BUILDING THE CCS(U) VALUE CHAIN IN THE BALTICS

SCHWENK Latvija

Evita Gosa

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SCHWENK

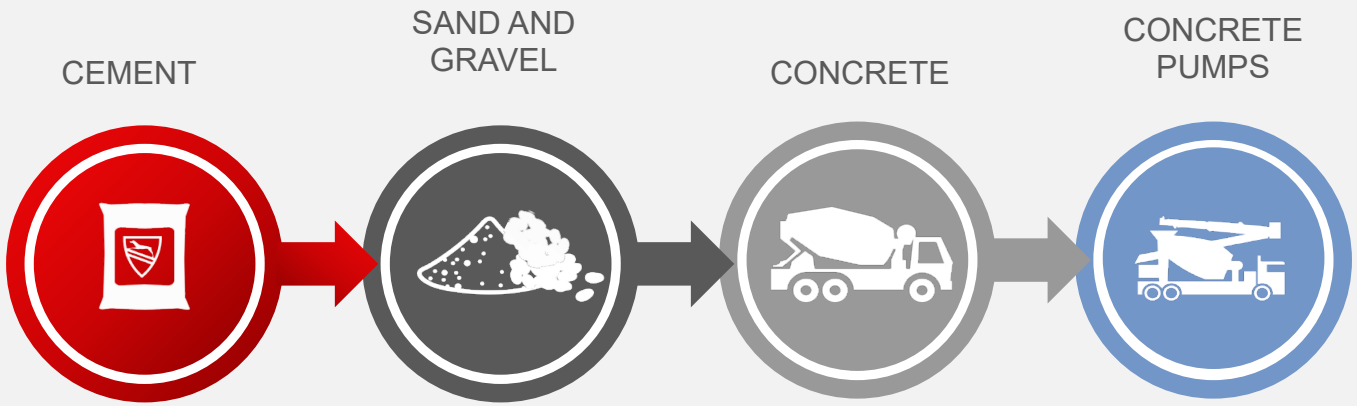
SCHWENK BUILDING MATERIALS GROUP

Founded by Eduard Schwenk in 1847, Ulm, Germany

Employees worldwide ~ 4000

Leader in sustainability and innovation

Since 2019 – in Northern Europe



VISION

Sustainable building solutions for generations to come

MISSION

Combining excellent people with innovative technology, developing net-zero CO_2 products and processes with our partners.

VALUES

- FOR FUTURE **GENERATIONS**
- TWO STEPS **AHEAD**
- MORE THAN THE **SUM OF OUR PARTS**

FOUNDATION

Family values: responsibility, honesty, trust and mutual support

SCHWENK NORTHERN EUROPE

One of the most advanced cement plants in Europe – in Broceni, Latvia

Cement plant in Akmene, Lithuania

12 seaport terminals in Latvia, Finland, Sweden, Norway

SCHWENK LATVIJA

EMPLOYEES ~360,
~650 SUBCONTRACTED EMPLOYEES

TURNOVER 2024
139 M € (UNAUDITED)

MARKETS – LATVIA, ESTONIA, LITHUANIA, SWEDEN, FINLAND

CEMENT EXPORTS - ~70%

1
cement plant

5
ready-mix plants

6
aggregates quarries

1
seaport terminal

SUSTAINABILITY MISSION ZERO

PRODUCTION OF CEMENT AND CONCRETE

clay

+

limestone

+

irone ore

+

sand

fuels:
alternative fuels
(AF)
+ natural gas, coal

> 1500°C

clinker

+

other materials, slag, fly ash, etc.

+

gypsum or anhydrite

cement

+

sand

+

gravel

+

water

concrete

SCHWENK GROUP'S DECARBONISATION STRATEGY

FOUR PILLARS

Decarbonisation – traditional methods

- All SCHWENK plants are leaders in the use of alternative fuels
- Development and implementation of market and pricing strategies
- Ensuring future supplies of SCM (supplementary cementitious materials)
- Increasing the use of green electricity >30%

Decarbonisation – CCUS

- Being first: the first carbon capturing cement plant in 2030
- Two-tech approach: Oxyfuel + Tail-end (flue gas purification process)
- Top priority carbon management: key factors - cost and dependence on infrastructure

Circularity & recycling

- Increasing the use of recycled aggregates in the production of our ready-mix concrete >10%
- Participation in value chains

Innovation– safe future value

- Creating new value from SCHWENK's innovations (Celitement & MeCaClay)
- Visibility & partnerships with tech startups

