



China: The Road to Net-Zero

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ASIA RESPONSIBLE INVESTING FORUM

THE PATH TO NET ZERO

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Key questions:

1

What does climate change mean for the world, and specifically Asia?

2

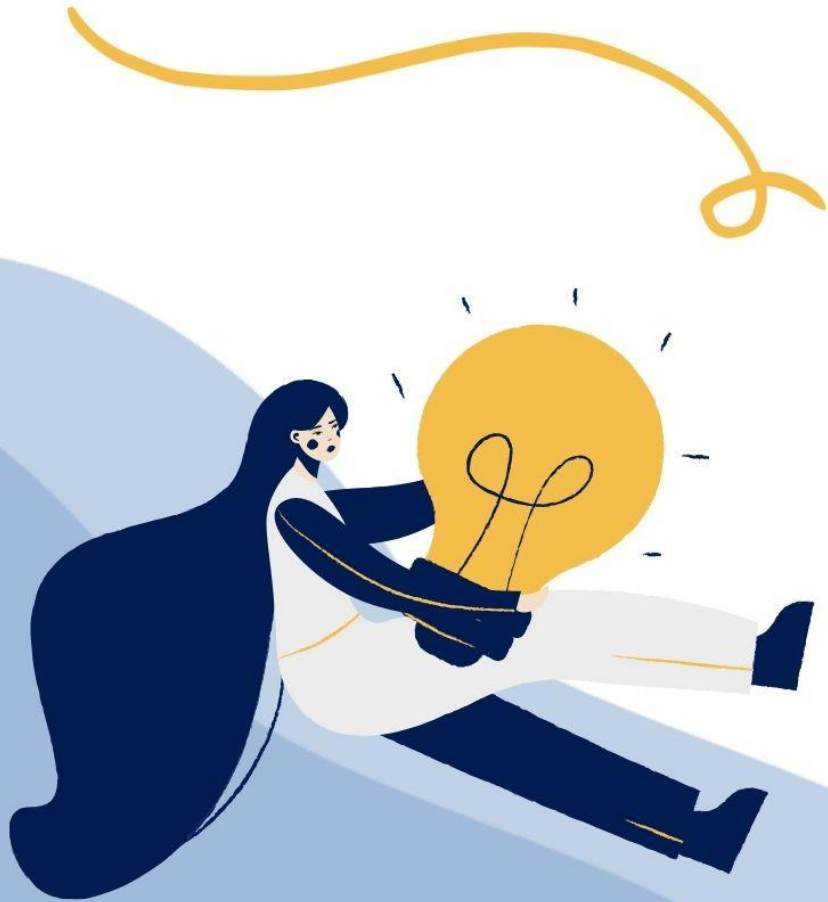
Why is China joining the fight against climate change, and what's the strategy?

3

What are the macro & micro economic impacts of the green transformation?

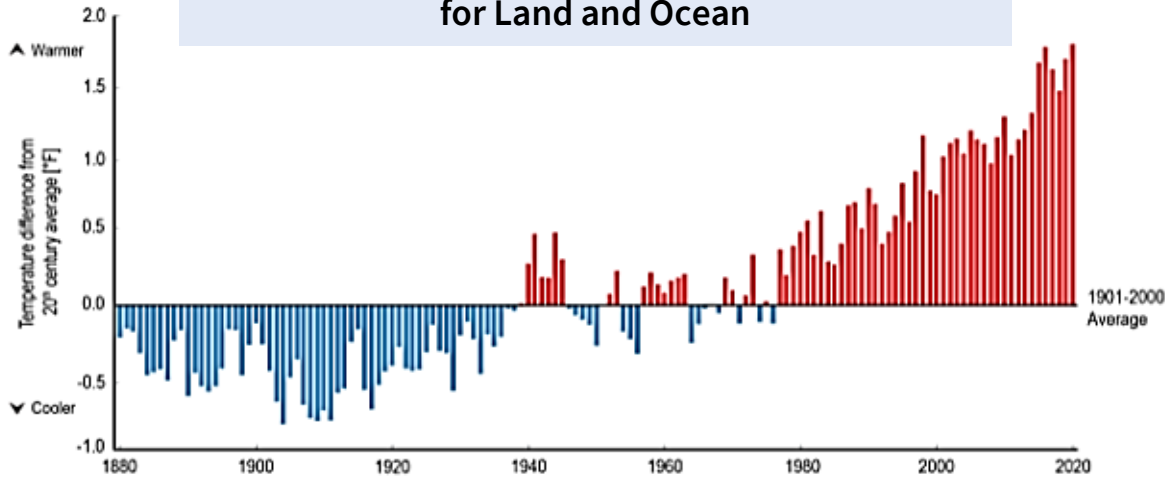
4

How will China's transition to net-zero affect the rest of the world?

