

**HOERBIGER - We enable change for a better tomorrow.**

## Dekarbonisierung durch Einsatz von Wasserstoff – Anwendung in der Industrie

Norbert Kuerner & Karl Doppler



# WELCOME!

HOERBIGER Group at a glance

130 locations

Successful around the globe

since 1895

1 strong brand

40 countries

6,477 employees

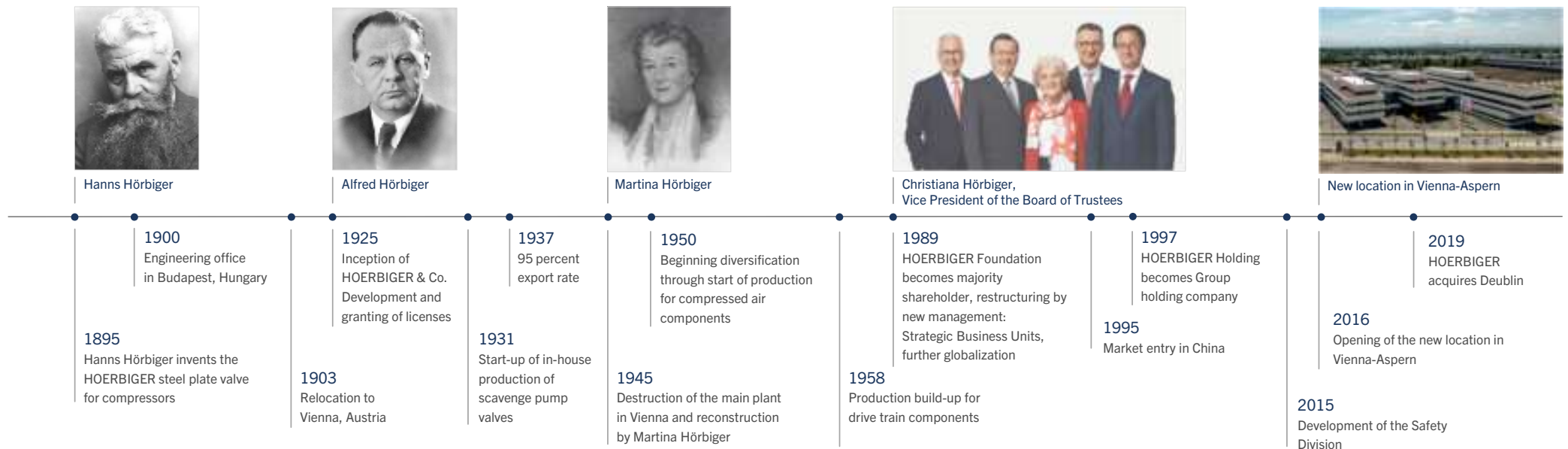
1.466 bn euros in sales



Figures as of Dec 2024





















# Where We Come From

## Our heritage

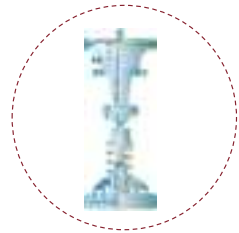


# HOERBIGER Portfolio

Products and services by Strategic Business Unit and Division

Compression Technology					
Compressors & gas flow control	 Valves & valve systems	 Rings & packings Lubrication systems	 Control systems	 Valve actuators & piezo valves	Service
Drive Technology					
Drivetrain	 Synchronizers	 Connect/disconnect Torque management	 Transmission actuating systems		
Rotary Solutions					
Rotating union	 Rotary joints	 Electric slip rings	 Combinations	Service	
Safety					
Explosion protection	 Explosion suppression	 Spark detection & spark extinguishing	 Explosion venting	 Grounding systems	Service
Engine					
Industrial gas engines	 Ignition	 Gas metering & gas mixing	 Engine control systems, displays		
Automotive Hydraulics					
Hydraulic & testing systems	 Mobil hydraulics	 Test benches & software	 Mobile test systems		

