



ESSRI workshop
26 September 2024

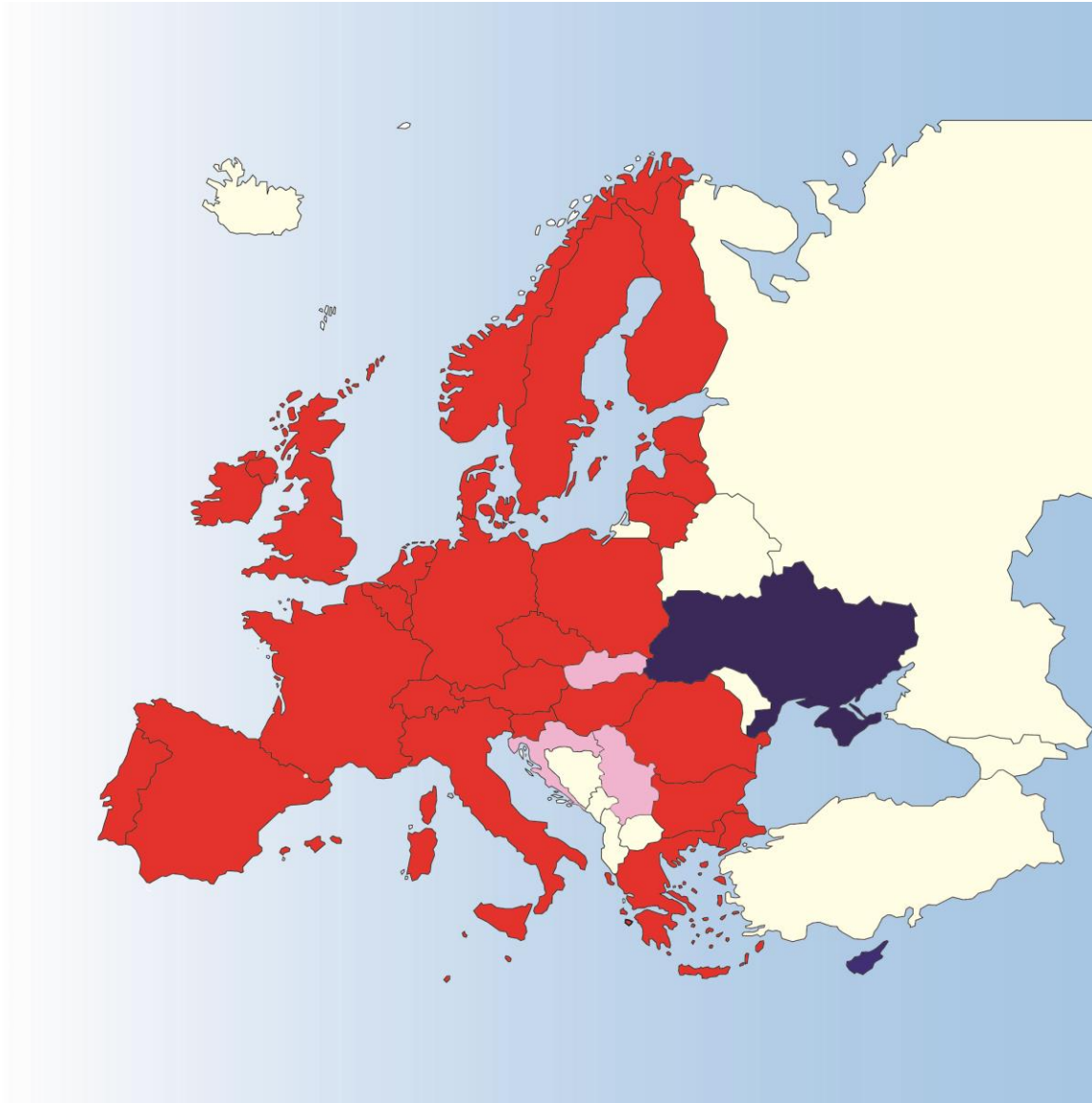
A PERSPECTIVE TALK ON DECARBONISATION OF THE CONCRETE INDUSTRY

Rob van der Meer



CEMBUREAU

The European Cement Association



29 Members

*(26 full Members and
3 Associate Members)*

Full Members = national cement industry associations and cement companies of the European Union (with the exception of Malta) plus Norway, Switzerland, and the UK