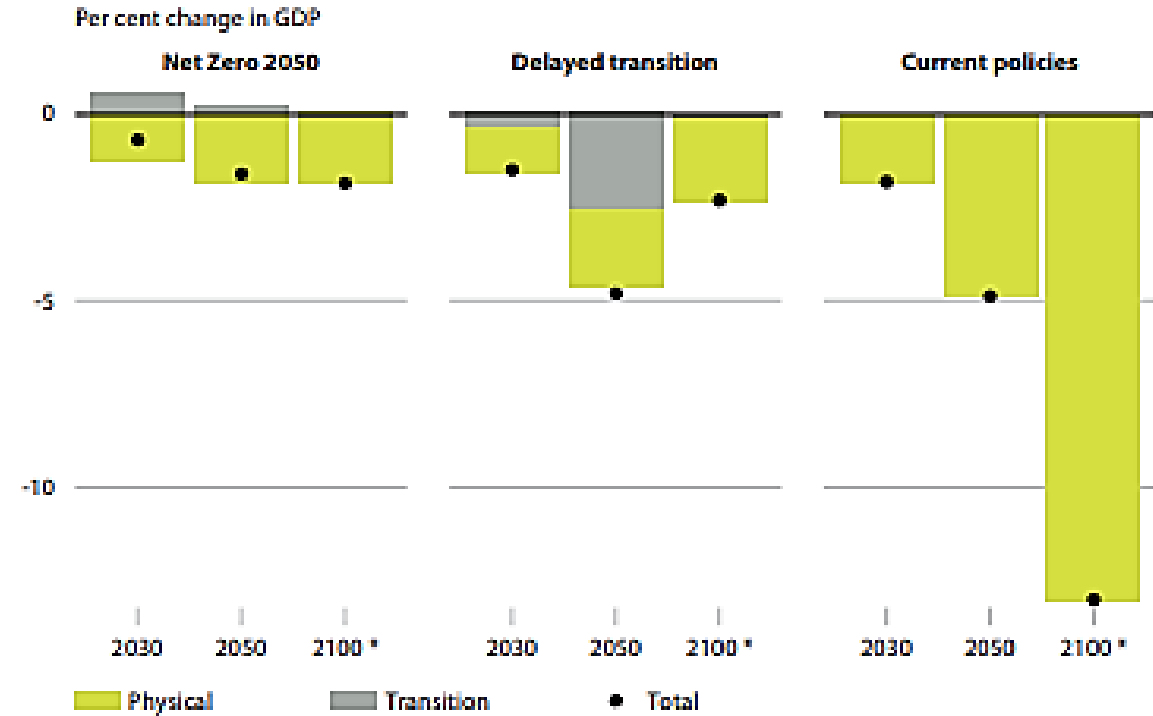


Failing to combat climate change could lead to economic catastrophe

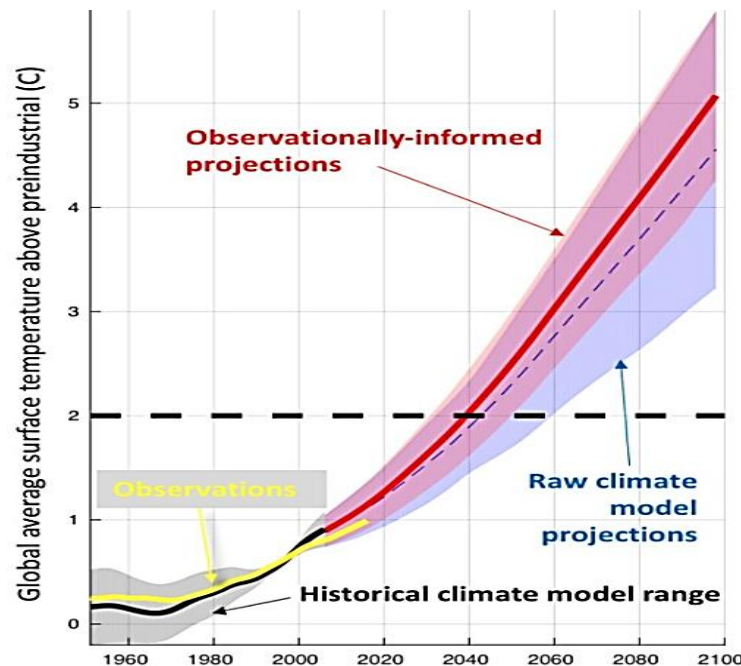
Annual Global Surface Temperature Change for Land and Ocean



GDP impacts relative to prior end



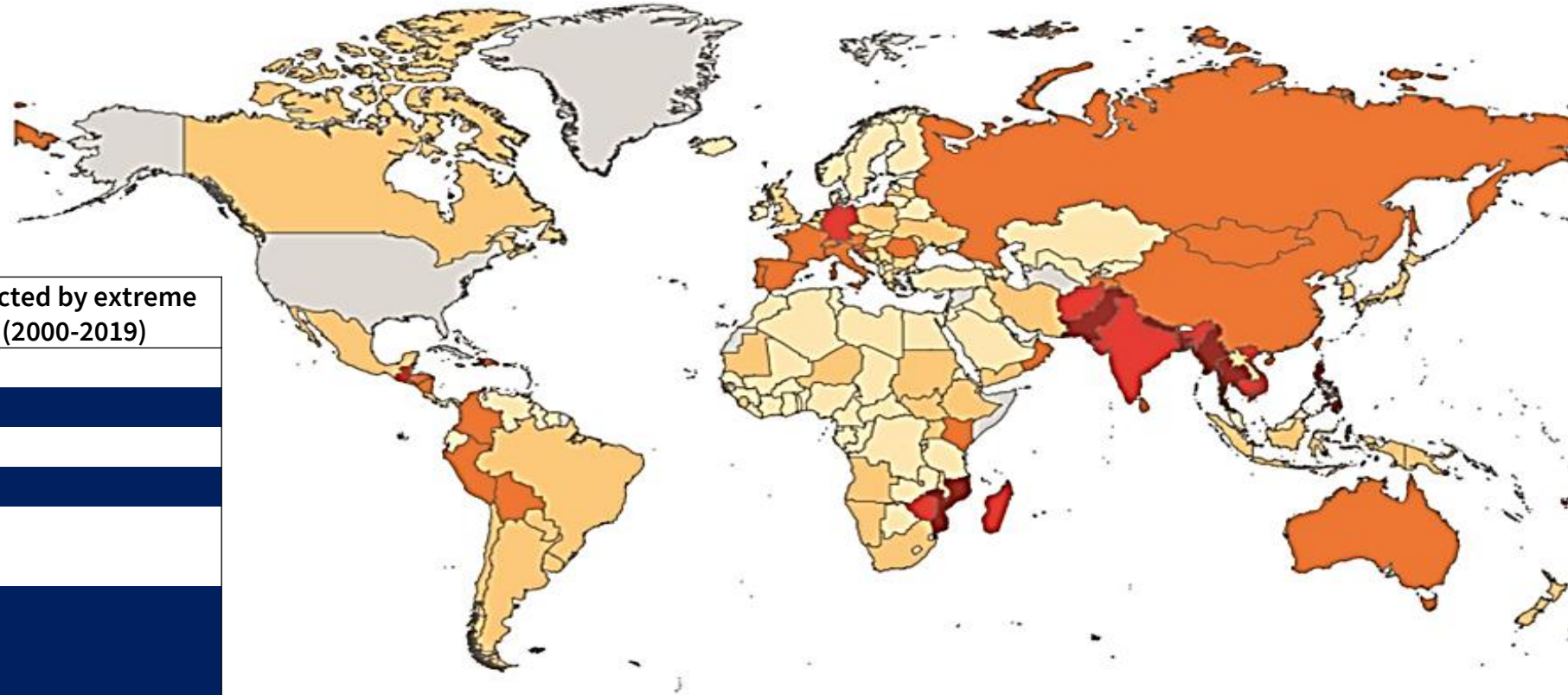
Comparison of raw and observationally-informed climate model projections



