
An aerial photograph of a lush green park with winding asphalt paths, dense trees, and a small circular sculpture in the center. The image is partially covered by a dark teal overlay on the left side, which contains the company logo and text.

BETOLAR

Transforming
The World of
Mining & Metals



BETOLAR
Transforming
The World of
Mining & Metals

Capital Markets Day 2025

Helsinki, May 14, 2025



Betolar's journey from pavement stones to green cement

Tuija Kalpala
President & CEO

Disclaimer

Certain statements in this presentation may constitute forward-looking statements. These statements relate to future events or Betolar's future financial performance that involve known and unknown risks, uncertainties and other factors that may cause Betolar's or its businesses' actual results, levels of activity, performance or achievements to be materially different from those expressed or implied by any forward-looking statements.

By their nature, forward-looking statements involve risks and uncertainties because they relate to events and depend on circumstances that may or may not occur in the future and you should not rely on these forward-looking statements as predictions of future events. Future results may vary from the results expressed in, or implied by, the following forward-looking statements, possibly to a material degree.

Agenda

- Betolar's journey from pavement stones to green cement
- Accelerating business with Data and AI-assisted material research
- Betolar's innovation to extract critical and strategic metals and producing new type of green cement
- Financials
- Q&A

Tuija Kalpala, President & CEO

Olli Kilpeläinen, VP Data & R&D

Jyri Talja, Chief Growth Officer

Mikko Wirkkala, CFO

Management Team

Our Management Team has expanded



Tuija Kalpala
President & CEO



Jyri Talja
Chief Growth Officer



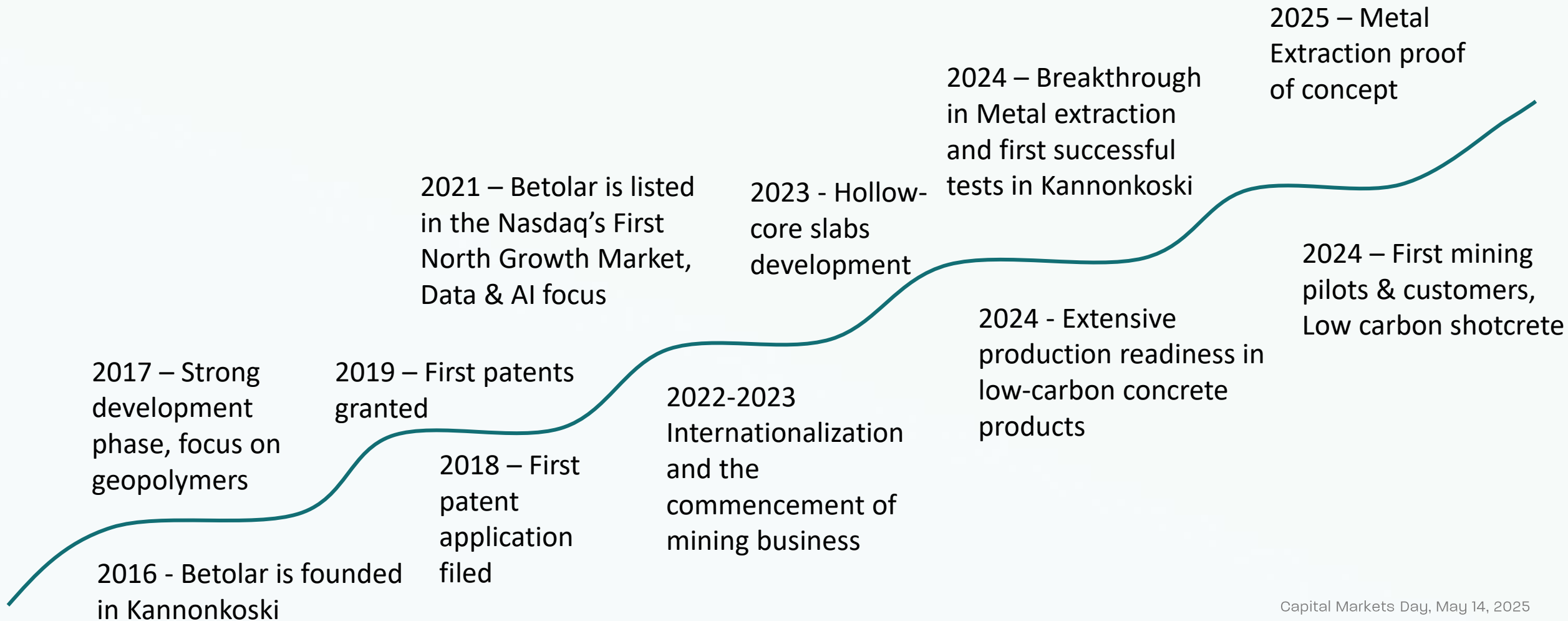
Mikko Wirkkala
Chief Finance Officer



Soila Söderström
SVP & General Counsel

Betolar's Journey

From pavement stones to green cement



Vision & mission

Your partner
for
zero waste

We create value from industrial
sidestreams and reduce emissions by
replacing cement with low-carbon
circular solutions

Strategy

Creating significant value from sidestreams

We focus on industrial sidestreams and international clients in the mining and metals industries. Establishing a strong position in the utilization of sidestreams is essential to unlocking greater value creation potential. Our business is built on a proprietary AI-powered platform that accelerates solution development.

We provide our clients with solutions that enable the efficient circulation of industrial side streams. This reduces the use of cement, lowers environmental impact, and increases self-sufficiency.

TURNING INDUSTRIAL SIDESTREAMS INTO VALUE

We research and productize industrial side-streams, while the SidePrime analytics service helps identify their full potential.

CEMENT-REPLACING SOLUTIONS

We offer low-carbon and cost-effective Geoprime solutions to replace cement in the mining and construction industries.

RECOVERY OF METALS AND THE GREEN CEMENT

We commercialize innovative methods for the recovery of valuable minerals and metals to produce green cement.

References

Cementless solutions deployed around the world



Mining and Metals

Application areas

- Cementless backfill solutions
- Shotcrete
- Stabilisation of tailings
- Recovery of valuable fractions
- Side product management



Industrial sidestreams

Application areas

Industrial side streams requiring a specific analysis and solution to avoid land-filling and to enable profitable manufacturing and re-use.



Construction

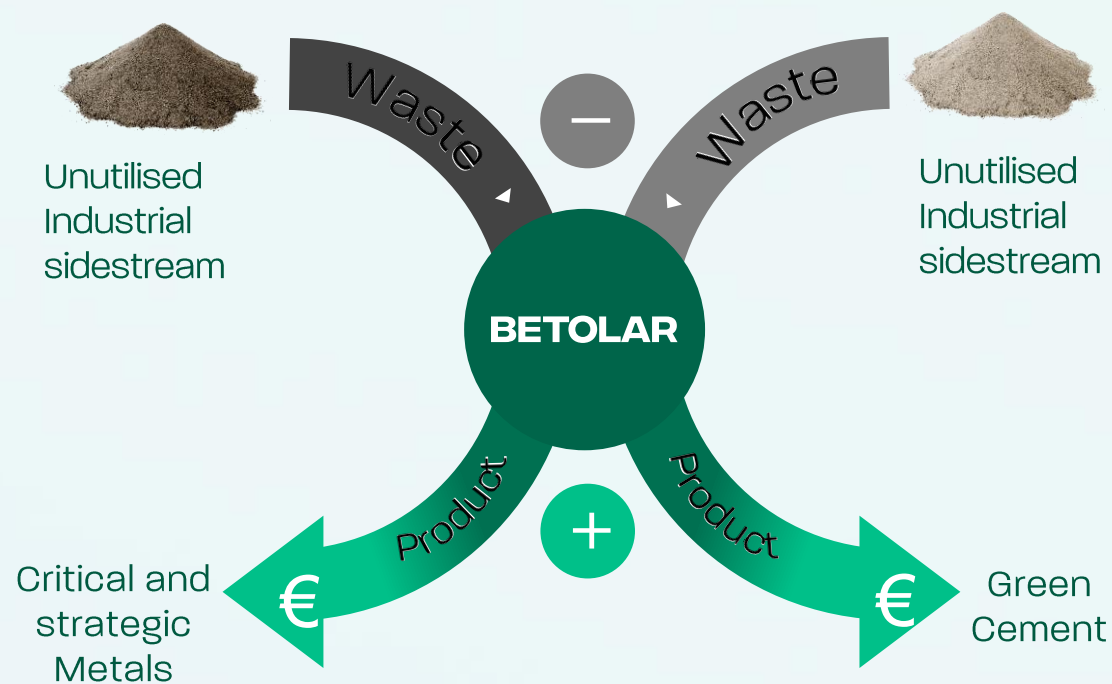
Application areas

Large structural concrete elements used in house building e.g. Hollow core slabs and urban development as well as non-structural small concrete products, e.g. paving blocks.