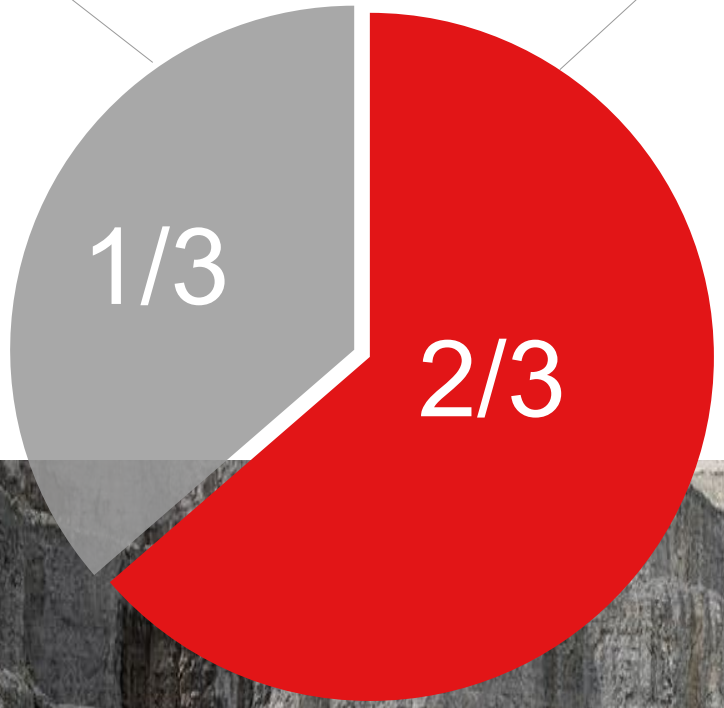
EMISSIONS IN CEMENT PRODUCTION

WHERE DOES CO_2 ORIGINATE IN OUR PRODUCTION PROCESS?

FUEL DETERMINED EMISSIONS

Emerge through use of fossil and alternative fuels in rotary kiln.

The further reduction of these emissions is our first priority.



RAW MATERIAL DETERMINED EMISSIONS

Bound in limestone and are released in burning processes

The possibility to reduce these emissions is rather limited.