Asia is among the most exposed to climate risks

Figure 1: World Map of the Global Climate Risk Index 2000 – 2019

Source: Germanwatch and Munich Re NatCatSERVICE



Countries most affected by extreme weather events (2000-2019)	
1	Puerto Rico
2	<i>Myanmar</i>
3	Haiti
4	Philippines
5	Mozambique
6	The Bahamas
7	Bangladesh
8	Pakistan
9	Thailand
10	Nepal

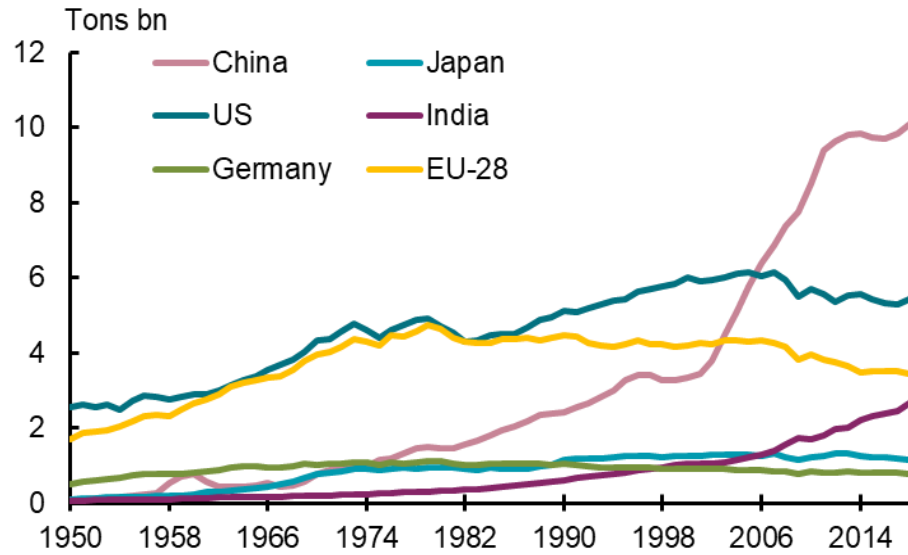
Italics: Countries where multiple deaths occurred in one year or event

Climate Risk Index: Ranking 2000 - 2019

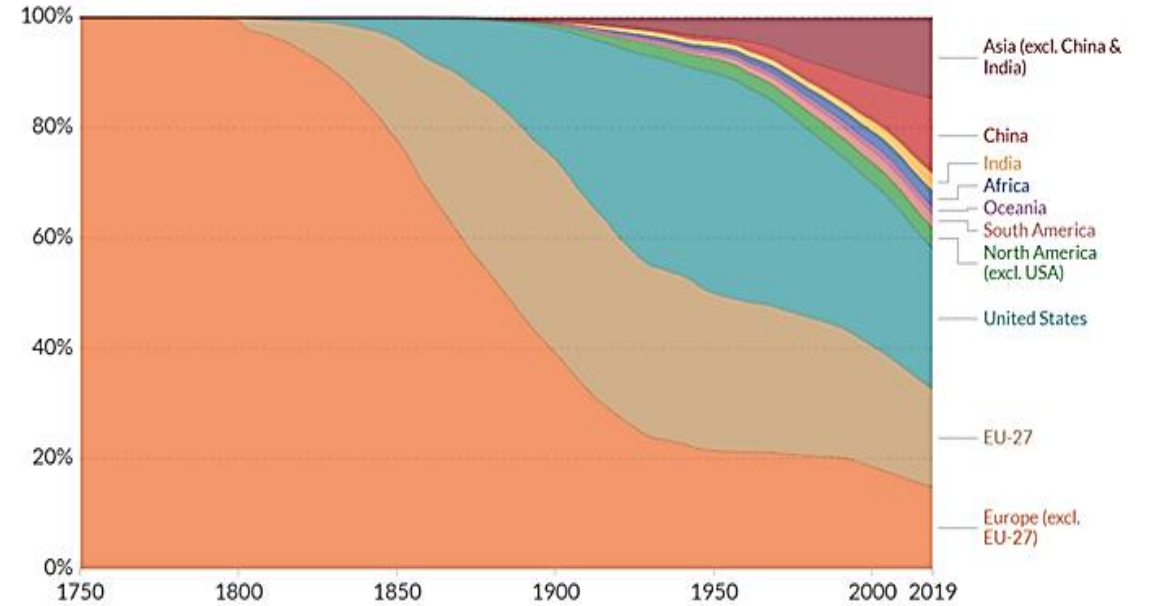


China is indispensable to combat climate crisis

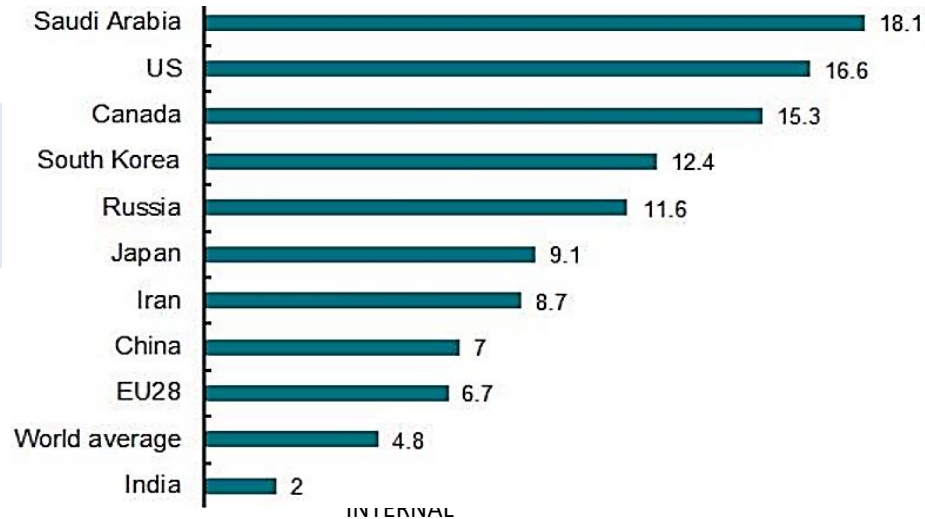
Carbon dioxide emissions by major country and region