Betolar's New Innovation

Recovery of Critical and Strategic Metals and Green Cement – How it works



Critical and Strategic Metals

The process improves the yield of metal extraction from slag - up to 99%

Green Cement

The residual slag from the process is utilised as low-carbon green cement

Zero Waste

Converting unutilised industrial sidestreams into valuable materials

Our target with Metal Extraction Innovation

Metal Recovery

We will continue to advance our metal recovery method, ensuring that we maximize the extraction of valuable metals from various sidestreams. This not only supports our sustainability goals but also enhances the nation's security of supply.



Producing Green Cement

Our efforts in producing green cement will lead the industry towards more environmentally friendly construction materials. By reducing carbon emissions and utilizing circular materials, we will set new standards for green building practices.



Increasing Sales of Geoprime with Cost-Efficient Recipes

We are dedicated to leading the market with our innovative Geoprime solution. By developing cost-efficient recipes, we will make Geoprime more accessible and attractive to a broader range of customers, driving sales and expanding our market presence.



Accelerating business with Data- and AI-assisted material research

Olli Kilpeläinen
VP, Data & R&D

Differentiation

AI native approach adopted from day one

Working in a traditional industry...

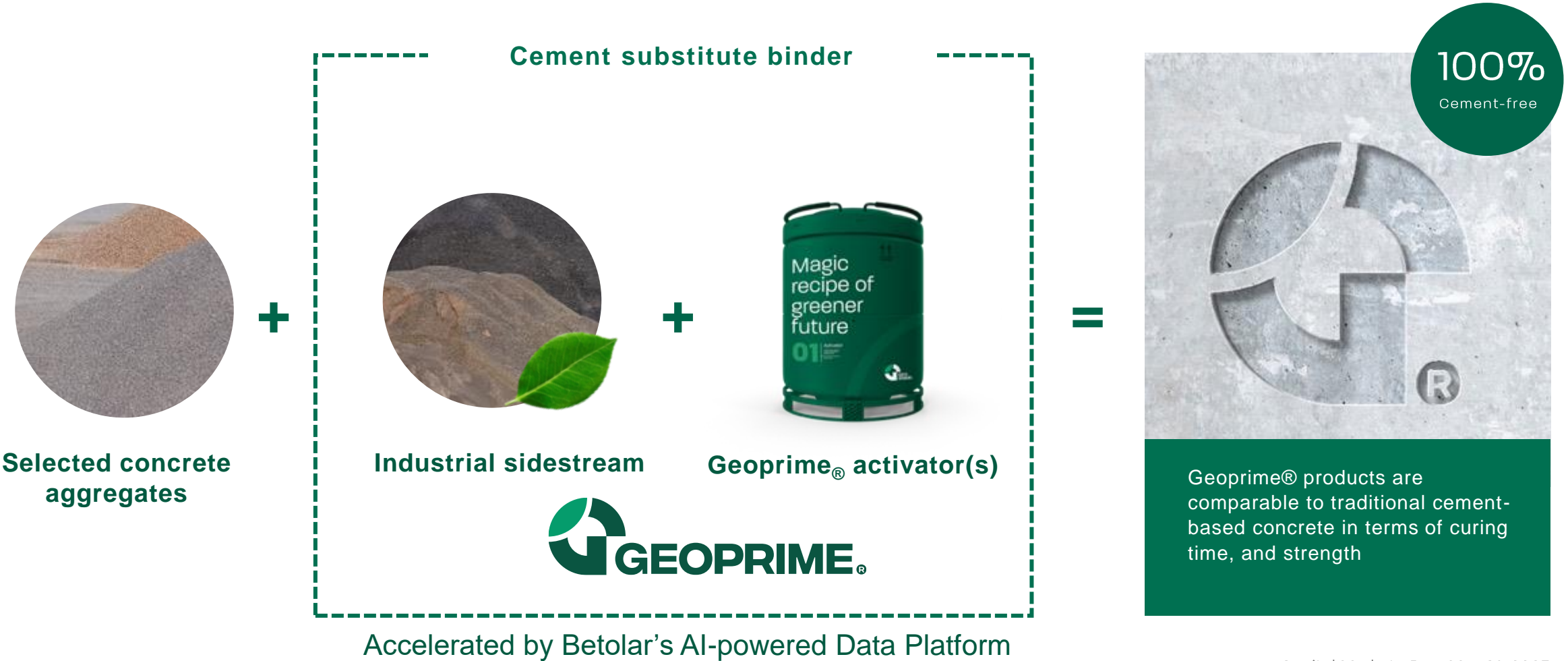


...with AI-native approach



Betolar's cement-free solution

Geoprime® is a sustainable alternative to cement



Value from data

High quality data is a valuable asset

Betolar has systematically collected and curated relevant data from real experiments for several years. We have created a high-quality and a unique data asset in our industry.

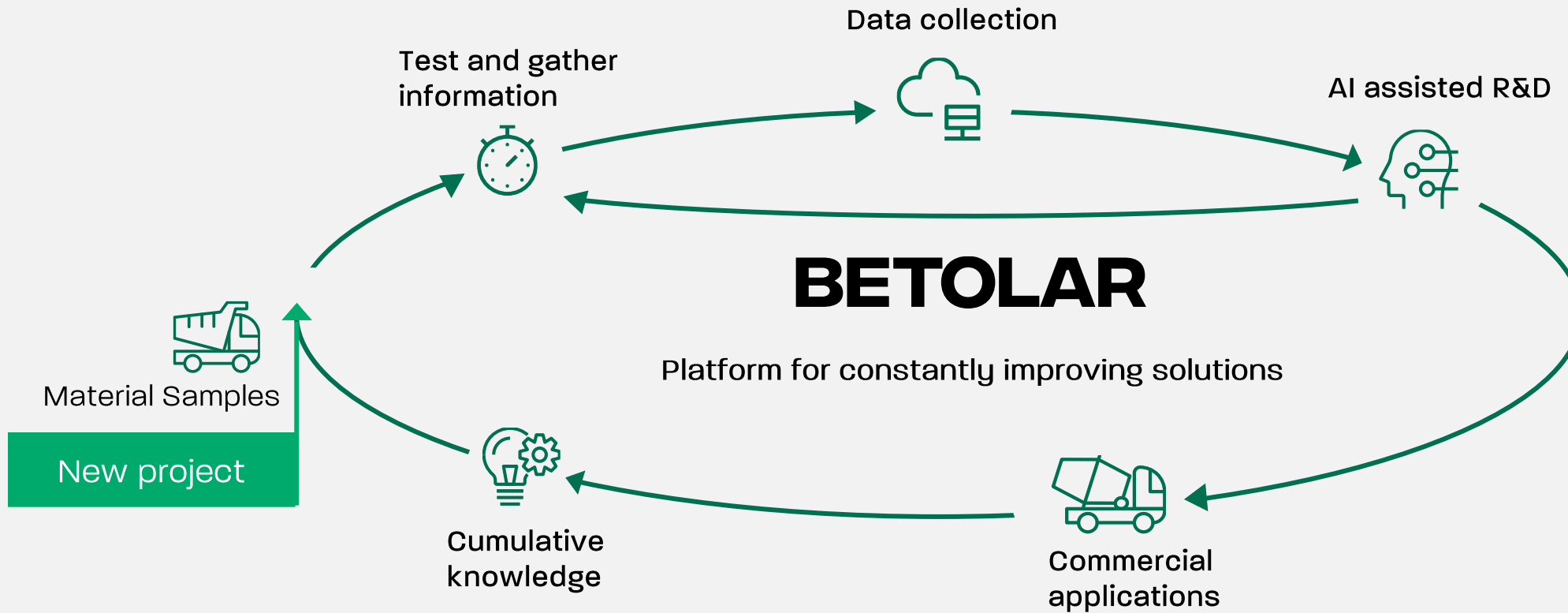
**Consistent
investment in data
collection, coverage
and quality**

