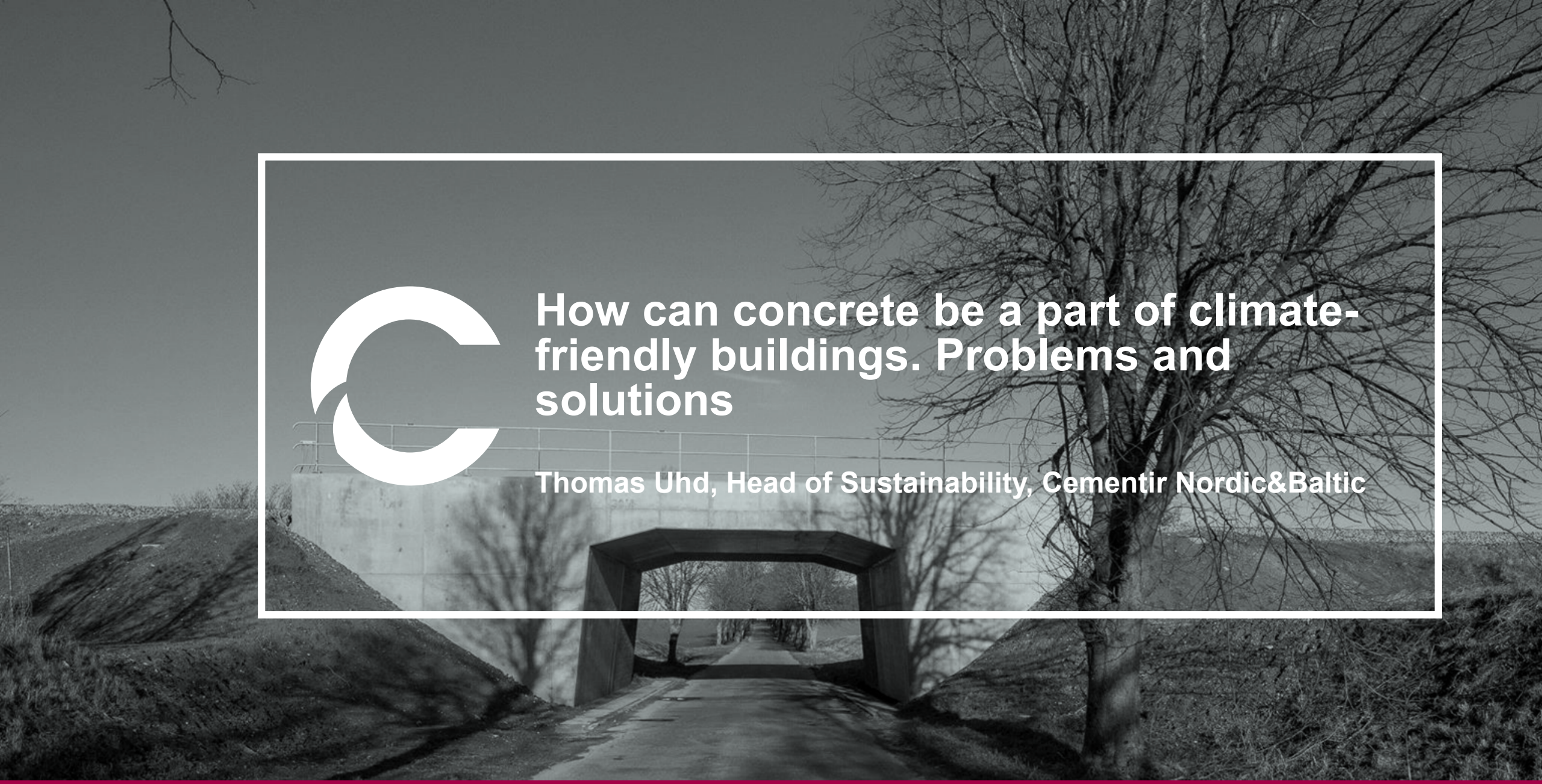
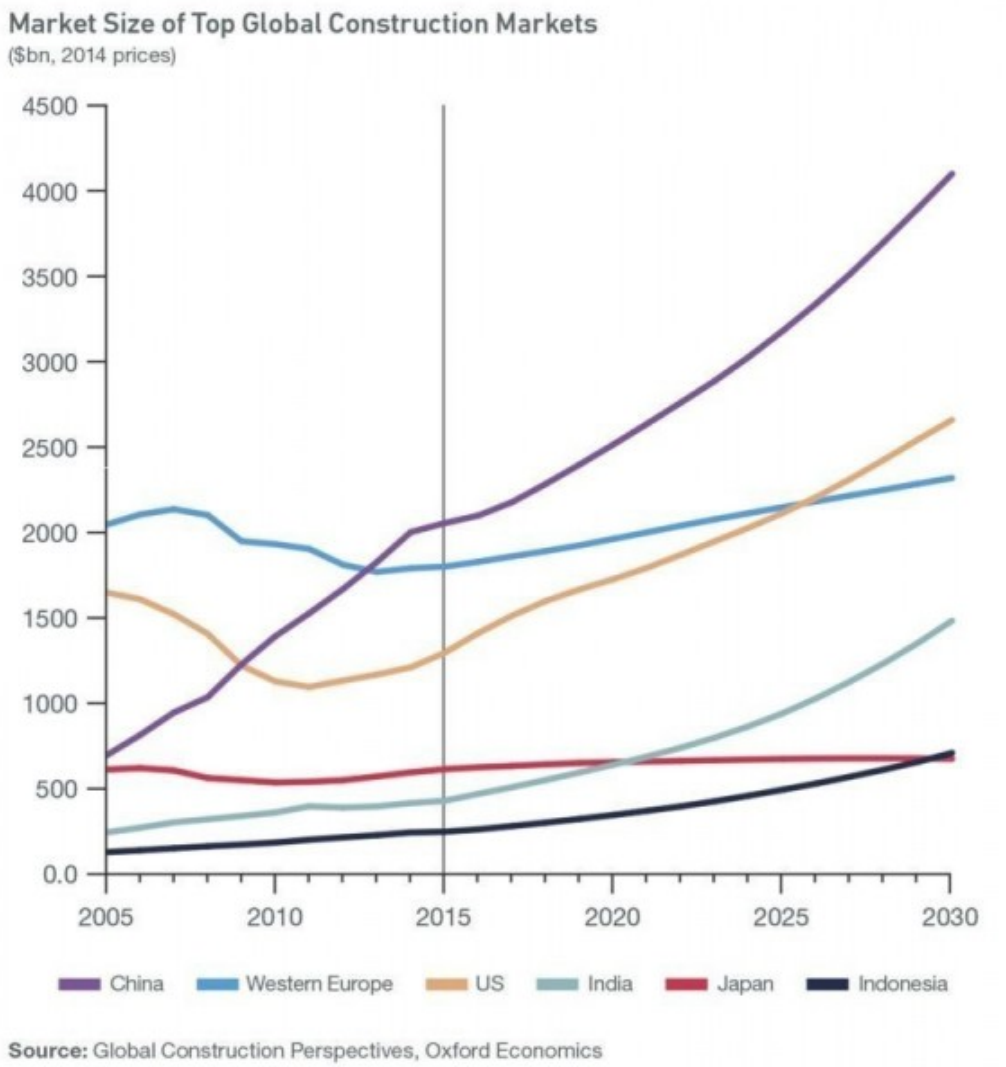


