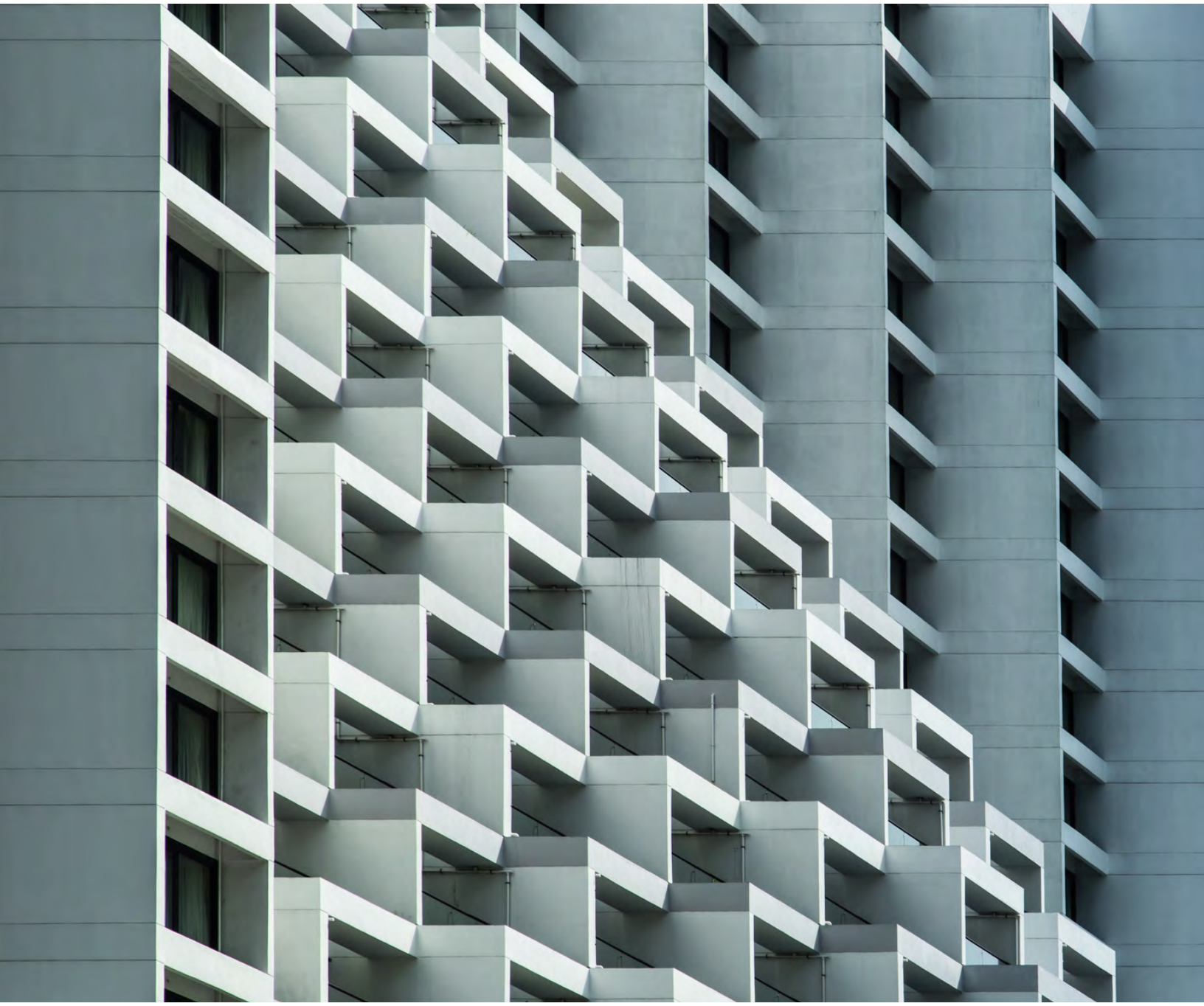
INFOGRAPHICS SUMMARY

MISSION POSSIBLE PARTNERSHIP

MAKING NET-ZERO, 1.5°C-ALIGNED CONCRETE AND CEMENT POSSIBLE

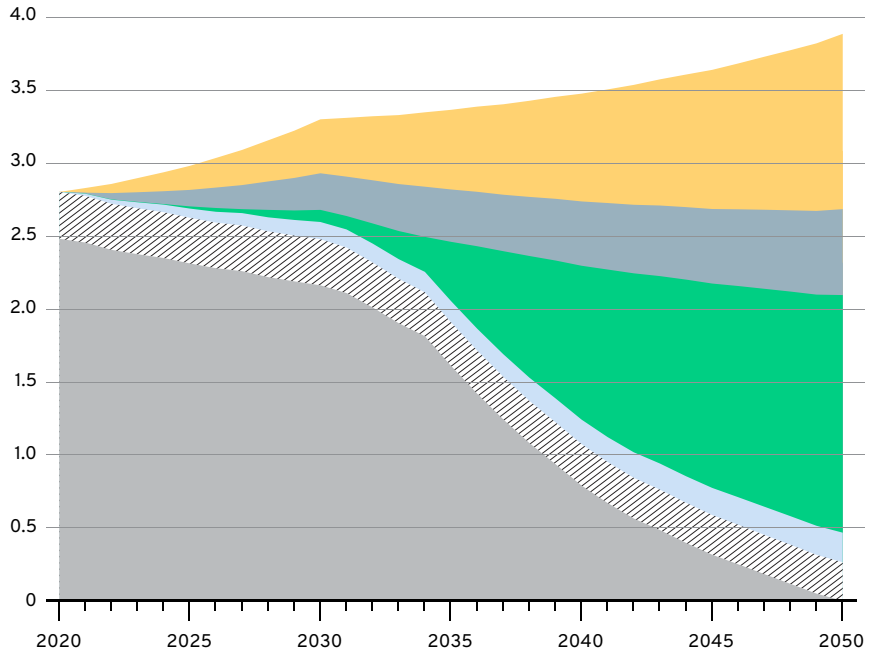


MAKING NET-ZERO, 1.5°C-ALIGNED CONCRETE AND CEMENT POSSIBLE

MISSION POSSIBLE PARTNERSHIP

1 The solutions: A more efficient use of concrete combined with a reduction, elimination, or capture of both process and energy emissions

Direct and indirect emissions pathways, Gt CO_2



% of cumulative reduction, 2022–50

22%

Efficiency in design and construction
- Optimising the use of concrete in building and infrastructure using lean design and other efficiency methods

25%

Reducing process emissions
- Increasing deployment of SCMs to reduce clinker use
- Industrialisation of concrete production
- Alternative chemistries to traditional cement production

45%

Bringing remaining emissions to net zero