GOALS FOR REDUCING CO_2 EMISSIONS IN BROCENI PLANT

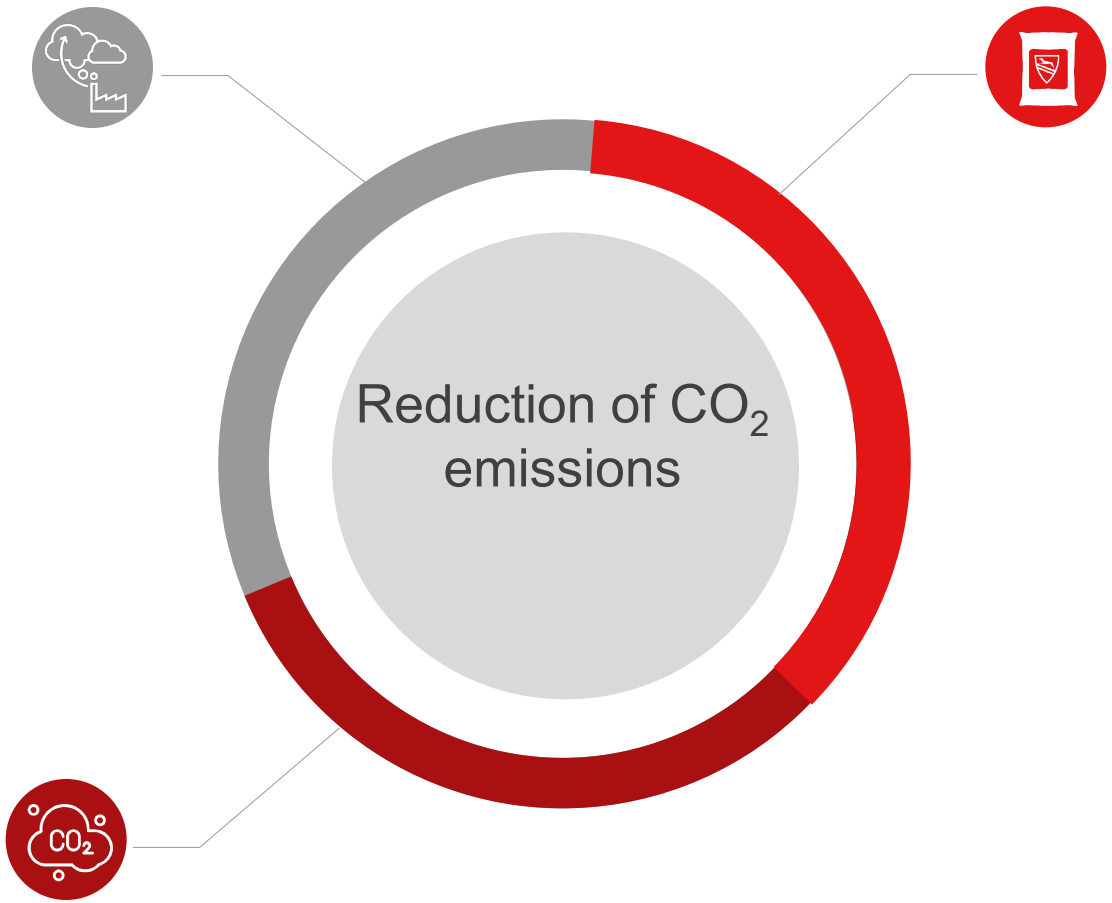
GOAL 1

- ✓ Reduce the CO_2 emission factor of the clinker by 50 kg/t CO_2 until 2025 compared to 2018

- ➢ Keep alternative fuel rate close to 100%

GOAL 3

By 2030 – the first CO_2 capturing plant in the group (Broceni) catching yearly 800.000 t CO_2

