



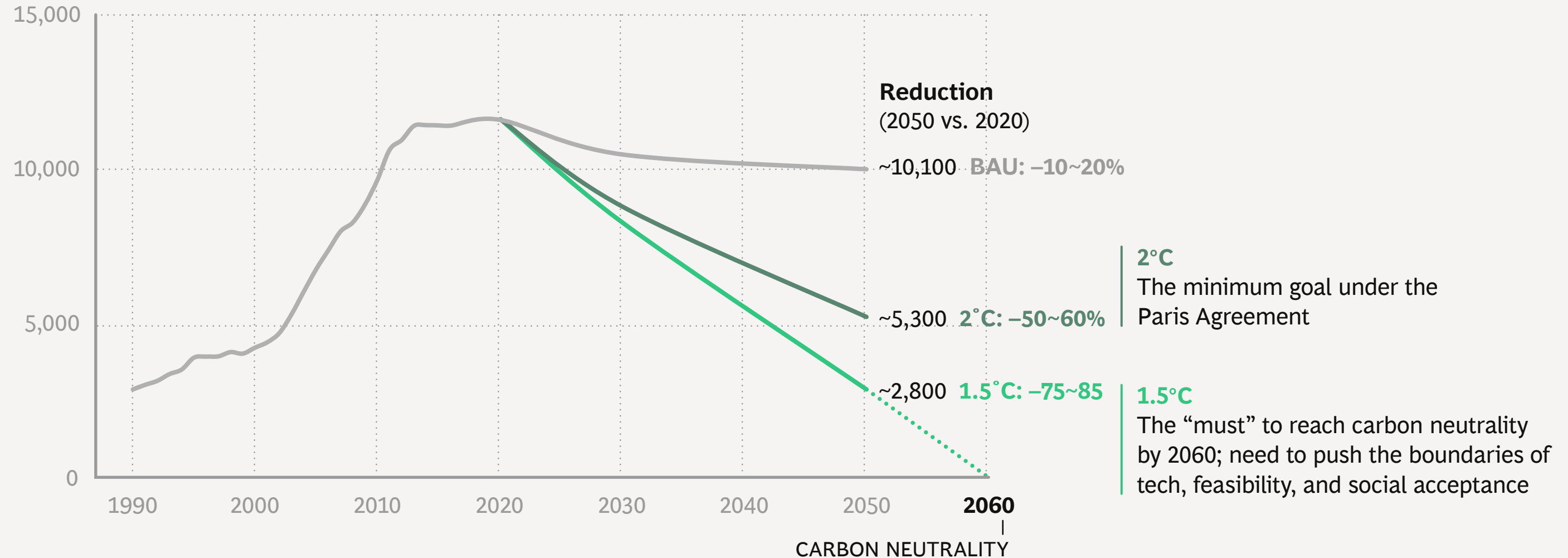
Leading in
the New
Reality

BCG

A Climate Change Action Plan for China

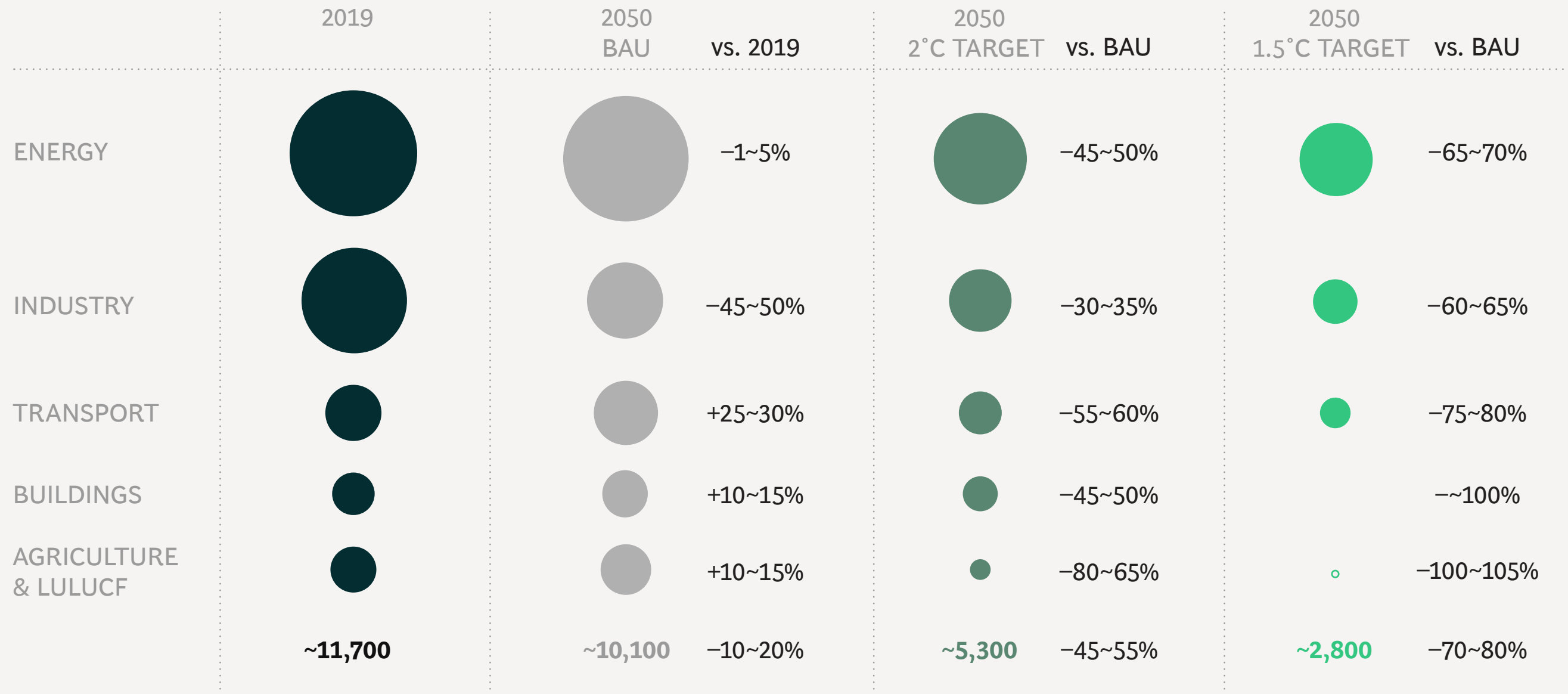
To achieve carbon neutrality by 2060, China needs to start down a 1.5°C pathway today

