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WIENERBERGER DECARBONISATION PROGRAM

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Chief Technology Officer
Wienerberger Building Solutions

AGENDA

- Wienerberger overview
- Wienerberger ESG & decarbonisation strategy
- Decarbonisation projects – examples

WIENERBERGER OVERVIEW

BUSINESS STRUCTURE

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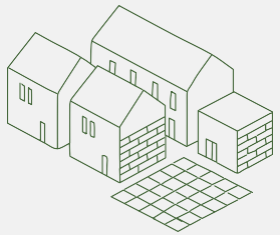
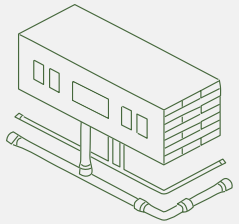
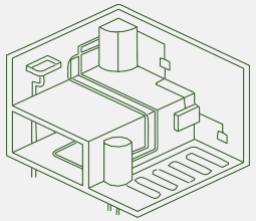
3 Business Areas



Building envelope



Water & Energy Management



In-House Applications

3 Key Facts

215 plants*
and numerous partners

~17,624 employees*
in 28 countries across Europe, North America & India

€ 3,971mn*
revenues at record level

1 Clear Goal

Improving people's quality of life by providing outstanding solutions for new build, renovation, and infrastructure

** 2021 annual report*

SYSTEM SOLUTIONS FOR THE ENTIRE BUILDING ENVELOPE AND INFRASTRUCTURE

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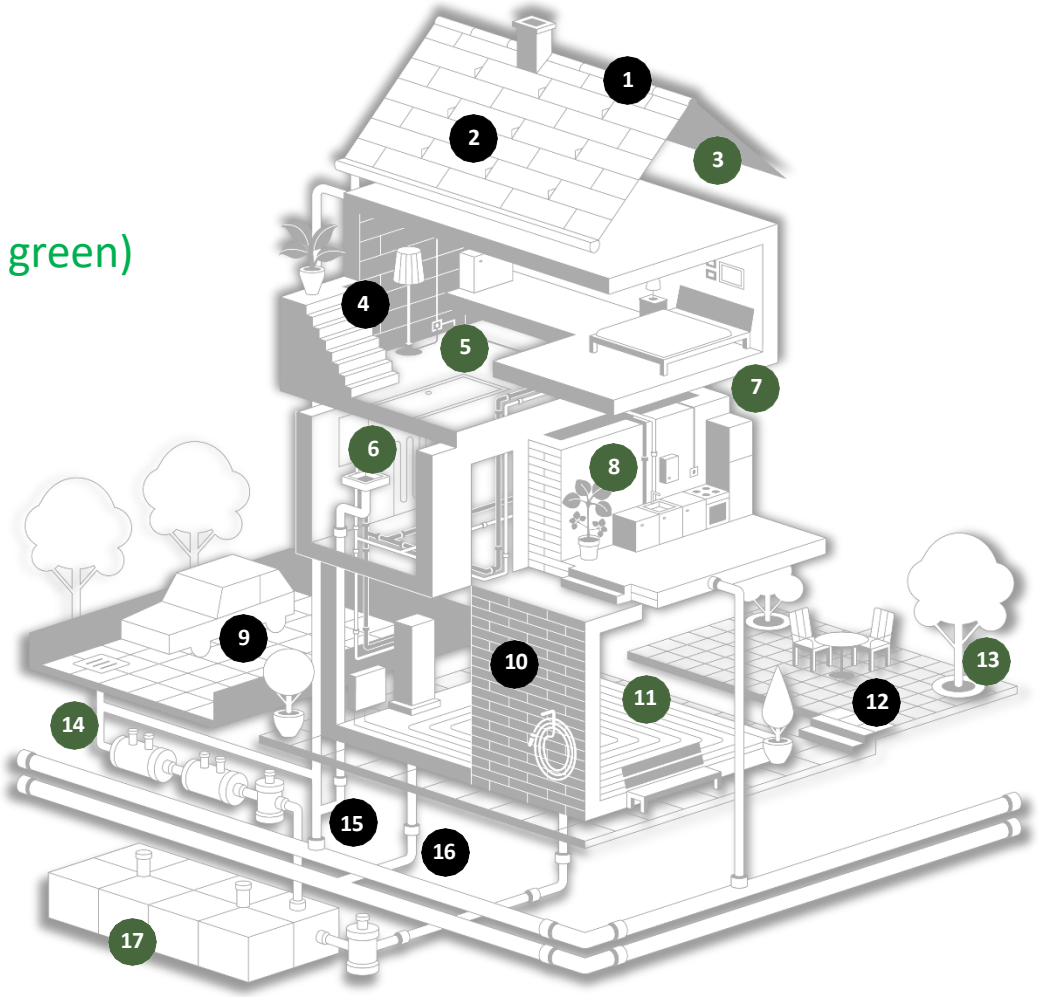
PORTFOLIO ENHANCEMENT:

Newly introduced products & solutions within the last years (in green)

1 Ceramic accessories
2 Roof tiles with snow hooks
3 Roof underlay
4 Clay blocks
5 Electrical installations
6 Wall heating and cooling system
7 Ceiling cooling
8 Hot and cold-water installation
9 Concrete pavers
10 Facing bricks
11 Floor heating
12 Clay pavers
13 Landscaping elements
14 Water filtration unit
15 Wastewater
16 Fresh water supply
17 Rainwater management



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WIENERBERGER ESG & DECARBONISATION STRATEGY

WIENERBERGER ESG PROGRAM

WE HAVE SET OURSELVES AMBITIOUS ESG TARGETS

Environment

Decarbonization

2023: -15% CO_2[1)] emissions vs. 2020

2030: -40% CO_2[1)] emissions vs. 2020

Circular Economy

100% of new products reusable or recyclable

Biodiversity

Biodiversity program for all our sites in place

Social

Diversity

>15% females in Senior Management
>30% females in white collar positions

Training & Development

+10% more training hours per employee

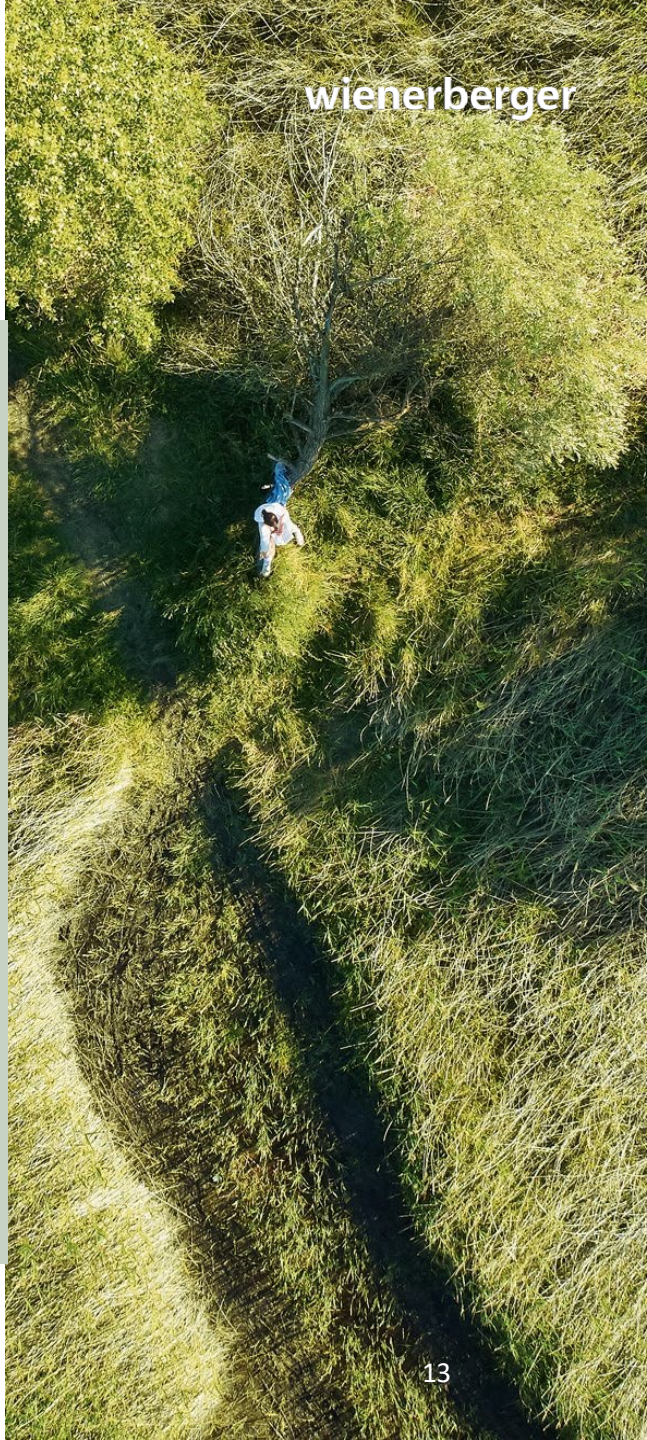
CSR Projects

200 housing units built with our products per year for people in need in our local markets

