



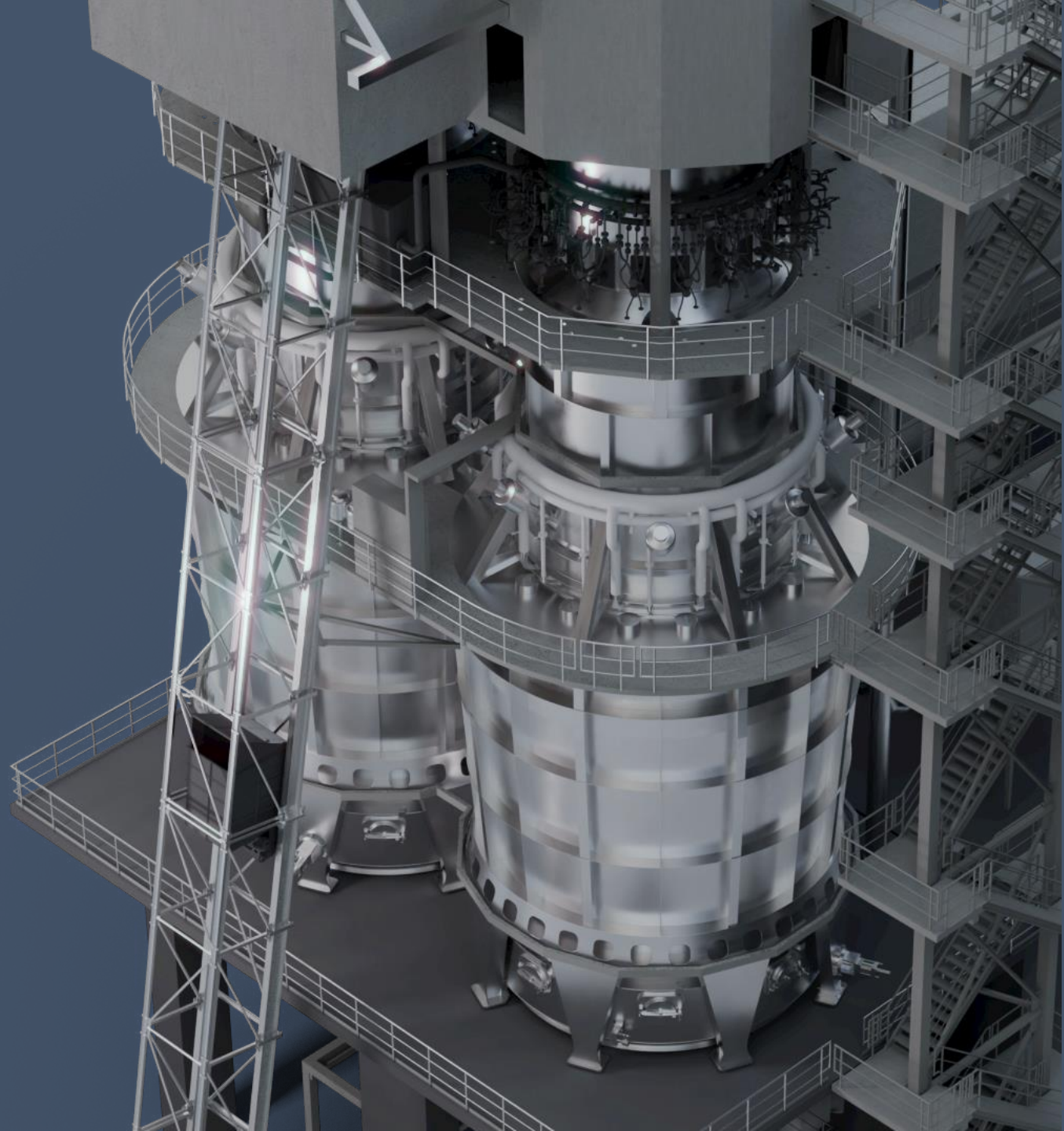
# The MAERZ green deal for the lime industry

International Lime Association Conference

Penang, Malaysia  
Beat Schweizer, October 2023

# Agenda

- 01 Renewable fuels
- 02 Maerz EcoKiln® series  
a new kiln generation
- 03 High pressure fans  
save electric energy