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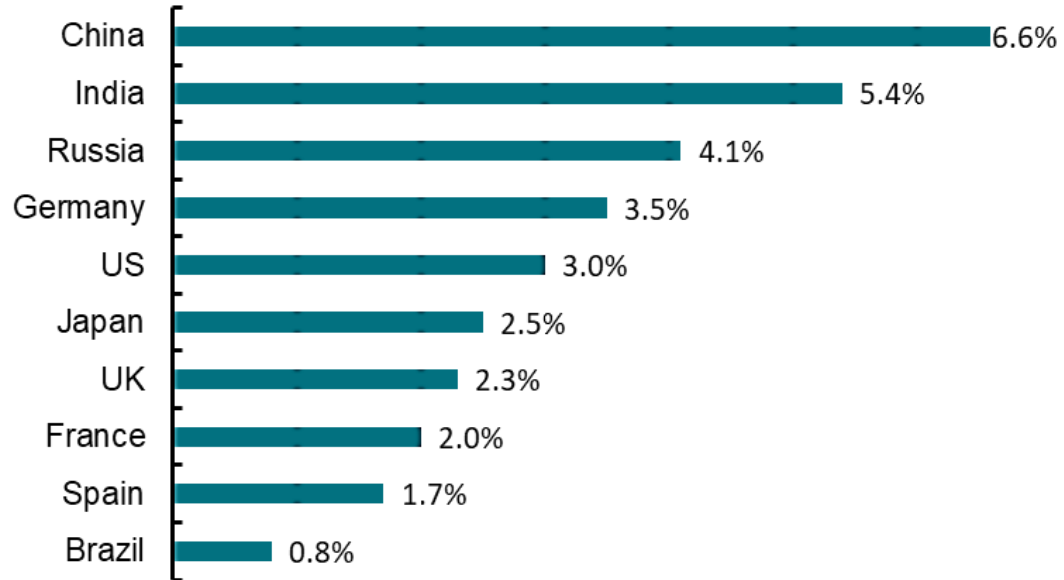
Carbon dioxide emissions per capita by country (tonnes)



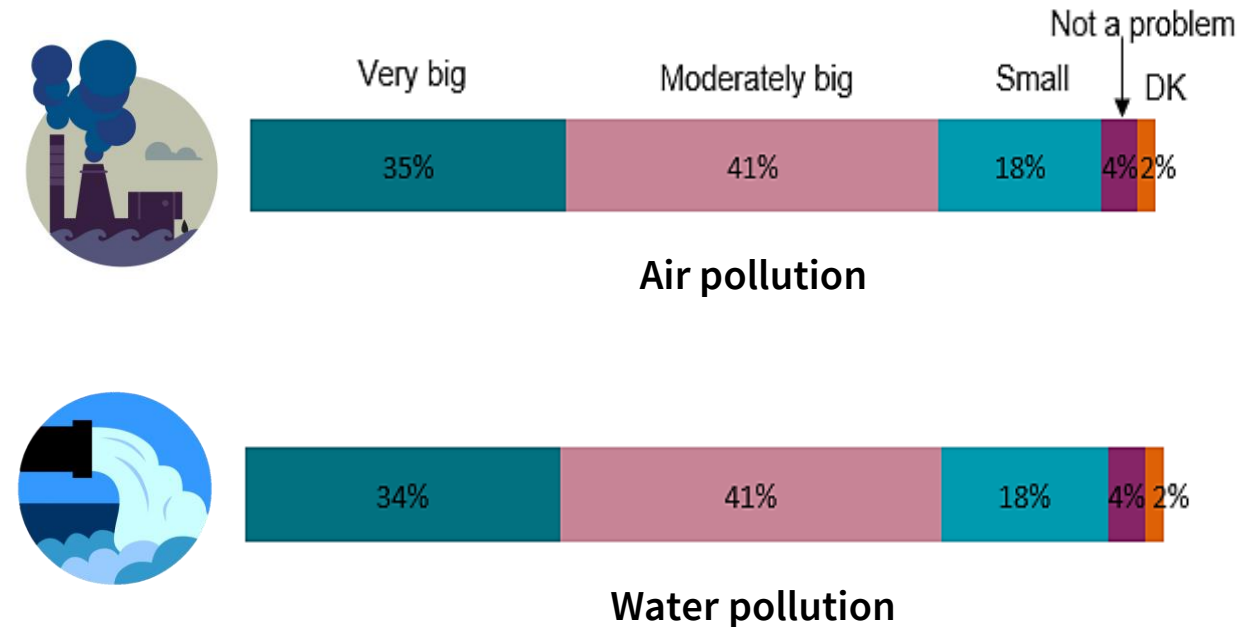
WHY ACT NOW?

1 Economic, social, and political costs of inaction are too high

Economic costs of air pollution from fossil fuels
(share of GDP in 2018)



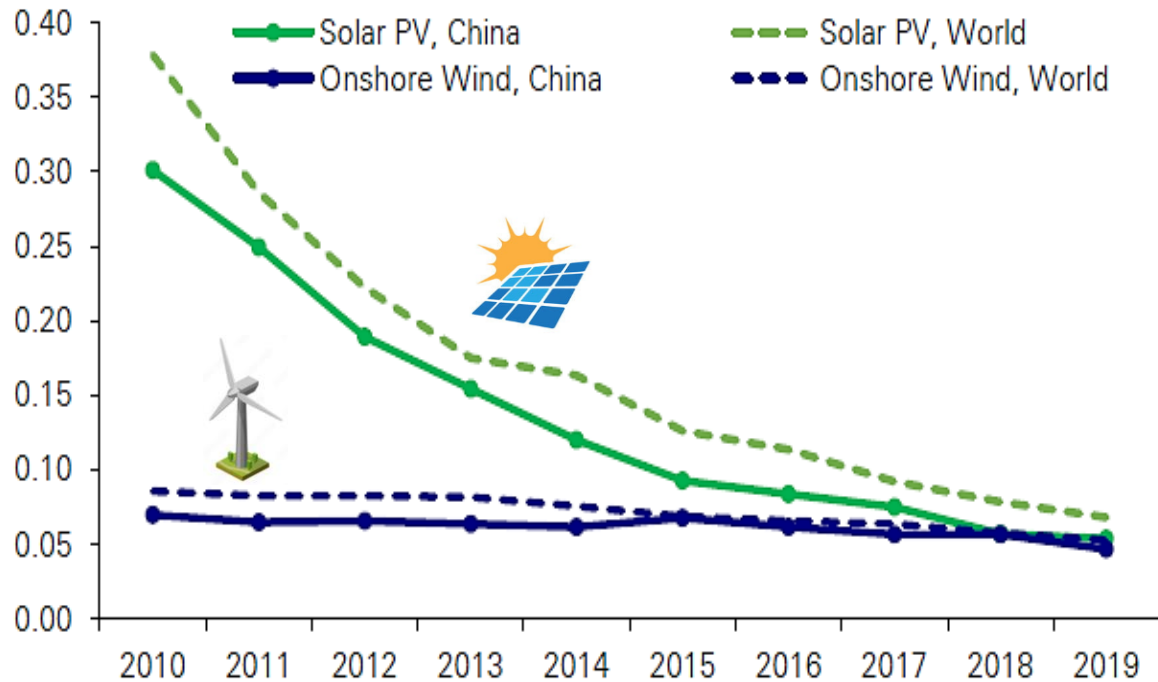
Views of pollution
and climate change in China