# Division Compressor – Performance and Service Partner



Actuators



Suction & Discharge Valves



Stepless Control Systems



Cylinder Rings



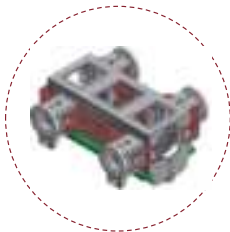
Pressure & Wiper Packings



Pistons, Rods & Liners



REE Fleet Audit



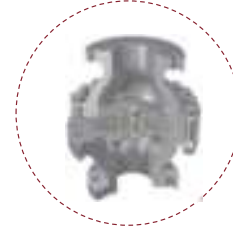
Engineering Study



Emission Control Panels



Explosion Relief Valves



Check Valves



Lubrication Systems



Field Service



Upgrades



Repairs and Component Service



Testing



## HOERBIGER Vienna at a glance...

122 MEUR sales in 2024

380 Employees in Operation

62% Business with group companies

670 Employees

80 Employees Research & Development

60 IT Employees

320 active customers

Successful since 1895



# In today's environment innovation will be a key to ensure future success

*Global megatrends change the energy industry and the momentum increases*

## Global dynamics “Being local”



- Growing population and living standards – eastern hemisphere
- Low growth in west – EU and USA
- Decoupling of large economies – China, USA, etc
- Higher local value add in key energy markets – Saudi Arabia, India, etc

## Climate “Less carbon”



- Increasing need of primary energy
- Natural gas grows but is strongly challenged for its emissions
- Strong growth in renewable energy
- Decarbonization of society and industry
- Zero emission mobility drives H2 and leads to reduction in refining

## Productivity “Digitalization”



- O&G industry to face strong pressure on CAPEX and OPEX
- Integration of processes and tools across value chain, faster processes
- Outsourcing of expertise - equipment performance prediction