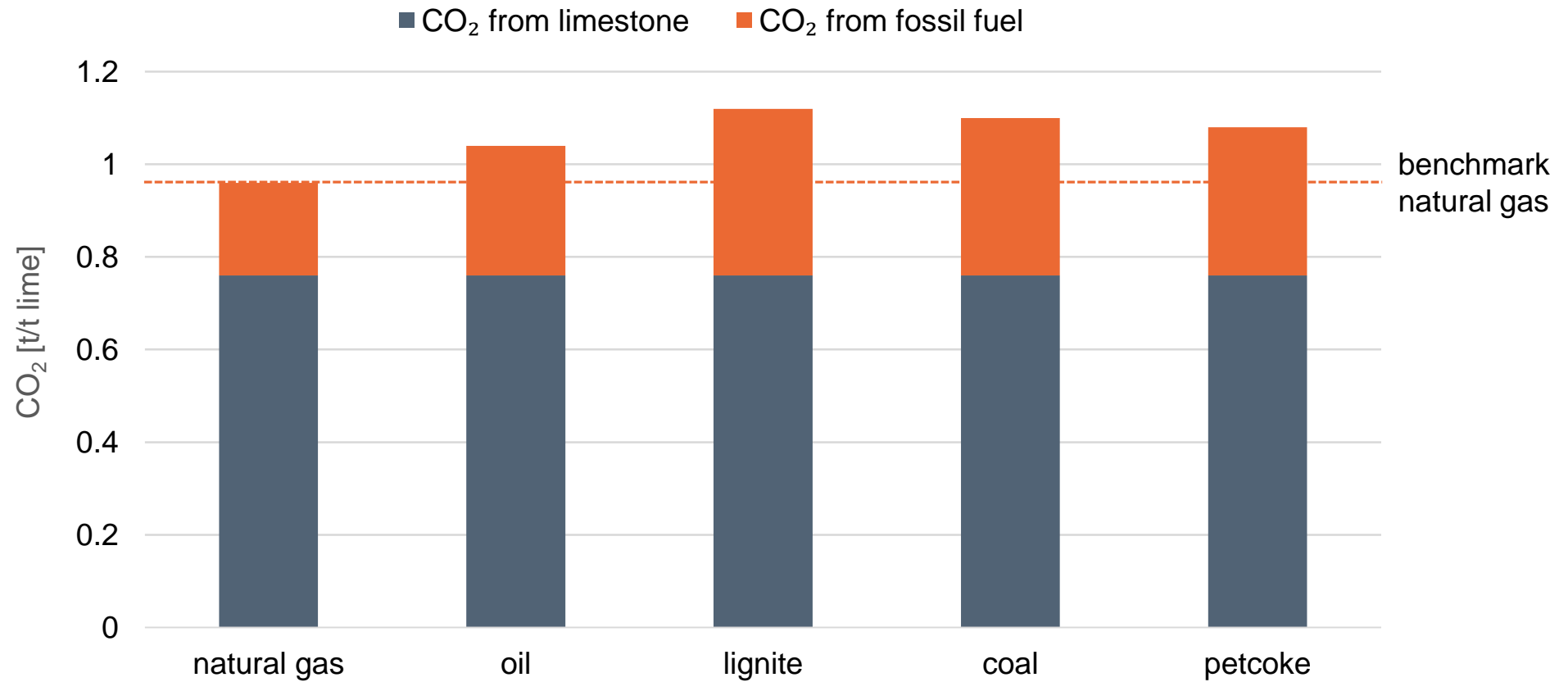


01

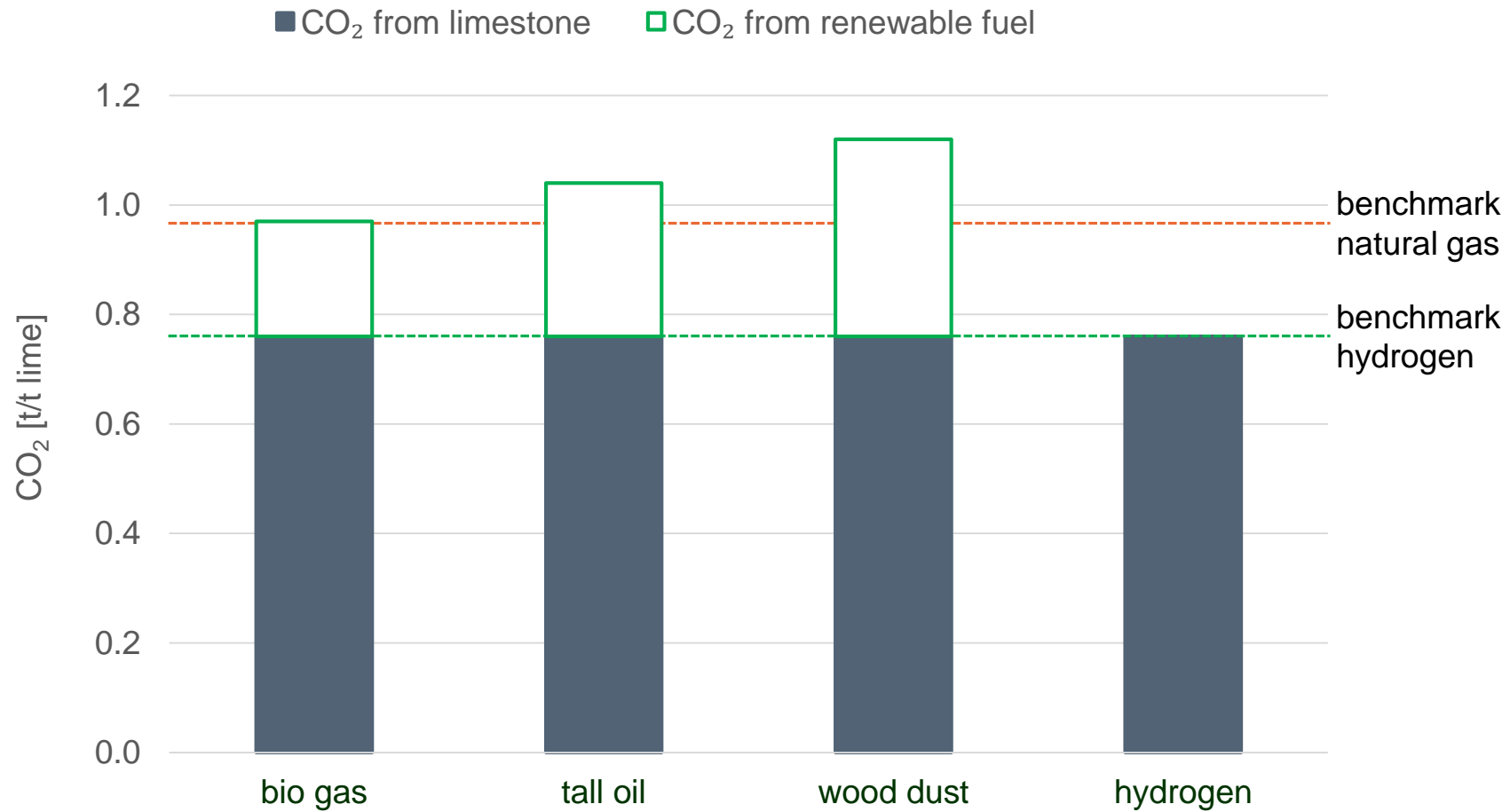
# Renewable fuels



# Burning lime is a CO<sub>2</sub>-intensive process



# An important step: renewable fuels



# Renewable fuels – wood dust

- » 150 – 800 tpd lime production
- » 1000 m<sup>3</sup>/d wood dust flow
- » designed by Maerz

