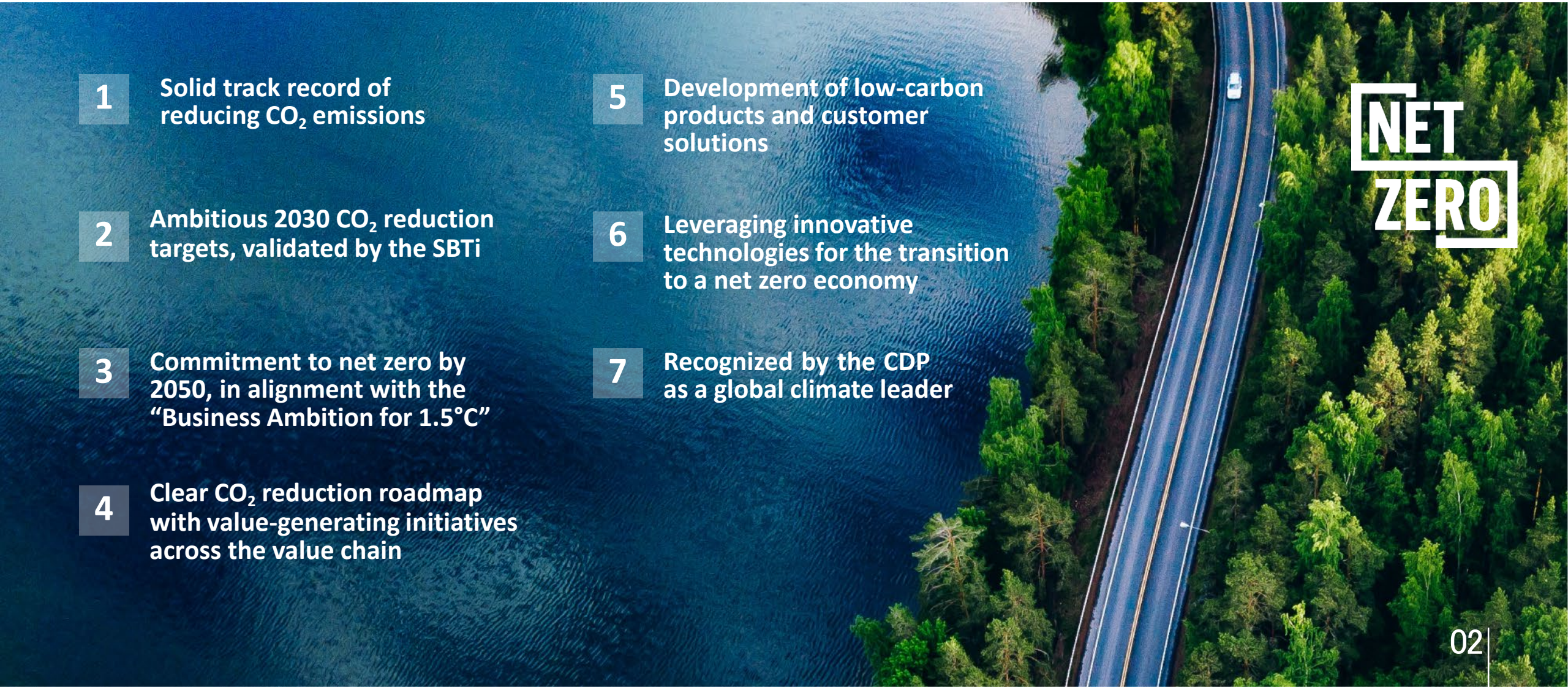
Future-ready for a net zero world

Future-ready for a net zero world

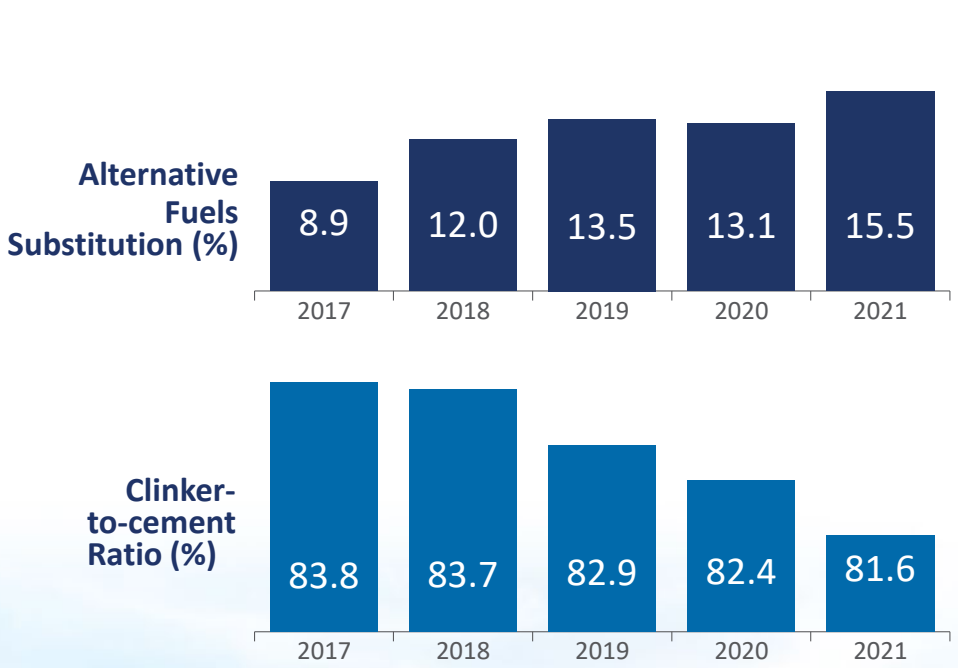
Highlights

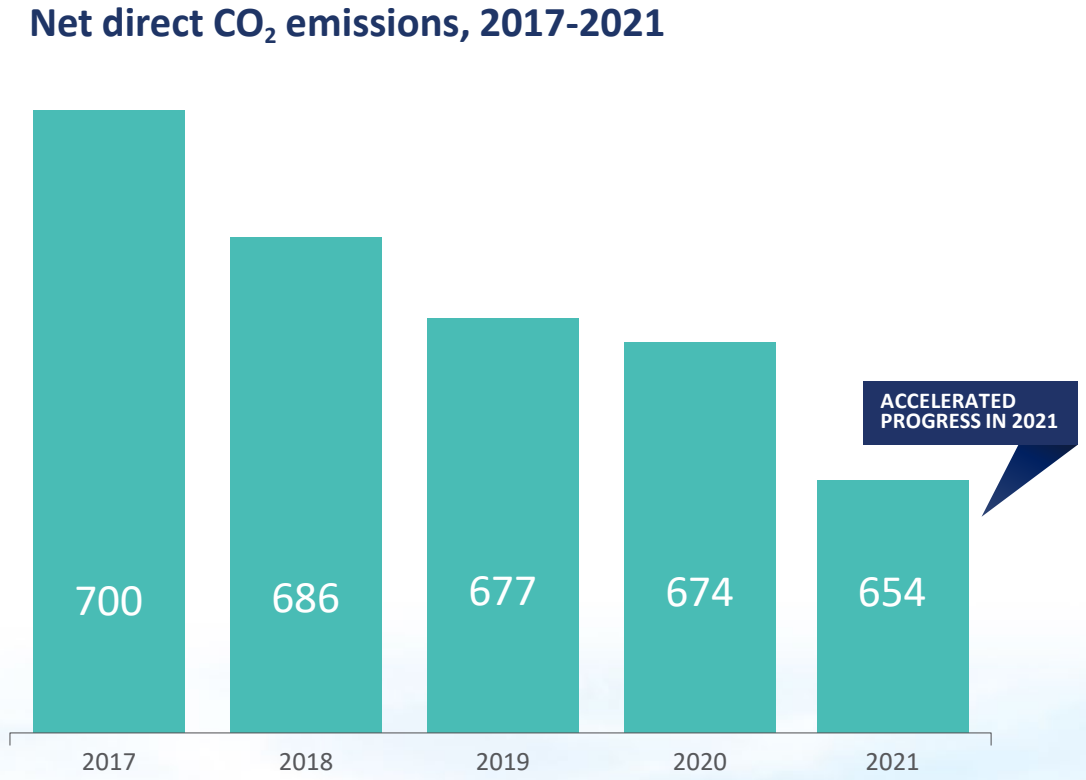
1. Solid track record of reducing CO_2 emissions
2. Ambitious 2030 CO_2 reduction targets, validated by the SBTi
3. Commitment to net zero by 2050, in alignment with the “Business Ambition for 1.5°C”
4. Clear CO_2 reduction roadmap with value-generating initiatives across the value chain
5. Development of low-carbon products and customer solutions
6. Leveraging innovative technologies for the transition to a net zero economy
7. Recognized by the CDP as a global climate leader



