



Energy Technology Perspectives 2020

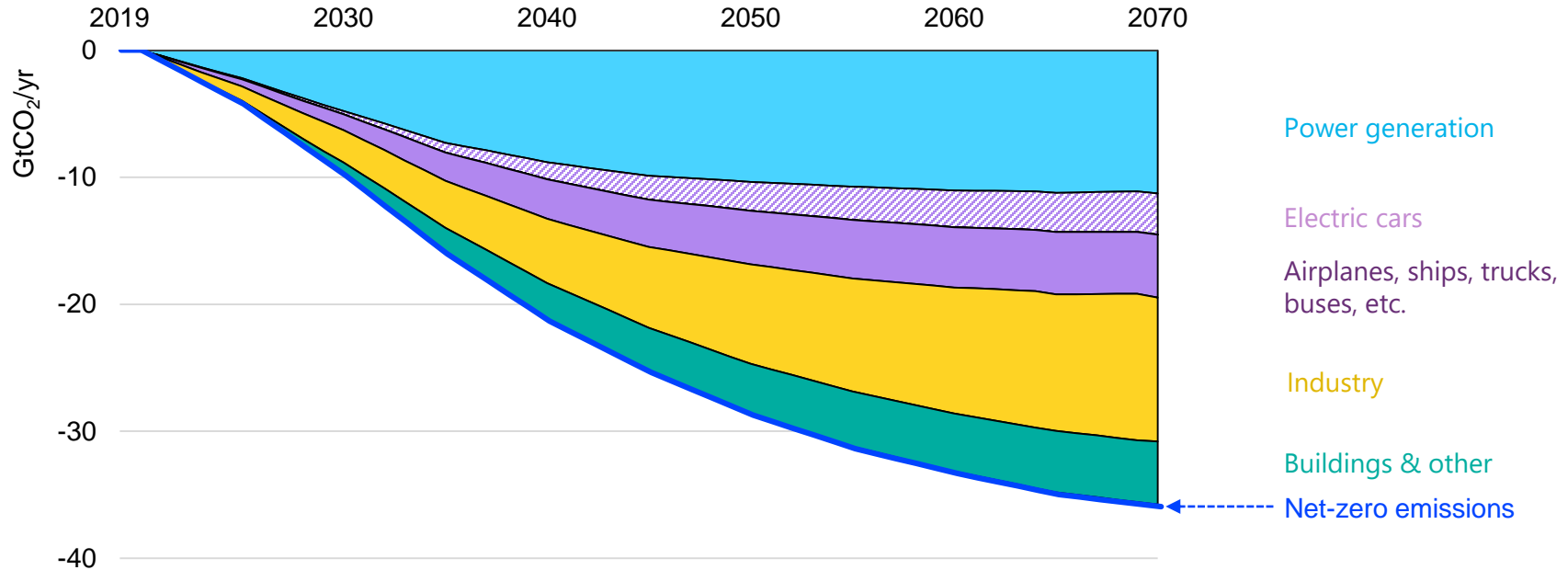
GCCA conference, 08 October 2020

Dr Timur Gül

- A growing number of governments & companies are making ambitious pledges to reach net-zero emissions in coming decades.
- Massive easing of monetary policy by central banks to mitigate upfront investment risks.
- Major progress has been made: the rise of solar PV, wind and batteries has significantly reduced the costs of renewable electricity and electric cars.
- But transitioning the energy system to net-zero emissions requires broader technology efforts in some critical areas.