**Extensive database
covering over 100,000
measurements with
over 1,000 different
materials**

**Advanced data
science techniques,
combining physics,
chemistry and AI**

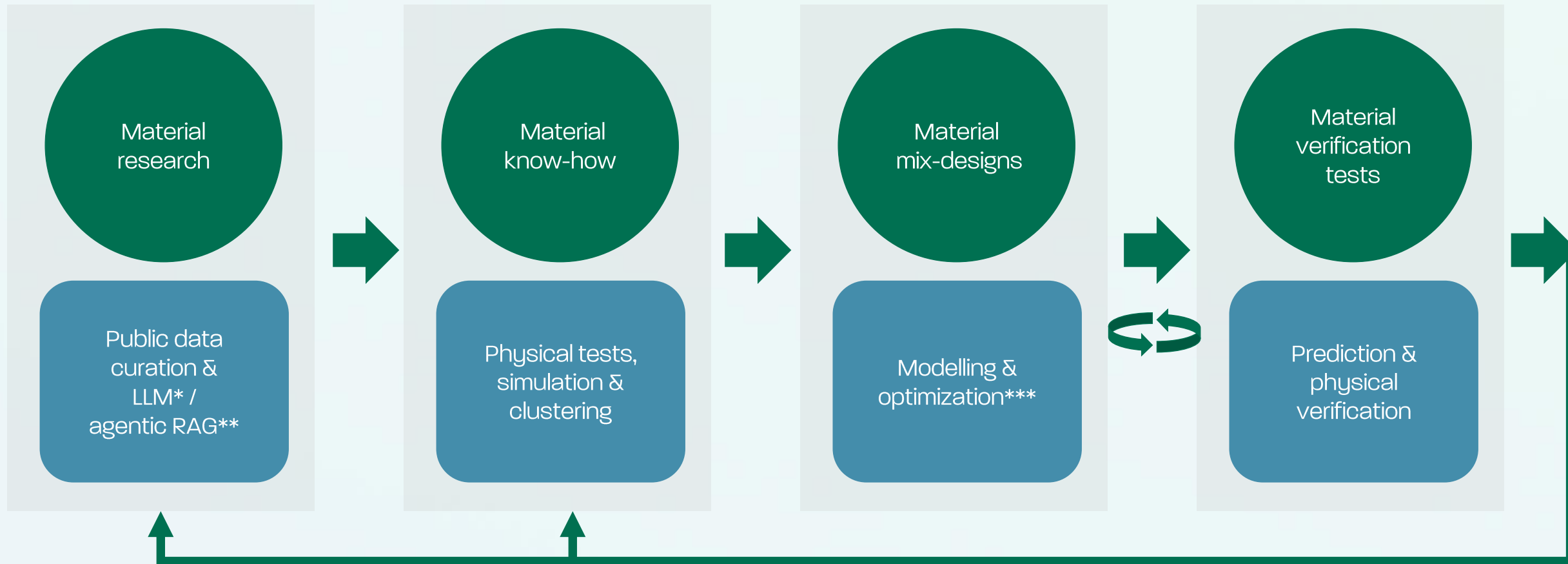
Continuous learning

Platform approach enables constant improvement



Material research process

AI-assisted research accelerates business



* LLM – large language model

** RAG – retrieval augmented generation

*** Optimization for lowest CO2 and/or price

Capital Markets Day, May 14, 2025

Internal efficiency and new services

Creating value with data and AI

Betolar's data and AI approach uniquely enhances both our R&D and business operations, setting us apart in the industry, enabling faster growth

Moreover, we can directly empower our customers by offering these advanced solutions as part of our service

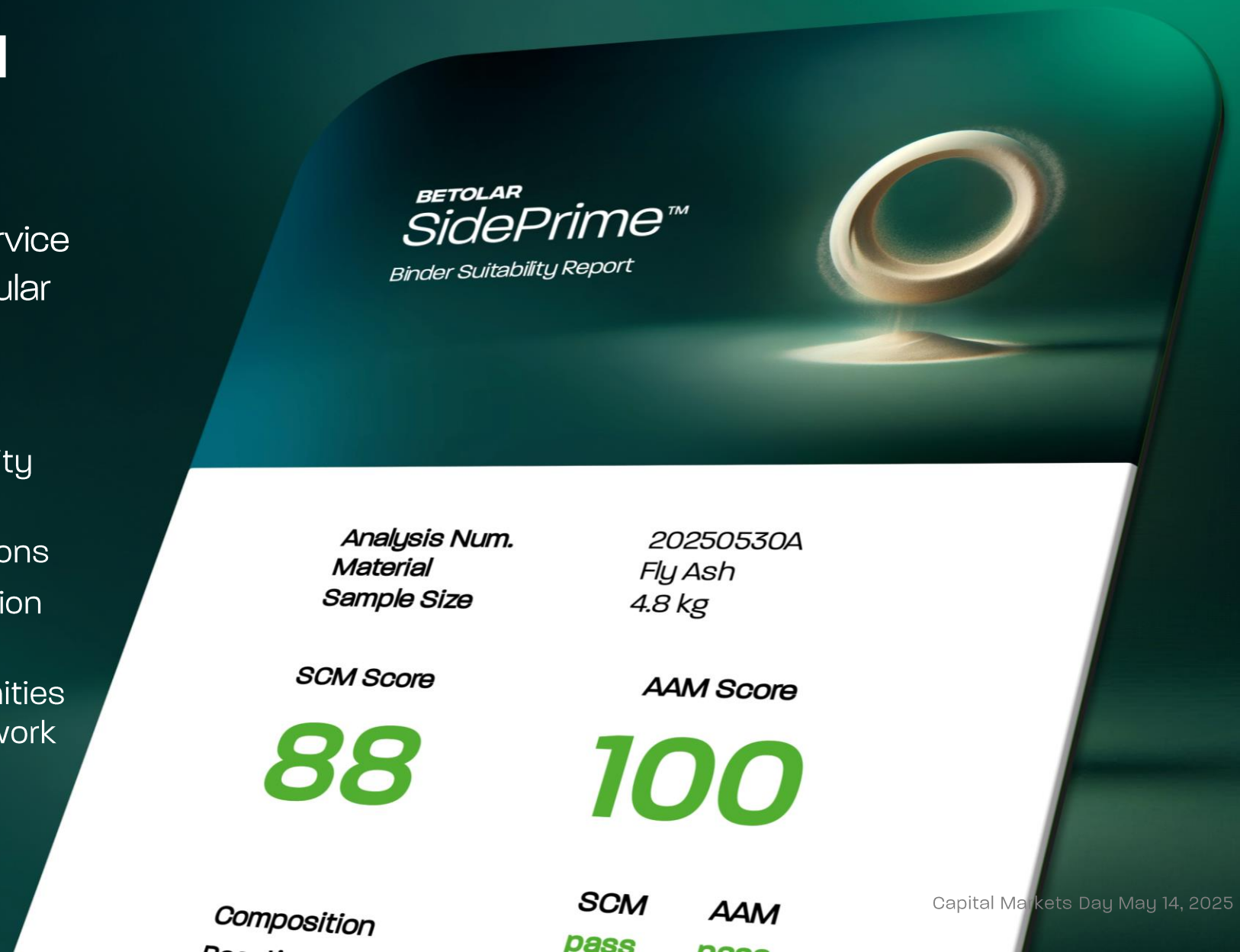
BETOLAR
SidePrime™

BETOLAR
Optimize

BETOLAR SidePrime™

Betolar's unique AI enhanced service uncovers the possibilities of circular economy-based business