How can concrete be a part of climate-friendly buildings. Problems and solutions

Thomas Uhd, Head of Sustainability, Cementir Nordic&Baltic

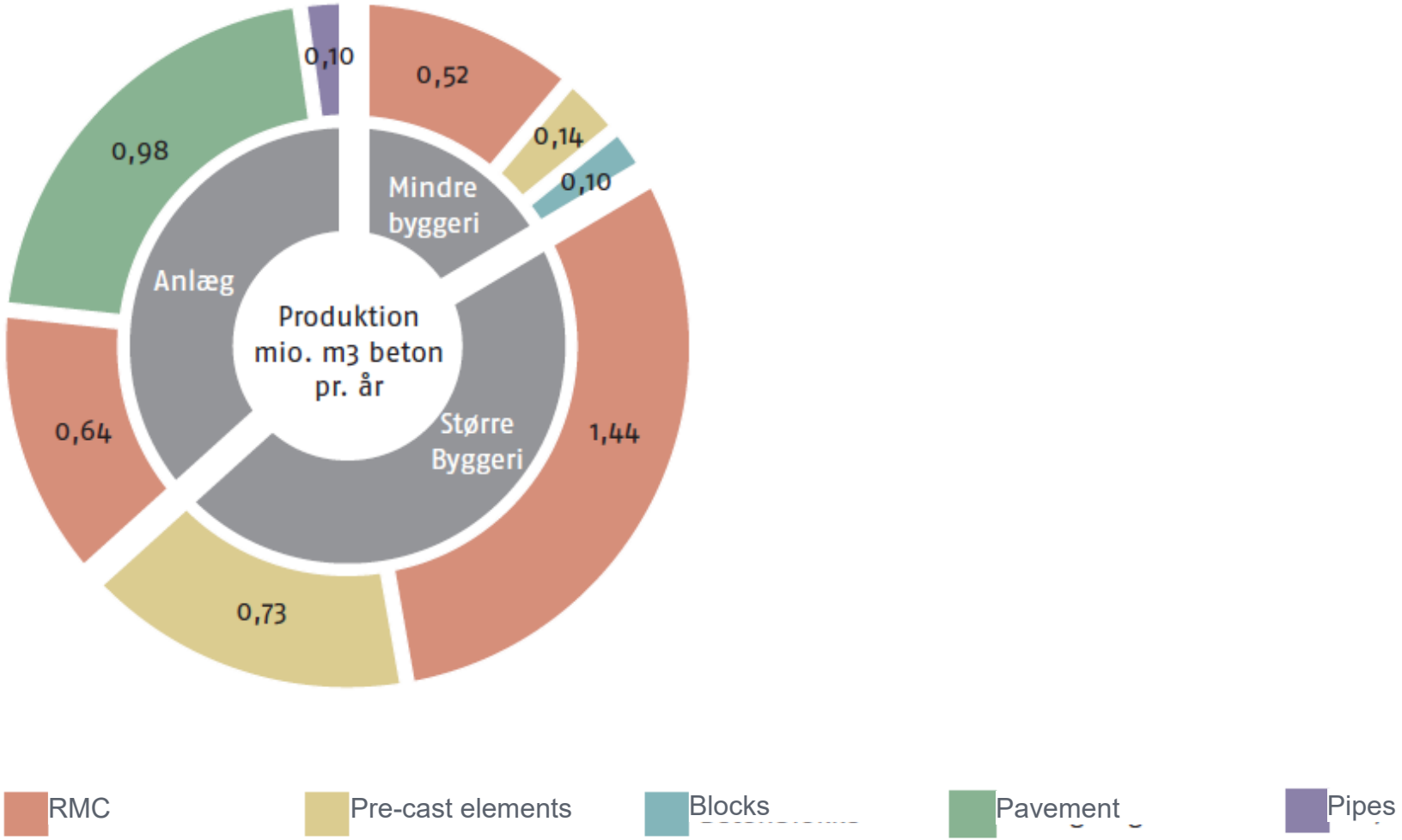
Forecast construction sector 2030