GREENHOUSE GAS EMISSIONS IN CHINA
(Mt CO₂e)



Source: BCG model projection. Note: Mt CO₂e = metric tons of CO₂ equivalent; BAU = business as usual.

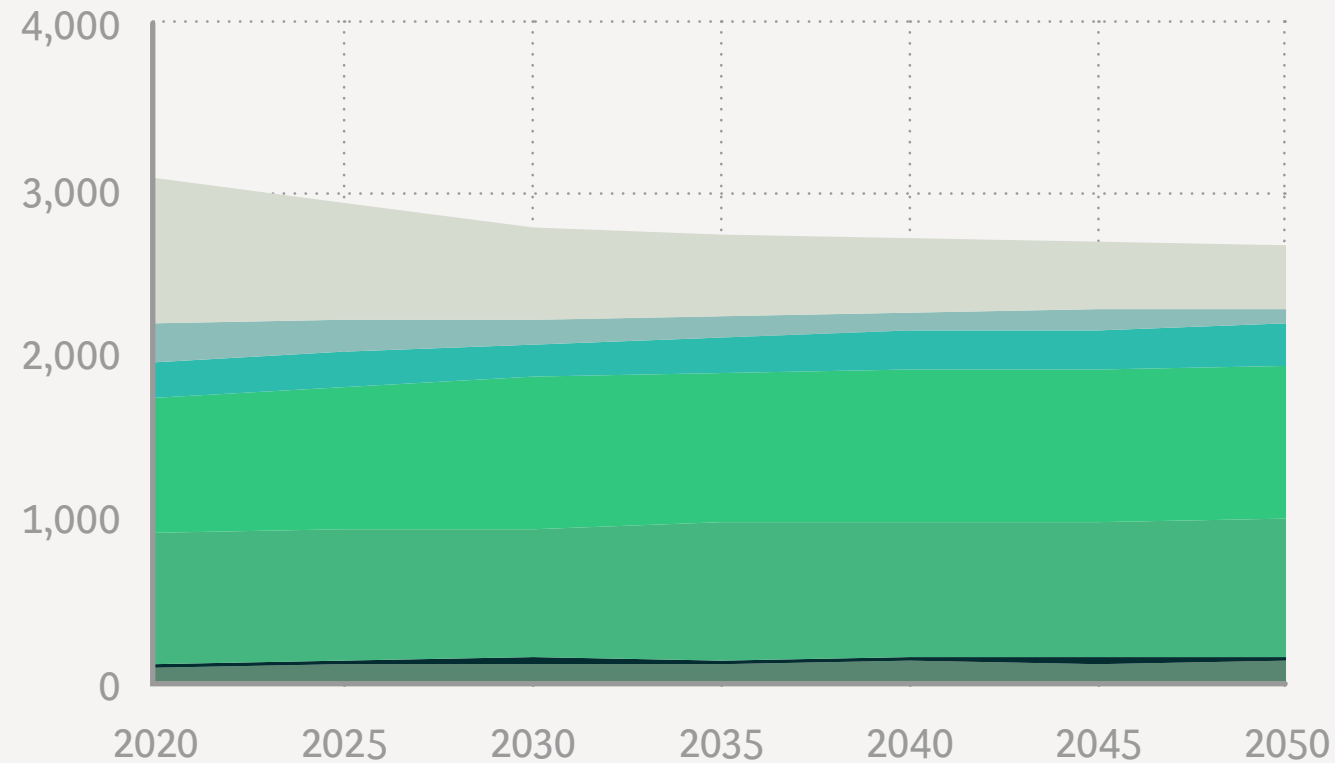
As the biggest emitter, the energy sector must contribute the most