WHY ACT NOW?

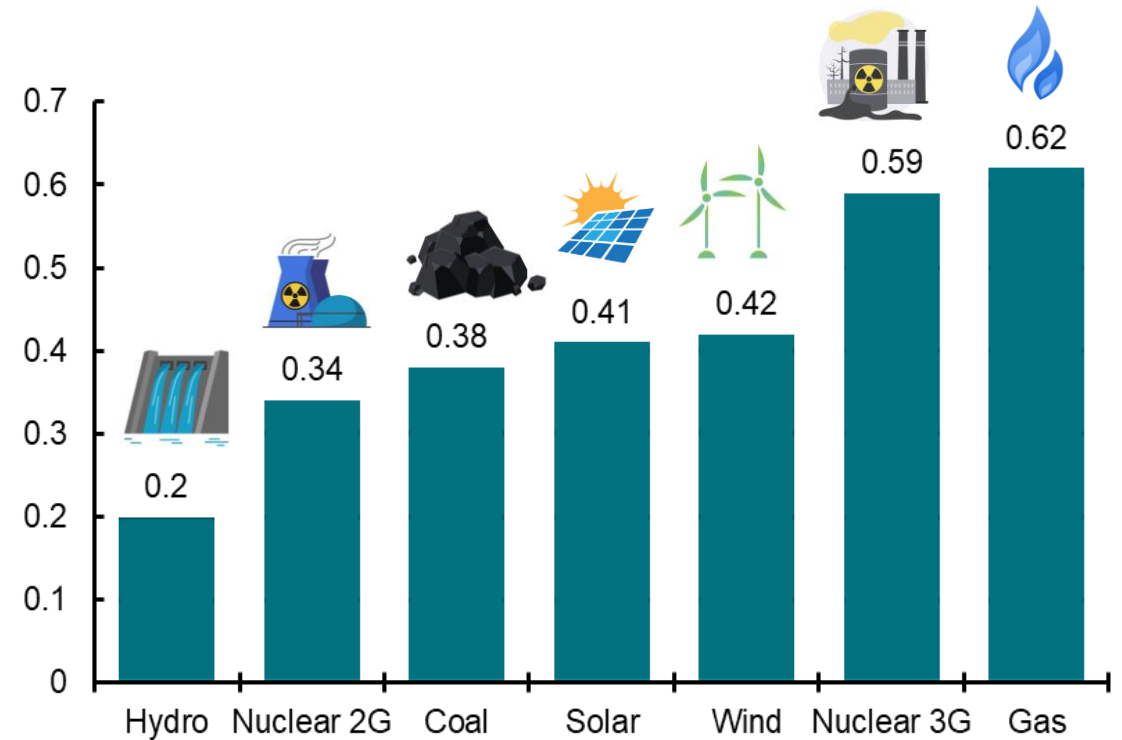
3 Costs of alternative energy have fallen

Weighted average of levelized cost of energy (LCOE)
(2019 USD/kWh)



Source: DB Research, October 2021.

Cost by sector
(RMB/kWh)