1. Comprehensive binder suitability assessment
2. Access to high-value applications
3. Support for optimizing production processes
4. Continuous business opportunities through Betolar's material network



BETOLAR
Optimize

Optimization report

Mix Design ID
Binders
Application2560922F
Cement, GGBFS
HCS

Cost Reduction

15 %CO₂ Reduction**23 %**Price
CO₂

Original

107 € / m³319 kg CO₂e / m³

Optimized

91 € / m³**245 kg CO₂e / m³**

Betolar **Optimize**

A revolutionary AI-powered optimization service minimizes the cost and carbon footprint of the mix designs

1. Minimizing the amount of binder for each products
2. Optimal aggregate utilization
3. Access to Betolar's wide range of high-quality slags and alternative binders
4. Higher early strength enables earlier demolding
5. Up to **75%** faster results than traditional testing

Summary and Conclusion

Creating unique value with data and AI

AI-native approach
considering
Data as an asset

Platform
perspective for
Experimental AI-
assisted research

AI-enabled services
Analysing sidestreams
& optimizing
customer designs



Betolar's innovation to extract critical and strategic metals and produce new type of green cement

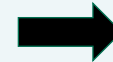
Jyri Talja
Chief Growth Officer

Background

The challenge we wanted to solve

High price and
limited availability
of green cement

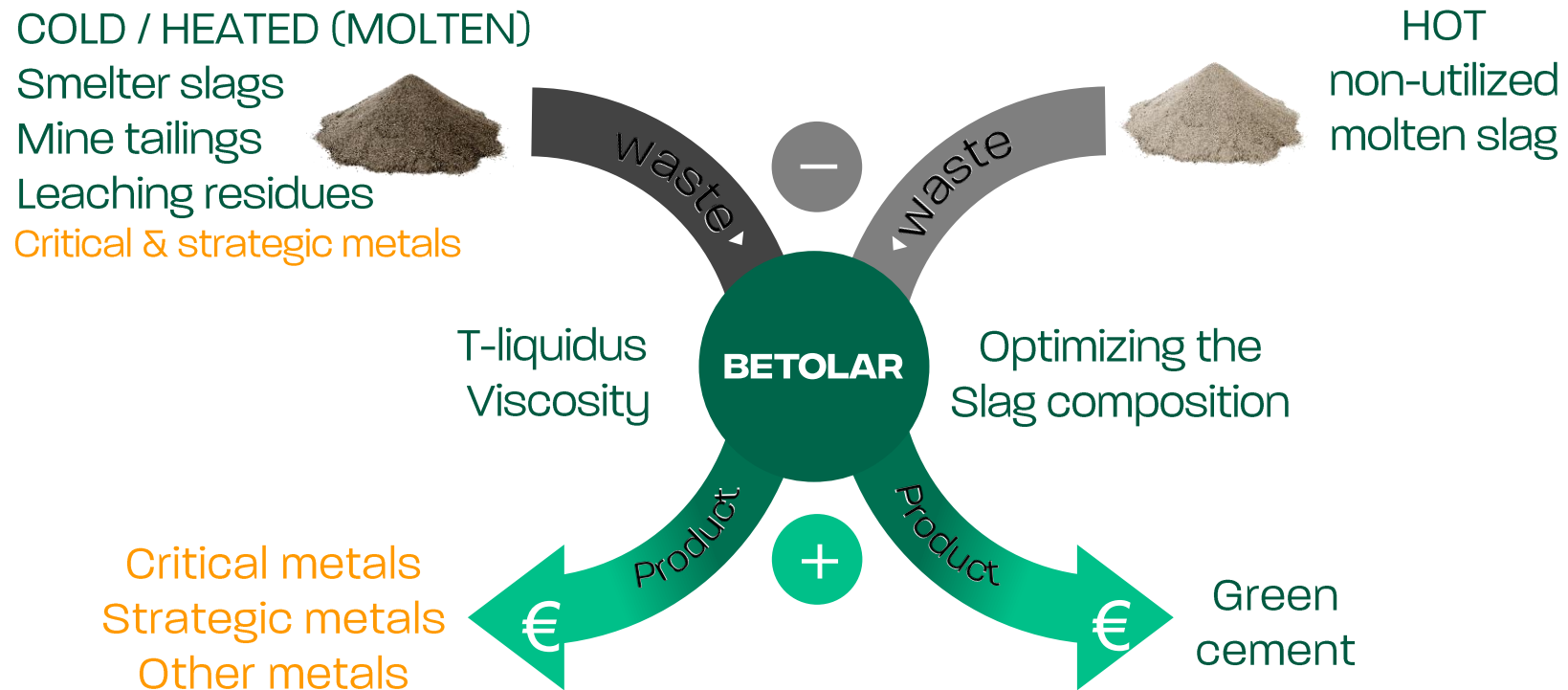
High metal content
preventing the use
of many
sidestreams