Governance

Committed to highest national and international governance standards, with focus on:

- Business strategy
- Board diversity and composition
- Executive compensation
- Succession management



1) CO2 emissions refer to Scope 1 & 2 based on intensities

WIENERBERGER ESG PROGRAM

CARBON NEUTRAL PRODUCTION
Scope 1 & 2

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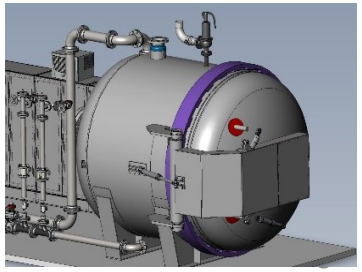
New technology for major efficiency improvements
- Heat pump technology
- High efficiency kilns & retrofitting
- Others, R&D project pipeline

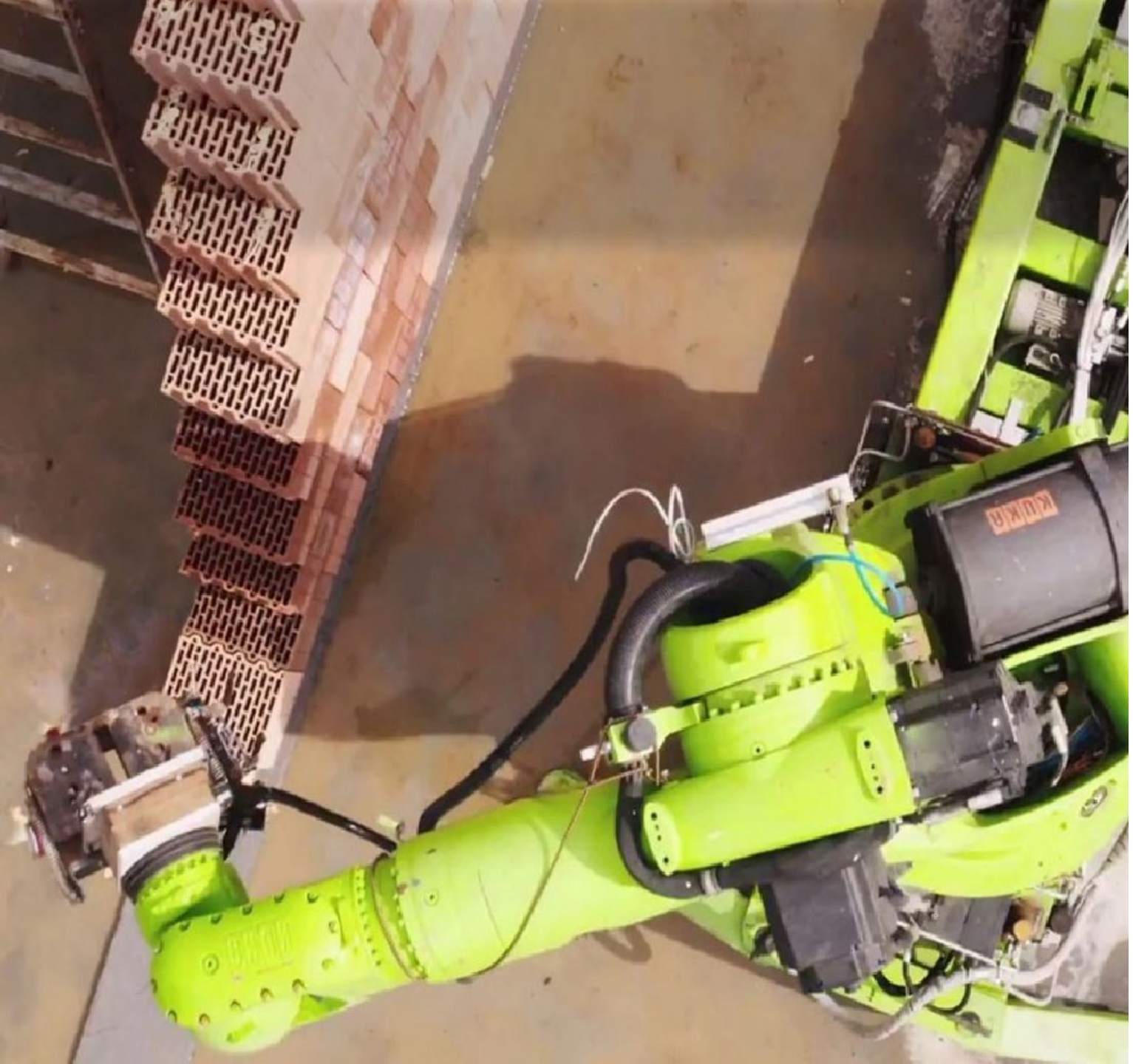
Decarbonization of raw materials
- Biogenic additives
- Low carbonate clay
- Recycling materials
- New products