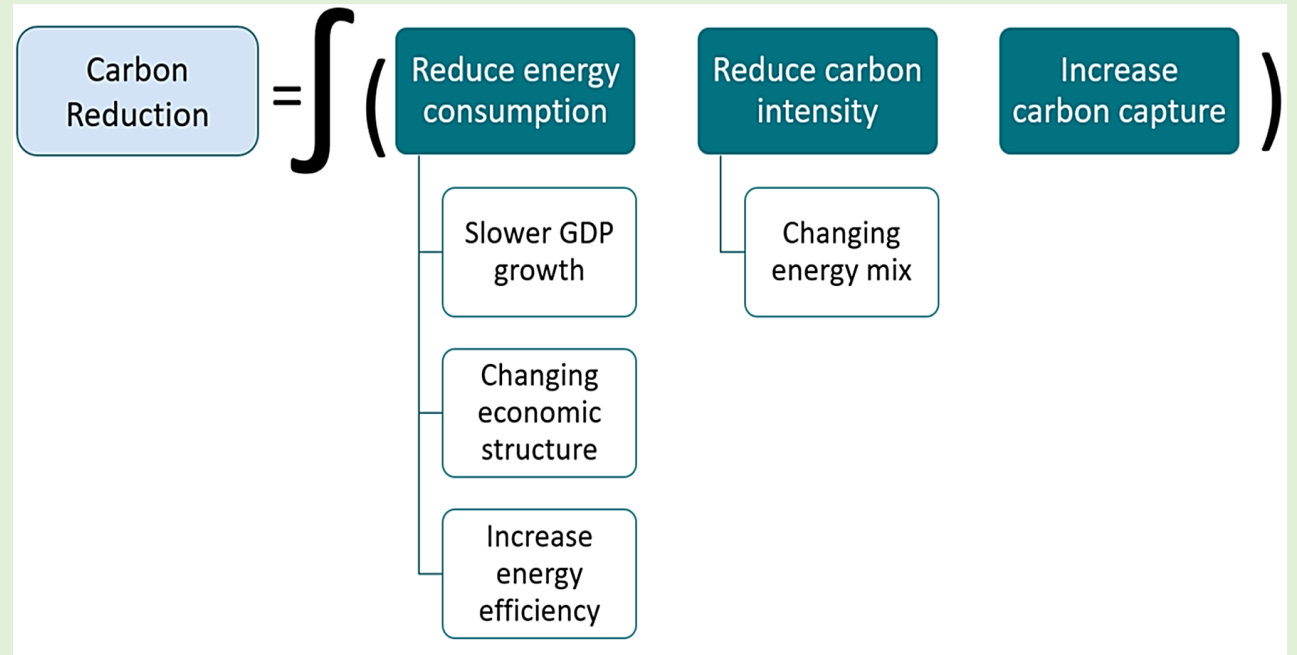
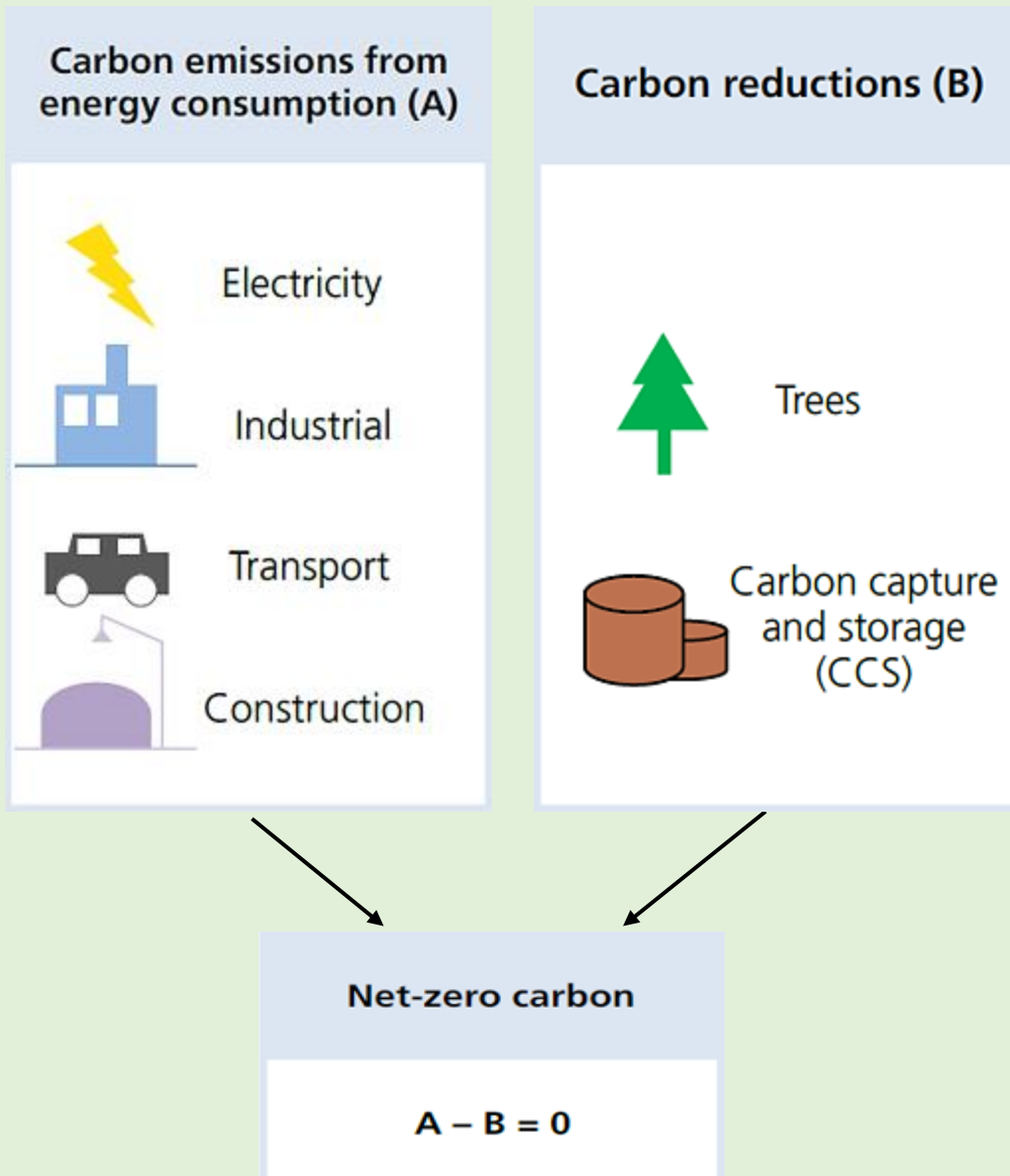


WHY ACT NOW?