Solution:
Metal extraction
and own green
cement

Metal Extraction Technology

Extraction of critical and strategic metals and Betolar's green cement



Patents Pending
Metal Extraction
Green Cement

8

Significant environmental
impact

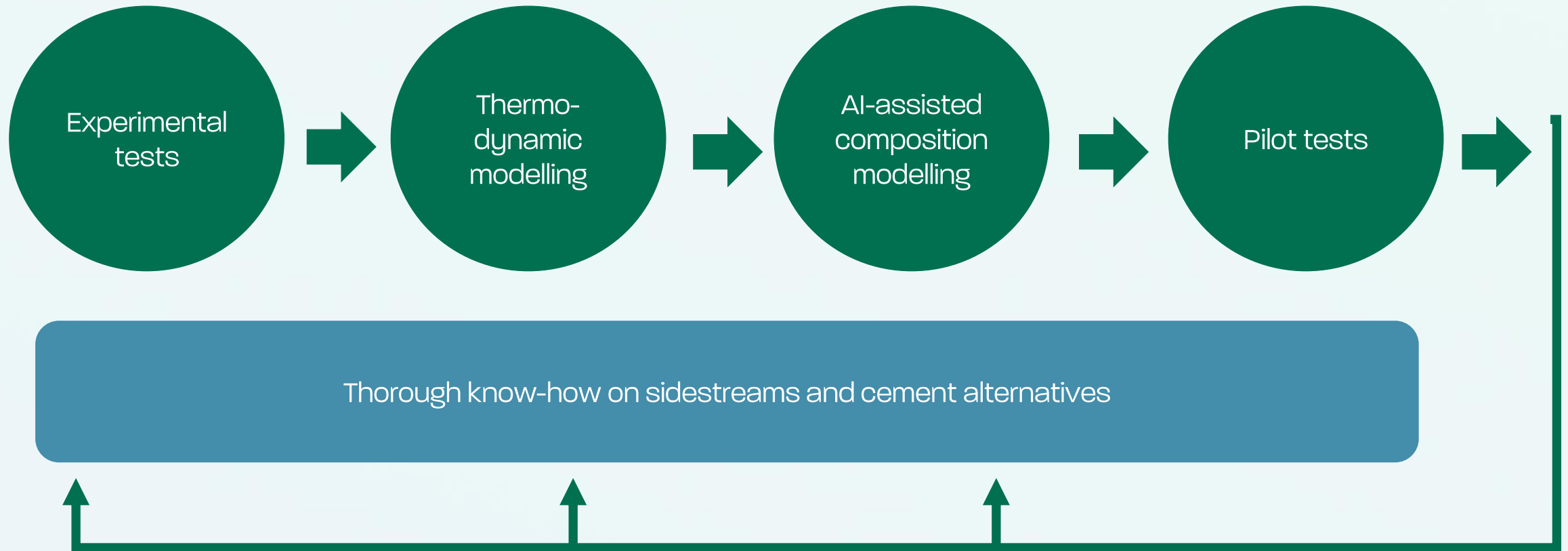


Lower CO₂ emissions



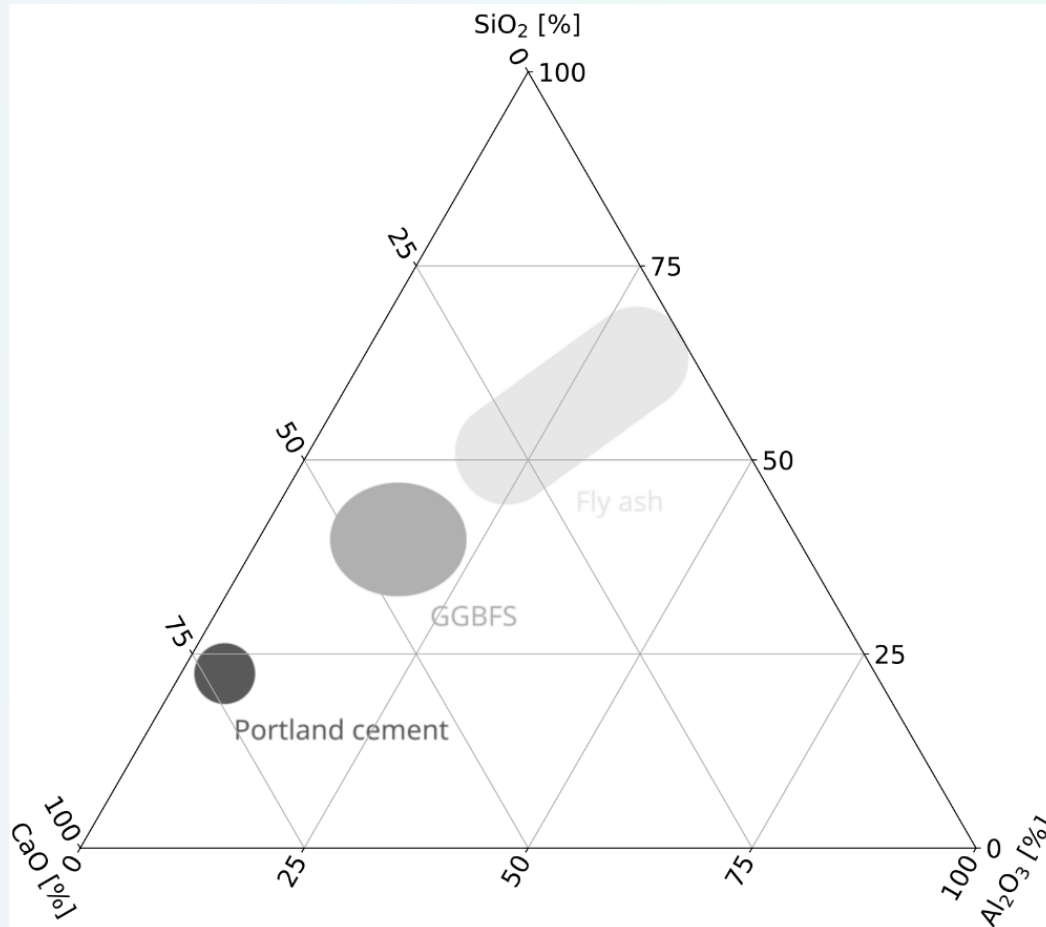
Our innovation process

We have seen consistent results throughout the innovation process



AI-assisted slag composition modelling

Optimization of sidestreams

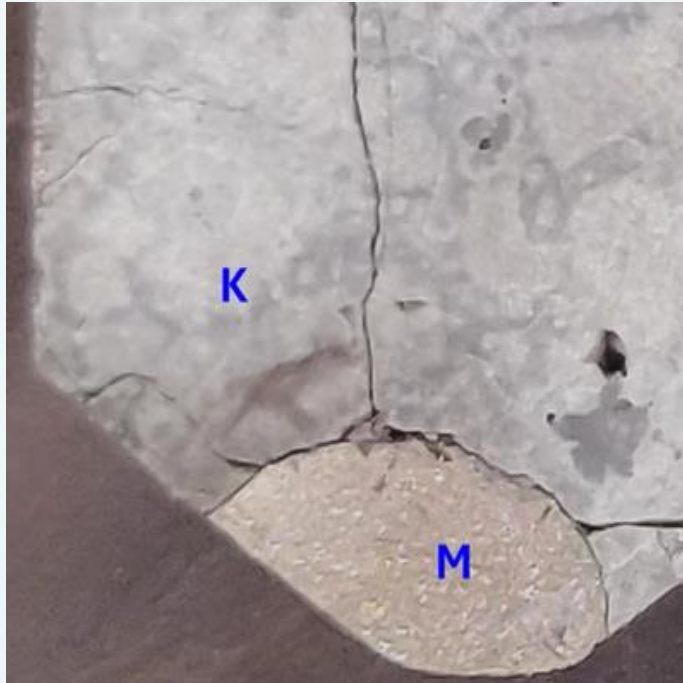


Optimization Process

- Initial slag composition
- Optimize the sidestreams with respect to
 - Quantity & quality
 - Availability & costs
 - Location & logistics
 - Slag chemistry & heat balance
 - Metal recovery
 - Green cement quality