Croatia, Serbia and Slovakia are Associate Members of CEMBUREAU

Cooperation agreement with Vassiliko Cement (Cyprus) and with the Cement Association of Ukraine

- 1. Chemical engineer, graduated on the CO₂ absorption.**
- 2. Started in the regional governmental on air pollution issues.**
- 3. After 6 moved to the cement industry**
 1. 8 Years in cement plant Maastricht: projects development & innovation
 2. 17 Years in Heidelberg Materials as director Public Affairs & group climate change coordinator
 3. Since early 2021 as Industrial Policy Director at CEMBUREAU
- 4. Key interests**
 1. Climate change: Objective to achieve net zero in 2050
 2. Circular economy: Objective to recycle as much as possible
 3. Innovation

CEMENT & CONCRETE KEY ENABLERS FOR THE LOW CARBON ECONOMY



Quarries → Clinker → Cement
limestone grinding

Cement (10%-15%) → Water (15%-20%) → Aggregates (65%-75%) → Concrete



SUSTAINABLE TRANSPORT



RENEWABLE ENERGY



THERMAL MASS

From Ambition to Deployment

THE ROAD TRAVELLED, PATHWAYS AND LEVERS TO SCALE UP OUR NET ZERO AMBITION

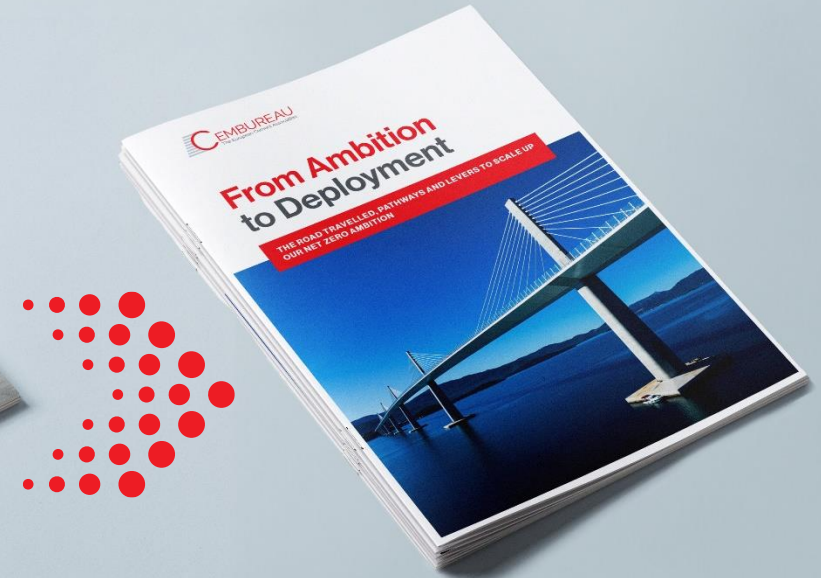


2024 update

1. **Taking** stock of where we are
2. **Revise** our level of ambitions in light of ongoing investments
3. **Identify** the policies which are indispensable to achieve these ambitions.