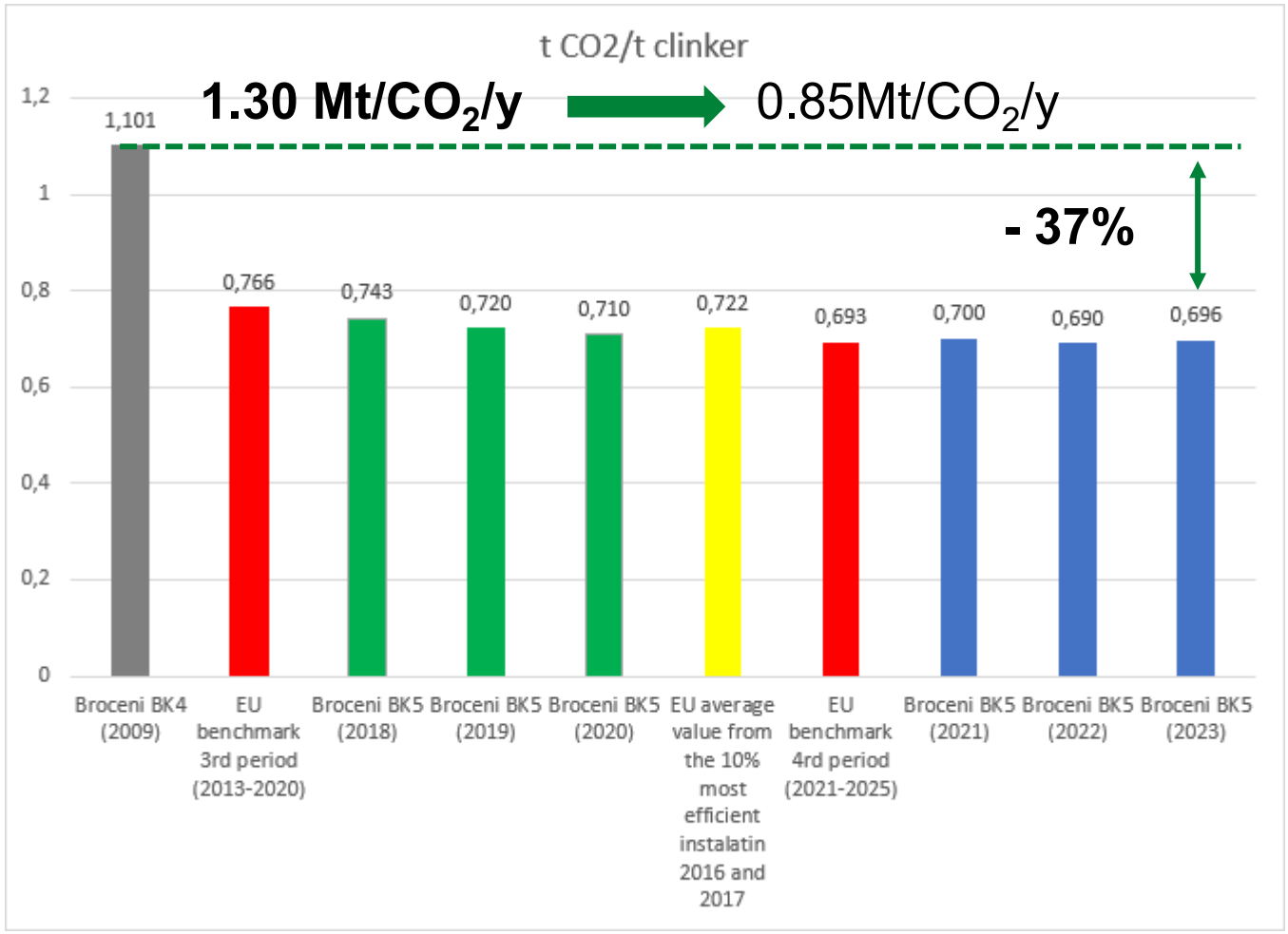


GOAL 2

- ✓ Until 2025: Reduce the average clinker factor (% of clinker in cement) by 10% compared to 2018

- ➢ Until 2030: reduce by another 15%

CO_2 REDUCTION DYNAMICS IN BROCENI CEMENT PLANT



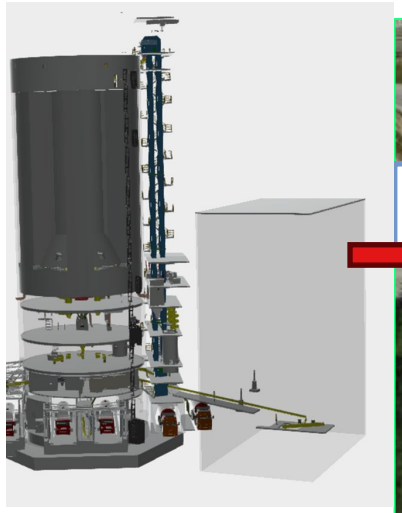
Since 2009 the amount of CO_2 emissions per ton of clinker has decreased by >37%

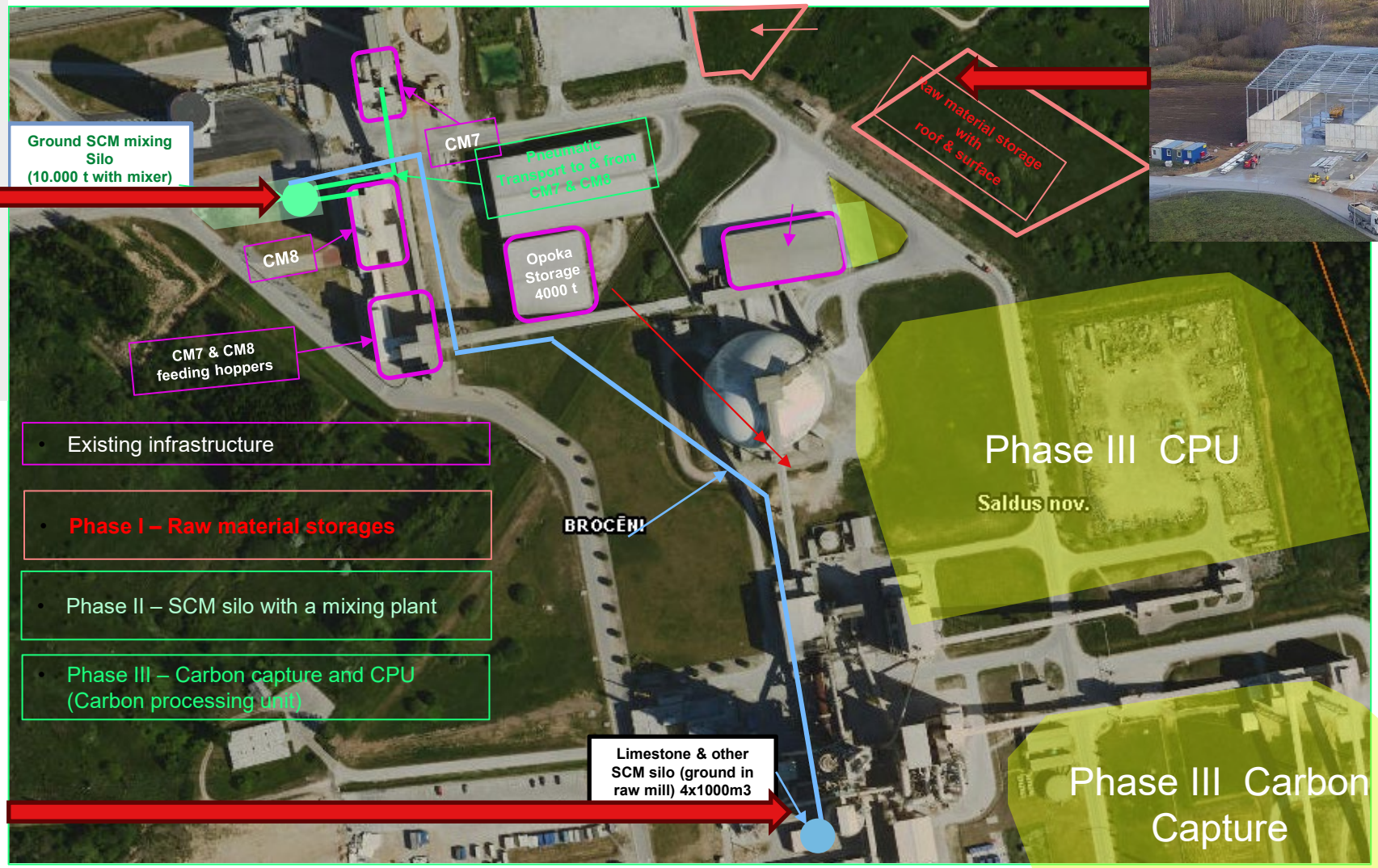
Since 2018 we decreased by another 50kg/ t clinker