4 Geopolitics -- an important consideration



Breaking down the task of decarbonization

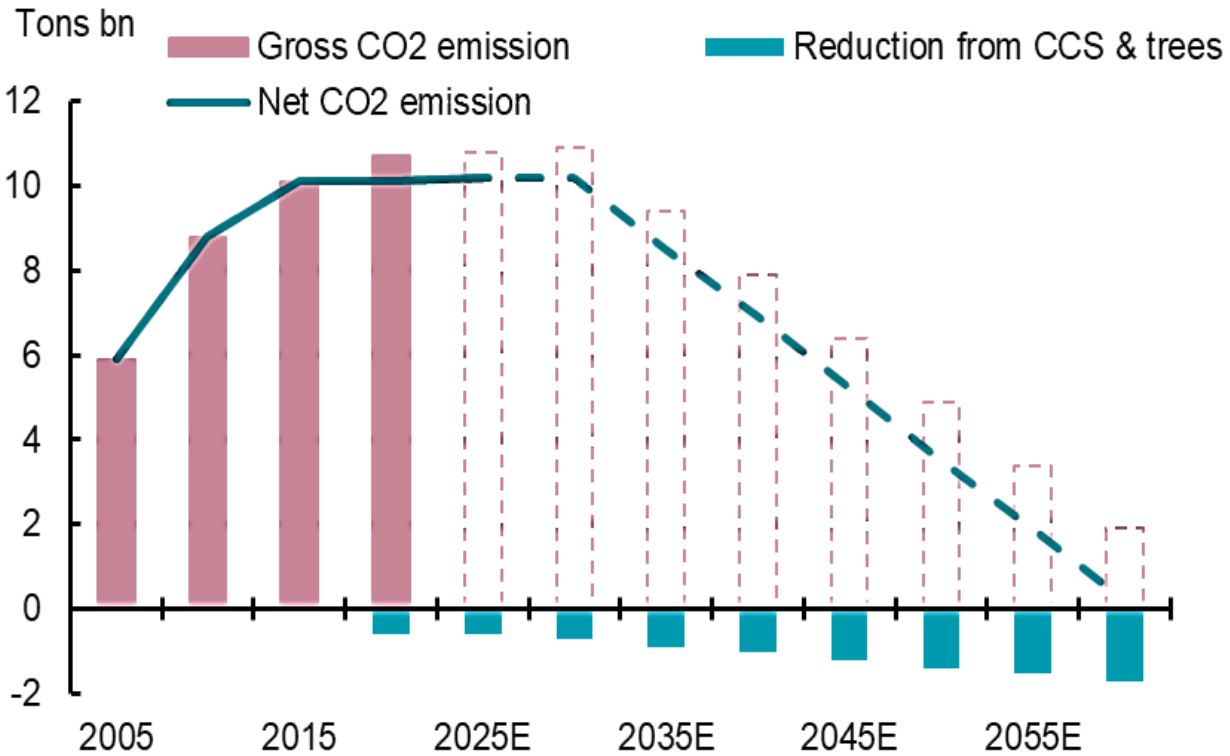


Source: UBS, AXA IM, October 2021.

Two-step approach to achieve the fastest decarbonization from peak

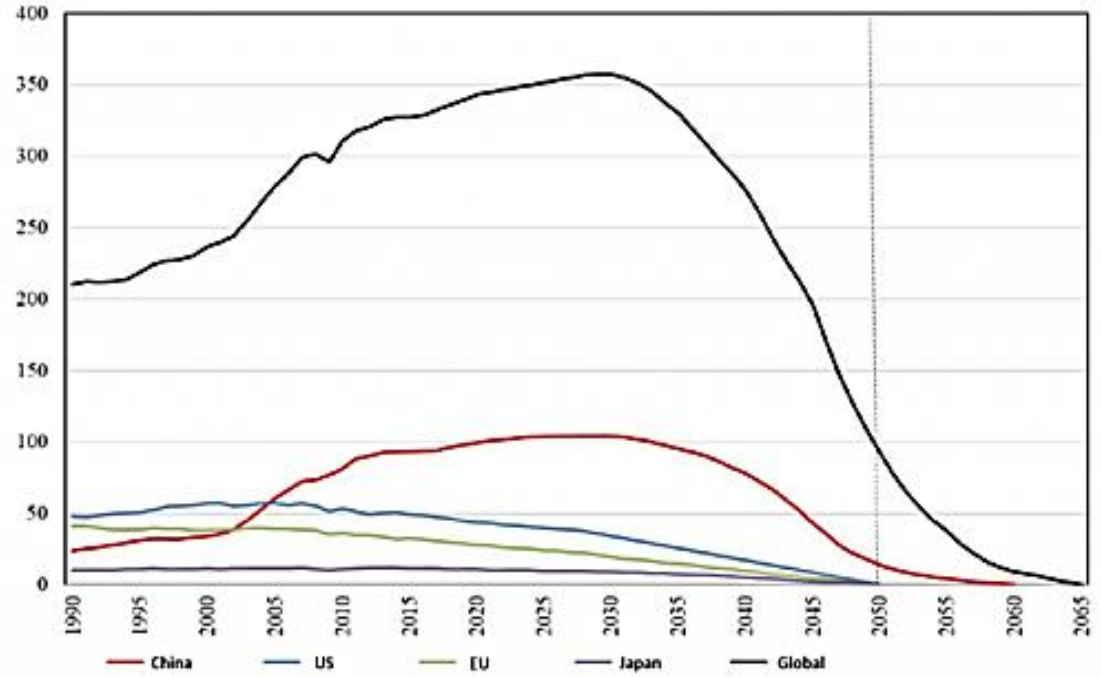


Carbon emissions



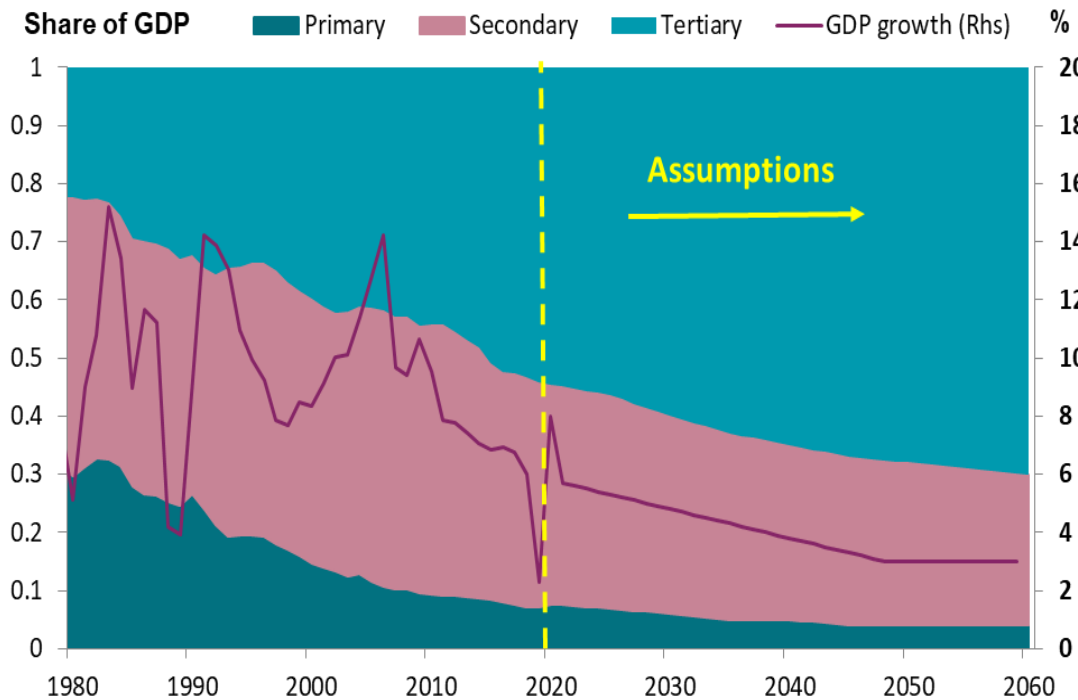
Source: UBS, Tsinghua University, October 2021.