Results

We have achieved over 99 % metal recovery of chromium & nickel



Laboratory scale



→ Bench-scale

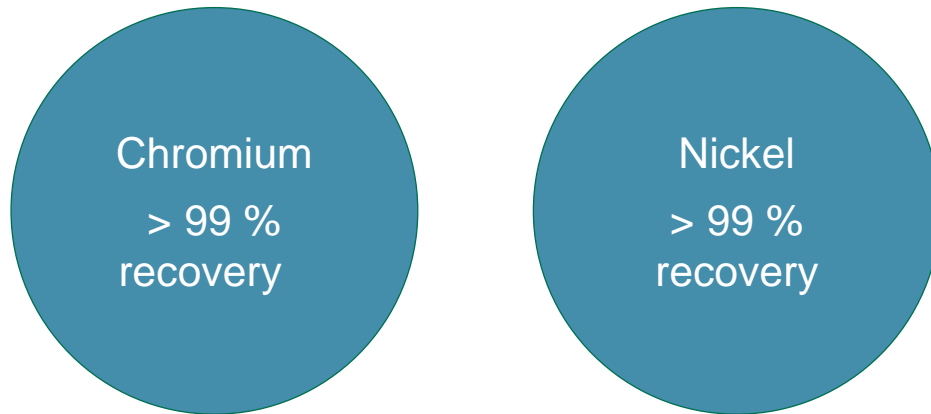


→ Pilot-scale

Identified metals

High recovery potential of critical and strategic metals

Highest value potential metals – currently proven in pilot scale

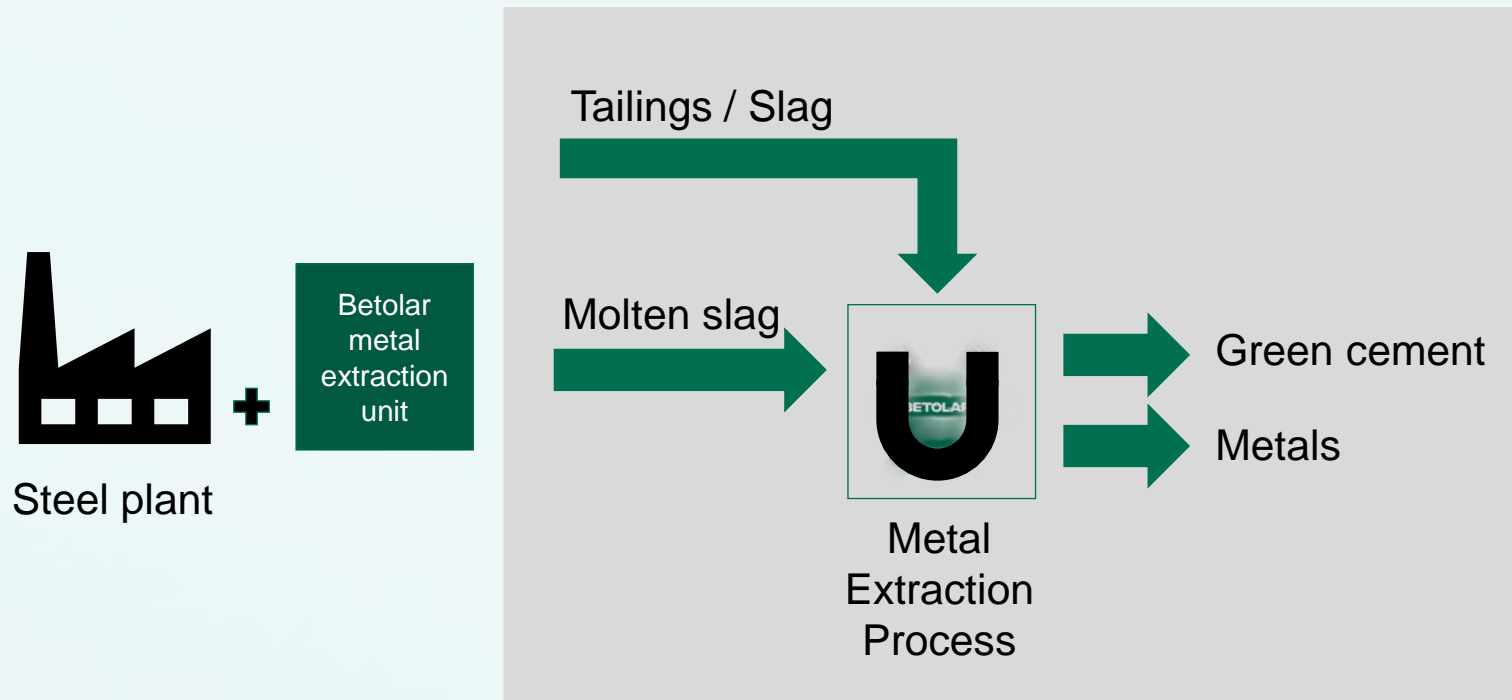


Other critical and strategic metals with high recovery potential so far:

- Cobalt - strategic metal
- Manganese - strategic metal
- Phosphorus - critical metal
- Titanium - strategic metal
- Vanadium - critical metal
- Lithium - strategic metal

Metal extraction method

New innovation easily integrates with the main process

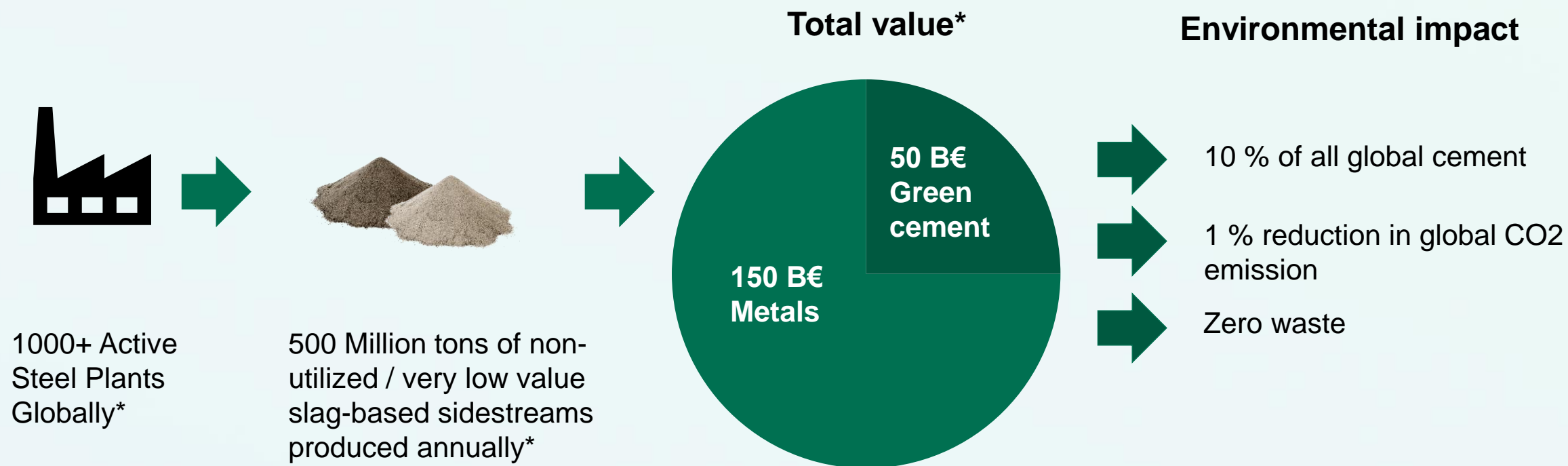


Process features

- Main process will not be affected
- All equipment needed are proven technology
 - Furnace
 - Granulation
- Highly energy efficient
- High metal recovery
- Minimal additional energy needed, if any
- Capex ~ 40-180 MEUR
- Payback time ~ 1 year

Significant Business Potential

Recovery of Metals and Green Cement from iron and steel production



*)Global Iron and Steel Tracker, Global Energy Monitor, March 2025 (V1) release, Betolar estimates on non-utilized sidestreams, total metal value, CO2 impact, green cement 100 €/t

Significant volume potential

Recovery of Metals from old mine tailings has high potential due to used technology and demand of metals



Globally
10 000 active mines
2 000 000 closed mines

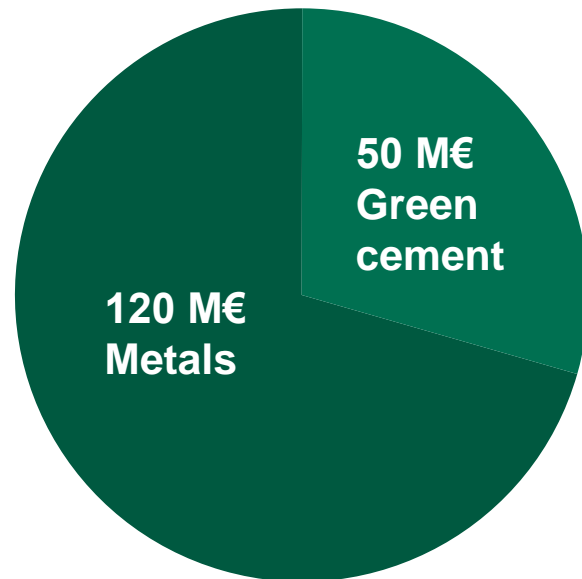
200 000 Mt potential of non-utilized tailings available for recovery of critical and strategic metals