Focusing on the power sector is not enough to reach climate goals

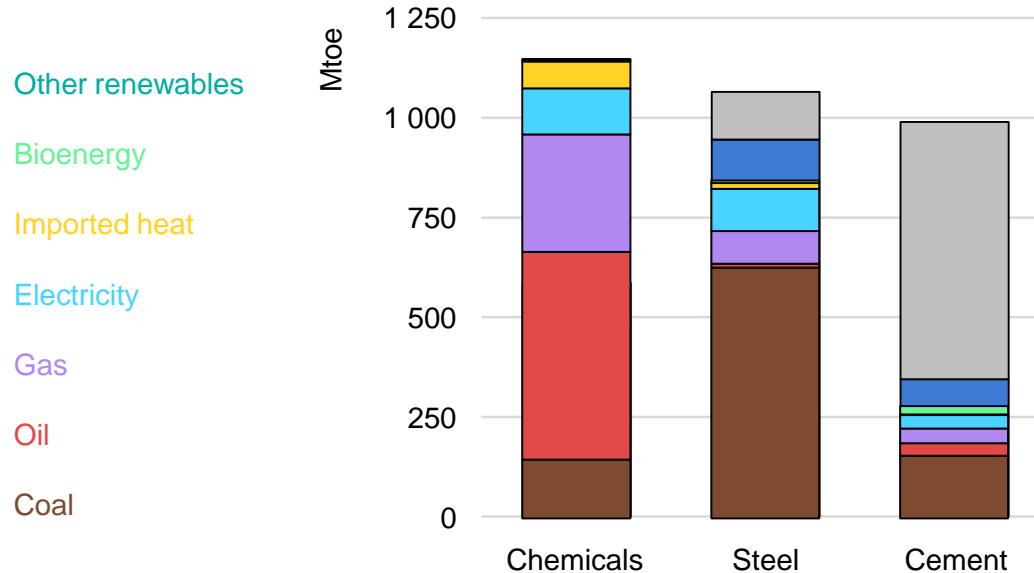
Global CO₂ emissions reductions in the Sustainable Development Scenario, relative to baseline trends



Clean energy technology progress in the power sector and with electric cars is encouraging, but alone not sufficient to reach climate goals. About half of all CO₂ emissions today are from industry, transport and buildings.

Emissions from heavy industry sectors are 'hard to abate'

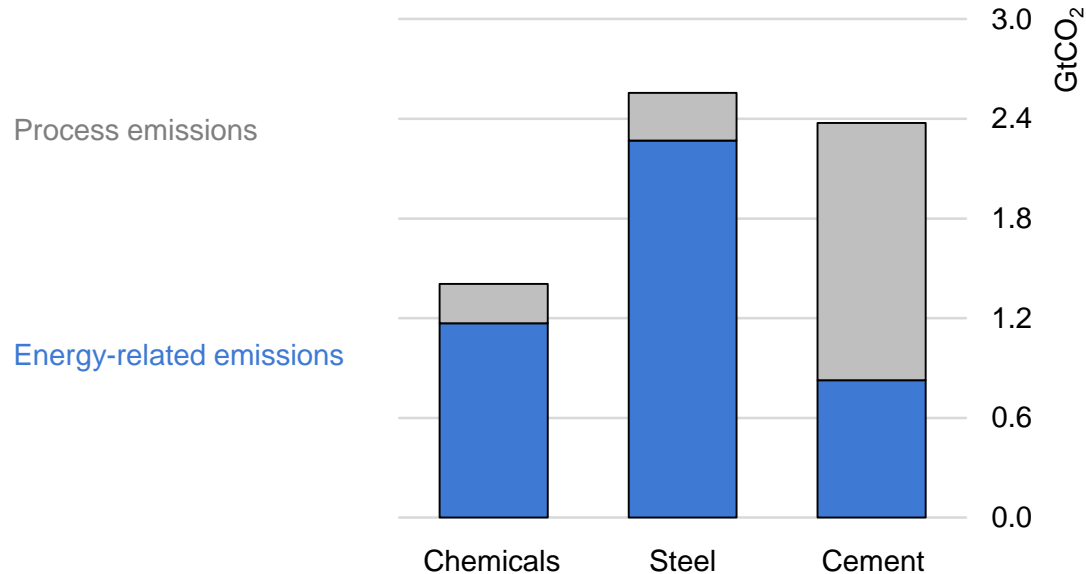
Heavy industry final energy demand and direct CO₂ emissions, 2019



Fossil fuels account for around 85% of the final energy used in heavy industries, which, combined, account for just under a fifth of total energy system CO₂ emissions.