PWC: The global construction sector will grow by 70 % over the next 10 years

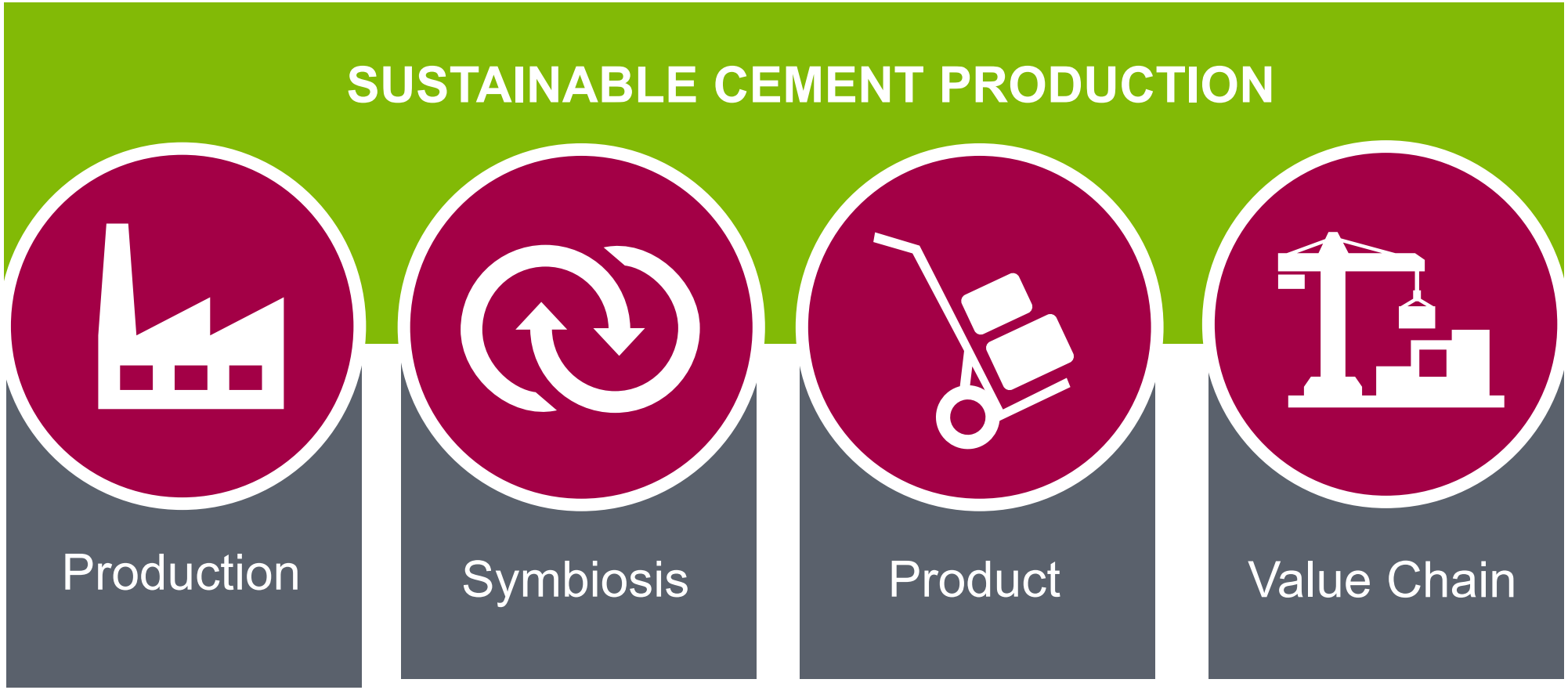


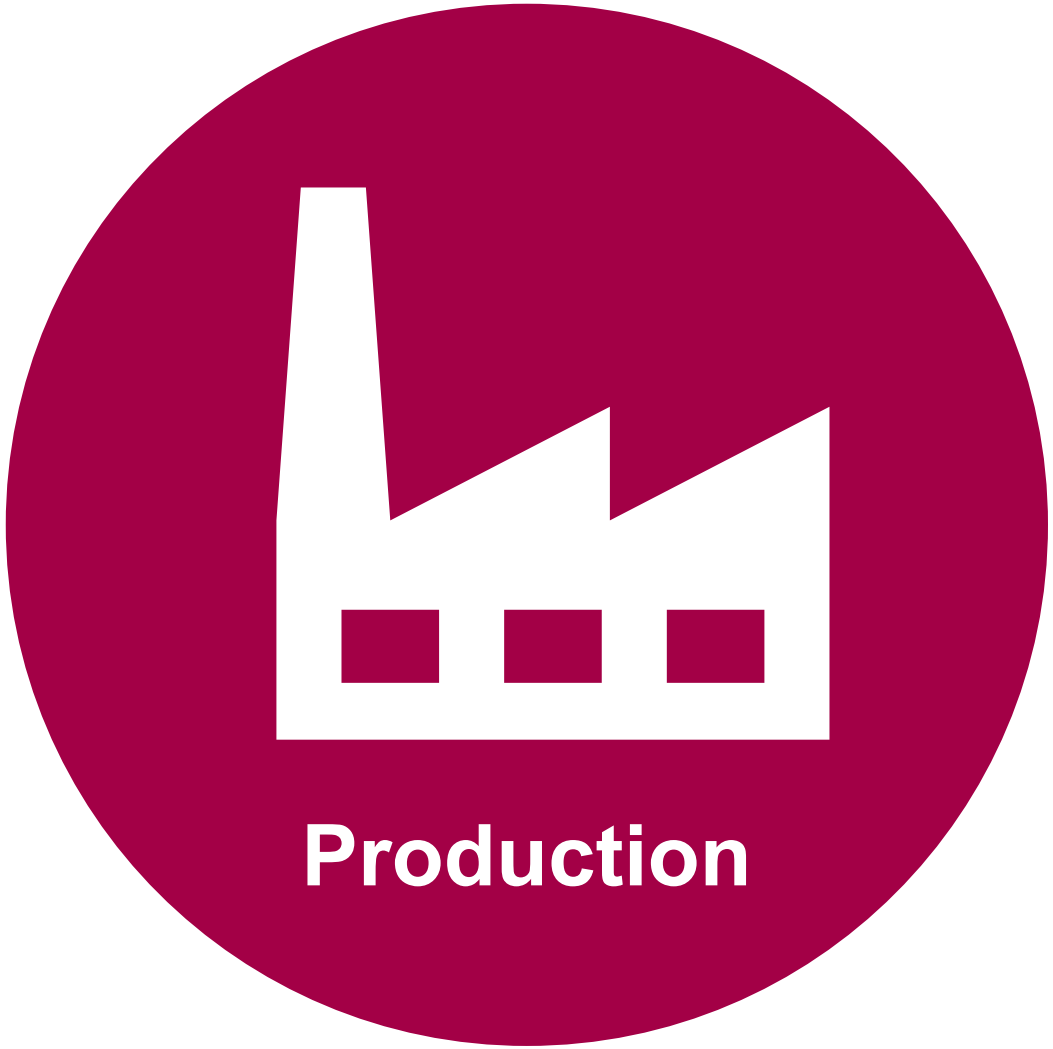
Cement – and concrete – binds the world together. Today and tomorrow