- Deploying alternative fuels such as waste (biogenic or coupled with CCU/S), and hydrogen
- Deploying carbon capture for process and combustion emissions
- Use alternative raw materials to eliminate emissions from clinker production

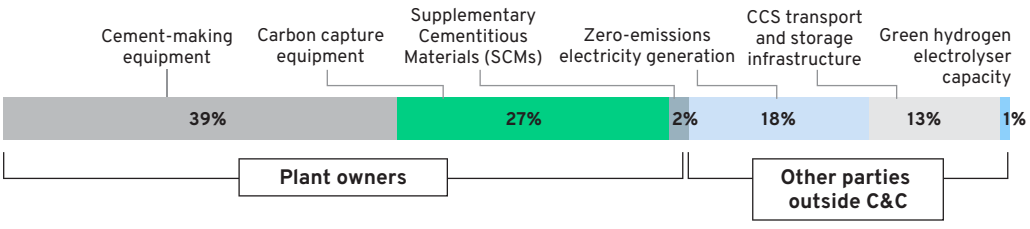
8%

Decarbonising electricity
- Switching to low-carbon power sources

Recarbonation
- Re-absorption of carbon dioxide in concrete in use

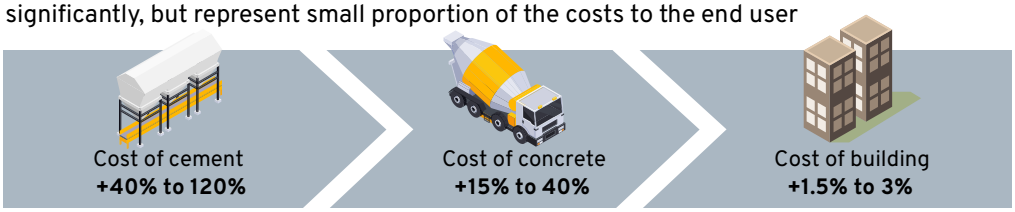
2 What it will take

Investments to achieve net-zero Concrete and Cement (C&C), Cumulative capital investment breakdown by categories, 2022–50



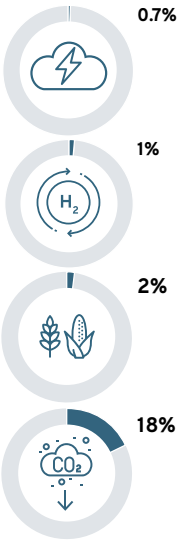
66% of the total investment to get to net-zero will be carried out by the sector

Costs of action: Costs of decarbonisation increase intermediate products costs significantly, but represent small proportion of the costs to the end user



Costs to end users can be reduced through breakthrough technologies as well as concrete efficiency