Building on a solid track record

Continuous CO_2 reduction since 1990





Ambitious, science-based CO_2 reduction targets

Validated by the Science Based Targets initiative (SBTi)

1990 - 2020	2020 - 2030	2030 - 2050
Strong track record in CO_2 emissions reduction	**A whole new level of ambition** with science-based targets for Scope 1 & 2 emissions	**Commitment to net zero** Developing products and solutions for a carbon-neutral world

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

BUSINESS AMBITION FOR 1.5°C

778* → 674* → 590* by 2025 → 500* → net-zero concrete

In the period 1990-2020 we achieved a CO_2 reduction of:

-13% vs. 1990 level

In 2021, we set our 2030 CO_2 reduction targets:

Scope 1:**	Scope 2:**	Scope 3:**
-35% vs. 1990 level	**-45%** vs. 2020 level	**Monitoring & independent verification**

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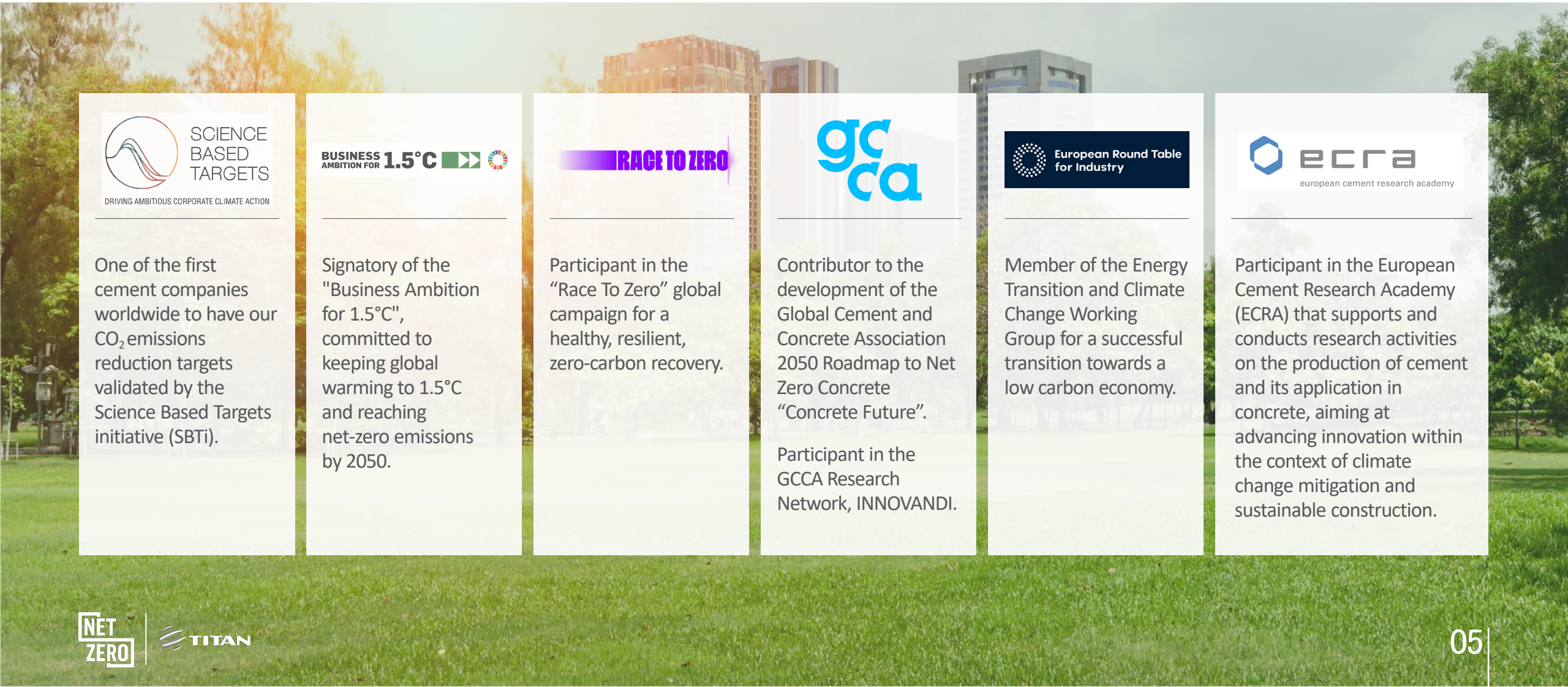
** Net direct CO_2 emissions ($kgCO_2$/t cementitious product)*
***Scope 1: direct CO_2 emissions; Scope 2: indirect CO_2 emissions from electricity; Scope 3: indirect CO_2 emissions of the supply chain*