Green energy for power & thermal use
- Green electricity
- Biogas & syngas
- Hydrogen

Efficiency improvement incl. dematerialization
- Product portfolio
- Continuous improvement
- Product dematerialization

CCU (CCS) for remaining CO_2
- Focus on re-carbonation of bricks or other urban mining materials





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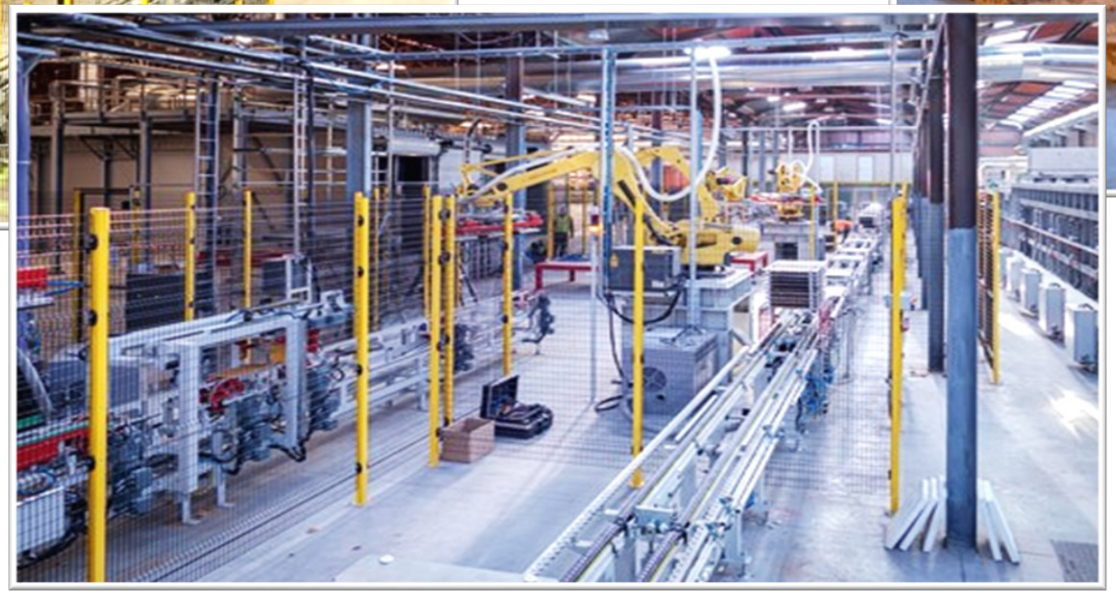
DECARBONISATION PROJECTS - EXAMPLES

NEW KILN TECHNOLOGY, KORTEMARK (BELGIUM) PRODUCTION OF CARBON NEUTRAL BRICK SLIPS, ELECTRIC KILN

- **Direct production of clay based ceramic soft mud brick slips** by innovative pressing technology combined with digital engobing and dryer and kiln technology based on **100% green electricity**
- **Keeping energy cost at acceptable level**; offsetting higher cost for green electricity by reduced energy intensity by using highly efficient kiln technology (less than 50% of comparable traditional kilns)
- **Critical review of raw materials mix to eliminate process CO2 emissions** (no organics, no carbonates)
- New production line fully commissioned and **in industrial production**
- **Carbon footprint reduced by 98% compared to existing brick slips production**

NEW KILN TECHNOLOGY, KORTEMARK (BELGIUM)
PRODUCTION OF CARBON NEUTRAL BRICK SLIPS, ELECTRIC KILN

› Electric kiln



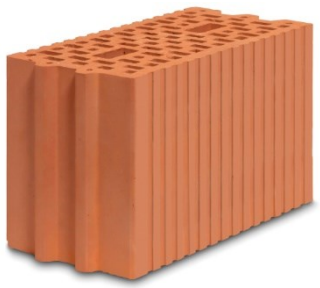
› Production line / product handling with robots