Baseline for the use of concrete in Denmark

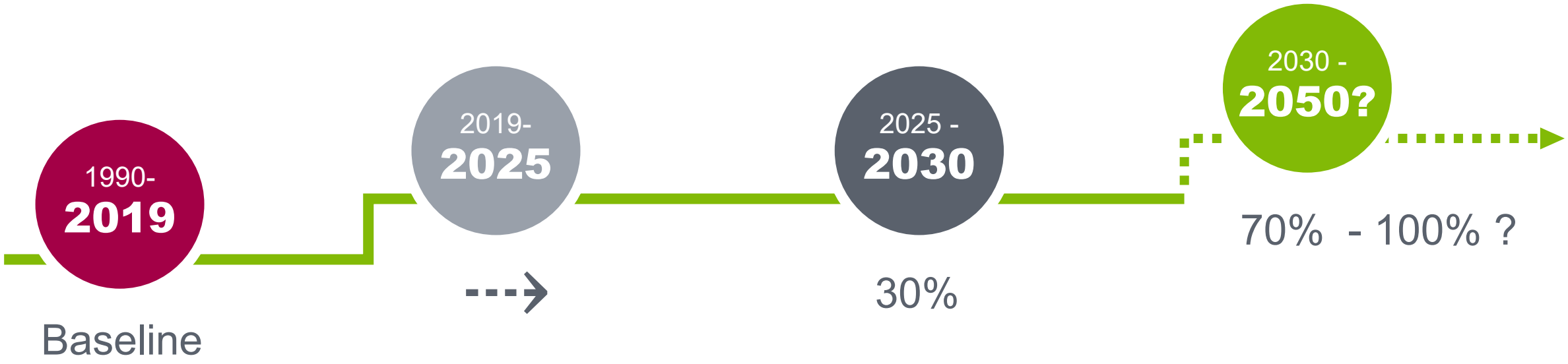


We focus on sustainability in the whole process

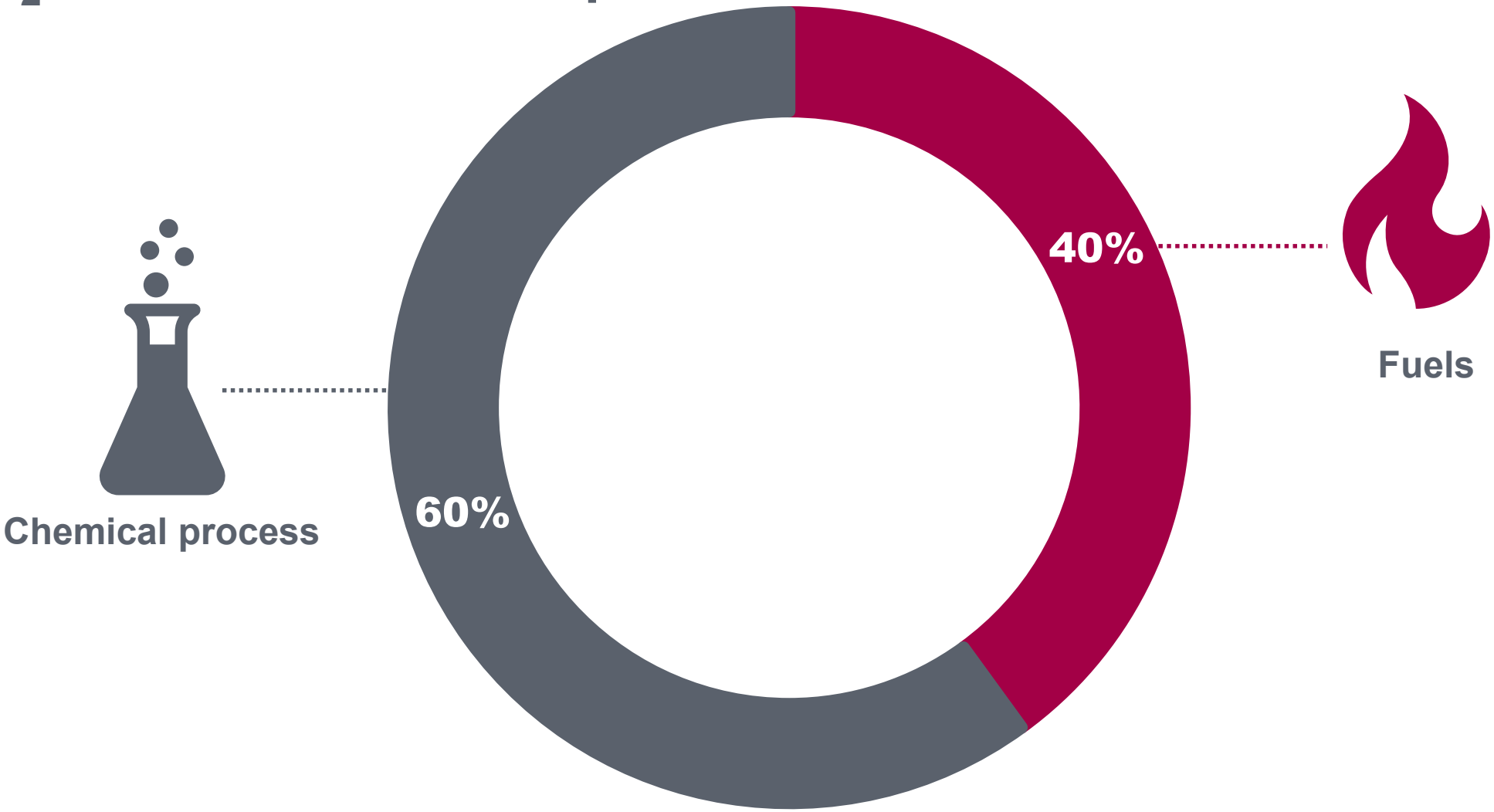



Production

Target for reducing the CO_2-emissions from Aalborg Portland



Two CO_2-sources in cement production




Product


aalborgportland
CEMENTIR HOLDING
BASIS AALBORG CEMENT
Kan anvendes til alle opgaver | Styrkeklasse 52,5 N | 25 kg


aalborgportland
CEMENTIR HOLDING
BASIS AALBORG CEMENT
Kan anvendes til alle opgaver | Styrkeklasse 52,5 N | 25 kg


aalborgportland
CEMENTIR HOLDING
AALBORG WHITE CEMENT
Anbefales til gulve og vægge | Styrkeklasse 52,5 R | 25 kg


aalborgportland
CEMENTIR HOLDING
AALBORG WHITE CEMENT
Anbefales til gulve og vægge | Styrkeklasse 52,5 R | 25 kg


aalborgportland
CEMENTIR HOLDING
RAPID AALBORG CEMENT
Anbefales til gulve og sidelag | Styrkeklasse 52,5 N | 25 kg