Commitment to achieve net zero emissions by 2050

We build strong relationships with global organizations and other partners to drive change



SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

One of the first cement companies worldwide to have our CO_2 emissions reduction targets validated by the Science Based Targets initiative (SBTi).

BUSINESS AMBITION FOR 1.5°C

Signatory of the "Business Ambition for 1.5°C", committed to keeping global warming to 1.5°C and reaching net-zero emissions by 2050.

RACE TO ZERO

Participant in the “Race To Zero” global campaign for a healthy, resilient, zero-carbon recovery.

gcca

Contributor to the development of the Global Cement and Concrete Association 2050 Roadmap to Net Zero Concrete “Concrete Future”.

Participant in the GCCA Research Network, INNOVANDI.

European Round Table for Industry

Member of the Energy Transition and Climate Change Working Group for a successful transition towards a low carbon economy.

ecra
european cement research academy

Participant in the European Cement Research Academy (ECRA) that supports and conducts research activities on the production of cement and its application in concrete, aiming at advancing innovation within the context of climate change mitigation and sustainable construction.

Clear roadmap with value-generating initiatives across the value chain

Concrete plans towards carbon neutrality

Safeguarding and enhancing the profitability of our assets

- Alternative fuels and raw materials
- Energy efficiency
- Clinker substitution within existing standards
- New technologies (CCUS, Hydrogen as a fuel, solar calcination)

Differentiating our offering to add value to the customer

- New, low-carbon products
- Product innovation (calcined clays, new binders, re-carbonated materials)
- Logistics efficiency
- Circular economy solutions

Discovering new green growth avenues

- Cementitious materials
- Aggregates
- Waste management
- Green energy
- Downstream construction products

→ -35% reduction of CO_2 Scope 1 emissions by 2030; achievable with conventional levers
→ CapEx of approx. €10 m p.a. on average over the next 10 years
→ Value generating growth and cost saving projects

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Lowering Scope 1 emissions with conventional levers

By 2030, we will achieve:

*2020 baseline year

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Lowering Scope 1 emissions with conventional levers

Increasing our capacity to use alternative fuels with new investments across the Group

Pennsuco, USA
Natural gas & alternative fuels installation

- Total budget: €21 million
- Completion: 2023
- TSR*: 50%

Kamari, Greece
Calciner

- Total budget: €25 million
- Completion: 2023
- Upgrade of clinker production line
- TSR: over 80%

Zlatna, Bulgaria
Alternative fuels feeding installation

- Total budget: €5 million
- Completion: 2023
- TSR: over 65%

Thessaloniki, Greece
Alternative fuels feeding installation

- Total budget: €6.5 million
- Completion: 2024
- TSR: 75%

**Thermal substitution rate*

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New pre-calciner in Kamari cement plant, Greece, to increase use of climate friendly fuels

PROGRESS IN ACTION

BENEFITS:

- CO_2 emissions reduction
- Contribution the circular economy and waste management

DESCRIPTION:

- Installation of a pre-calciner at Kamari cement plant, Greece
- Total budget of over €25 million
- Project will be completed in 2023
- This upgrade will significantly increase the plant's capacity to use alternative fuels, substituting in large part the fossil fuels necessary for the operation of its kilns
- Total annual reduction in CO_2 emissions of 450,000 t, equal to replacing 160,000 conventional cars with electric vehicles

Y. Kontos

Strategic partnership for waste treatment to enhance fossil fuel replacement

PROGRESS IN ACTION

BENEFITS:

- CO_2 emissions reduction with increased use of climate-friendly alternative fuels
- Contribution to the circular economy: maximizes recycling and preserves natural resources
- Provides a solution to the critical environmental issue of Municipal Solid Waste (MSW)

DESCRIPTION:

- Strategic partnership with TERNA Energy to participate in the public tender process for the public-private partnerships (PPPs) of the Mechanical & Biological Waste Treatment (MBT) plants in Attica and Central Macedonia, Greece
- Operation of MBT plants can secure the availability of high-quality, alternative fuels to replace fossil fuels
- TITAN cement plants strategically located near the relevant MBT sites

AI-based Real Time Optimizers in cement plants support net zero journey

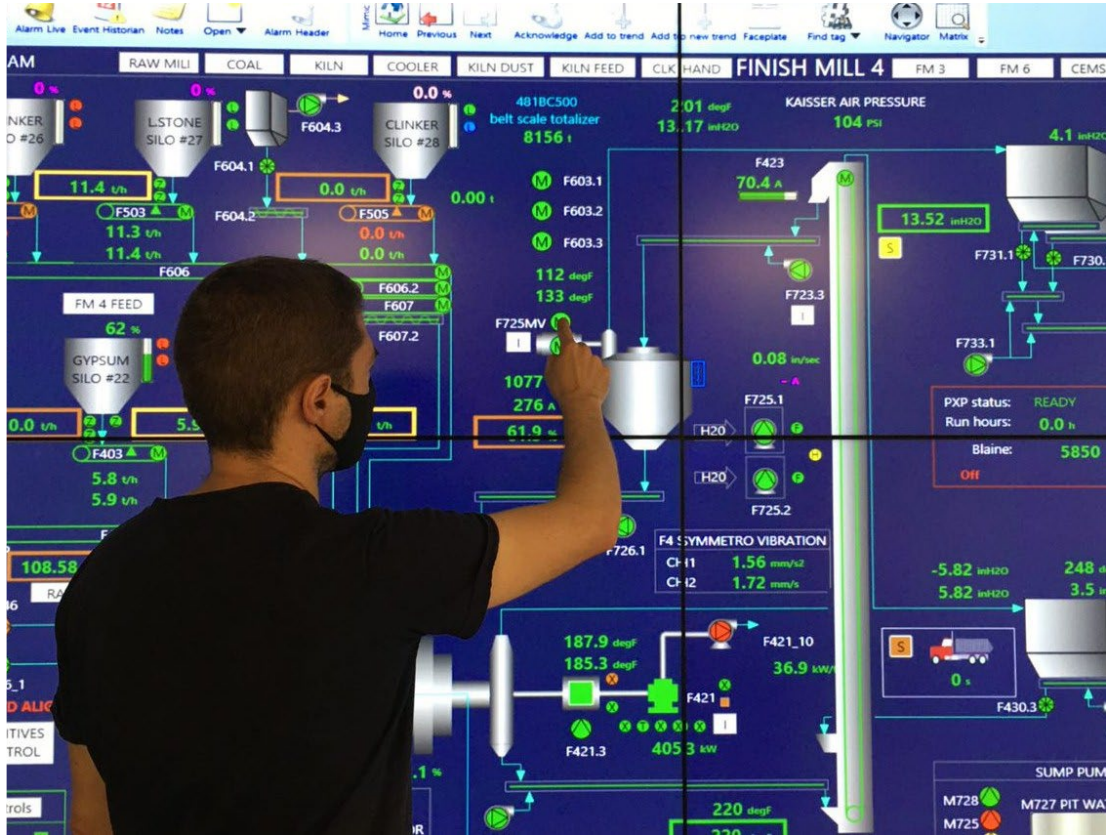
PROGRESS IN ACTION

BENEFITS:

- Reduction of energy consumption
- Reduction of CO_2 emissions
- Improvement of environmental performance
- Improvement of productivity by up to 10%

DESCRIPTION:

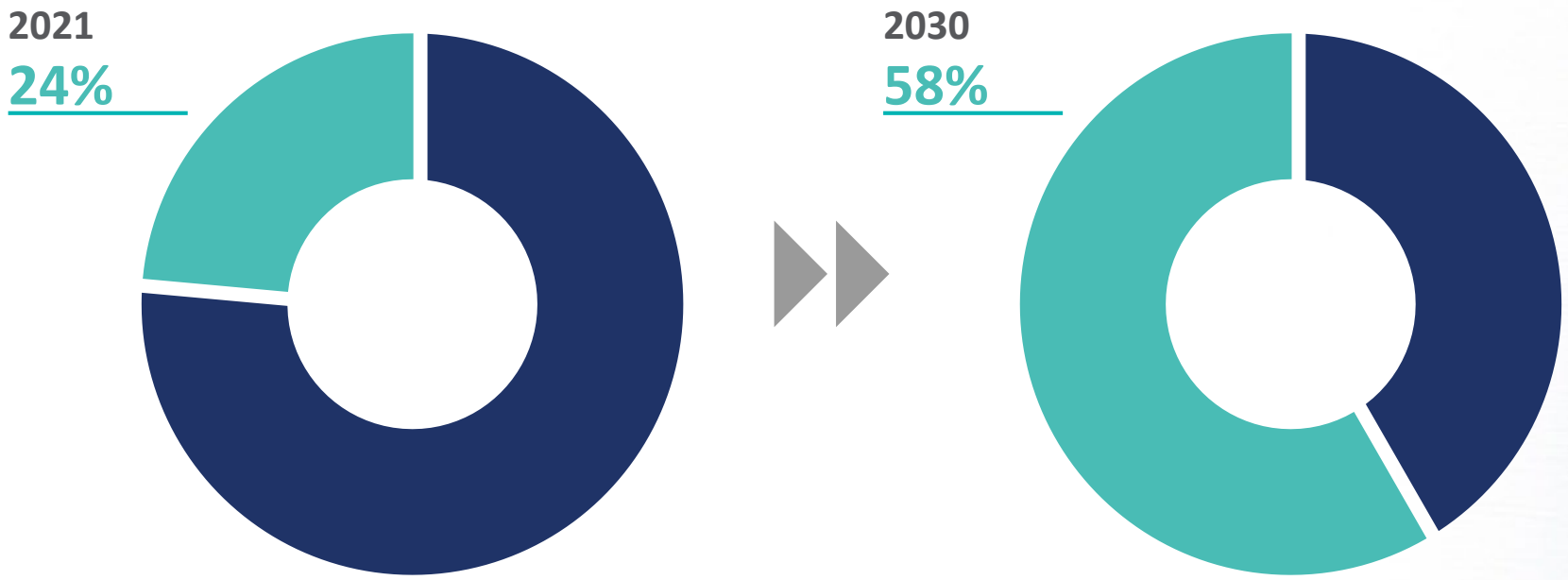
- One of the first Artificial Intelligence solutions used in cement production, placing TITAN Group among the early adopters and leaders of digital innovation in the cement industry
- Launch in 2017 in Pennsuco cement plant, USA
- Roll out across TITAN's plants in the USA, Greece, Brazil, and Southeastern Europe
- Thousands of sensors integrated in equipment across each plant record huge volumes of operational data that are transmitted, organized, studied, and utilized for the real-time optimization of production



Development of low-carbon products and customer solutions

Doubling the share of green products in our portfolio

Green products* in TITAN portfolio



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*cement with Clinker content below 70%

Development of low-carbon products and customer solutions

Offering to our customers the products and services that will shape the sustainable, net zero world of tomorrow

Lower carbon cements

High quality performance with lower carbon emissions:

- **Type IL** (Portland limestone cement): 15% lower carbon emissions compared to Type I or Type II cement
- **Belite calcium sulfoaluminate (BCSA) cement:** 30% reduced carbon emissions compared to conventional products with the same performance

Sustainable raw materials

Sustainable raw materials produced by processing fly ash from coal-fired power plants and landfills:

- **Proash:** low carbon construction product used as a replacement for Portland cement in concrete mixes
- **Ecotherm:** fuel-rich product for power generation and cement manufacturing, substituting fossil fuels

Development of low-carbon products and customer solutions

Offering to our customers the products and services that will shape the sustainable, net zero world of tomorrow

Concrete for sustainable construction

ENVIRA:
new generation ready mix concrete for sustainable construction

An excellent choice in projects that require high environmental performance according to the LEED system