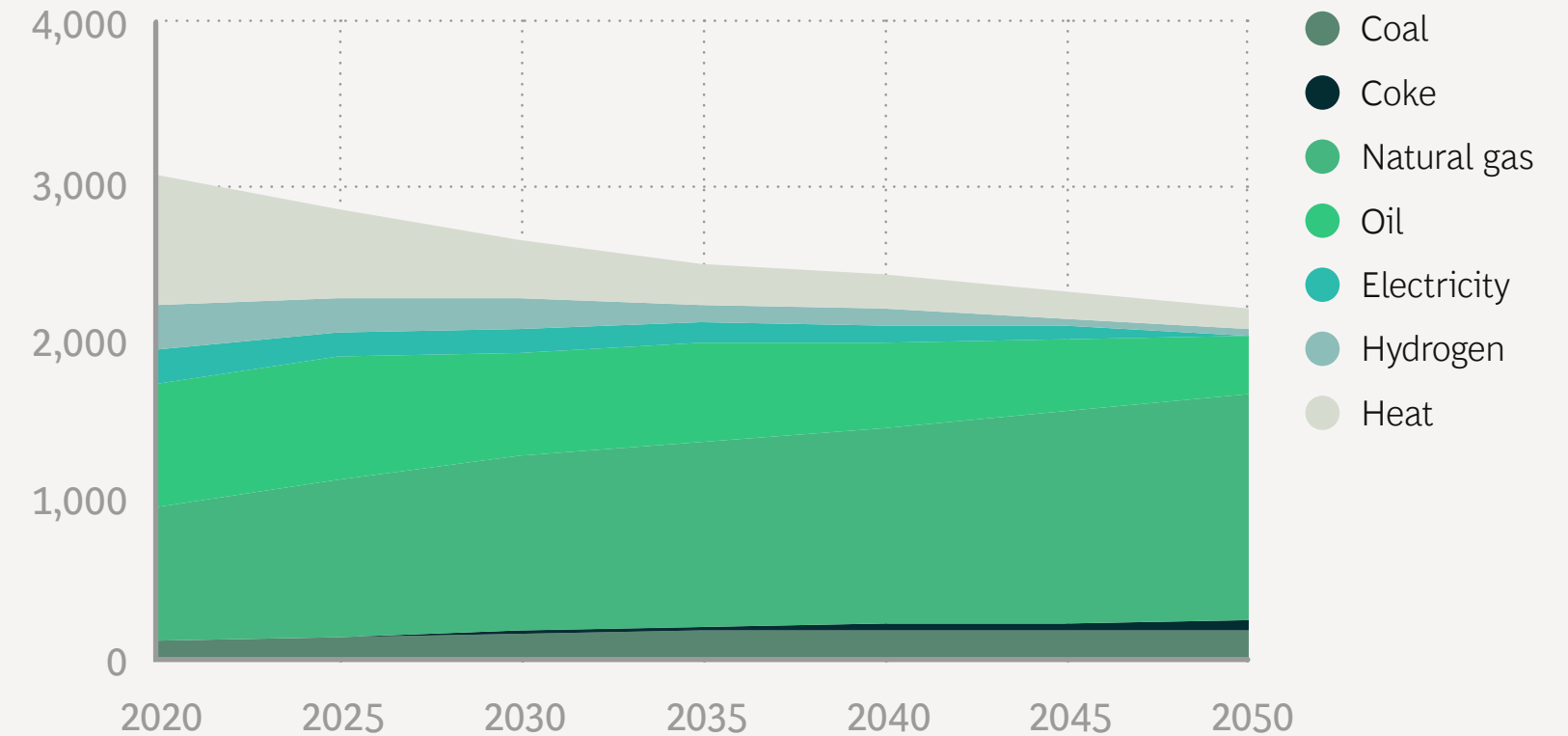
Source: BCG model projection. Note: Circles = Mt CO₂e; hollow circle represents carbon sink; BAU = business as usual.