# Our key innovation topics for the future

Areas with top importance

## Hydrogen



## e-Mobility

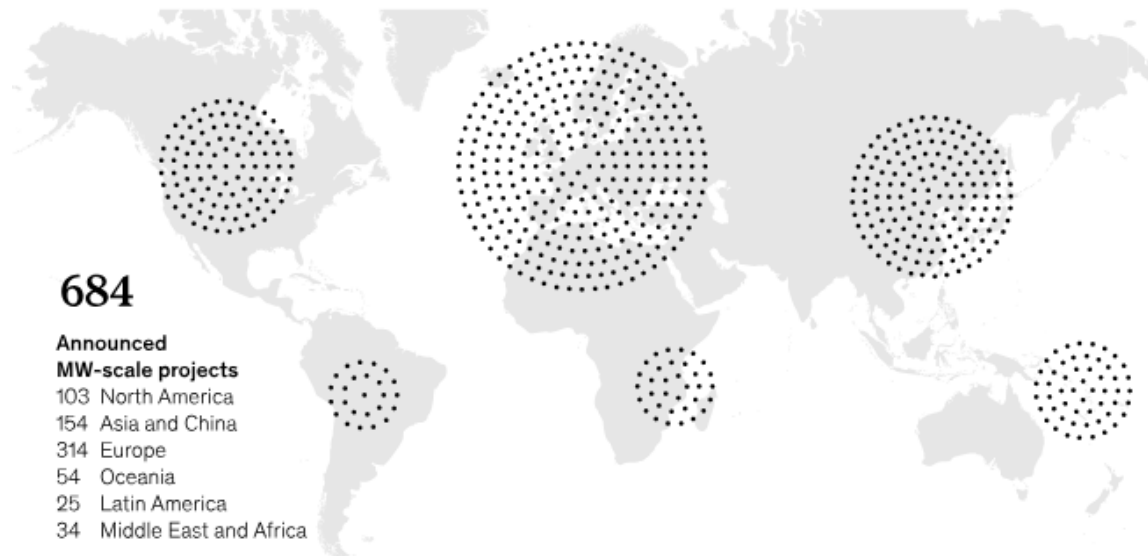


## Sustainability





## 684 announced MW-Scale projects

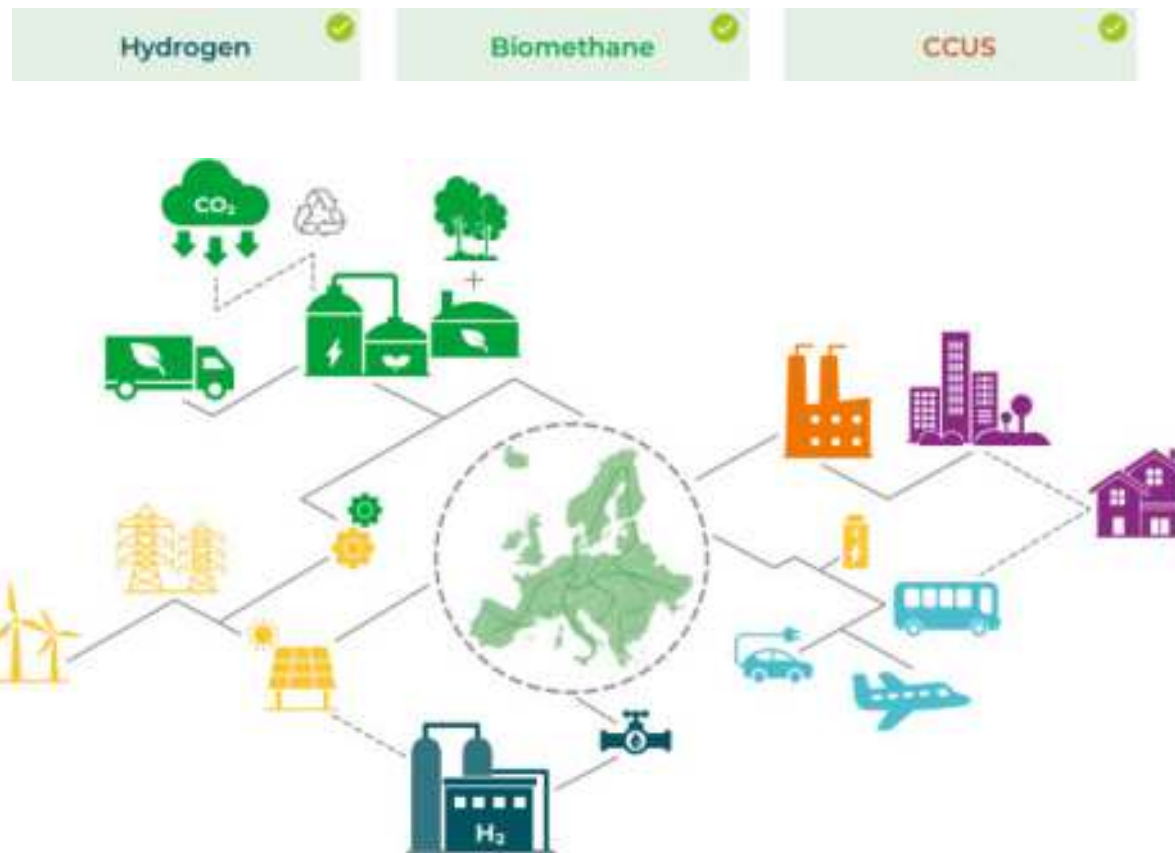


## The world's 20 largest announced giga-scale green hydrogen projects



- 1 HyDeal Ambition (67 GW)—Western Europe
- 2 Unnamed (30 GW)—Kazakhstan
- 3 Western Green Energy Hub (28 GW)—Australia
- 4 AMAN (16 GW)<sup>a</sup>—Mauritania
- 5 Asian Renewable Energy Hub (14 GW)—Australia
- 6 Oman Green Energy Hub (14 GW)—Oman
- 7 AquaVentus (10 GW)—Germany
- 8 NorthH2 (10 GW)—Netherlands
- 9 H2 Magallanes (8 GW)—Chile
- 10 Beijing Jingneng (5 GW)—China
- 11 Project Nour (5 GW)<sup>a</sup>—Mauritania
- 12 HyEnergy Zero Carbon Hydrogen (4 GW)<sup>a</sup>—Australia
- 13 Pacific solar Hydrogen (3.6 GW)—Australia
- 14 Green Marlin (3.2 GW)—Ireland
- 15 H2-Hub Gladstone (3 GW)—Australia
- 16 Moolawatana Renewable Hydrogen Project (3 GW)—Australia
- 17 Murchison Renewable Hydrogen Project (3 GW)—Australia
- 18 Unnamed (3 GW)—Namibia
- 19 Base One (2 GW)—Brazil
- 20 Helios Green Fuels Project (2 GW)—Saudi Arabia