Certain tailings have high value and exploitation potential

Example of Ferrochrome plant

Significant value potential just with one plant

Total value MEUR



Value to be shared between the parties, targeting profit share model

Assumptions

- Ferrochrome plant produces 500 kt of slag annually
- Slag with 6 % chromium content
- Green cement volume 550 kt
- Green cement price assumed at 100 €/ton
- Ferrochrome price assumed at 2000 €/ton

Summary and conclusion

Betolar revolutionizes the metal recovery and slag handling

Increasing the yield of
**Critical & Strategic
Metals**

Production of
**Betolar's Green
Cement**

Enabling the circular
economy resulting in
Zero Waste



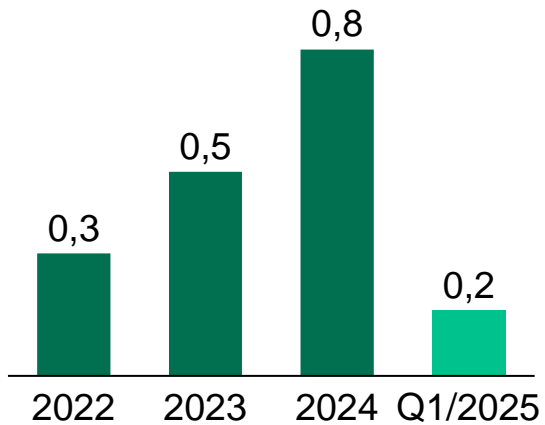
Financial review

Mikko Wirkkala
CFO

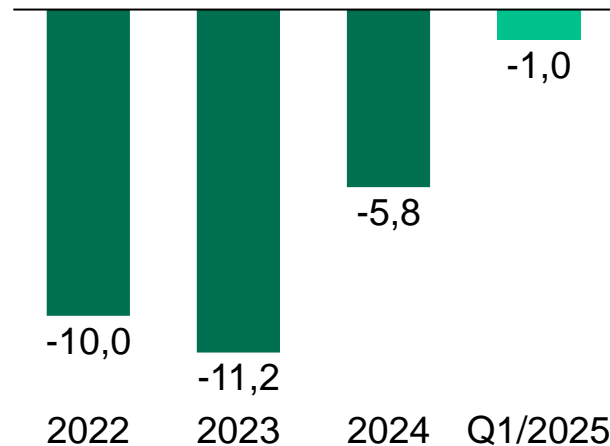
Financial key figures

Betolar is on a growth path and expect 2025 revenue to exceed 2024 level

Net Sales



EBITDA



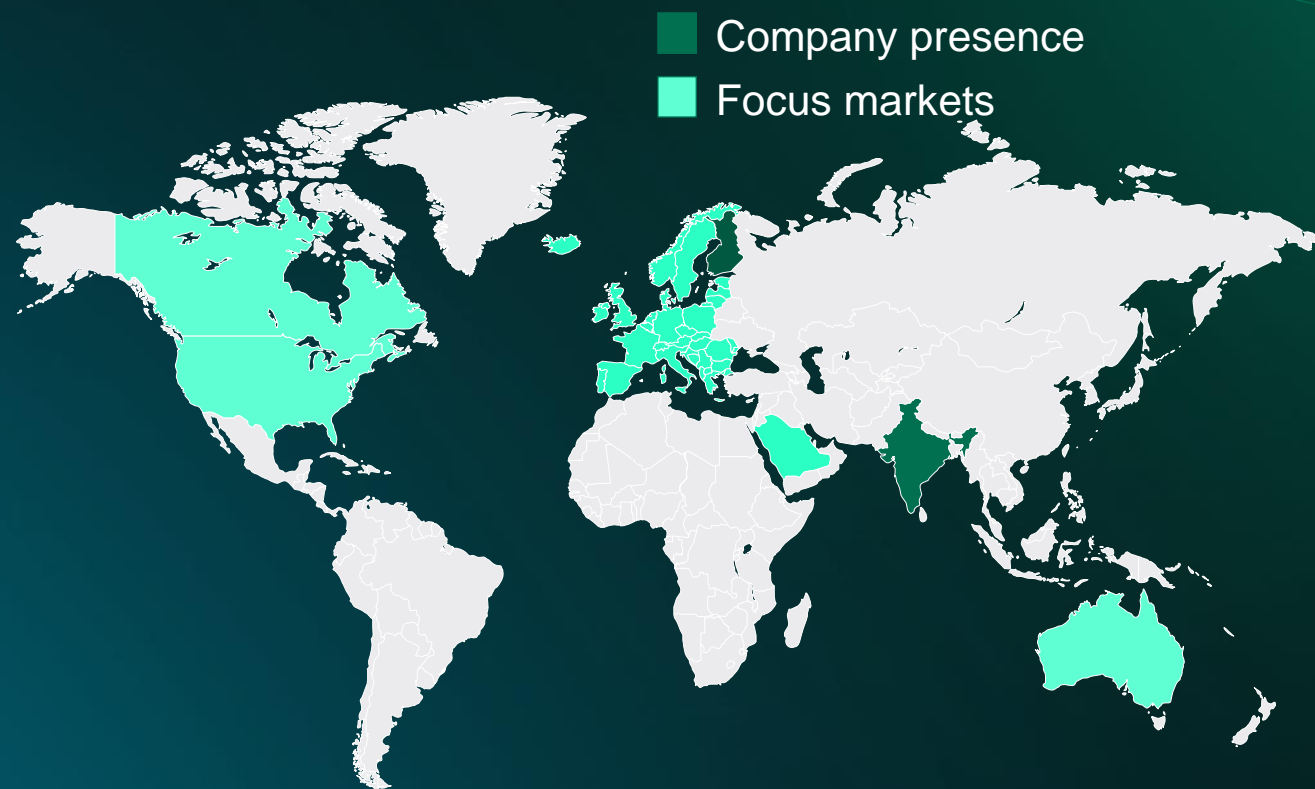
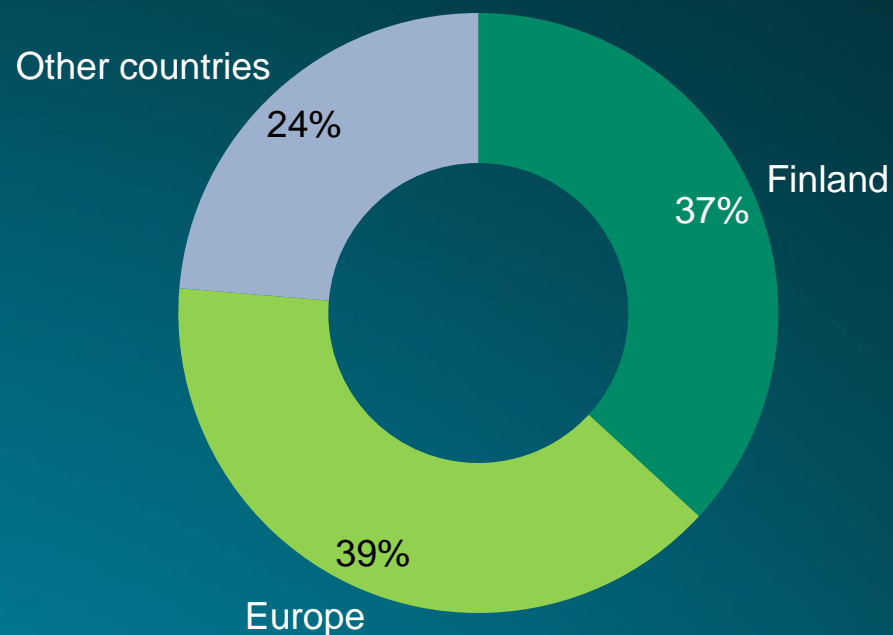
Liquidity and undrawn grants