A cleaner energy mix is imperative: Fossil fuels must be limited to 25% to 30% of the energy mix ...

BAU: FOSSIL ENERGY = 60%–65% FINAL ENERGY DEMAND
(Mt CO₂e)



1.5°C: FOSSIL ENERGY = 25%–30% FINAL ENERGY DEMAND
(Mt CO₂e)

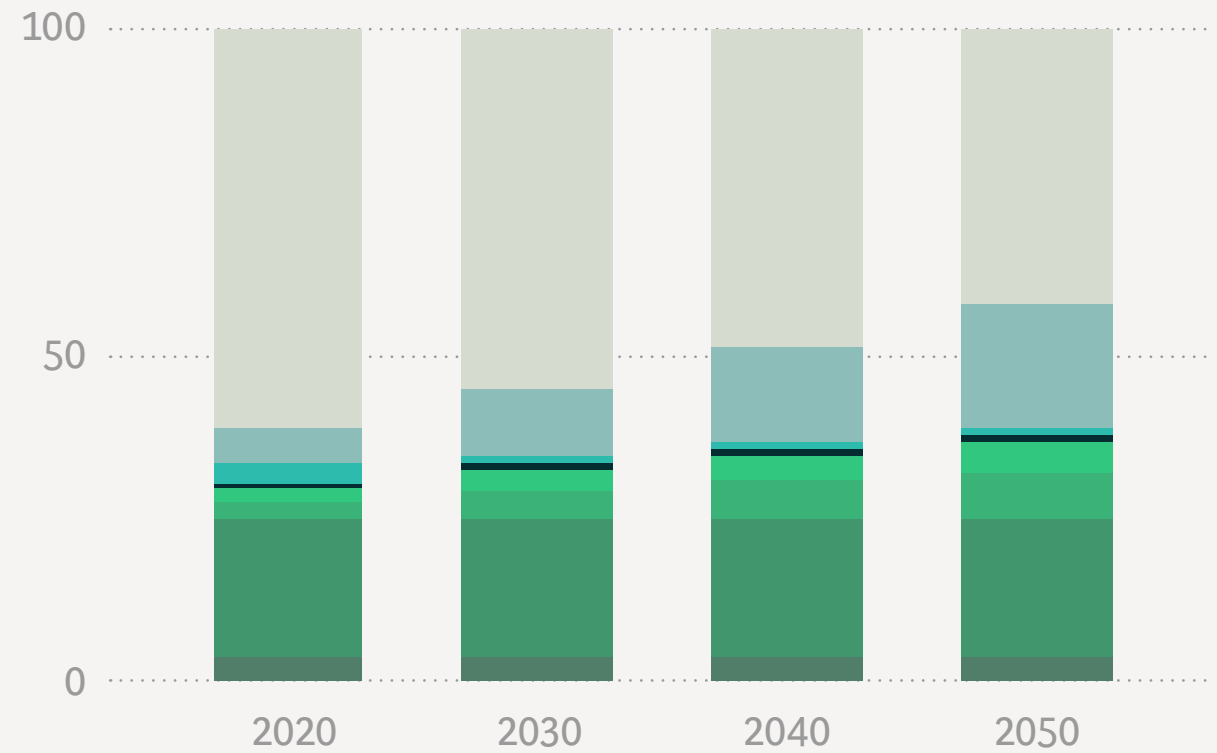


...and limited to 20% of electricity generation

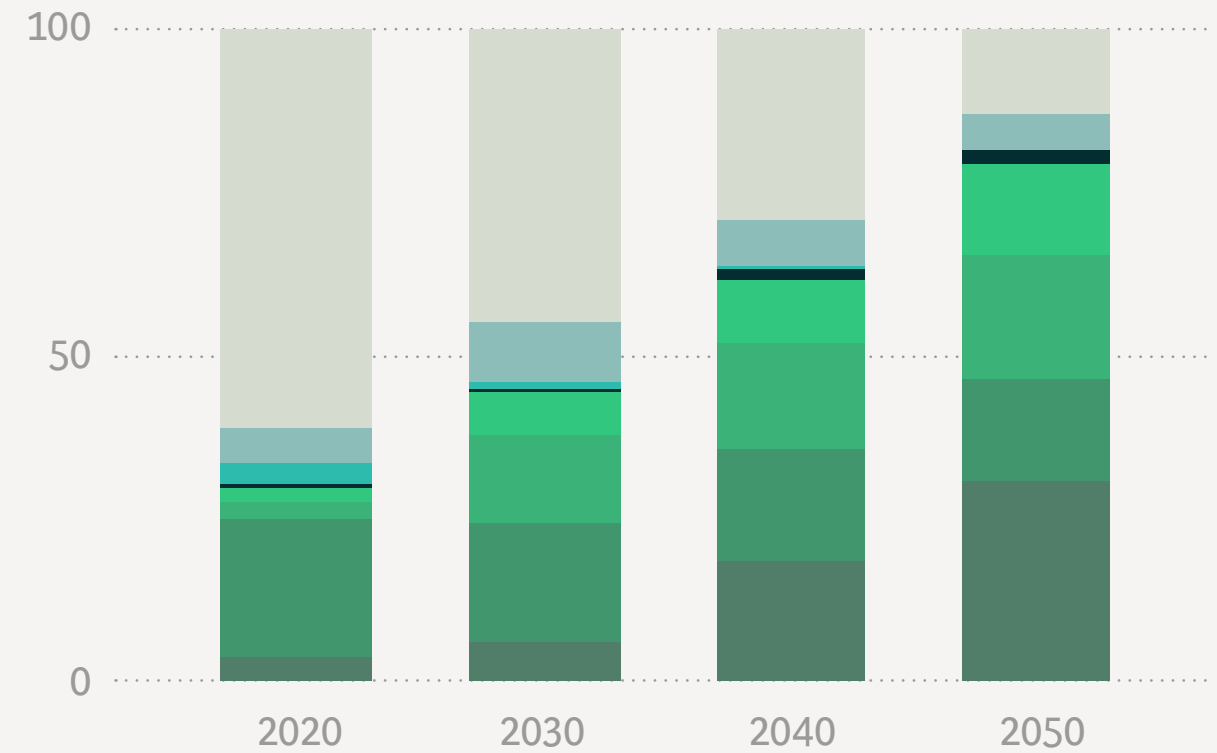
BAU: FOSSIL ENERGY = ~60% OF ELECTRIC POWER GENERATION

1.5°C: FOSSIL ENERGY = ~20% OF ELECTRIC POWER GENERATION

Distribution of electric power generation (%)



Distribution of electric power generation (%)