# Gas for Climate







# H2 compression is HOERBIGER core competence

Refinery and Petrochemical		Power to X	H2 Mobility
H2 compression for decades		Growth in large scale plants and pilot	Refueling compression since 2015
			 450 bar
Application Isomerization Hydrodesulphurization* CCR Hydrocracking (RDS)* H2 Production SMR/PSA Gas to Liquid	bar 30-45 50-80 25-35 160-200 80-120 50-100		 800 bar
		<ul style="list-style-type: none"><li>▪ H2 as energy carrier (storage)</li><li>▪ Sustainable fuel production</li><li>▪ Syngas production</li><li>▪ Ethanol / methanol</li><li>▪ Waste management</li></ul>	 450 bar
Chlorine electrolysis Syngas* Fatty Alcohol*	10-15 200-350 260-300		 450 bar
			 450 bar
* typically lubricated applications			

\* typically lubricated applications

The industries that process H2 are changing



# Refinery upgrade/extension

Refinery in India



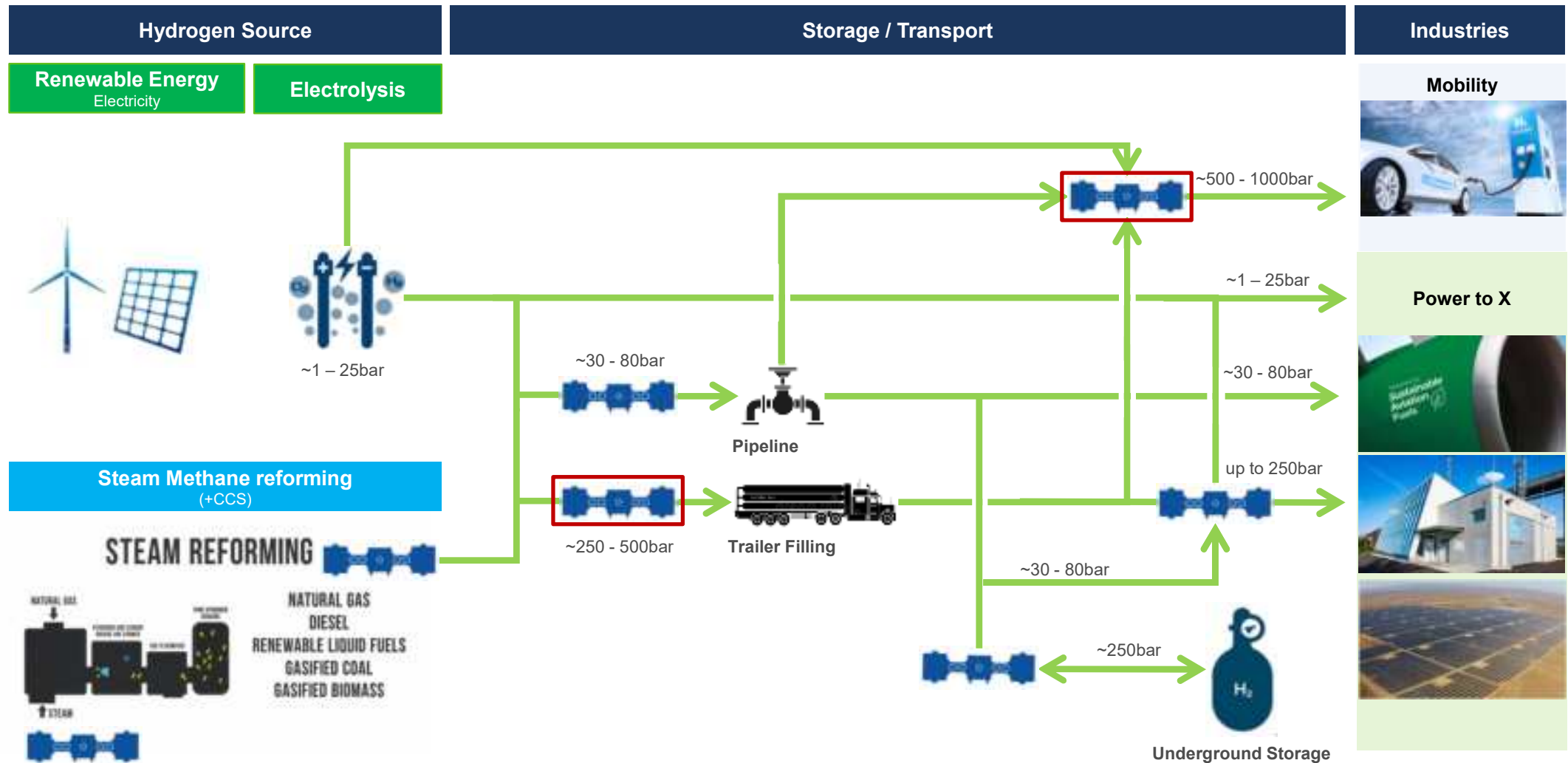
**Sustainable**



NRL uses sweet and clean fuel gas as primary fuel resulting in **low SO<sub>x</sub>/CO<sub>2</sub> emission for air and stack emission management**

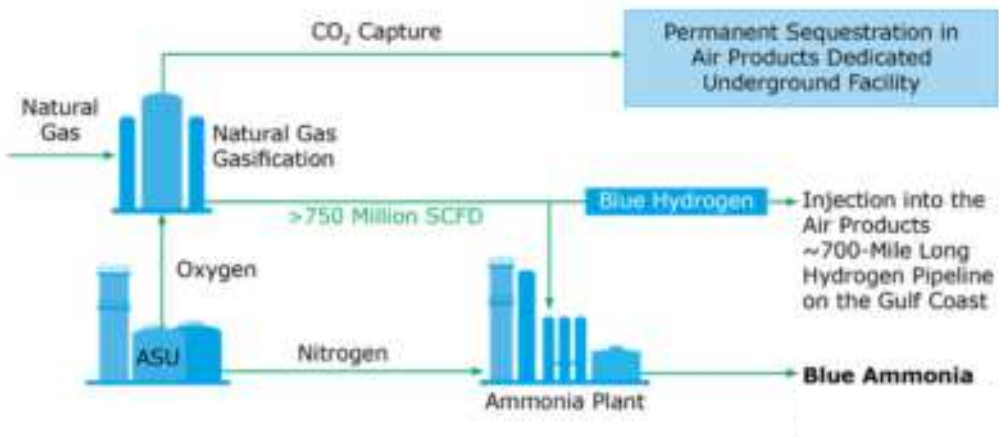


# Hydrogen value chain offers several opportunities for Recip compressors



# 1. Blue Hydrogen - Carbon Capture Storage

Air Products / USA





## 2. Biofuels – Sustainable Aviation fuels



### 3. Green Hydrogen – Electrolyzers

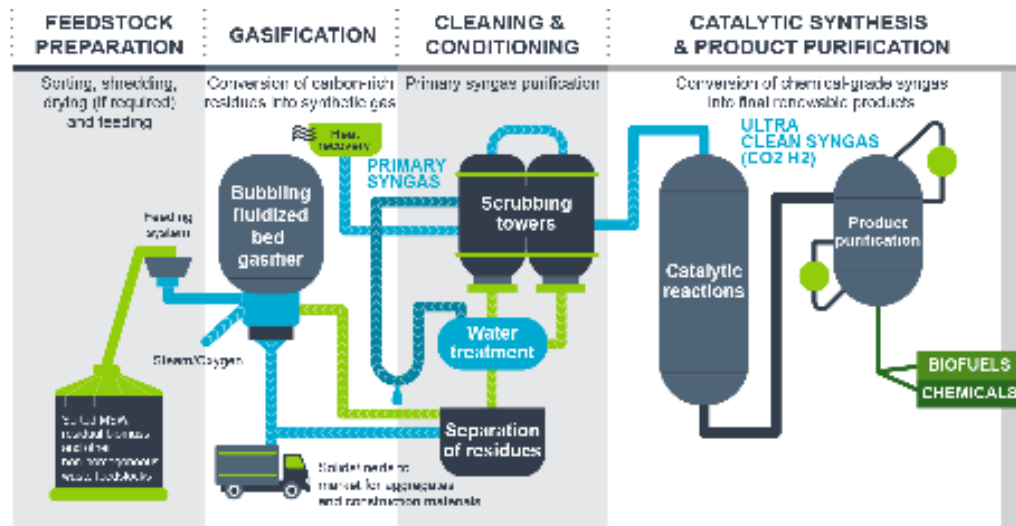
Everfuel / NEOM / SHELL HH1 / Air Liquide Normand'Hy / Thyssenkrupp Green Steel





