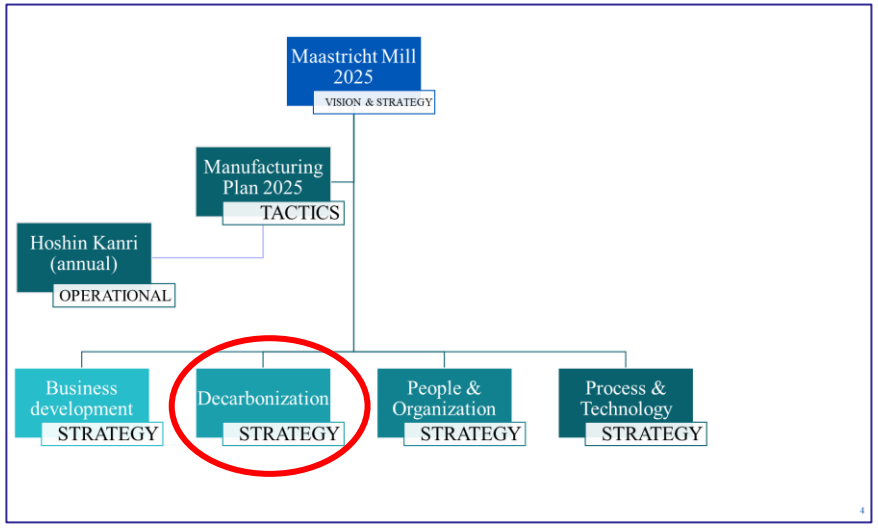
Product:

- Leading FBB & SBB Specialties market
- Further develop high