NEW KILN TECHNOLOGY, UTTENDORF (AUSTRIA)
CLAY BLOCK PRODUCTION WITH NEARLY ZERO CARBON FOOTPRINT

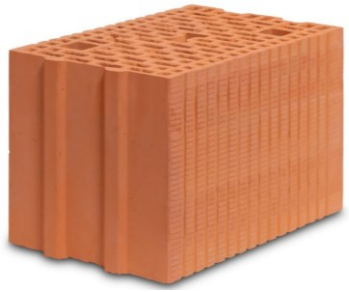
- Clay block plant in Upper Austria
- Carbon footprint 2021, ca. **8,000 tons of CO_2**
- **Key products:**

POROTHERM 12 Plan

20 Plan



25 Plan



DECARBONIZATION BY HEAT PUMP TECHNOLOGY 30% SAVING IN GAS CONSUMPTION & LINKED FUEL CO_2

- Drying based on **recovered energy from dryer waste air** and elimination of auxiliary gas burners
- Heat-pump operated by kiln cooling heat or green electricity; **recovered water re-used in clay preparation**; project **Uttendorf** successfully closed with **30% saving in overall gas consumption**
- **Rollout of technology** to further plants ongoing
- Austrian & European **patents granted**
- Per installation ca. **2,000-3,000 tons of CO2 saving**