Market areas

Focus markets expanded to cover clients in North America and Australia

2024 net sales by regions



Financial targets

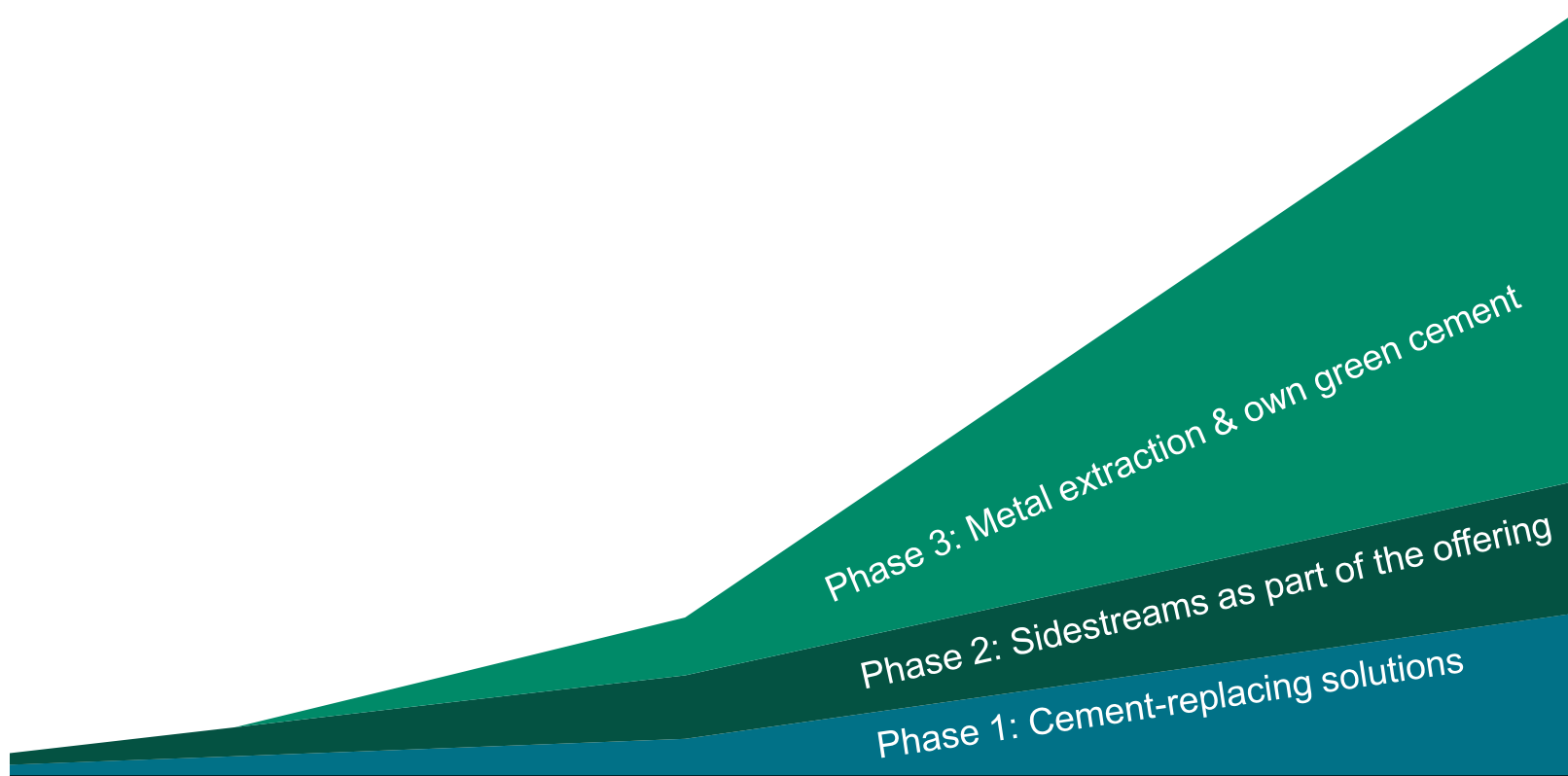
Financial targets aiming for continuing growth

Achieve positive cash flow
from operating activities by
the end of 2026

Achieve one billion euros in
revenue and a 30% EBITDA
margin by the end of 2033

Illustrative roadmap forward

Metal extraction and green cement have large upside potential



Success factors

Phase 3

- Commercialization and value capture of metal extraction and own green cement
- Material processing capabilities
- Logistics and warehousing

Phase 2

- Sidestream sourcing and sales
- Material processing capabilities
- Logistics and warehousing

Phase 1

- Commercial acceleration of sales of cement replacing solutions

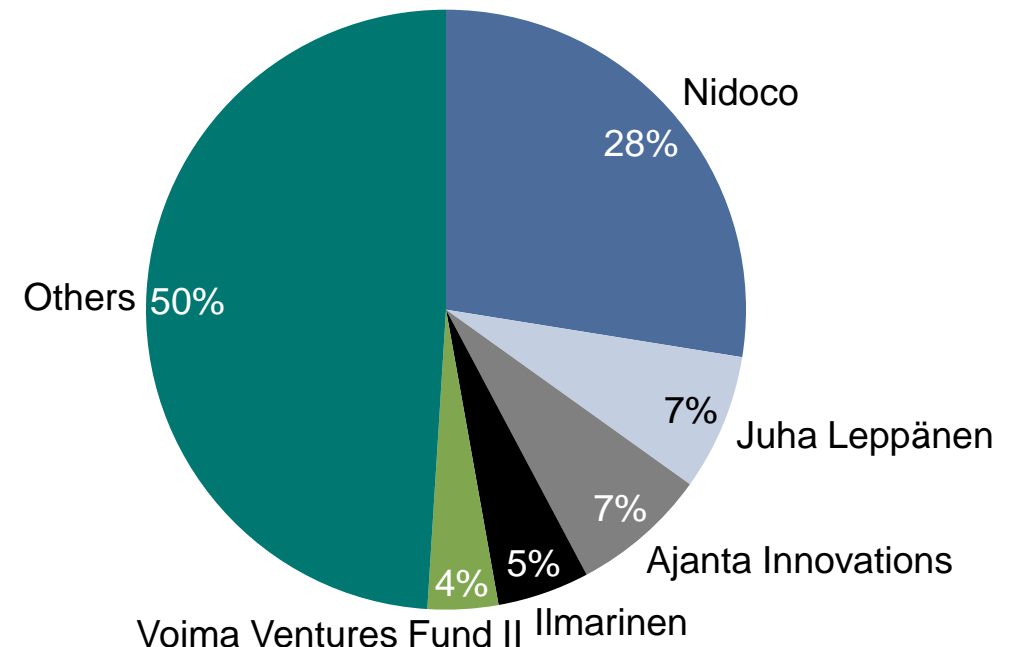
Betolar as an investment

Betolar is a growth company focusing on material technology and cement replacing solutions

Share price



Shareholders



Priorities

Commercial acceleration and capturing the value from innovations




Commercial
acceleration

Long-term value
creation
through metal
extraction and
own green cement

Proactive liquidity
management

Q&A



BETOLAR
Transforming
The World of
Mining & Metals

Thank you
for your interest!

An aerial photograph of a lush green park with winding asphalt paths, dense trees, and a small circular sculpture in the center. The image is partially covered by a dark teal gradient on the left side, which contains the company logo and text.

BETOLAR

Transforming The World of Mining & Metals

Capital Markets Day, May 14, 2025