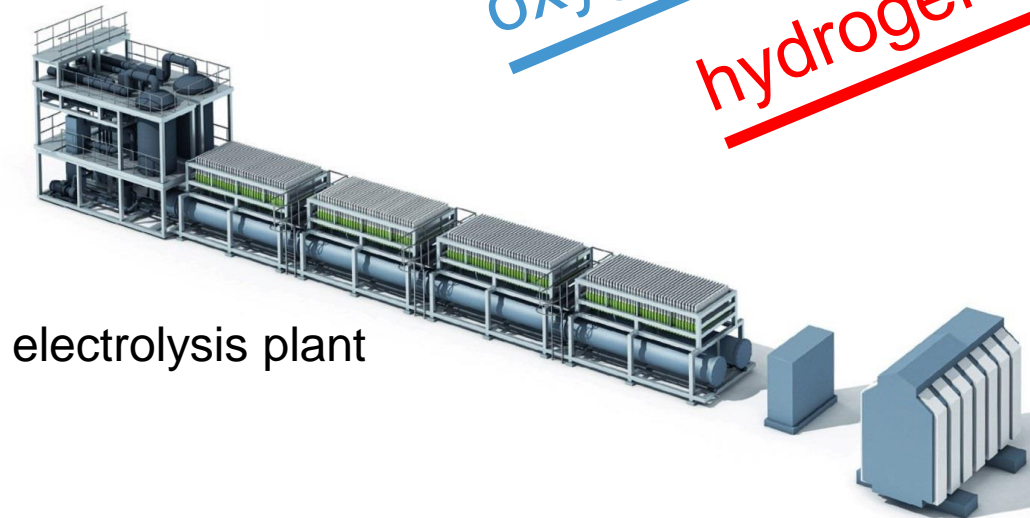




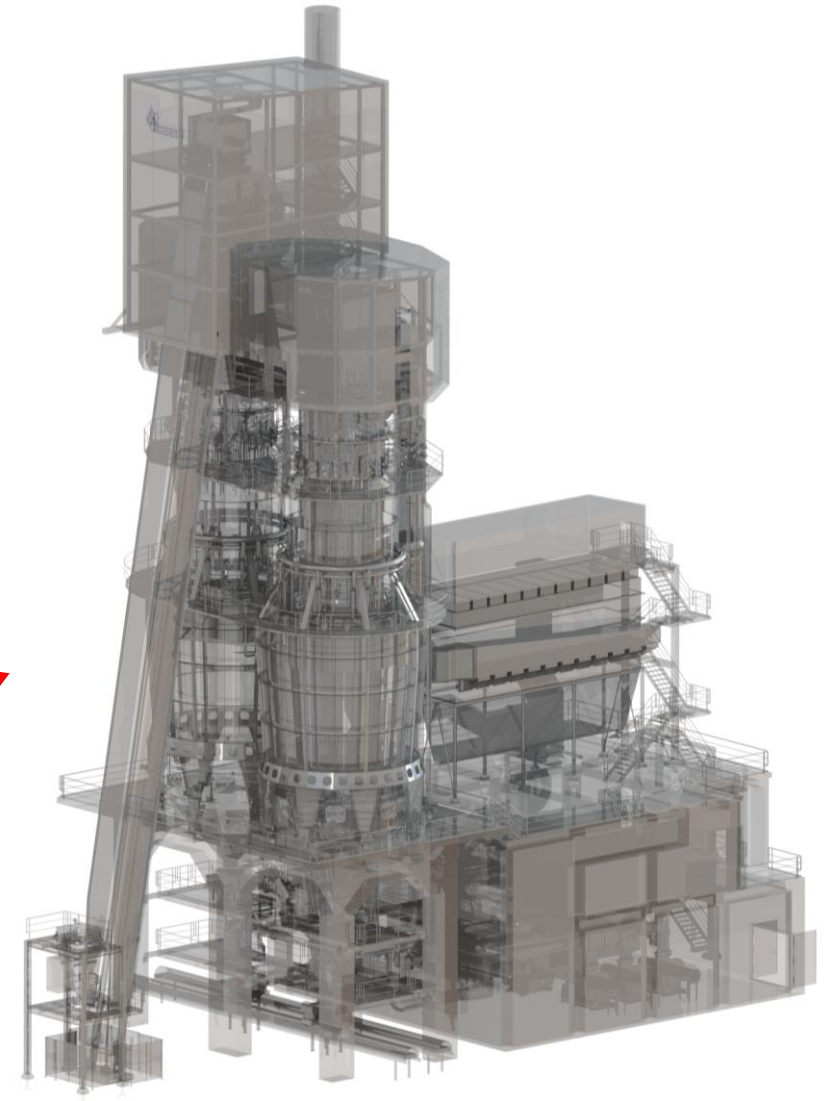
**... pellets, torrefied biomass, charcoal, bagasse ...**



# Renewable fuels – green hydrogen



electrolysis plant



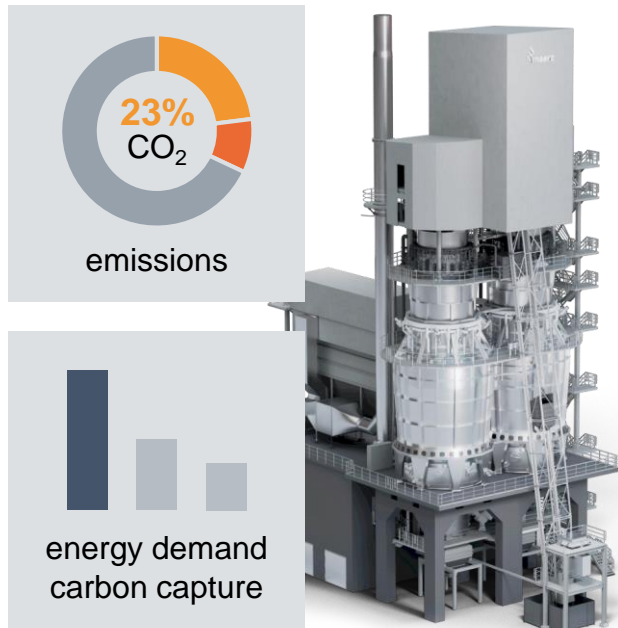


02

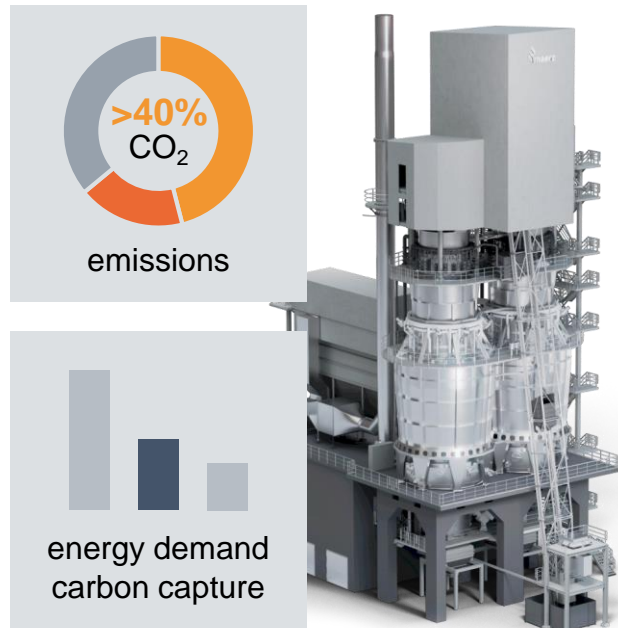
# Maerz EcoKilns



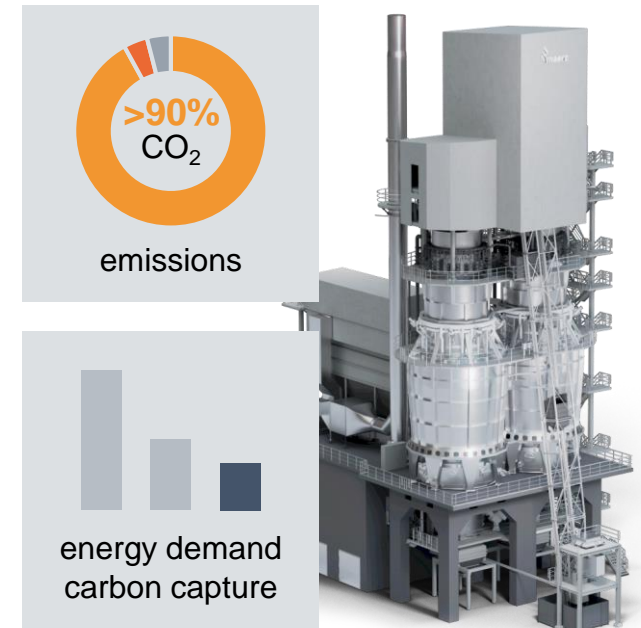
# CO<sub>2</sub> capturing – more economical at high CO<sub>2</sub>-concentrations