NEW KILN TECHNOLOGY, UTTENDORF (AUSTRIA)
CLAY BLOCK PRODUCTION WITH NEARLY ZERO CARBON FOOTPRINT

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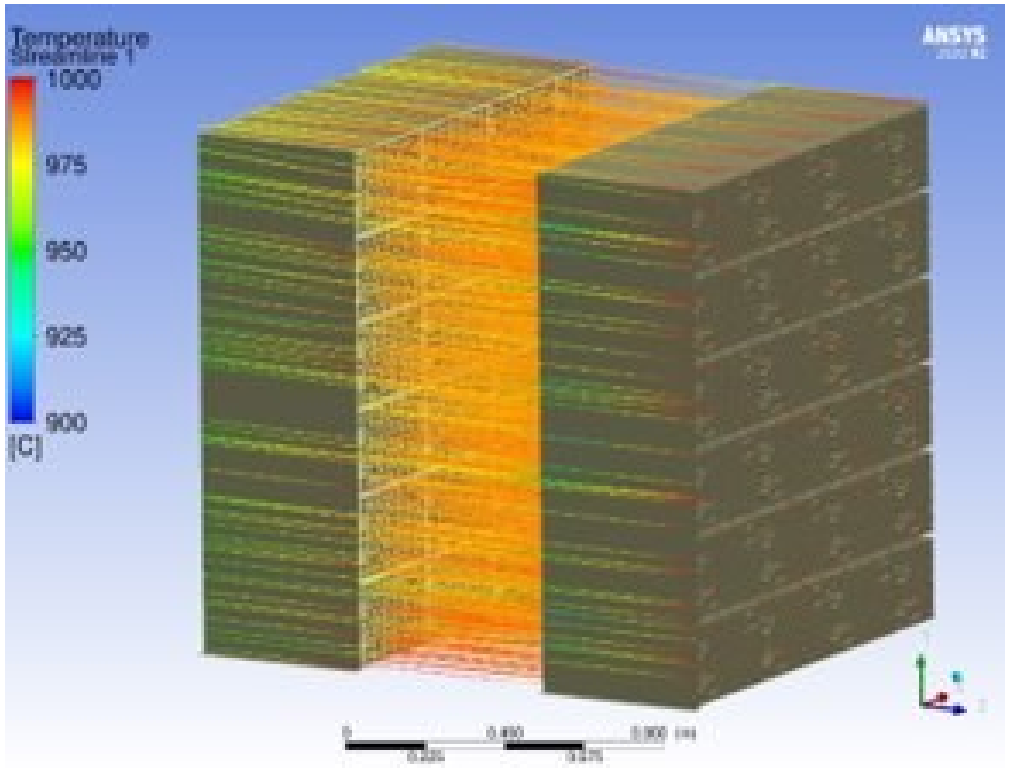
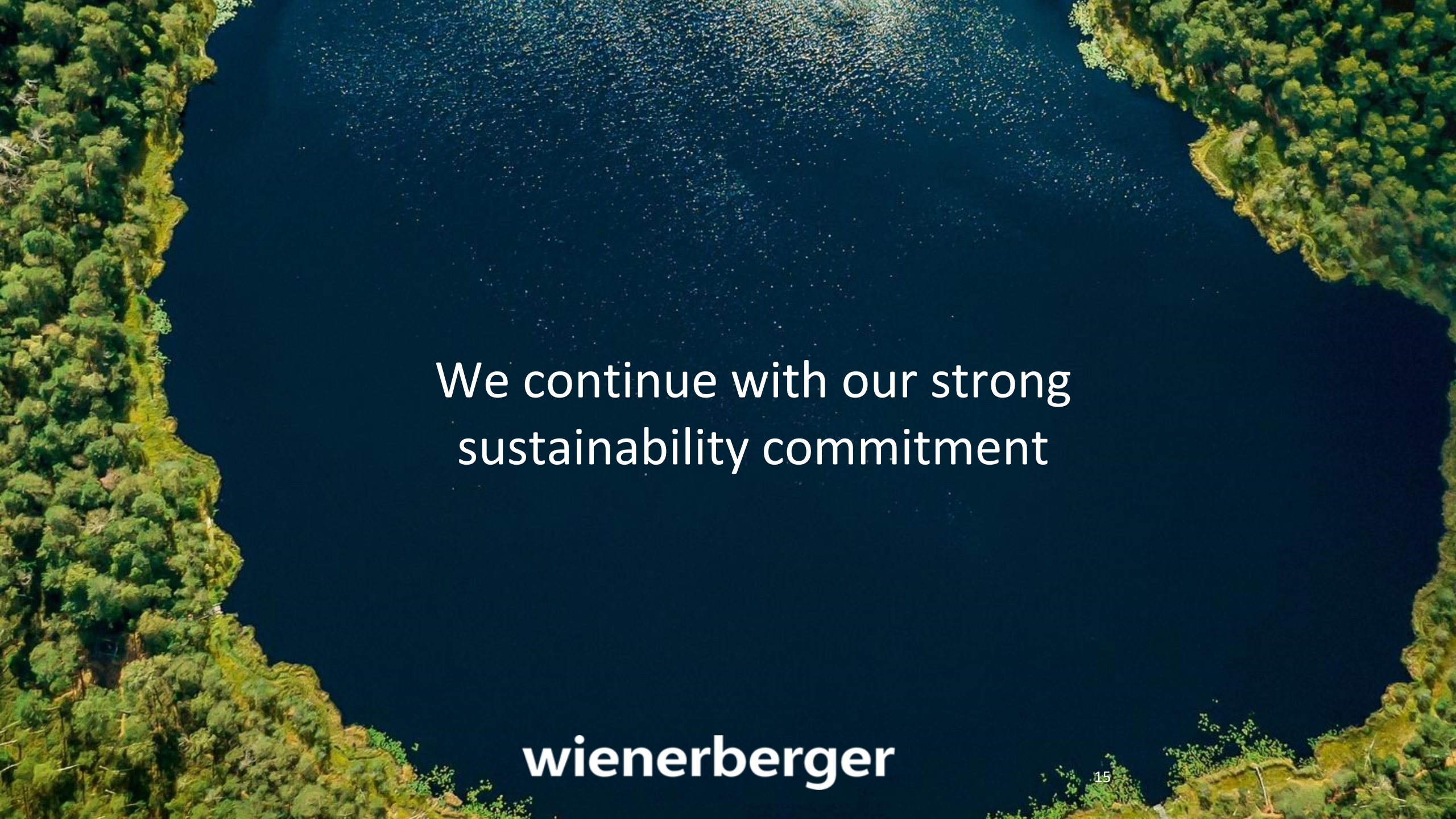
FFG
Forschung wirkt.

- Replacement of old gas fired tunnel kiln with a new tunnel kiln heated by **green electricity and >50% better thermal efficiency**
- Drying process based (mainly) on **heat pump technology**
- **Limited impact of fuel switch on production cost** due to lower energy consumption of new kiln
- Project in implementation, **2022-2024**
- **Carbon footprint improvement ~90% vs. today** (fuel & process CO_2)



DrS³
Dr. Streibl | Simulation Strömungsberechnung


We continue with our strong
sustainability commitment