ENVIRA

INTERFORCE:
innovative lower carbon ready mixed concrete

Can be used in commercial slab construction, displacing the use of wire mesh and economizing up to 5 $kgCO_2$ per square meter of application

INTERFORCE

VIRIDIA:
extra durable ready mix product line

Designed for extended durability under chloride ingress or carbonation, thus negating the need for costly and carbon intensive structural repairs during the projects' lifetime

VIRIDIA

Leader in the production of lower-carbon Type IL in the US

PROGRESS IN ACTION

BENEFITS:

- Carbon footprint reduction: Type IL has approx. 15% lower carbon emissions compared to Type I or Type II cement
- Promotion and support of sustainable construction

DESCRIPTION:

- Introduced by Titan America in 2015
- Titan America is currently the largest producer of Type IL sold in the US
- Production of Type IL in Titan America has reached 50% of its total cement output
- New $35 million investment for the construction of a 70,000-ton dome at the Port Tampa Bay Terminal, in Florida to further increase sales of Type IL cement
- Increased demand in the US market supported with imports from Kamari cement plant, Greece
- TITAN's Essex Cement, the only cement source in the State of New Jersey, USA, is expected to sell Type IL exclusively by the end of 2022

Pioneering new technology recycles landfilled fly ash and reduces the carbon footprint of cement and concrete

PROGRESS IN ACTION

BENEFITS:

- Carbon footprint reduction of cement and concrete products
- Contribution to the circular economy: clean-up and remediation of fly ash landfills and ponds

DESCRIPTION:

- Innovative, proprietary technology by Separation Technologies (ST), a fully-owned TITAN Cement Group US-based subsidiary
- Recycled fly ash transformed into consistent, high-quality, green end-products - ProAsh and EcoTherm – used as sustainable raw materials in cement, concrete & power generation
- The world's first industrial-scale plant for reclaimed ash drying and electrostatic separation at Talen Energy's Brunner Island Steam Electric Station, in Pennsylvania, USA
- Plant combines ST's new proprietary drying and screening system with ST's long-proven electrostatic separation process for removing unburned carbon from fly ash for use in concrete construction

Leveraging innovative technologies for the transition to a net zero economy

PROGRESS IN ACTION

Experimenting with carbon capture technologies

BENEFITS:

- CO_2 emissions reduction
- Contribution to circular economy: the captured CO_2 can be reused to make cement and concrete

DESCRIPTION:

- Participation in European collaborative research projects to test and develop innovative carbon capture technologies (RECODE, CARBONGREEN, CARMOF, ACOCEM)
- Collaboration with international stakeholders from the industry and academia
- In 2022, two pilot demonstrations at Kamari plant, in Greece, together with TITAN partners in EU Horizon 2020 projects RECODE and CARMOF
- Recognition of TITAN as a Key Innovator by the European Commission in its Innovation Radar for the Group's contribution to RECODE

RECODE 2 · CARBONGREEN · CO2 CARMOF · AC2OCem

Leveraging innovative technologies for the transition to a net zero economy

PROGRESS IN ACTION

Reducing carbon emissions with green hydrogen

BENEFITS:

- CO_2 emissions reduction with increased use of climate-friendly alternative fuels

DESCRIPTION:

- Industrial pilots of hydrogen use in clinker manufacturing, as a fuel enhancer, in Greece and Bulgaria
- Initial results show significant potential reduction in direct CO_2 emissions, especially when produced through renewable means ("green hydrogen")
- H2CEM
  - Participation in the call for Important Projects of Common European Interest on Hydrogen Technologies and Systems (EU IPCEI on Hydrogen), with the project proposal H2CEM
  - In H2CEM, TITAN envisions to deploy and scale up the use of green hydrogen, targeting at least an 8% reduction in CO_2 emissions by 2030

Committed to good governance and transparent communication

Our efforts acknowledged by leading ESG rating agencies

SUSTAINALYTICS
a Morningstar company
RATED

Medium Risk

NEGL	LOW	MED	HIGH	SEVERE
0-10	10-20	20-30	30-40	40+

MSCI ESG RATINGS AA

CCC	B	BB	BBB	A	AA	AAA

LEADER

Information on all our ESG ratings can be found at:
www.titan-cement.com/sustainability/esg-ratings

NET ZERO

Acting for a more sustainable future

TITAN