amine scrubbing + liquefaction



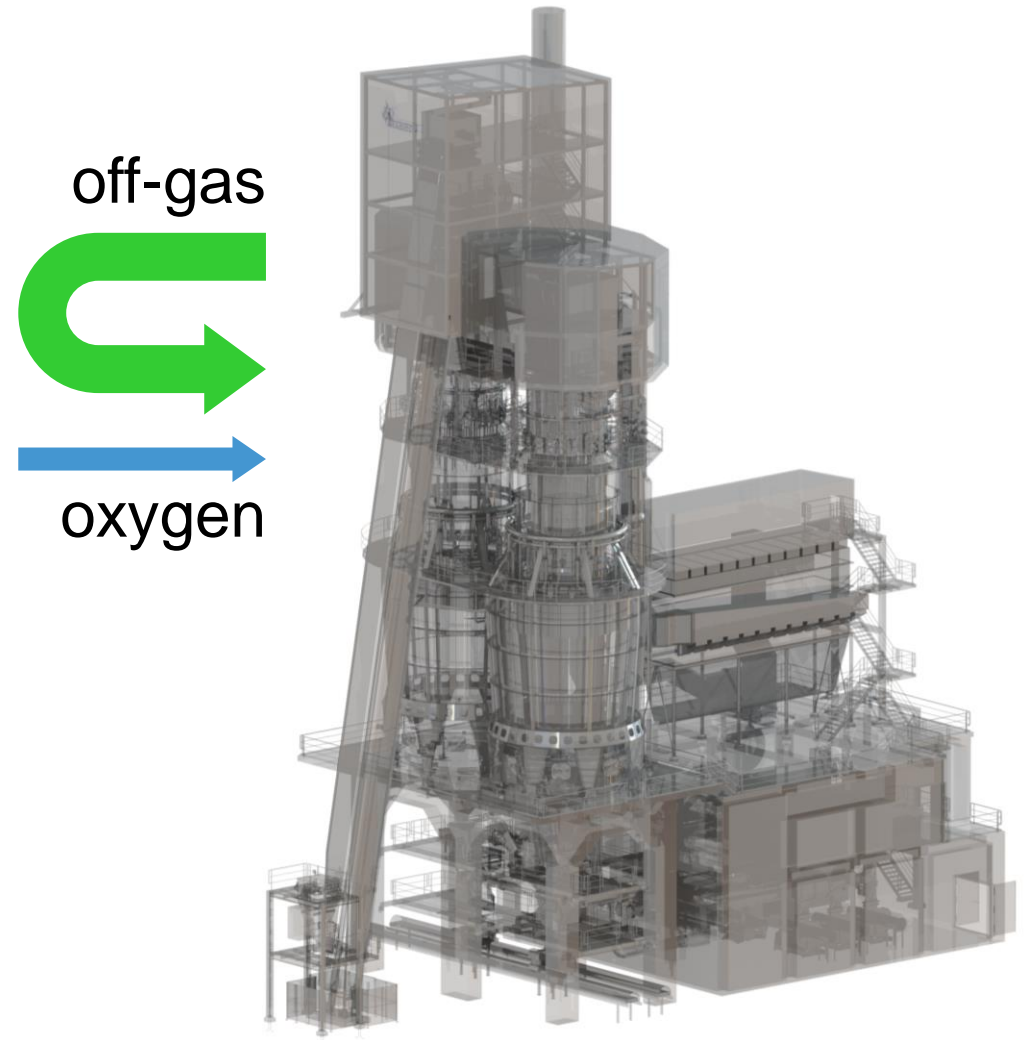
PSA + liquefaction



liquefaction

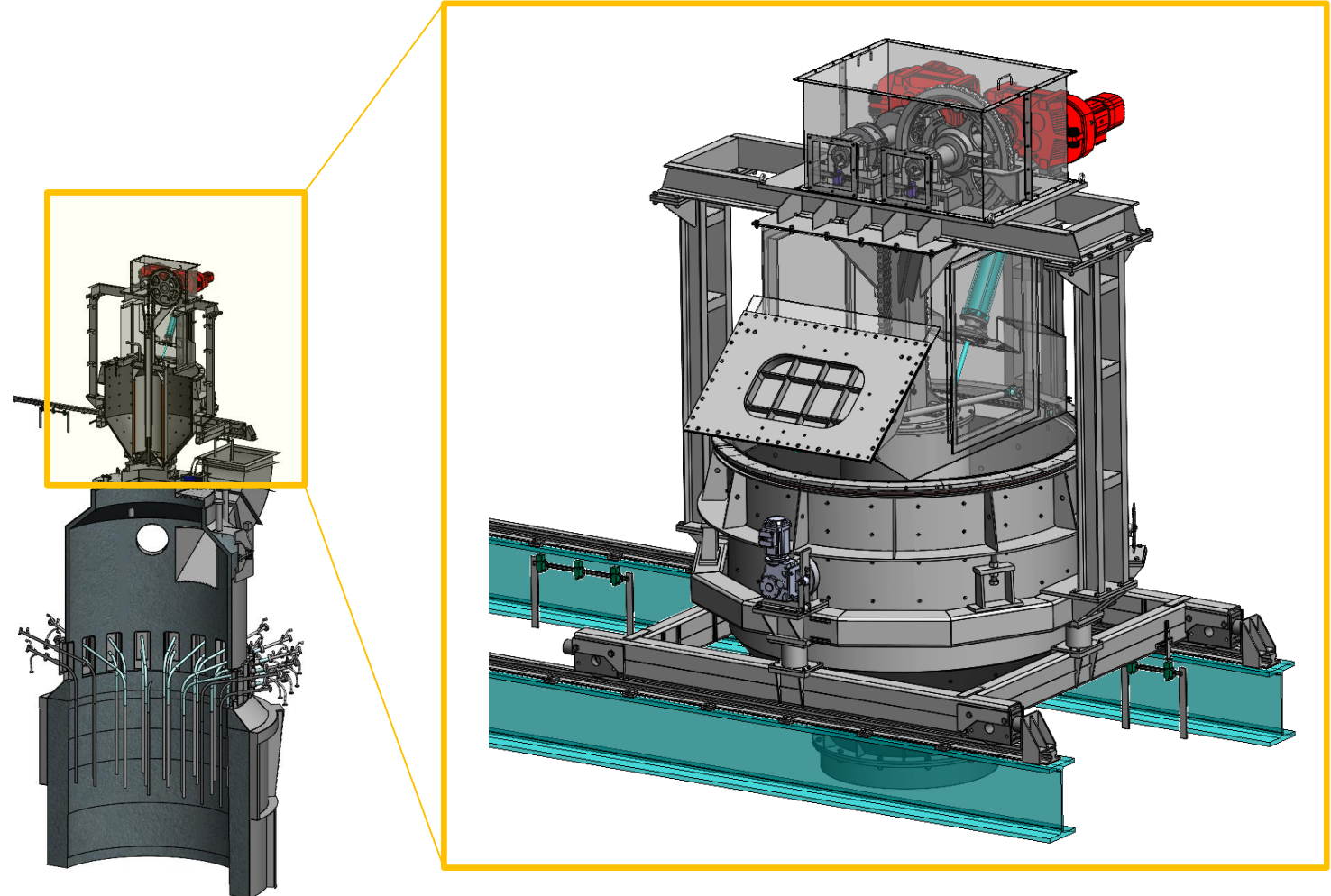
# Oxyfuel upgrade of existing Maerz lime kilns

- ›› CO<sub>2</sub>-concentration in the off-gas of > 40%
- ›› new Maerz C-Series PFR kilns and S-Series HPS kilns are all oxyfuel-ready
- ›› air lock charging and discharging systems