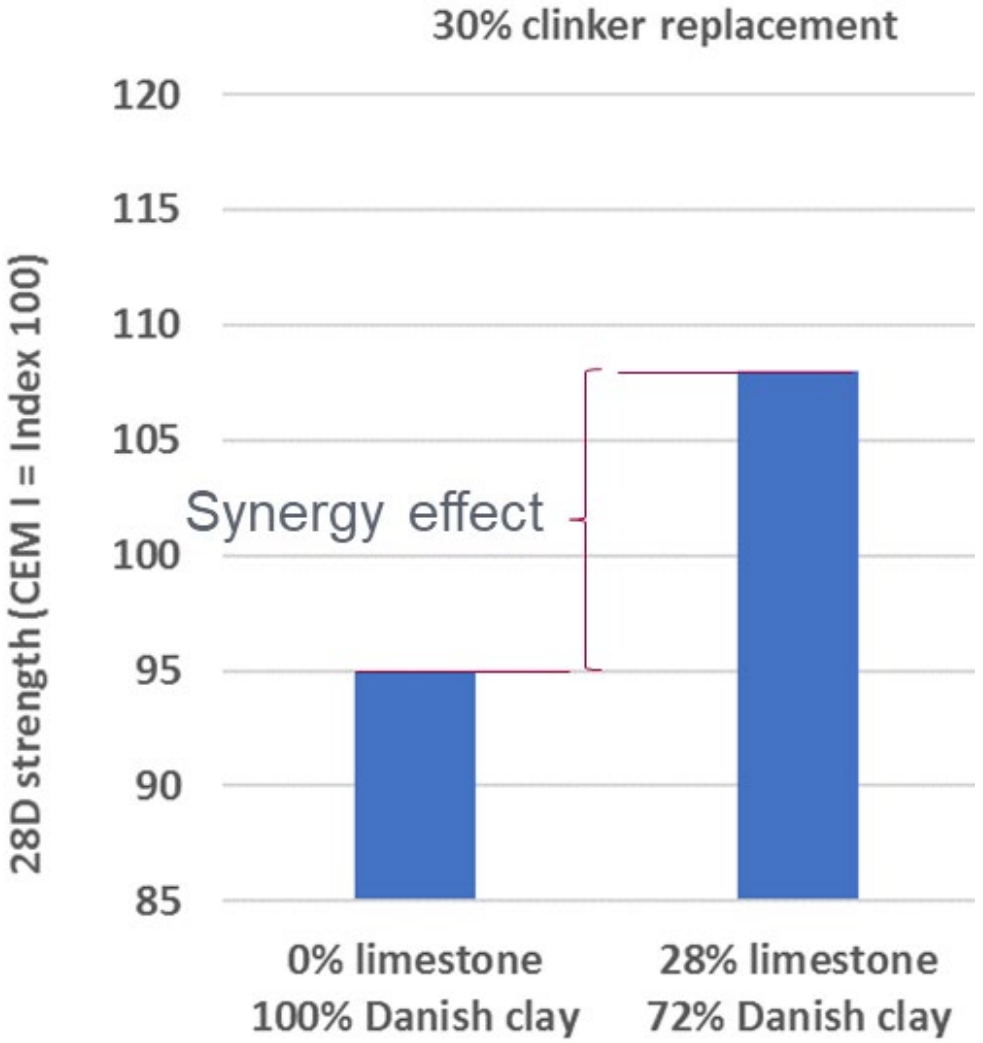

aalborgportland
CEMENTIR HOLDING
RAPID AALBORG CEMENT
Anbefales til gulve og sidelag | Styrkeklasse 52,5 N | 25 kg


FUTURECEM

What is FutureCem?

- Breakthrough technology: Substitution of portland clinker with a combination of calcined clay and limestone
- 30% less CO2. Maybe even more
- Global patent
- High quality product – tested in lab, in real life (aggressive environment) and in large scale production
- Possible introduction on the Danish market in 2020

This is just one of one current development of new cement types and running climate optimization of the product portfolio