POWER TYPE

- Coal
- Natural gas
- Oil
- Biomass
- Solar
- Wind
- Hydro¹
- Nuclear

FOSSIL ENERGY ~70%

~65%

~65%

~60%

FOSSIL ENERGY ~70%

~55%

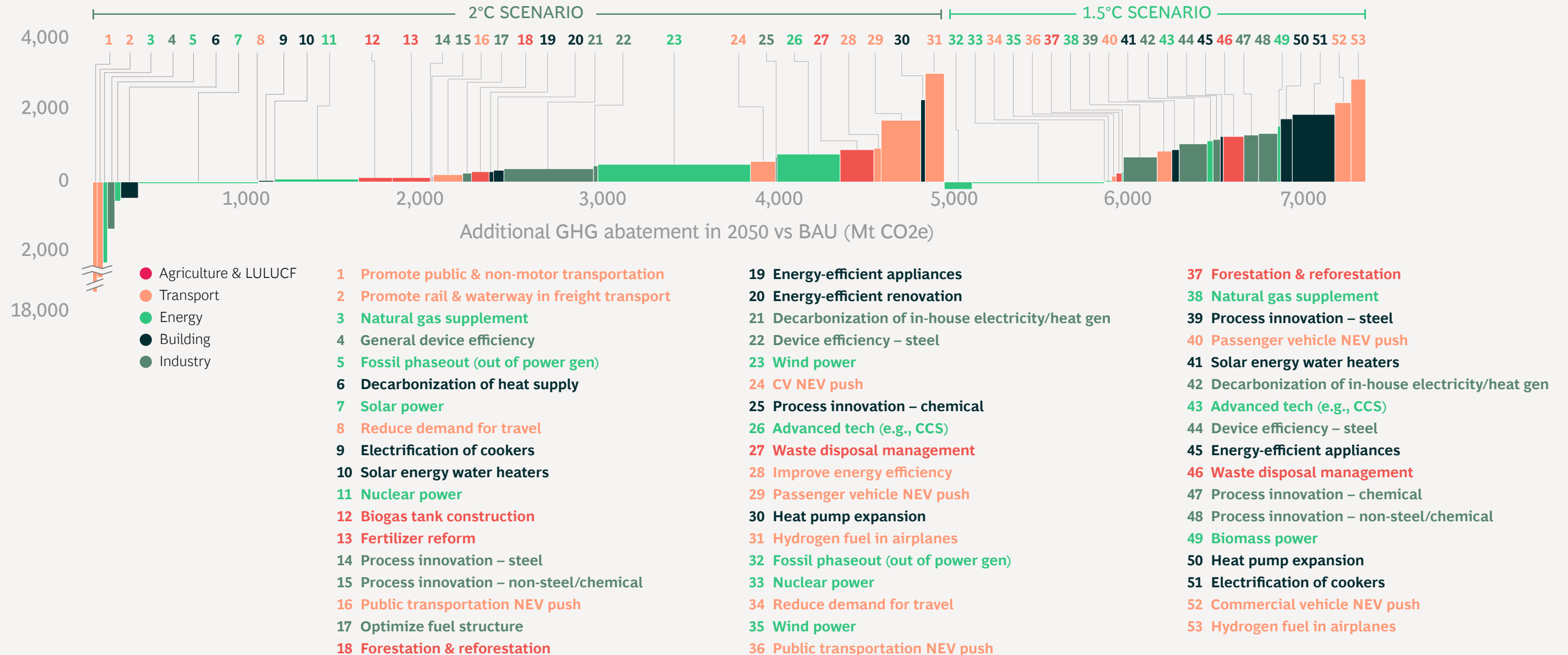
~35%

~20%

Source: BCG analysis. Note: Fossil energy = coal power, natural gas power, and oil power. ¹Although the share of hydro power decreases in the 1.5°C target, the absolute amount of power generation is increasing due to overall increase in demand.