grammage graphical grades
- Develop (recyclable) barrier board

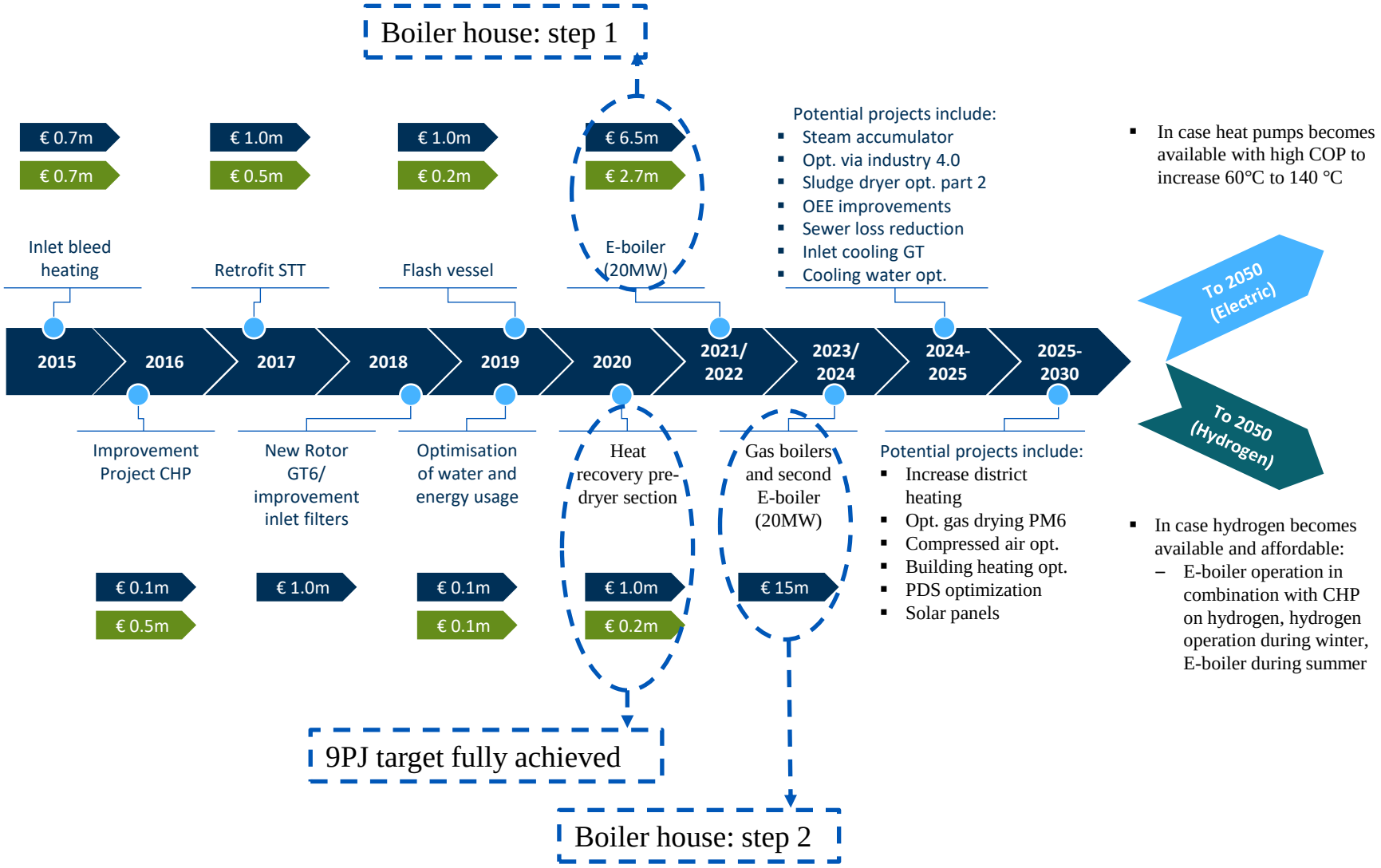
Prosperity:

- Customer satisfaction by driving OTIF behavior
- Reliable processes and equipment to support productivity
- Financially sound mill with healthy EBITDA margins

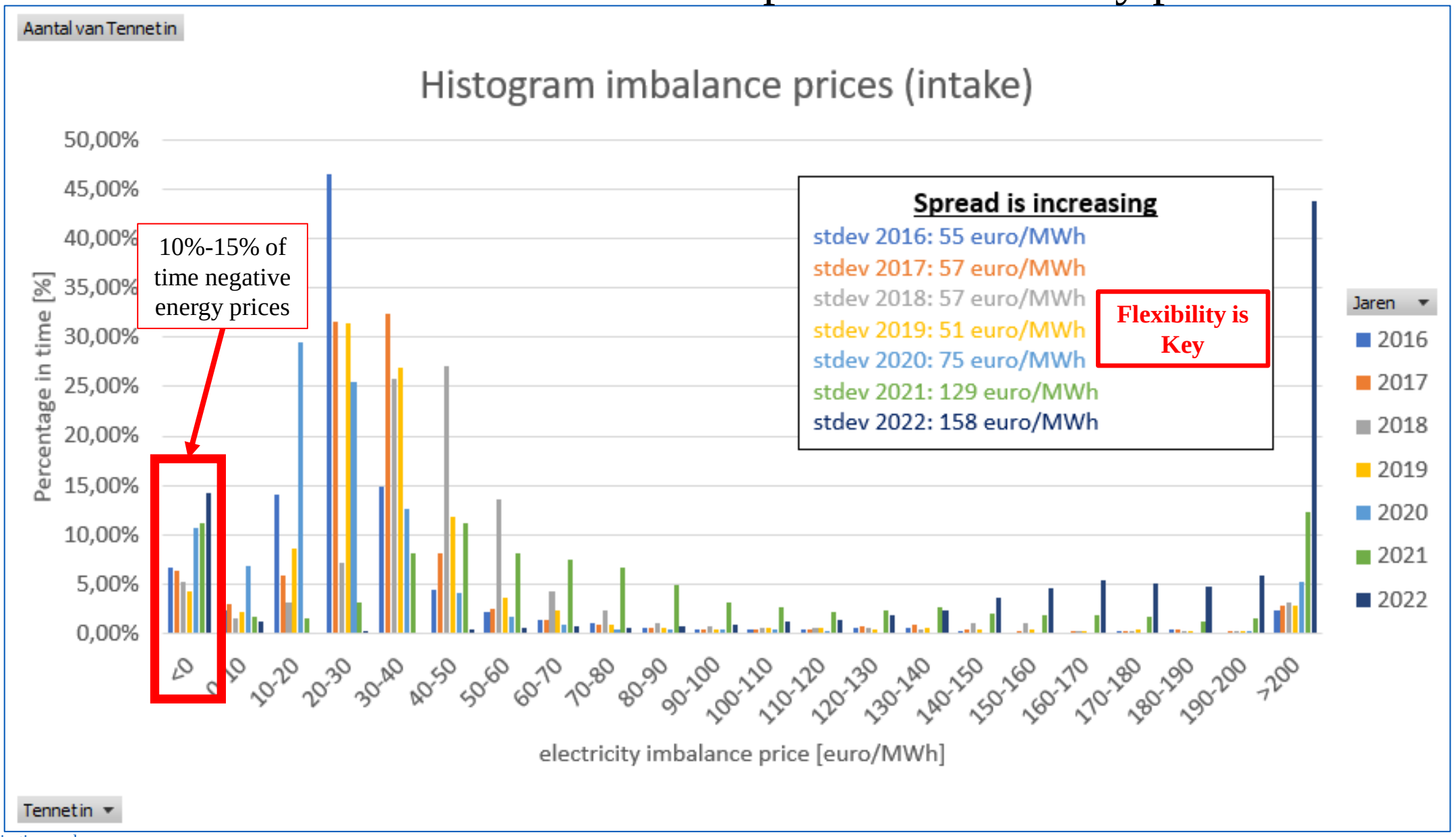




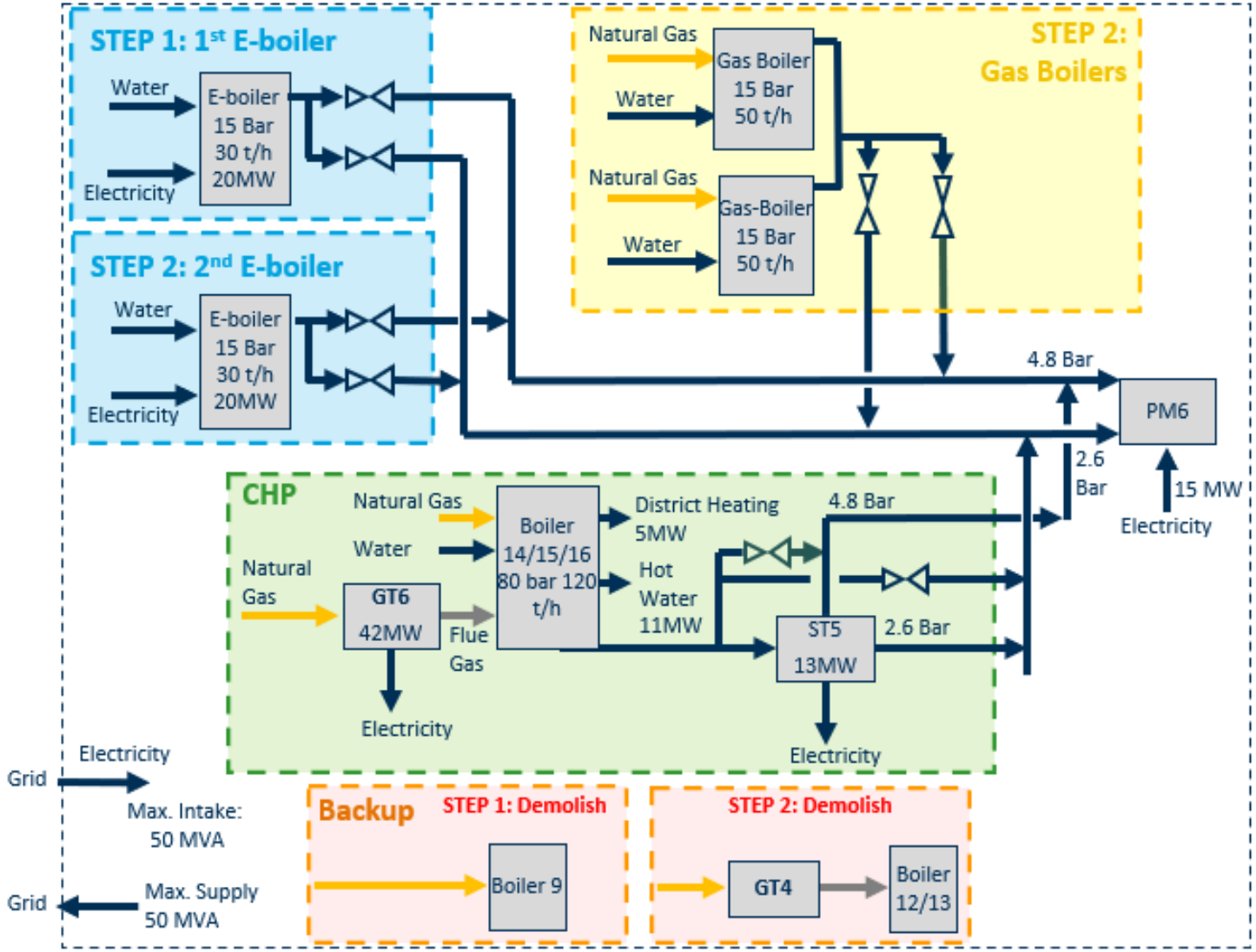
Maastricht Mill - Decarbonization roadmap