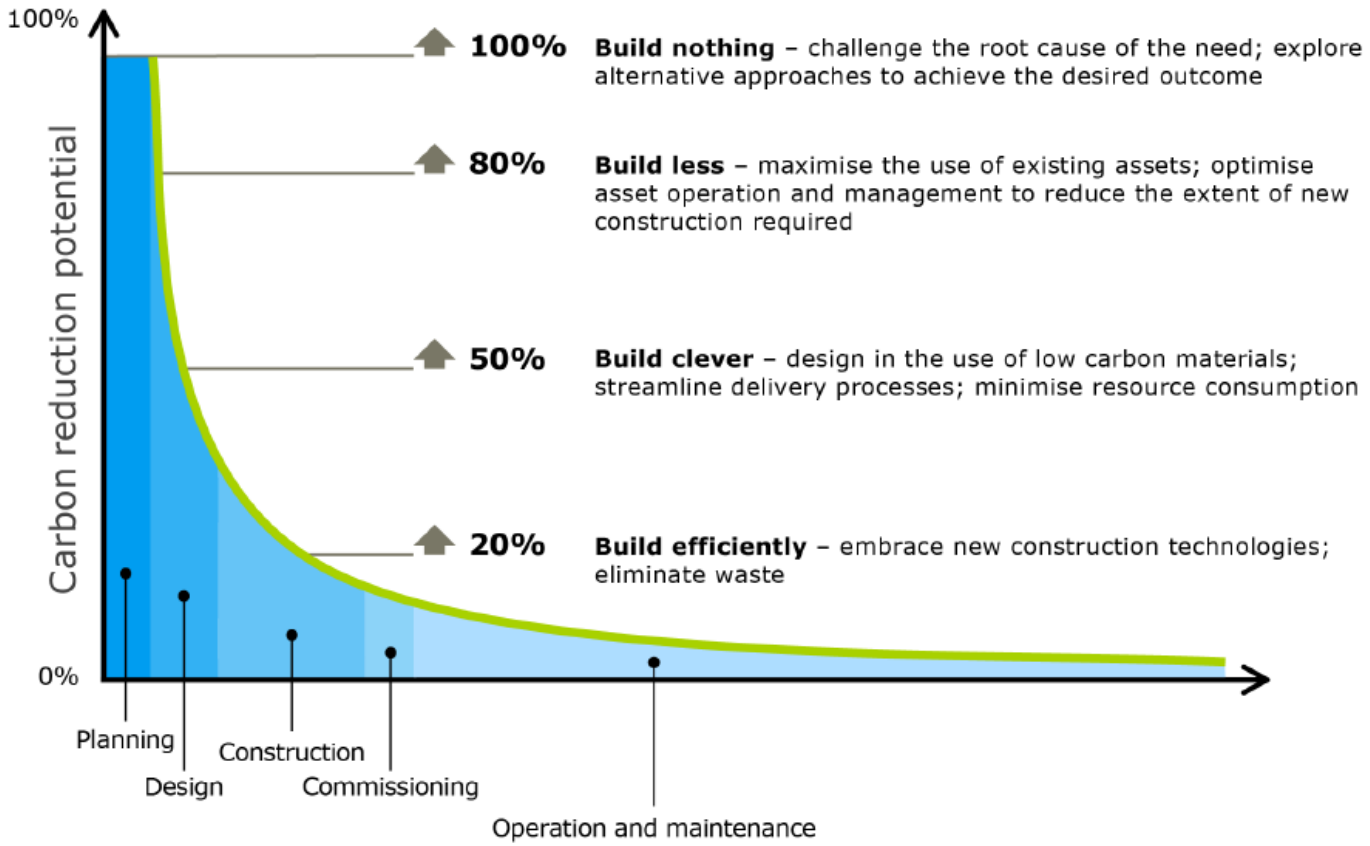


Demonstration projects

Value Chain

EMBODIED CARBON REDUCTION POTENTIAL

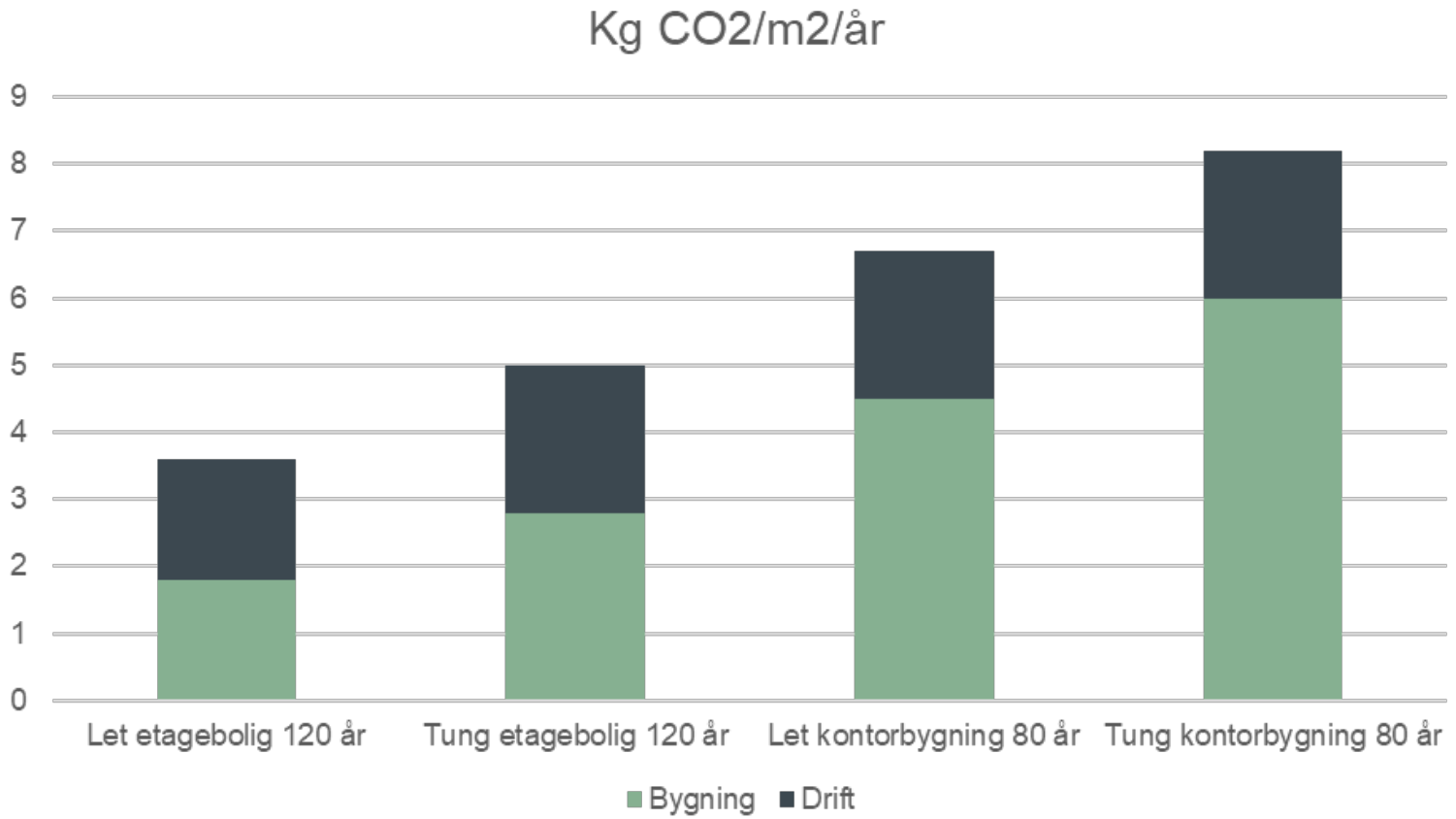
Embodied carbon reduction potential at different stages of a building project



The embodied carbon impacts from the product and construction stages should be measured and offset at practical completion.