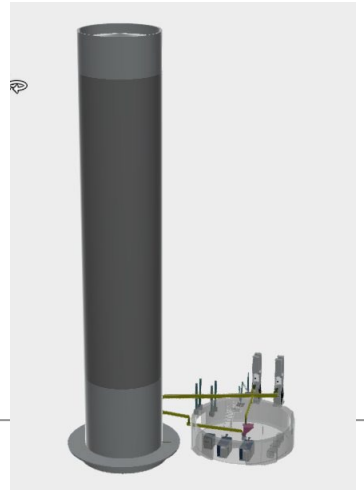
- Broceni among best 3% in Europe

BROCENI CLINKER FACTOR REDUCTION PROJECT

COMPLETE OVERVIEW OF PHASE I – II INVESTMENTS 27 MEUR IN 2024 - 2026







CHOICE OF CARBON CAPTURE TECHNOLOGY

9 DIFFERENT TECHNOLOGIES EVALUATED

Evaluation criteria → Site-specific conditions → Assumptions → Technologies → Optimization/ Summary → Carbon management

CO_2 reduction potential
- Capture rate and CO_2 avoidance
- Captured and emitted CO_2
- Technology availability

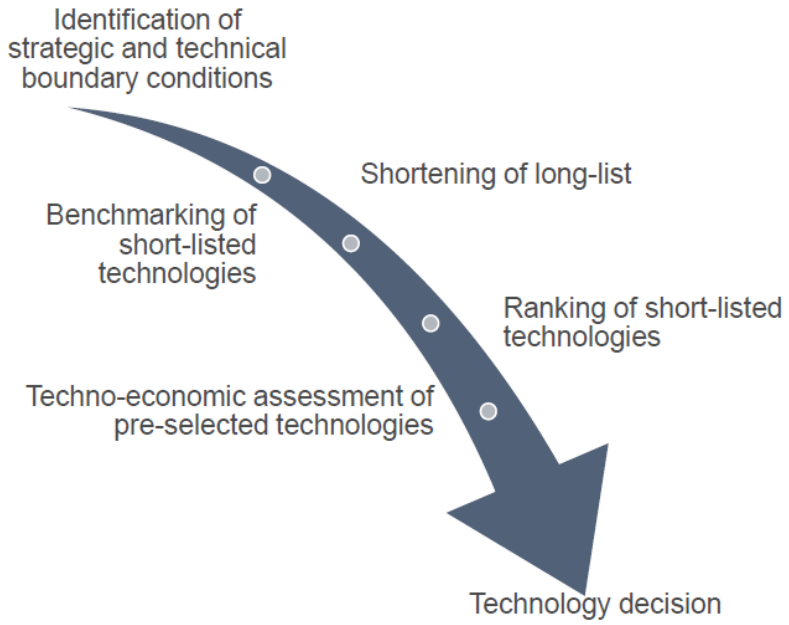
Operation
- Energy demand
- Influence on kiln operation / technical risks / complexity and flexibility of operation
- Maturity of the technology