Maastricht Mill - Reason for E-boilers: Spread in electricity prices



Maastricht Mill - Decarbonization roadmap: future plans boiler house



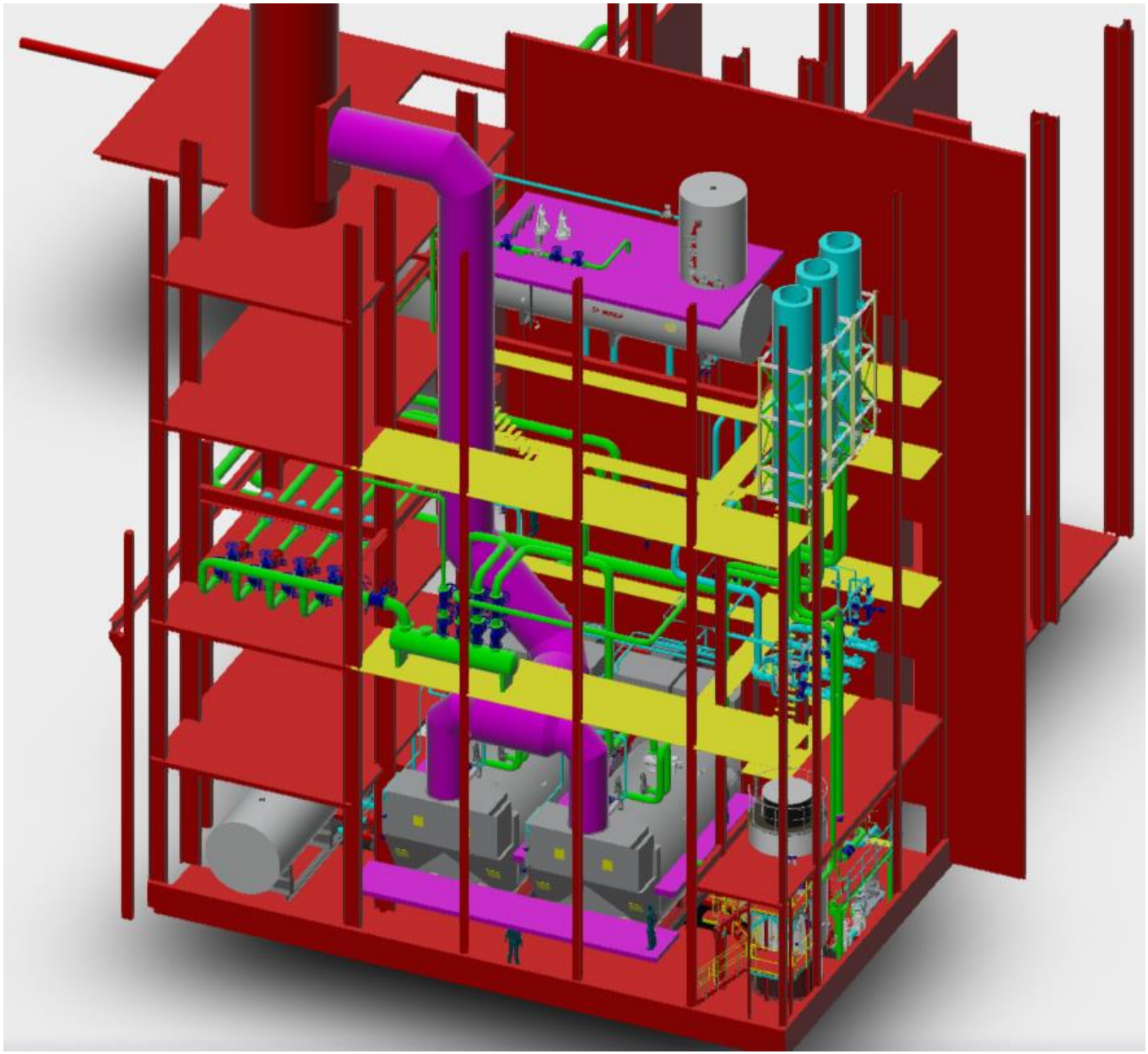
Future Plan: Step 1- 1st E-boiler

- Capex approved: € 6.5m
- Start-up: November 2022
- CO_2 reduction:
  - First years: 12%
  - Maximum potential: 23%
- Working method: Speed and flexibility between CHP and E-boiler, based on 15 minutes, energy prices and capacity needs by grid operator.

Future Plan: Step 2- Gas boilers and 2nd E-boiler

- Capex to be approved
- CO_2 reduction:
  - First years: 12% (24% incl. step 1)
  - Max. potential: 47% (70% incl. step 1)
- Working method: Monthly/season flexibility between CHP and gas boilers. Good flexibility between gas boiler/CHP and E-boilers.

Maastricht Mill - second step boiler house conversion



Maastricht Mill - Transition path in our flexibility options

Energy market:

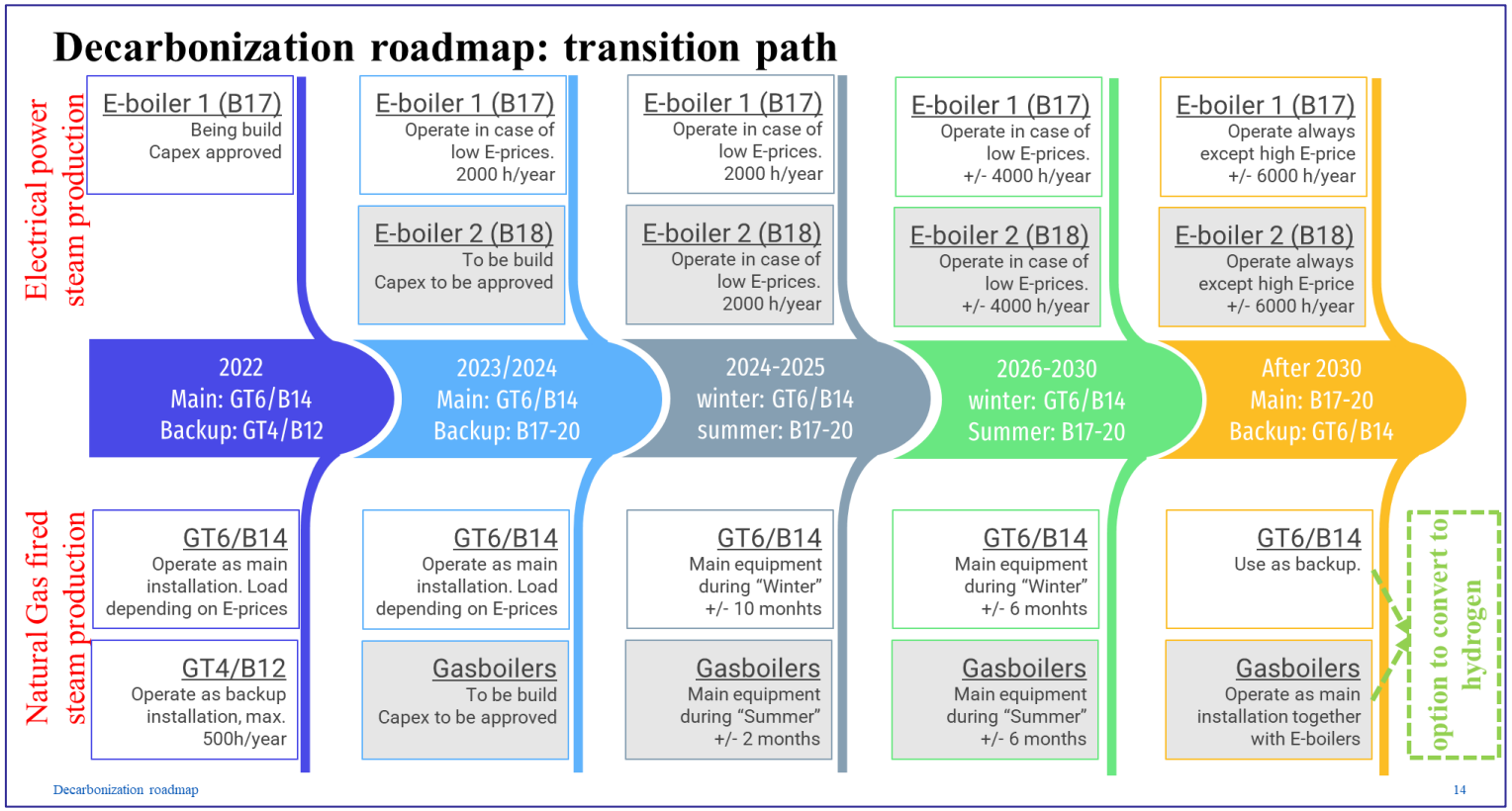
- Spot opt.: Done in the past but replaced mainly by imbalance opt.
- Imbalance opt.: Done in the past but after E-boiler replaced by aFRR

Capacity market:

- FCR:
  - Response time: 30s
  - Equipment: Gasturbine
  - By ourself directly with Tennet
- aFRR:
  - Response time: 5min
  - Equipment: Gasturbine and E-boiler
  - By ourself directly with Tennet
- mFRR:
  - Response time: 15min
  - Equipment: Steam turbine
  - Via pool

Congestion:

- To be added



Maastricht Mill - Decarbonization roadmap: increasing flex – stabilizing grid

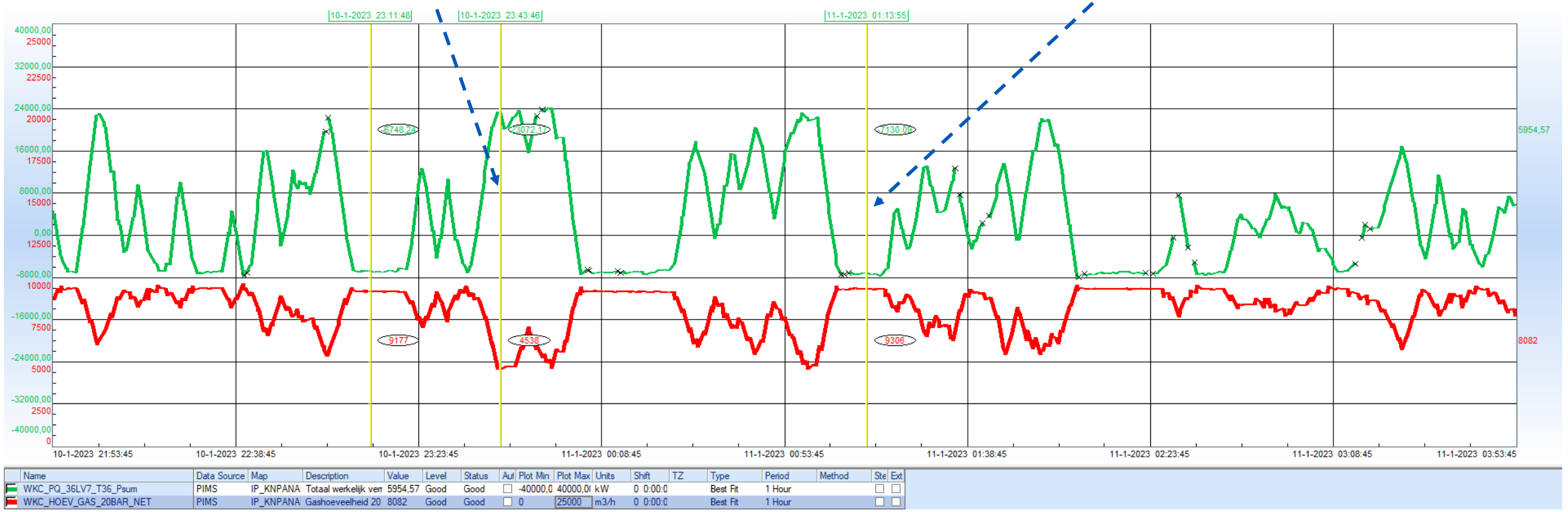
- Sappi Maastricht supplies contracted aFRR to Tennet directly
- Increased flexibility from 22MW to 55MW and plans to increase to 80 MW
- Power control of our assets is done by Tennet directly
- Near future plan is to integrate other companies to increase industrial flex even further
- Maximizing production from renewables within NL by flexible industry (to stabilize E-grid via industry instead of conventional powerplants or renewables)

H2 and Electrical infrastructure will be key in future to use industry to stabilize the E-grid without CO2 emission

Maastricht Mill - Decarbonization roadmap: how it works

Higher electricity intake and low gas consumption when Tennet has a surplus of power

Higher gas consumption and electricity sellings when Tennet has a shortage of power



Name	Data Source	Map	Description	Value	Level	Status	Aut	Plot Min	Plot Max	Units	Shift	TZ	Type	Period	Method	Ste	Ext
WKC_PQ_36LV7_T36_Psum	PIMS	IP_KNPANA	Totaal werkelijk ver	5954,57	Good	Good		-40000,0	40000,0	kW	0 0:00:0		Best Fit	1 Hour			
WKC_HOEV_GAS_20BAR_NET	PIMS	IP_KNPANA	Gashoeveelheid 20	8082	Good	Good		0	25000	m3/h	0 0:00:0		Best Fit	1 Hour			

Fit for future: CO2 reduction will increase by the increase of renewable energy in the market and possible to reduce congestion.

Maastricht Mill - Decarbonization roadmap – Key message

Starting with flexibility
- Investigate your flexibility potential and options to increase it
- Use flexibility first on day-ahead market and afterwards for imbalance optimization
- Finally use assets in the balancing service market

Network capacity / Congestion and volatility
- The Grid capacity is a challenge, but cooperation is key.
- Expansion is key but flexibility (virtual battery of process) can help to stabilize and extend
- Break through chicken – egg dilemma and don't wait

Energy transition should be integrated part of your business strategy and have three key elements
- Energy usage reduction and reuse should be key focus in your organization (Operational Excellence)
- Energy generation improvements → Utility / Boiler house strategy
- Exploring, participating in new technology (MOOI projects, etc)

Vragen en discussie

Bedankt