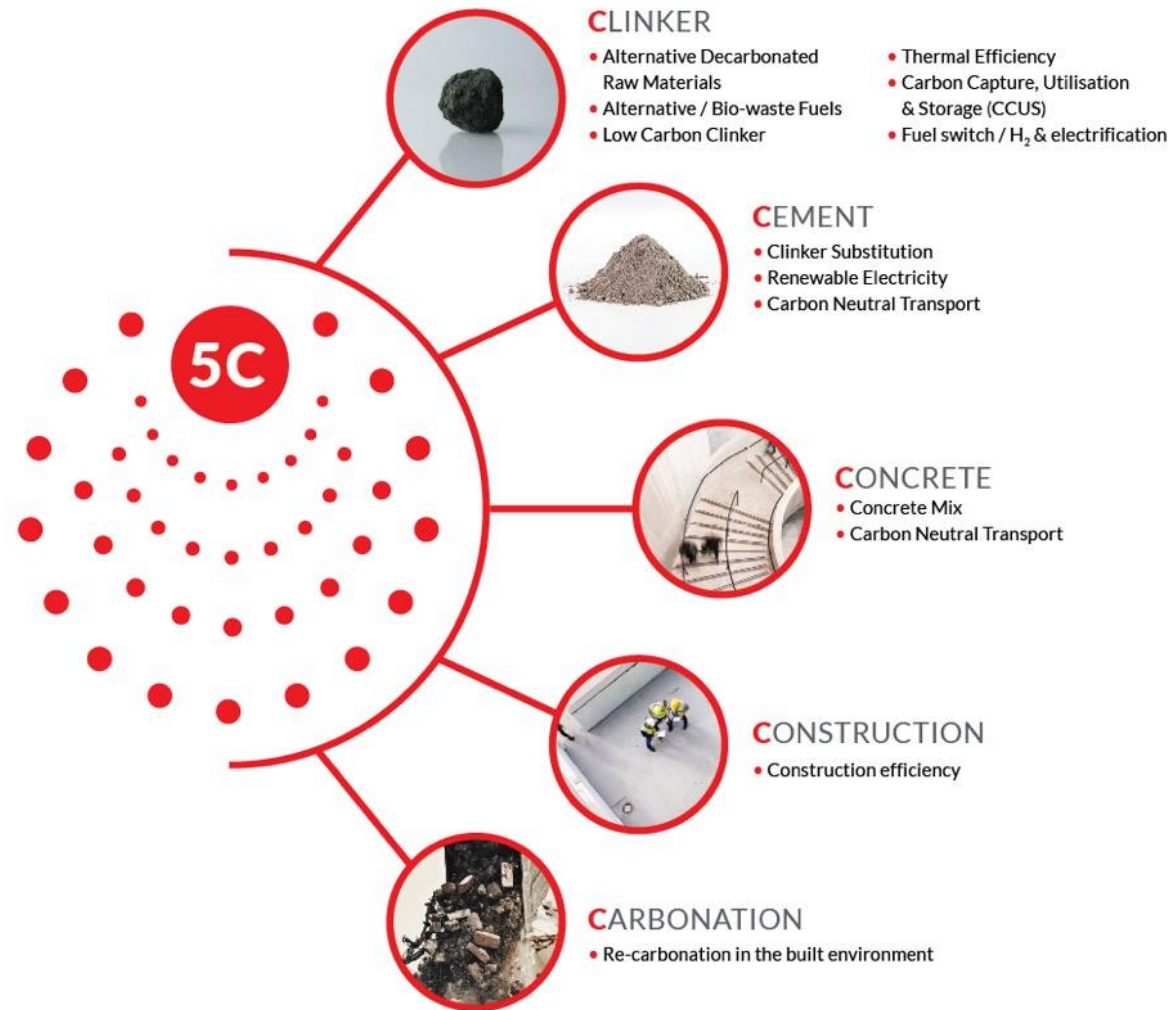


Carbon neutrality
Roadmap **2020**



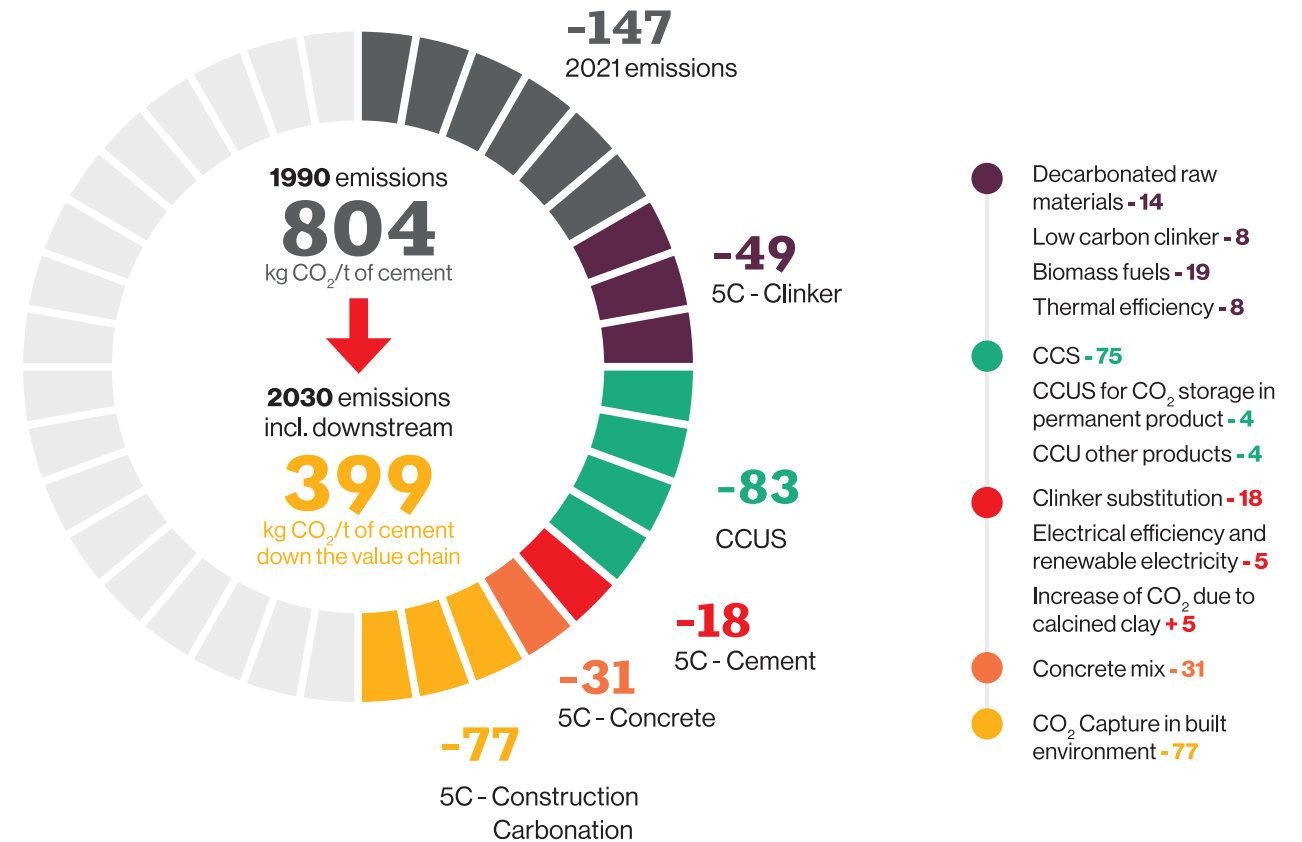
Carbon neutrality