Resource requirements, share of global demand by 2050



Renewable electricity — 0.7%
1,750 TWh out of 90,000–130,000 TWh

Green hydrogen — 1%
6 Mt out of 500–800 Mt

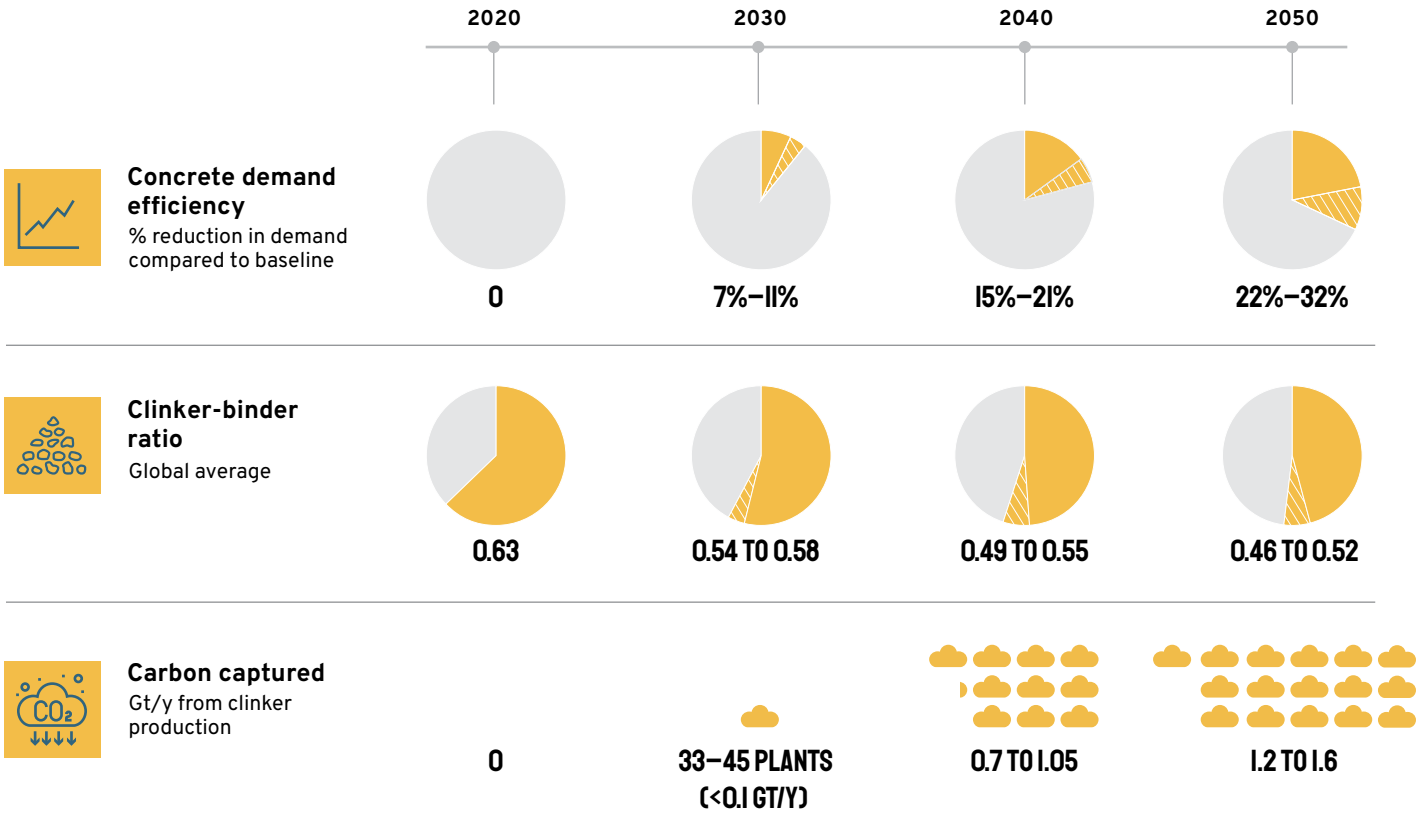
Waste biomass — 2%
1.5 EJ out of 50–110 EJ (total biomass supply)

CO_2 stored and used 11-23% — 18%
1.2 to 1.6Gt out of 7-11Gt

Note: % based on average of global demand

3 Key milestones

The lower bound of the range is based on the Net-Zero scenario (core scenario). The upper bound is based on the Rapid Barrier Elimination sensitivity (stretch sensitivity).



4 Priorities for this decade

INDUSTRY ACTION

- Develop plant-level investable decarbonisation plans as well as decarbonization pathways and milestones
- Invest in RD&D for CCU/S and low-TRL technologies such as hydrogen and alternative chemistries and start their deployment
- Increase SCM usage and develop supply chain for new SCMs

CONCRETE AND CEMENT DEMAND

- Agree to long-term off-take agreements with producers to share risks and enable large decarbonisation investments
- Join buyer's alliance such as the First Movers' Coalition and Concrete Zero
- Incentivise design teams to optimise topology, elements and building performance to deliver low- and near-zero whole life carbon concrete buildings

FINANCE ACTION

- Mobilise capital across the cement and carbon capture sector
- Establish climate-aligned investment principles for near-zero-emissions concrete and cement production, allowing a swift identification of assets and faster channelling of capital flow

GOVERNMENT ACTION

- Support RD&D of decarbonisation technologies, through funding and risk sharing for first-of-a-kind projects
- Implement green public procurement programs for concrete
- Use financial incentives, carbon tax and/or cap-and-trade systems to bridge the cost differential of low-carbon cement making
- Design and implement regulatory frameworks for CCU/S projects
- Address causes of permitting delays to ensure timely development of decarbonisation projects and enabling infrastructure