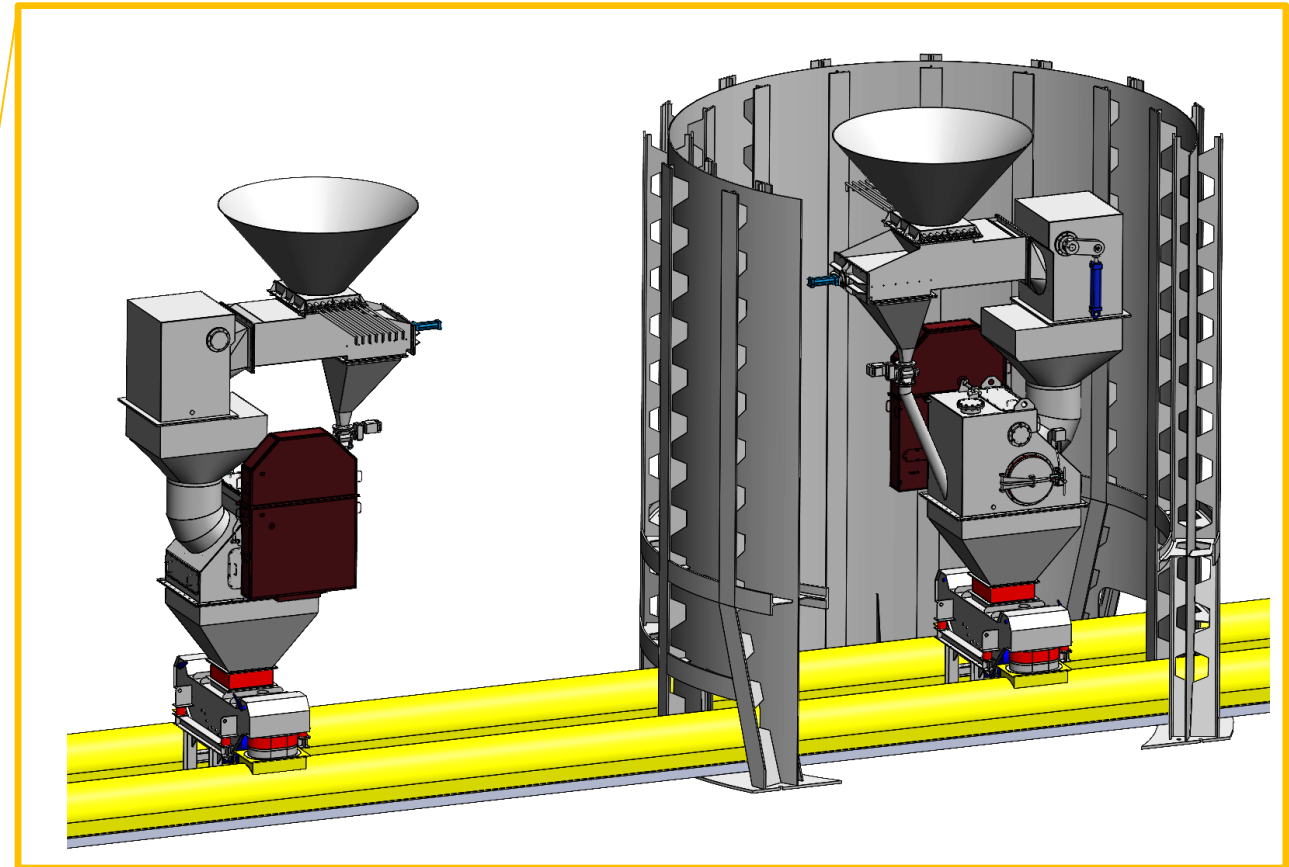
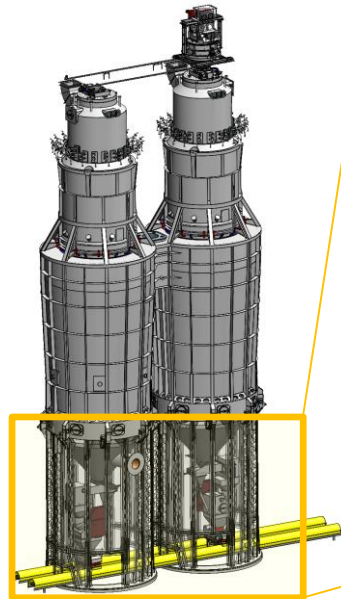
# Maerz **PFR** kiln – airtight stone charging system

- ›› movable rotating hopper with air lock
- ›› designed by Maerz



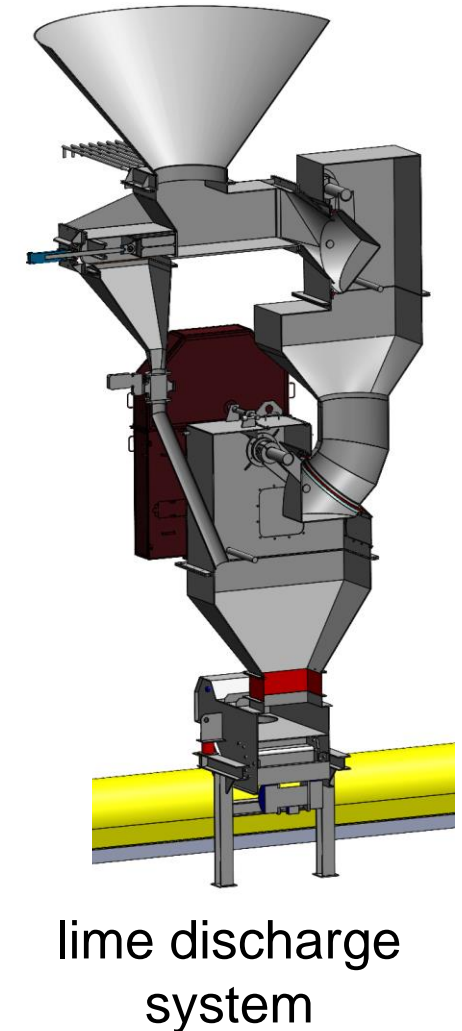
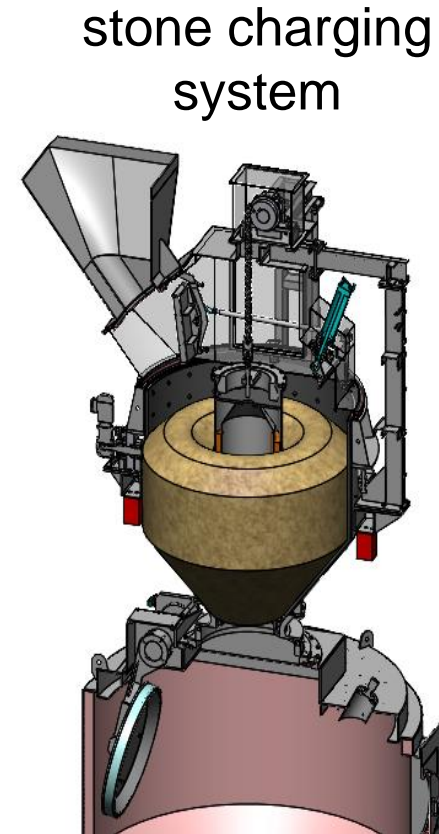
# Maerz **PFR** kiln – airtight lime discharging system