RAMBOLL

LCA based on standard EPD. Not on optimized constructions



Bygningers indlejrede energi og miljøpåvirkning. SBI 2017.

Example I: Powerhouse

Powerhouse: Learnings

Snøhetta entra SKANSKA asplan viak ZERO

How do they work?

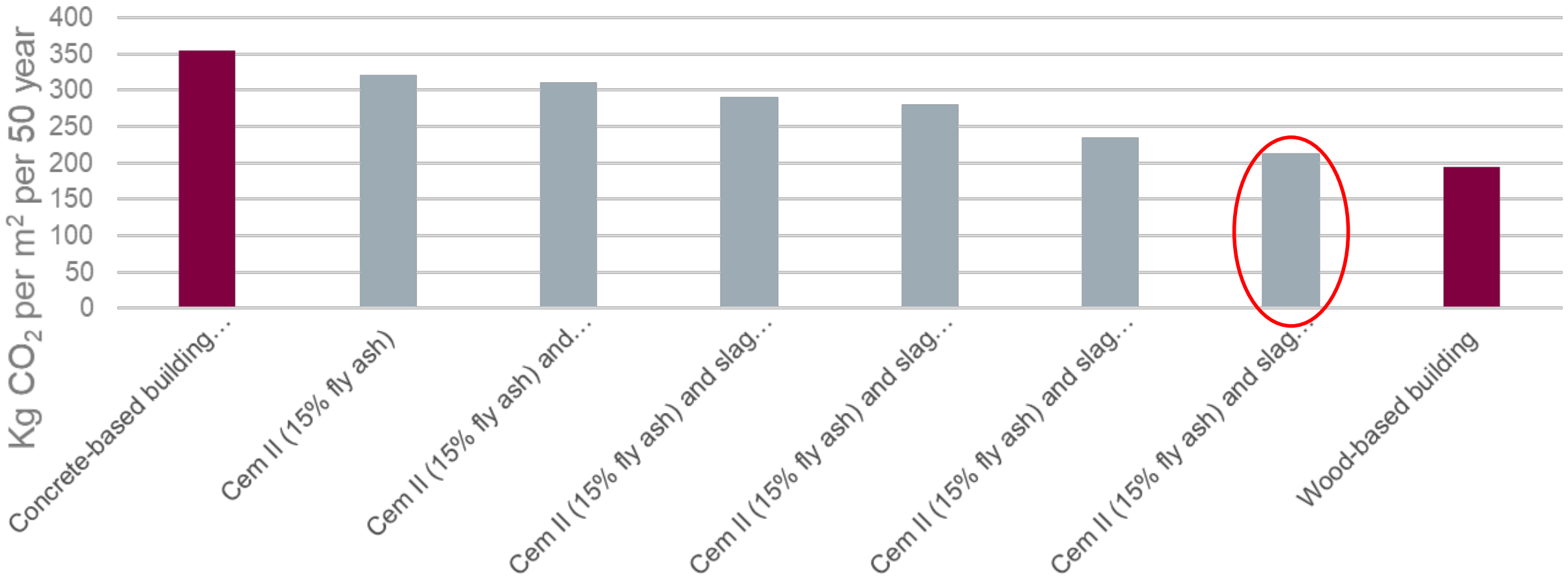
1. Set a climate target for the construction
2. Early involvement of all relevant parties
3. Optimize the geometry of the constructions
4. Optimize the volume of the materials

Powerhouse: Learnings

"There is a lot of interesting elements in Powerhouse related to concrete. We used posttensioned “extreme-low carbon concrete“ to reduce the climate footprint as much as possible. This makes the concepts climate competitive with for example solid wood."

Example II

Two benchmark analysis with completely different results. Why?