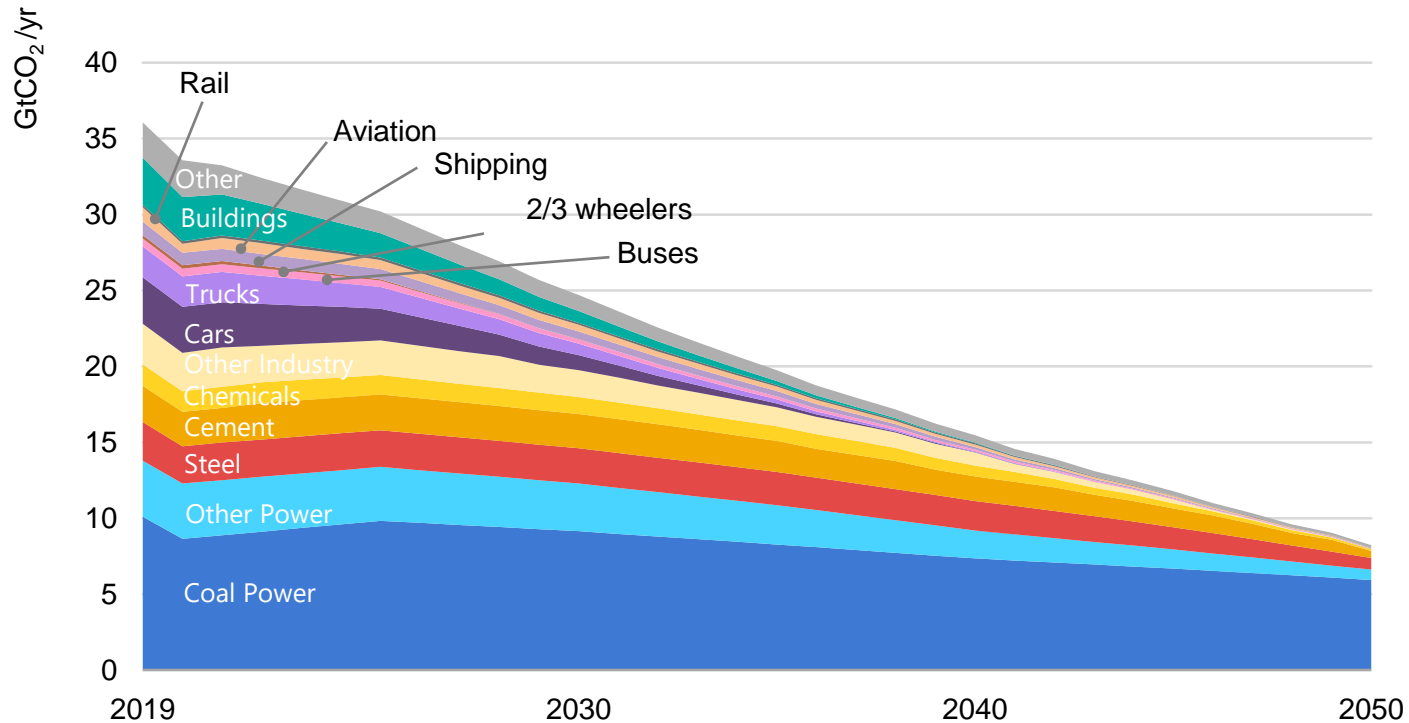
Emissions from heavy industry sectors are 'hard to abate'