- » lime discharge gate system –  
equipped with air lock system
- » designed by Maerz



# Maerz **HPS** kiln – charging & discharging

- >> air lock stone charging system
- >> lime discharge gate system –  
equipped with air lock system
- >> designed by Maerz

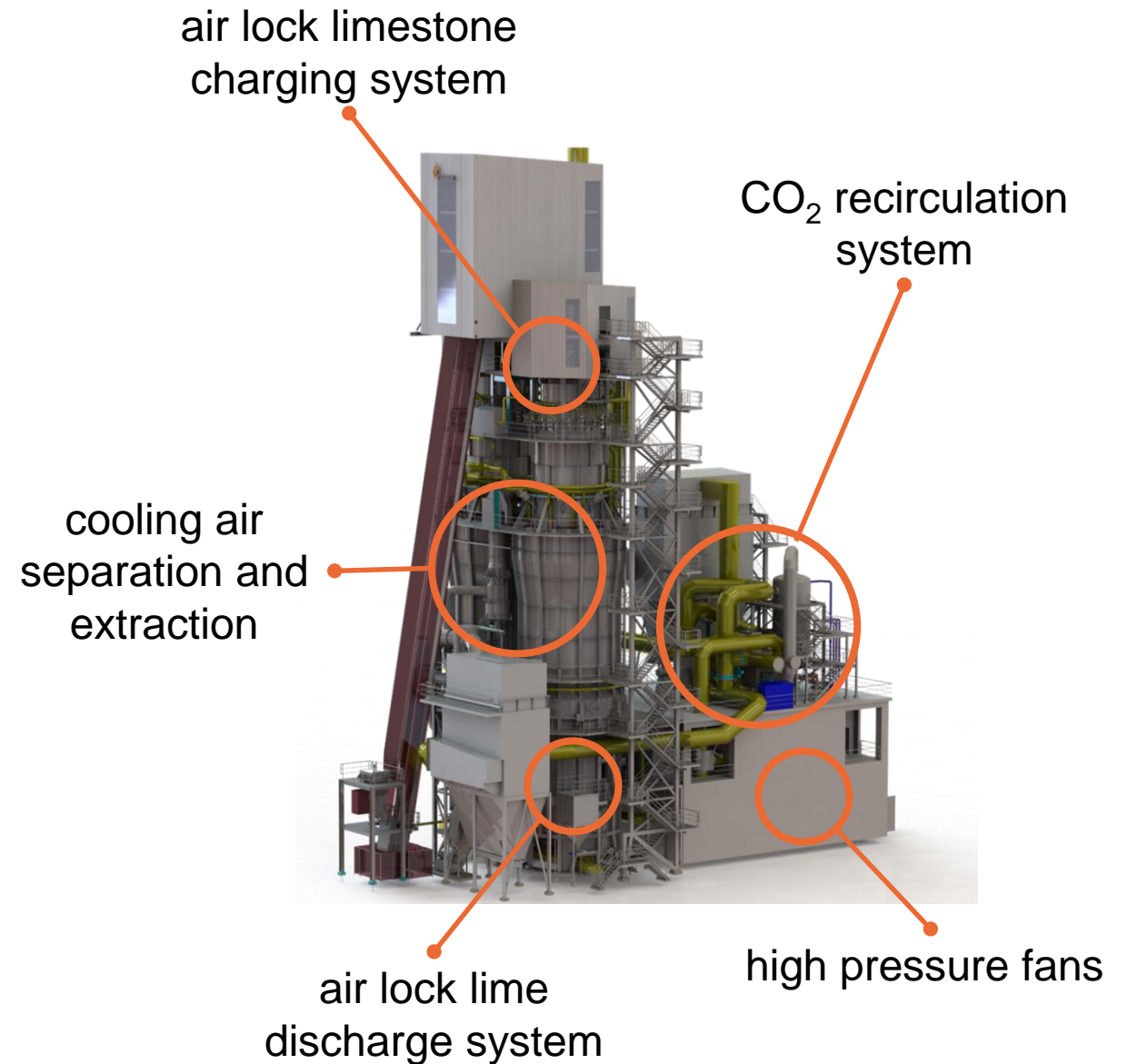


# Maerz EcoKiln® – the full green deal



# Maerz EcoKiln<sup>®</sup> – the **A-series** PFR kiln

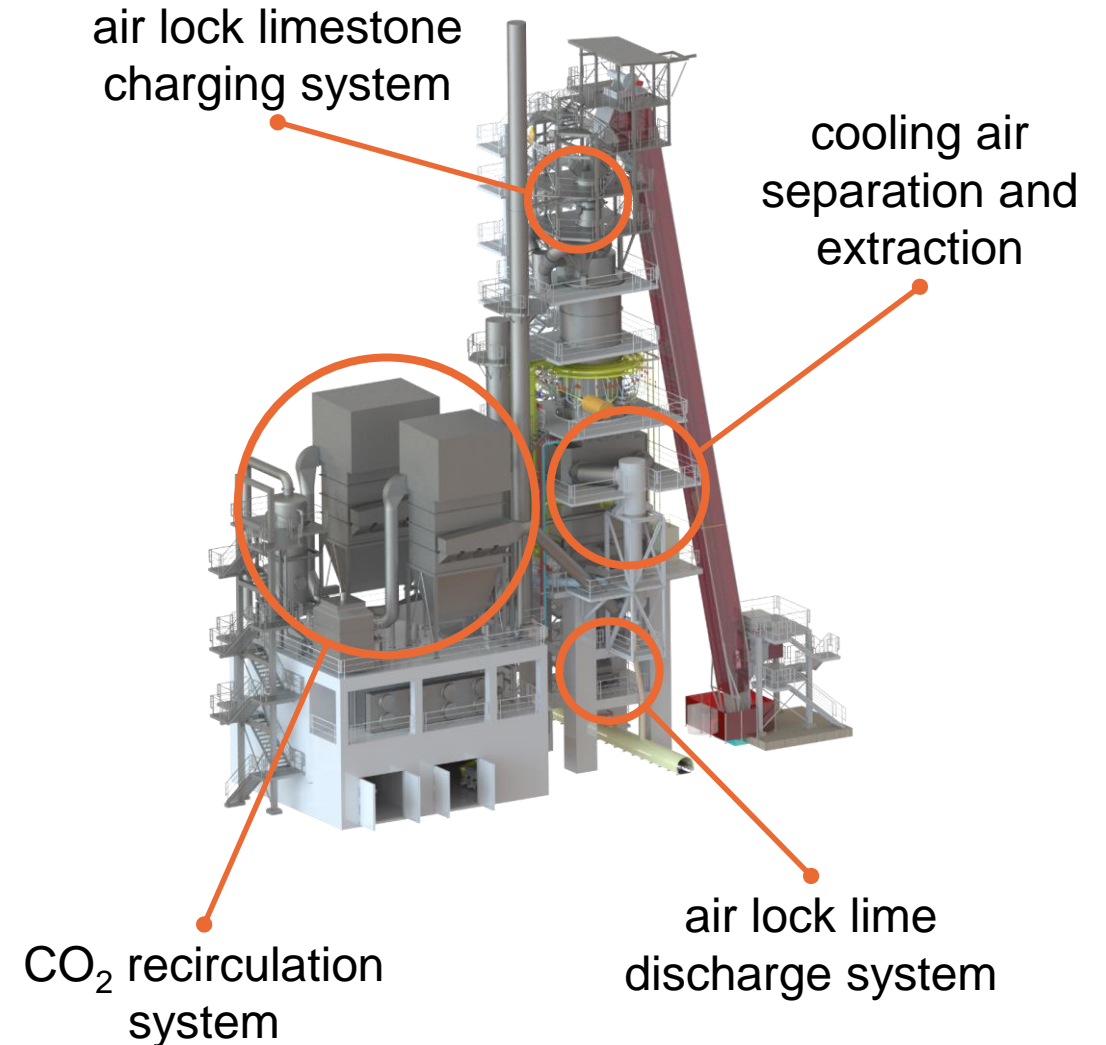
- >> oxyfuel operation
- >> renewable fuel operation possible
- >> CO<sub>2</sub>-concentration in the off-gas of > 90%