## 4. Waste management / Trash to Syngas and Ethanol/Methanol

Enerkem, Canada, Montreal



## 5. H2 fueling stations



Hydraulic drive

# HCP500 supports energy transition with green hydrogen

## H2 Mobility Compressor Package

- For H2 Trailer Filling and Mobility
  - Suction pressure 25 to 300 bar
  - Discharge pressure up to 500 bar
  - Fast and precise compressor control
- Low TCO
  - Modular & Standardized
  - Energy optimized operation
- Grows with demand
  - 4 to 15 MW electrolyzer capacity



# Four possible application scenarios identified

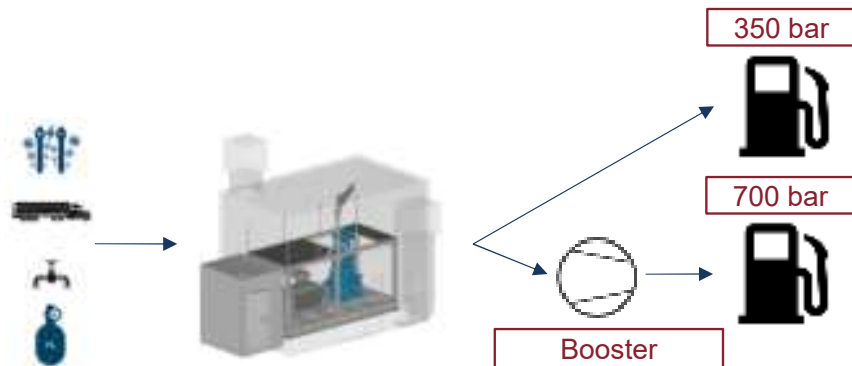
Stand-alone 500 bar Compressor – 350 bar Filling



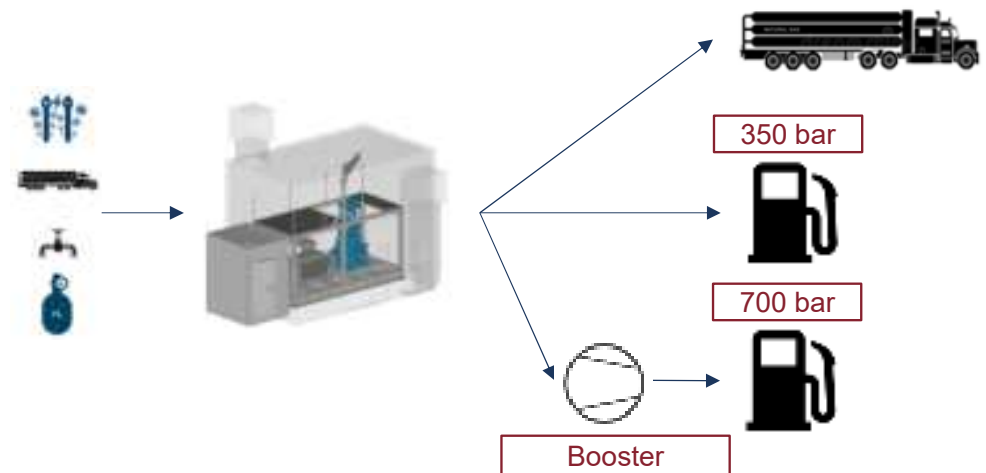
500 bar Compressor – Trailer Filling



500 bar Compressor + Booster Compressor



Combination Solution







Enabling zero emissions.  
For a better tomorrow.