Heavy industry final energy demand and direct CO₂ emissions, 2019



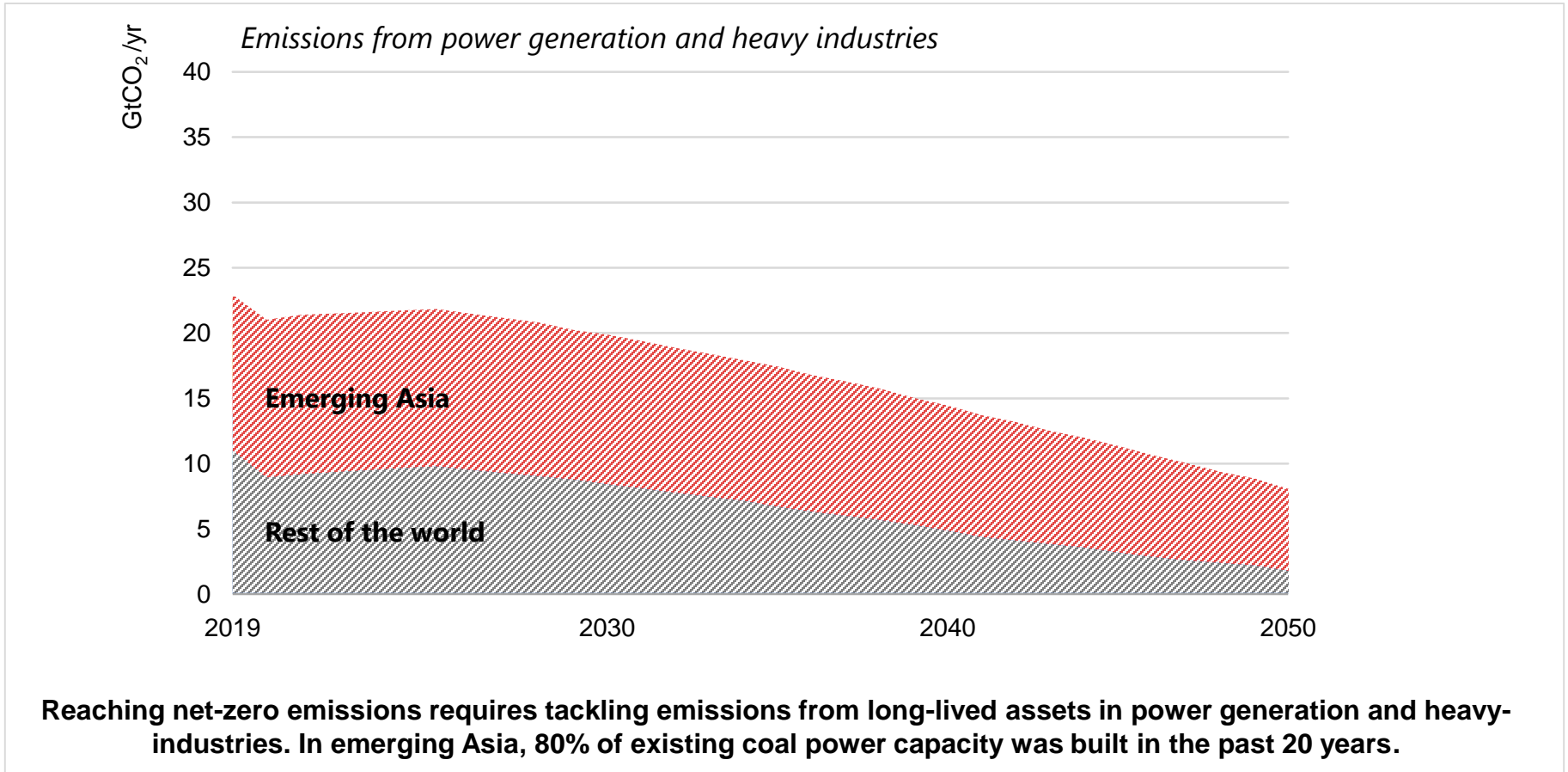
Fossil fuels account for around 85% of the final energy used in heavy industries, which, combined, account for just under a fifth of total energy system CO₂ emissions.