# Maerz EcoKiln<sup>®</sup> – the **B-series** HPS kiln

- >> oxyfuel operation
- >> renewable fuel operation possible
- >> CO<sub>2</sub>-concentration in the off-gas of > 90%



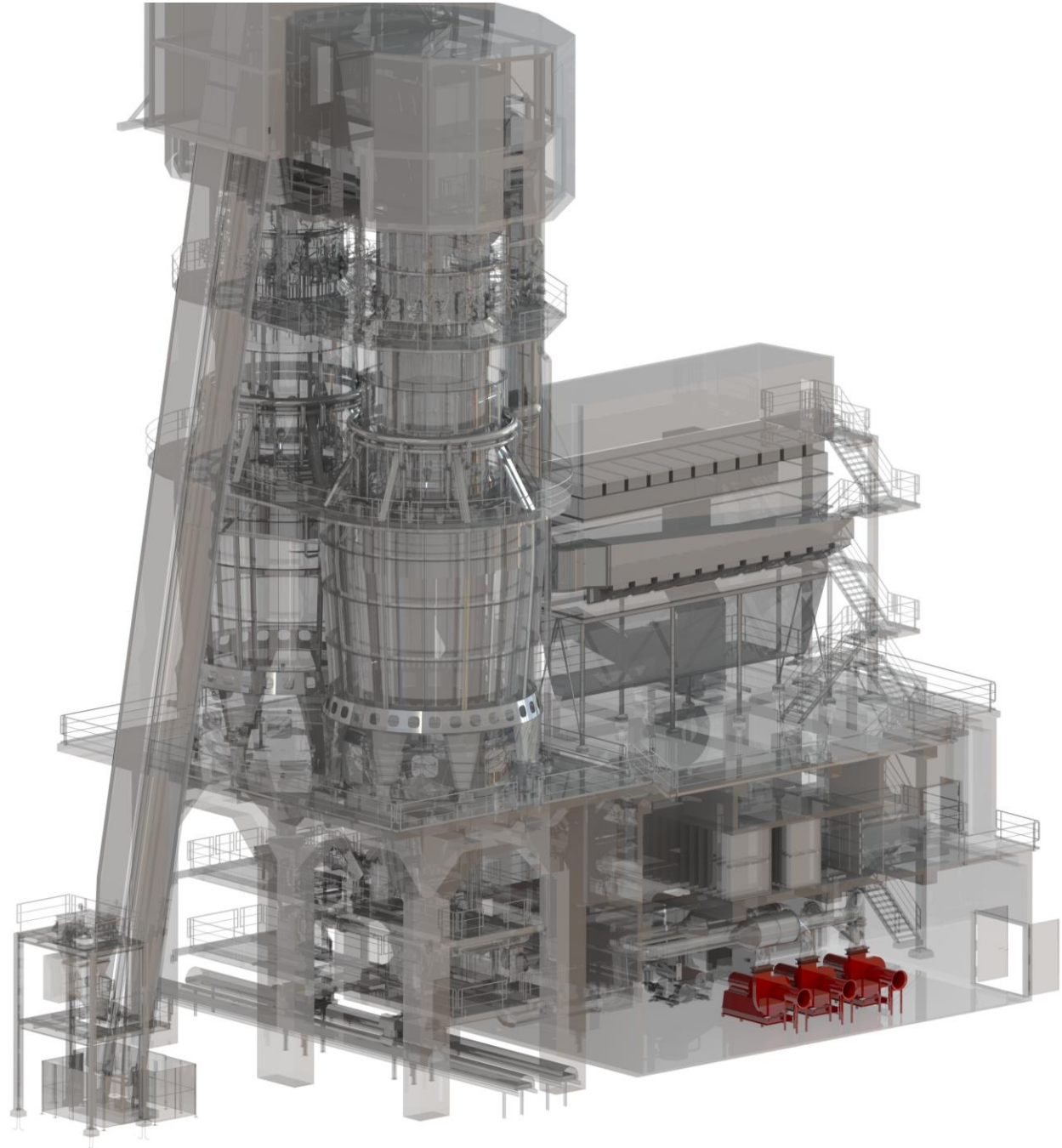
03

# High pressure fans



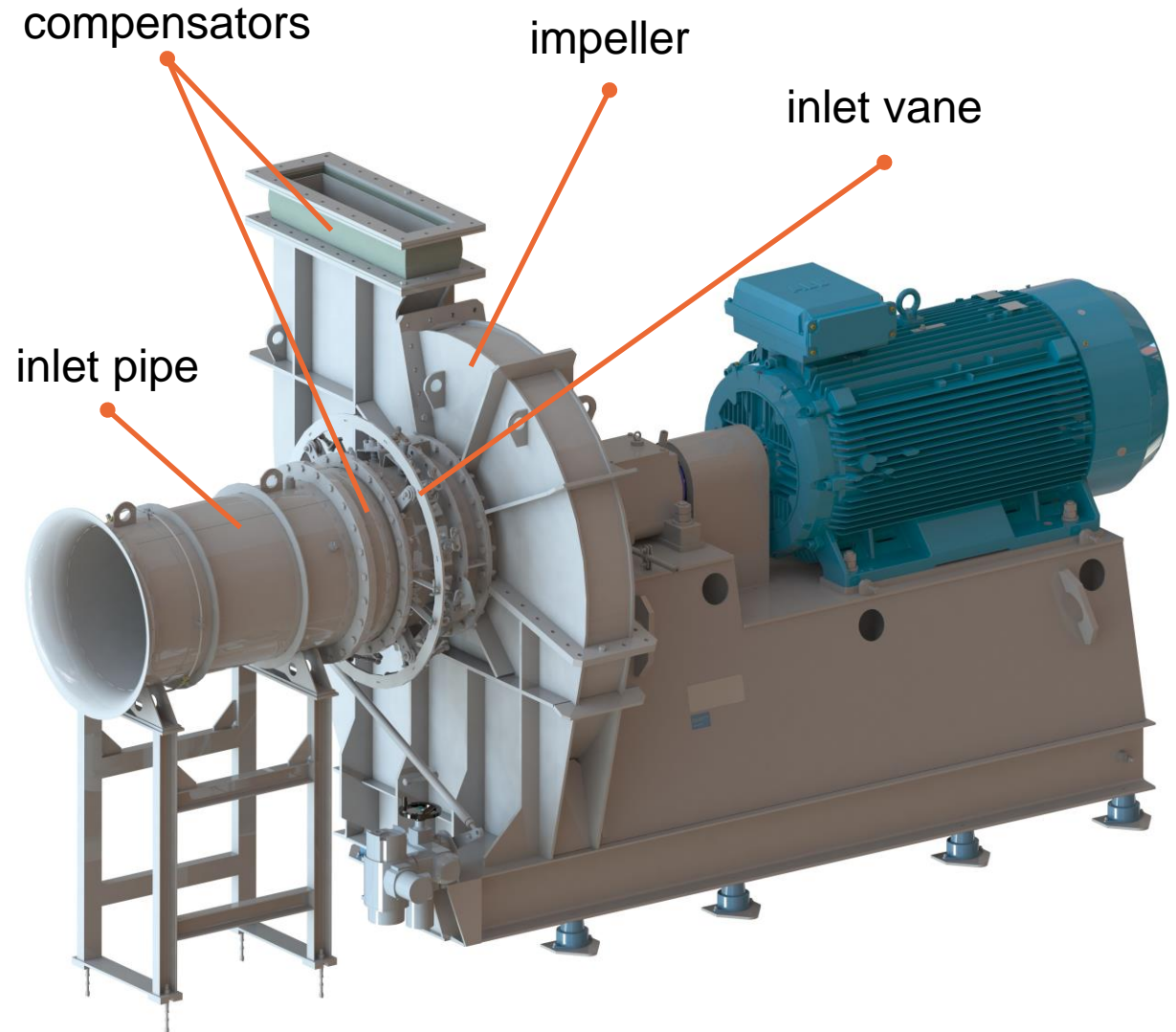
# High pressure fans

- ›› higher efficiency → lower electrical energy consumption
- ›› designed for hot waste gas recirculation for oxyfuel operation
- ›› less maintenance compared to roots blowers



# High pressure fans – in operation

- ›› standard for new Maerz PFR kilns