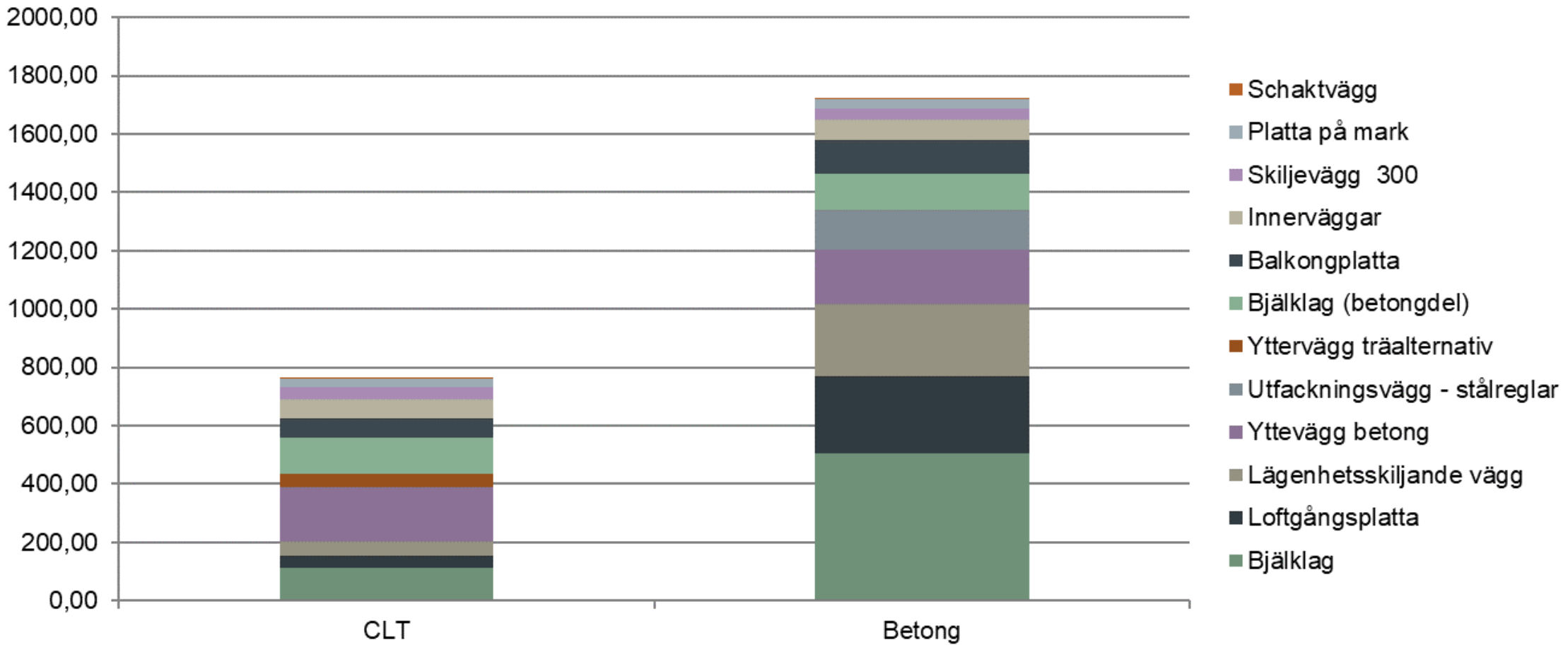


What made the difference?

- Cement with clinker substitution
- 10% reduction of the concrete volume
- Complete LCA incl. carbonatization
- More extensive use of in-situ

Example III: Viva housing, Göteborg

Pre-study with a very clear conclusion



Specific demands related to concrete made a difference

- Cement with clinker substitution
- Optimized concrete (lower cement consumption)
- Use of EPD
- Use of recycled steel

Result?

The LCA-report was clear:

“The results show no significant differences between concrete and timber structures for the same functions during the life cycle, either for climate or for primary energy. The minor differences reported are accordingly less than the degree of uncertainty involved in the study.”

40 partners from the whole of the value chain
Ambition: 50% less CO_2 in concrete buildings by 2030

BÆREDYGTIG BETON initiativ

Conclusion

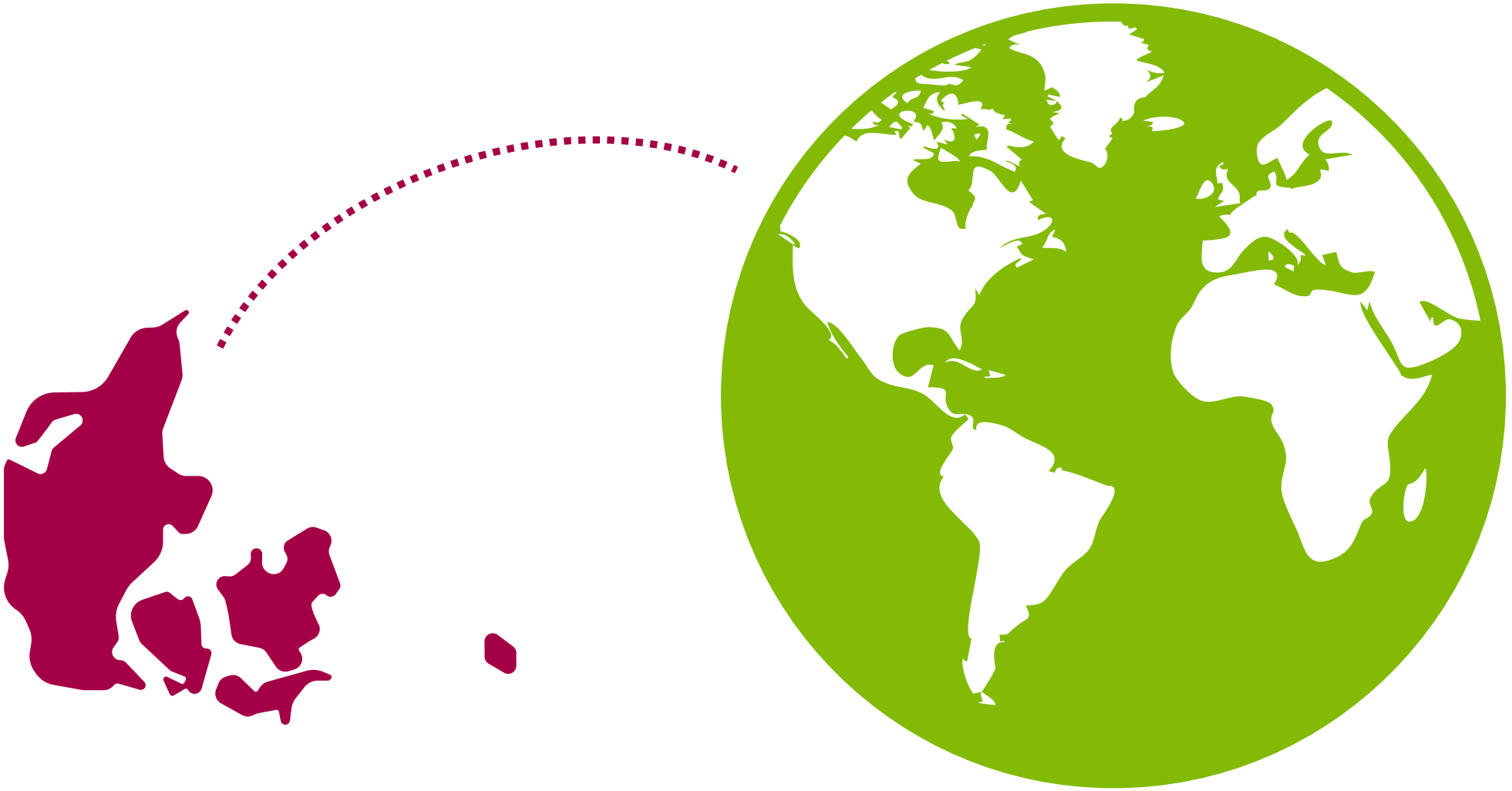
As today concrete will also tomorrow be a substantial part of the build environment

Therefore the production of cement and the use of concrete are essential

Both essential parameters are realistic

We are on track towards sustainable cement production and use of concrete

Innovation in Aalborg and DK with med global effect



Questions?