Our existing energy infrastructure is too big to ignore

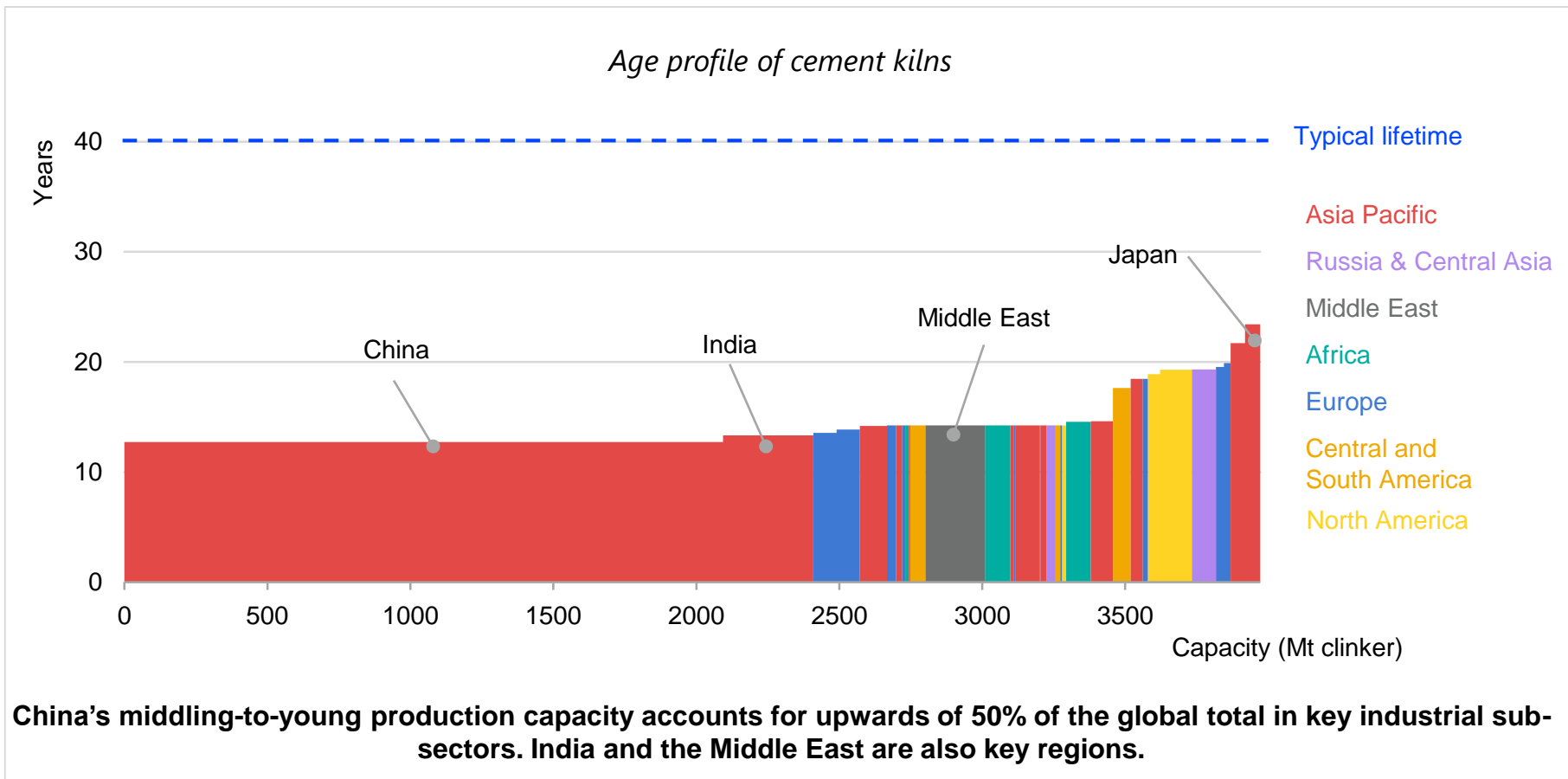


Reaching net-zero emissions requires tackling emissions from long-lived assets in power generation and heavy-industries. In emerging Asia, 80% of existing coal power capacity was built in the past 20 years.

Our existing energy infrastructure is too big to ignore

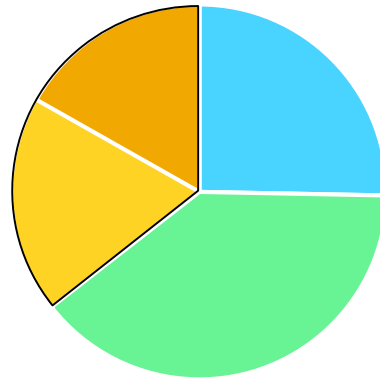


Cement producing assets are still young

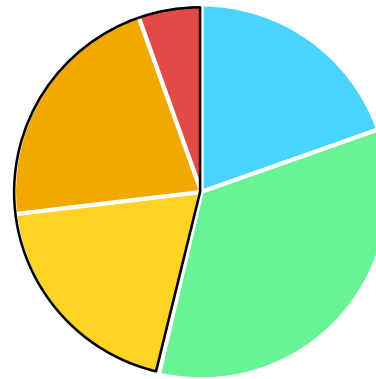


Cumulative emissions reductions relative to baseline trends by technology maturity

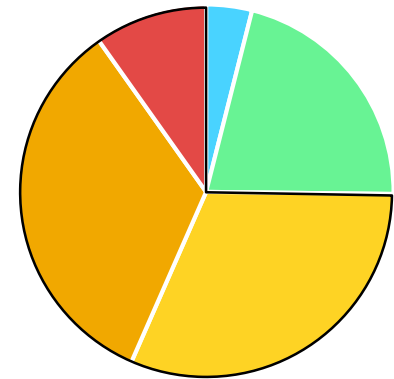
Net-zero emissions by 2070



Net-zero emissions by 2050



Heavy industry & long-distance transport



Mature
Early adoption
Demonstration
Large prototype
Small prototype/lab

Almost half of the emissions reductions required to reach net-zero by 2050 rely on technologies that are not yet commercial today. The share jumps to three-quarters for heavy industry and long-distance transport.

Markets are vital for mobilising capital and catalysing innovation, but they will not deliver net-zero emissions on their own. Effective policy toolkits must address five core areas:

1. Tackle emissions from existing assets
2. Strengthen markets for technologies at an early stage of adoption
3. Develop and upgrade infrastructure that enables technology deployment
4. Boost support for research, development and demonstration
5. Expand international technology collaboration

iea