We quantified the impact and abatement costs of more than 50 initiatives

Average abatement costs (RMB/Mt CO₂e)¹

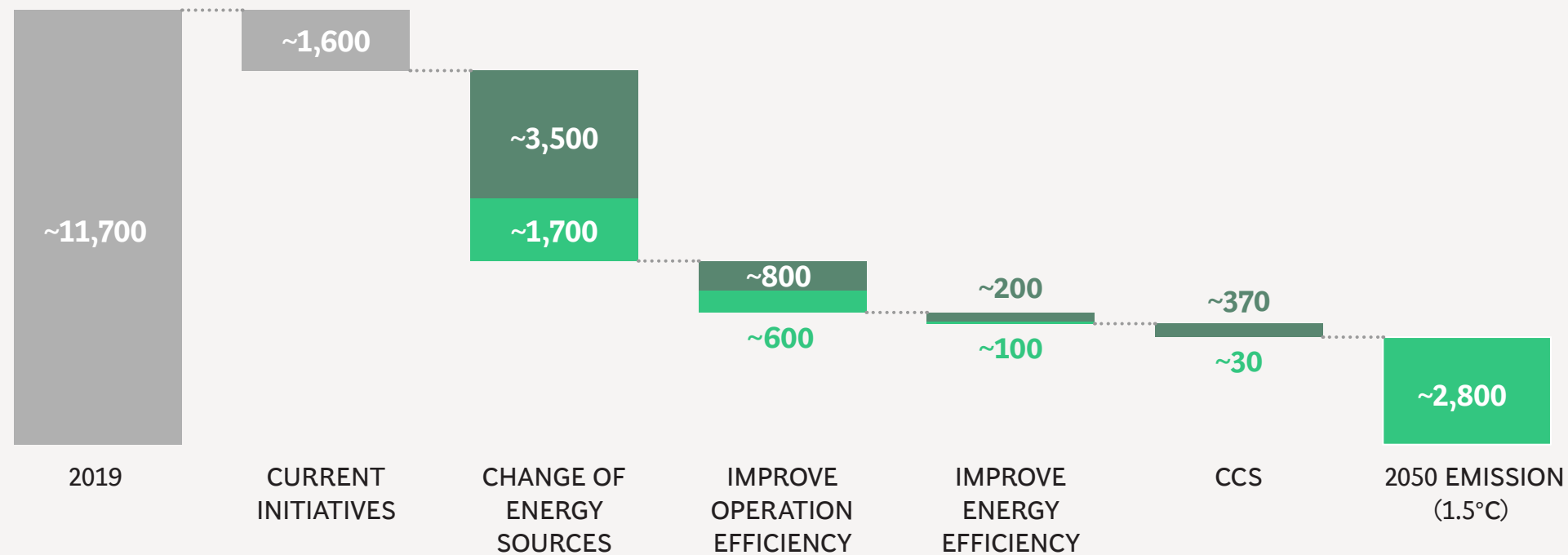


Source: BCG analysis. Note: NEV = new energy vehicle. ¹Average abatement costs: 2°C scenario = cumulative GHG abatement (vs BAU) between 2020 and 2050 and cumulative costs and savings between 2020 and 2050, and are discounted to 2020. 1.5°C scenario = cumulative GHG abatement (vs 2°C) between 2020 and 2050 and cumulative additional costs and savings (vs 2°C) between 2020 and 2050, and are discounted to 2020.

The technologies that enable a change in the energy mix are the most critical

GHG SAVINGS BY LEVER (Mt CO₂e)

- 2°C reduction
- 1.5°C further reduction



Change in energy sources

Mainly a switch from coal/natural gas to electricity generated by renewables and nuclear power

Improve operation efficiency

Optimize current operations (e.g., switch modes of transport, design new industrial process, introduce heat pumps, etc.)