Economics
- Investment costs
- Operational costs
- Cost of clinker, capture costs and levelised cost of CO_2 avoidance

Project planning
- Down time during construction
- Construction period

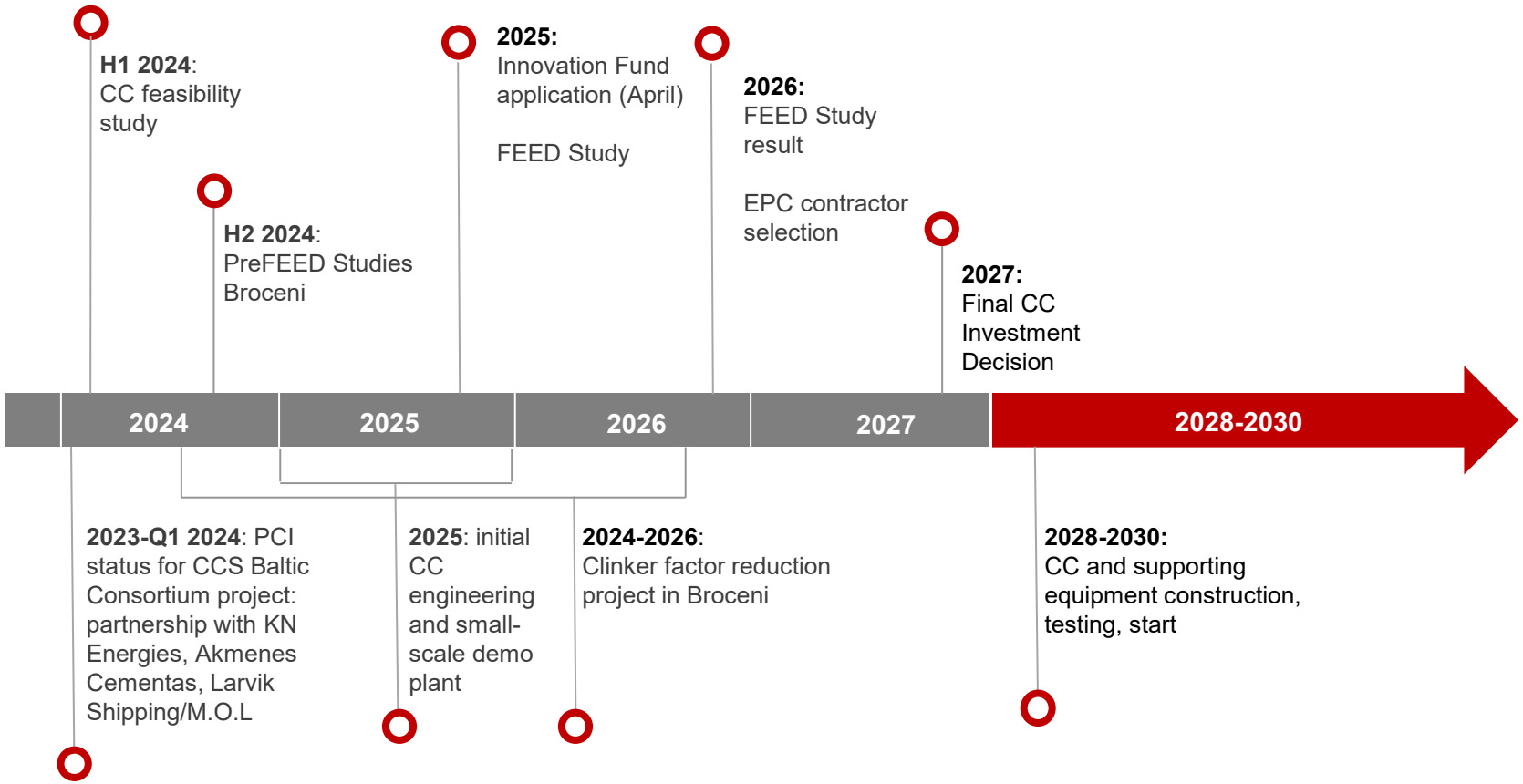
Environmental impact
- Wastes
- Water consumption

Technology selection process



PROJECT TIMELINE

BROCENI DECARBONIZATION LONG-TERM INDICATIVE TIMELINE



SCHWENK

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