Roadmap **2024**

5C approach decarbonisation levels



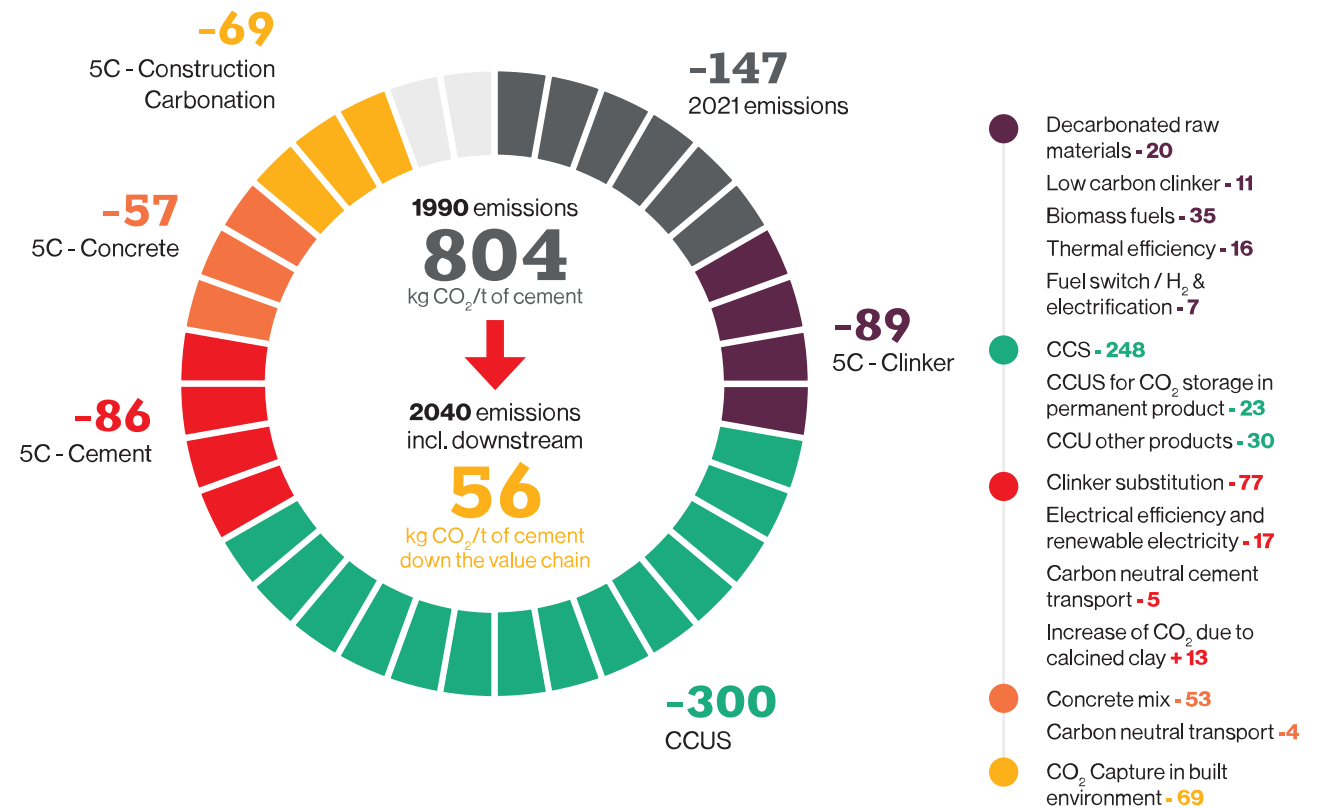
CEMBUREAU 2030 roadmap

CO₂ emissions reduction of **37%** (previous roadmap: 30%) on cement and **50%** down the value chain (previous roadmap: 40%), as compared to 1990