- ›› upgrade possible for existing kilns
- ›› for pressures up to 500 mbar
- ›› 25% energy savings compared to roots blowers
- ›› successfully in operation at Grupo Calidra, Mexico



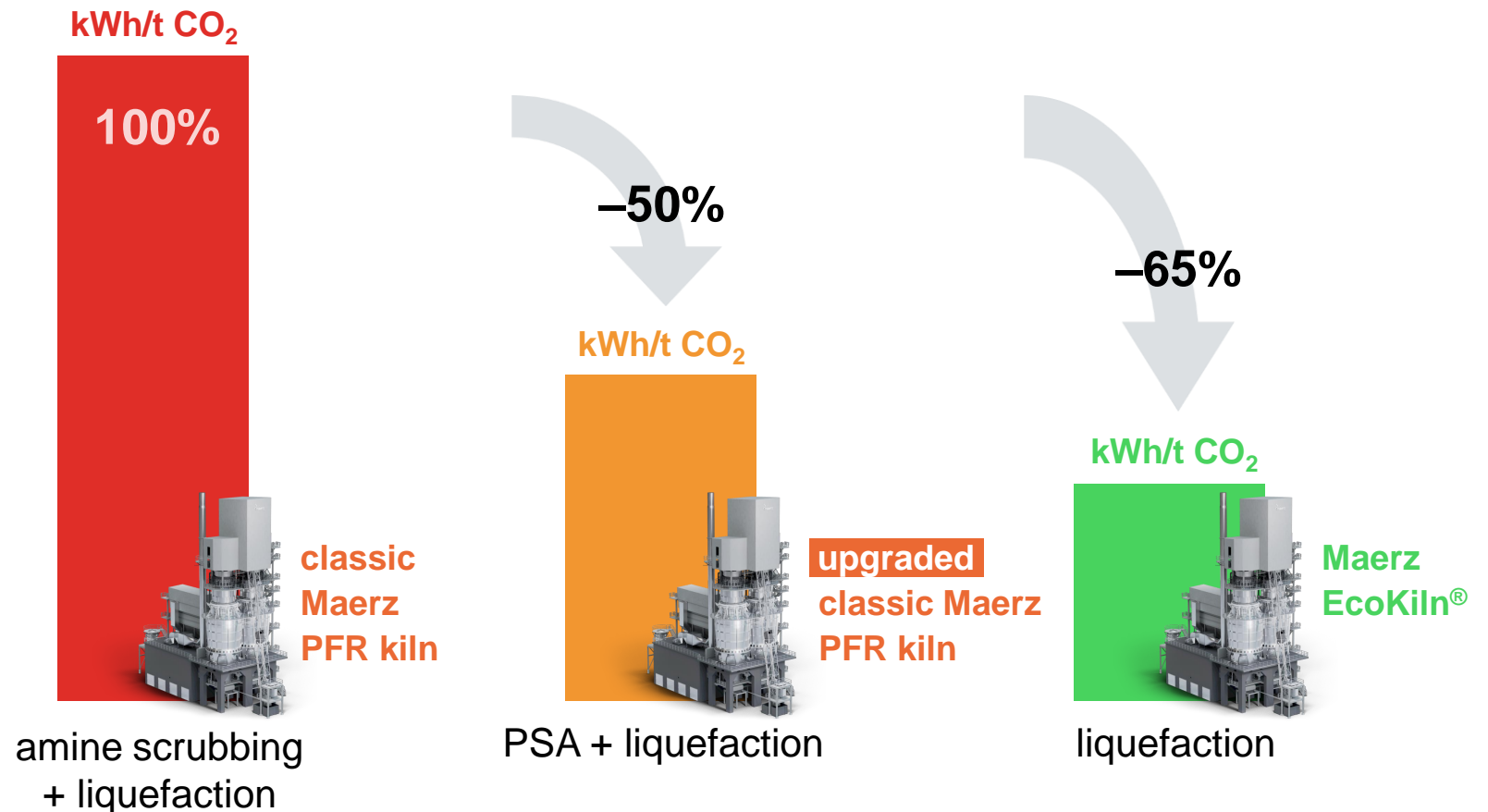
# Conclusion



# The Maerz green deal for the lime industry

- >> renewable fuels
- >> oxyfuel firing
- >> Maerz EcoKiln<sup>®</sup>
- >> high pressure fans

estimated energy demand for carbon capture plants





**Maerz Ofenbau AG**

Richard-Wagner-Strasse 28

8002 Zurich, Switzerland

Phone: +41-44-287 27 27

info@maerz.com

[www.maerz.com](http://www.maerz.com)