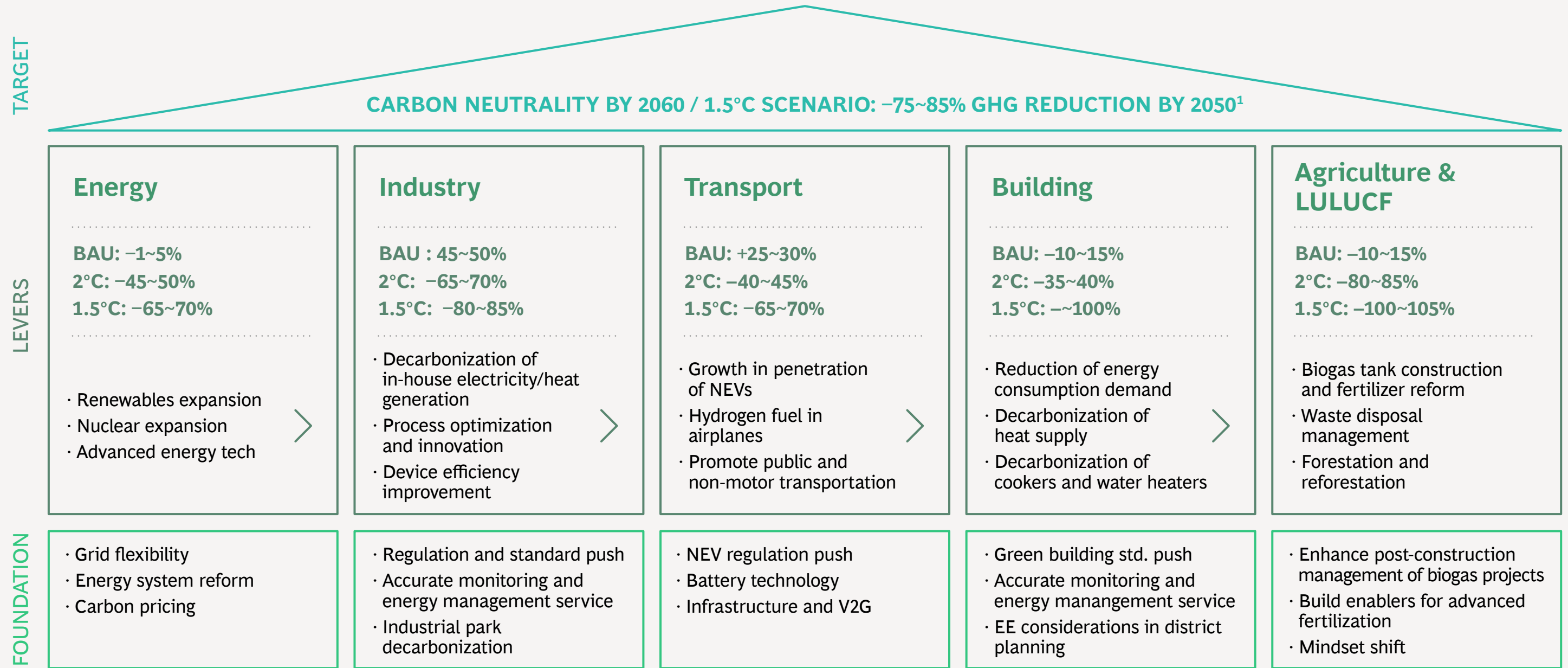
Improve energy efficiency

Improve energy consumption efficiency (e.g., industrial device efficiency, improve fuel efficiency of internal combustion engine, energy-efficient appliances, etc.)

CCS

Applications in power generation with coal, natural gas, biomass, and other sources in energy and industry sectors

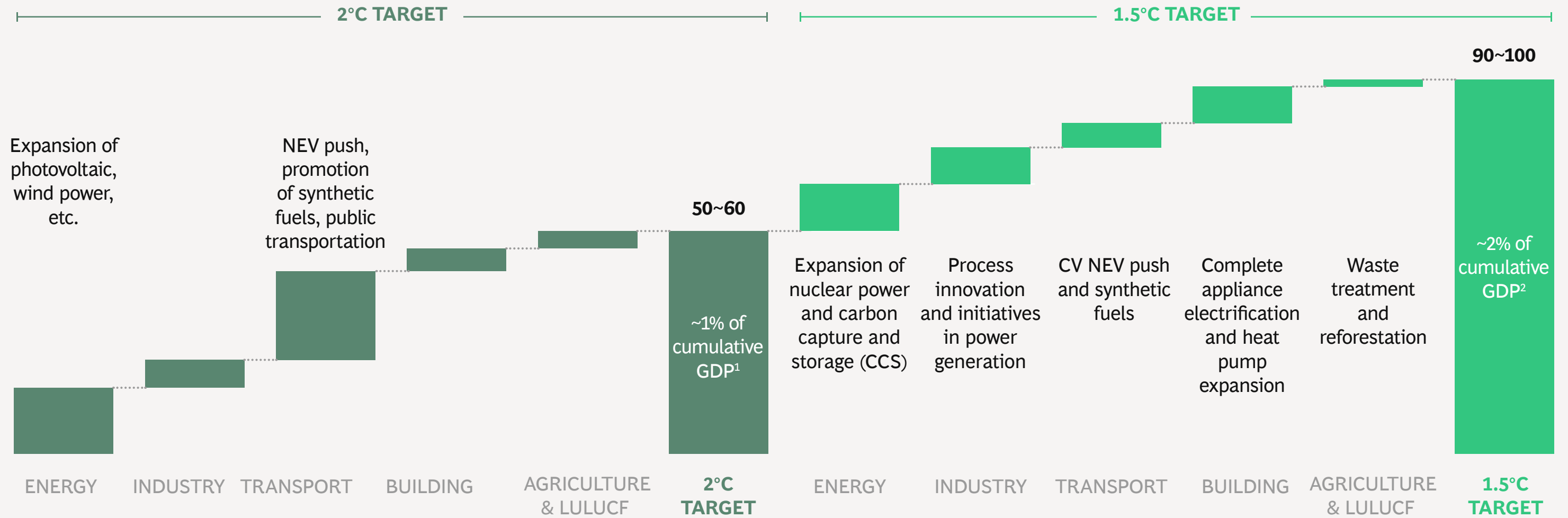
All the main greenhouse gas emitting sectors must transform



Source: BCG analysis. Note: All percentages show 2050 emissions vs. as is; Mt CO₂e = metric tons of CO₂ equivalent; BAU = business as usual.

To reach the 1.5°C target, cumulative investment through 2050 will be 90 trillion to 100 trillion RMB

CUMULATIVE INVESTMENT AND MAIN INVESTMENT AREAS FROM 2020–2050 UNDER 2°C AND 1.5°C TARGETS
(Tn RMB)



Source: BCG analysis. Note: NEV = new energy vehicles; CV = commercial vehicles. ¹Compared with 1.04 in Germany. ²Compared with 1.6 in Germany.