CEMBUREAU 2040 roadmap

CO₂ emissions reduction of **78%** on cement and **93%** down the value chain

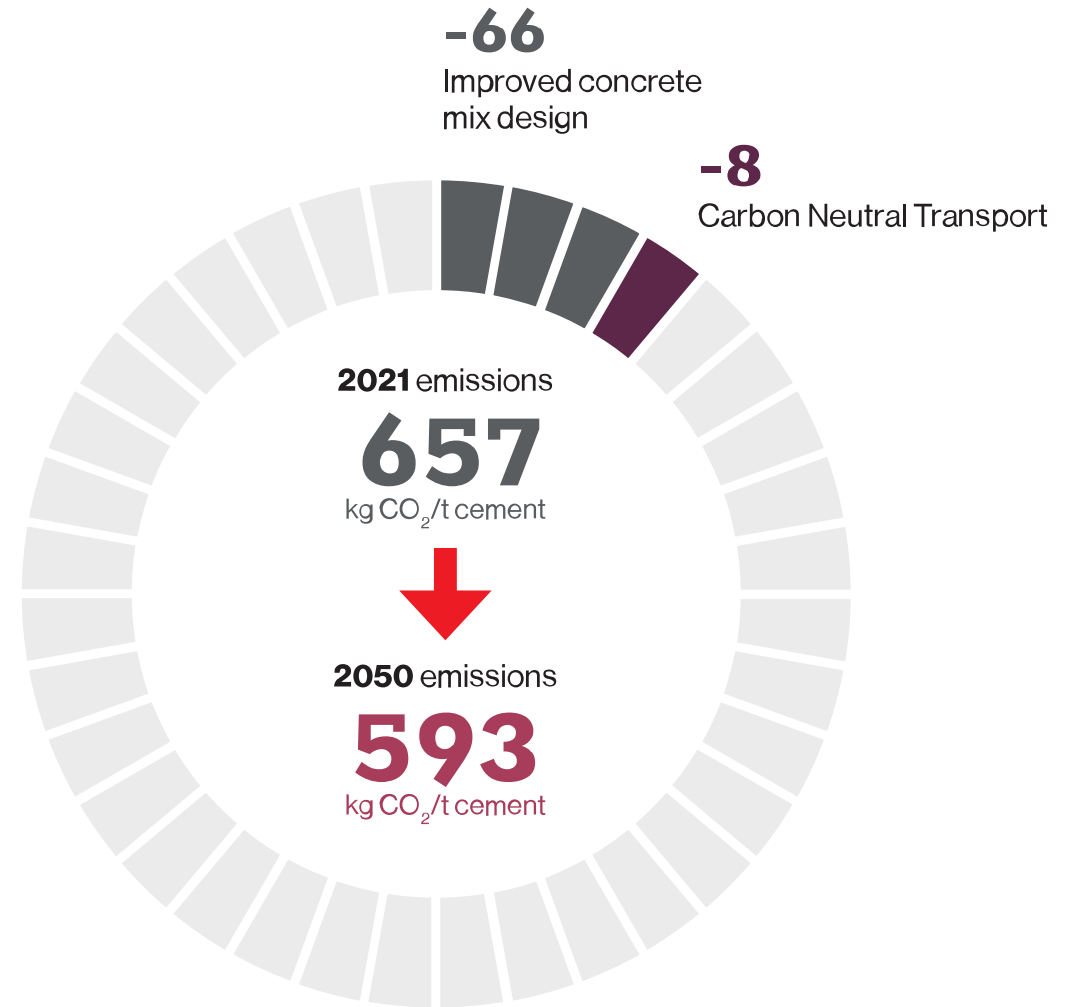


CEMBUREAU 2050 roadmap

Ambition to reach **net zero emissions** on cement by 2050, the sector has the potential to become **carbon negative** over the value chain



Concrete Emissions Reduction Pathways





Concrete emission reduction pathways

- Producing concrete with less cement & selecting the most optimised concrete type
- Use of innovative concrete blends featuring recycled aggregates
- Digitalisation of construction processes
- Transport using zero-emission vehicles

The role of policy

- Keep the current composition-based standards system in place whilst introducing in parallel a complementary, more performance-based system.
- Encourage demand incentives through material neutral building Regulations
- Set higher targets for recycling Construction & Demolition Waste (CDW), and discourage landfill
- Establish clear standards and transparent procedures for supplying recycled aggregates to the market



Construction emission reduction pathways

- Using concrete thermal mass to reduce energy consumption by 25% to 50%
- Buildings can be designed for deconstruction or can be repurposed
- More efficient use of concrete could lead up to 30% reduction of embodied carbon in specific building types
- Potential of 3D printing

The role of policy

- Maintain a holistic “life cycle”, material-neutral perspective in all policies.
- Embrace a Whole Life Carbon strategy looking at both operational and embodied carbon
- Champion a comprehensive, material-neutral approach
- Work throughout the construction value chain to encourage architectural best practices and reduce the construction sector’s carbon footprint



Concrete emission reduction pathways

- 23% of the CO₂ emissions generated during the cement manufacturing process are captured annually
- The rate of concrete carbonation is impacted by a variety of factors
- Carbonation rates increase following the demolition of a concrete building.

The role of policy

- Incorporate the CO₂ absorption facilitated by concrete structures and infrastructure into national greenhouse gas inventories.
- Acknowledge CO₂ mineralisation as a form of permanent CO₂ storage
- Harness the potential of carbonation in building policies to maximise concrete carbonation.
- Recognise concrete carbonation as a carbon removal when arising from the production of carbon neutral cement.



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Thank You