Global and major countries net greenhouse gas emissions (tCO₂e)



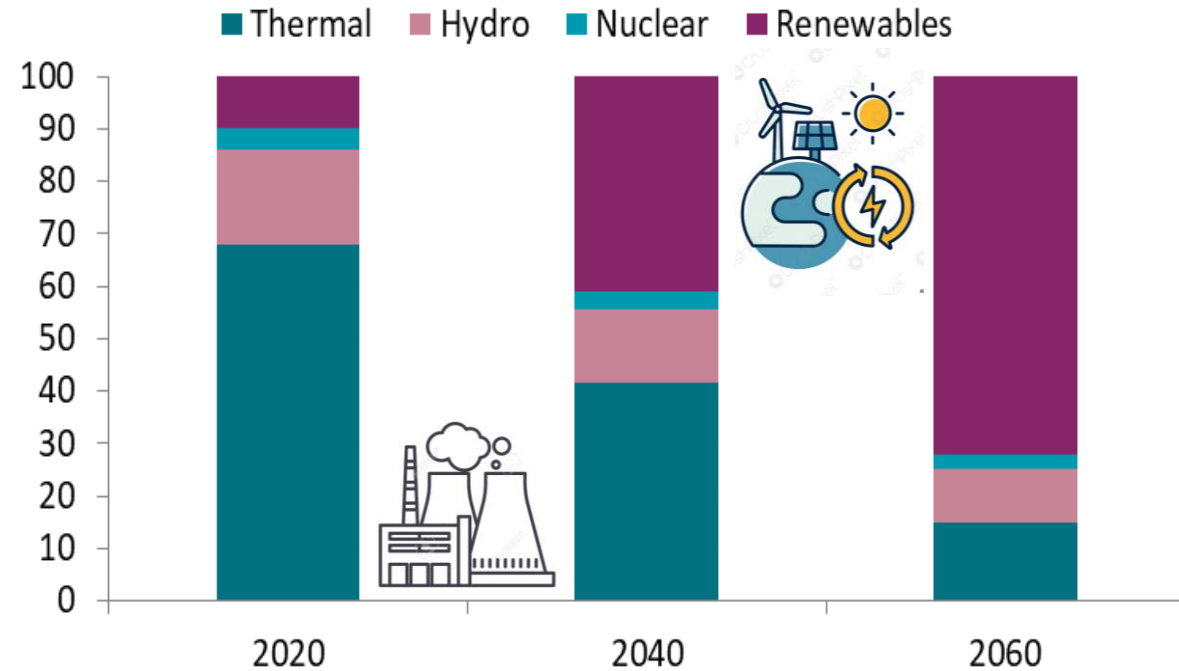
Reaching “net zero” will require fundamental changes in macro system

Growth and share of GDP



Energy mix: 2020, 2040 and 2060 (% of total energy used)

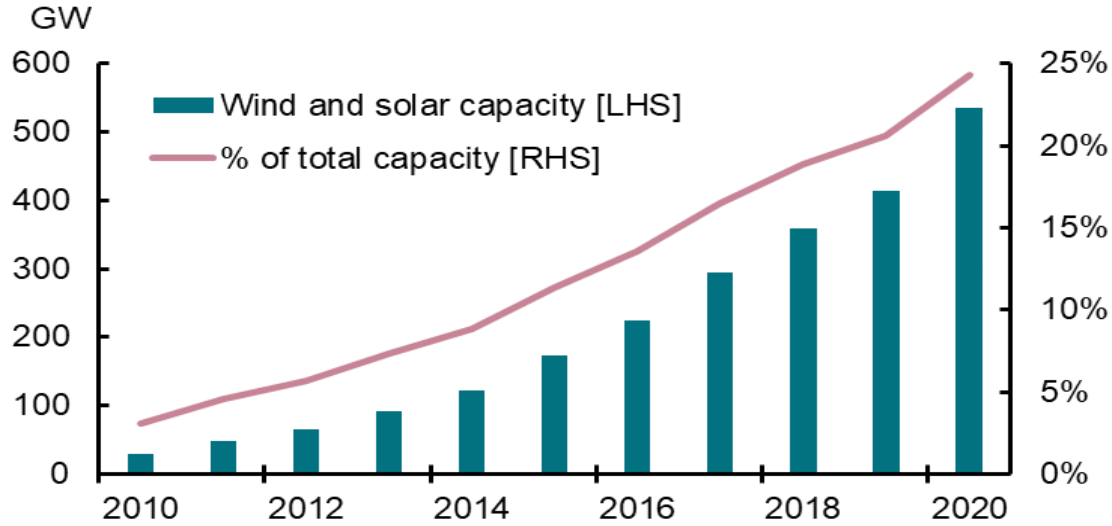
Energy mix: 2020, 2040 and 2060 (% of total energy used)



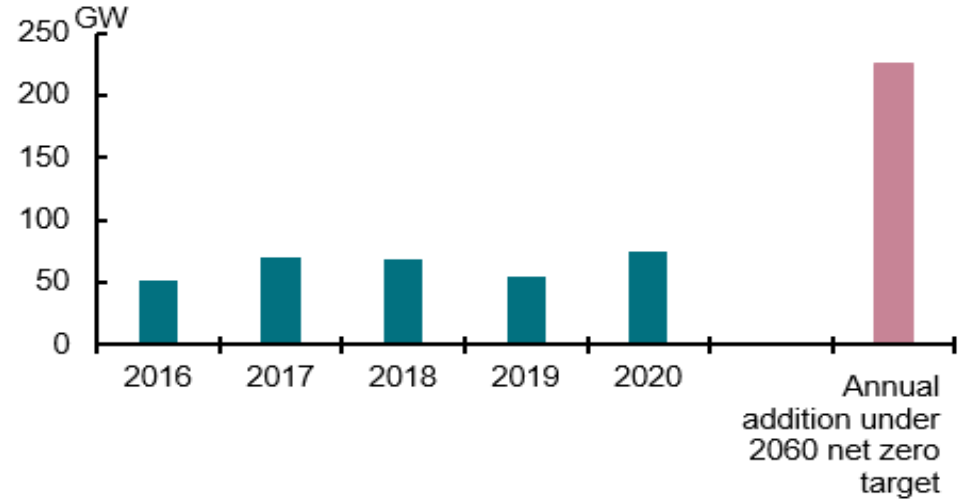
Source: CEIC, UBS, October 2021.

Green transition will create many winners

China's renewable capacity since 2010



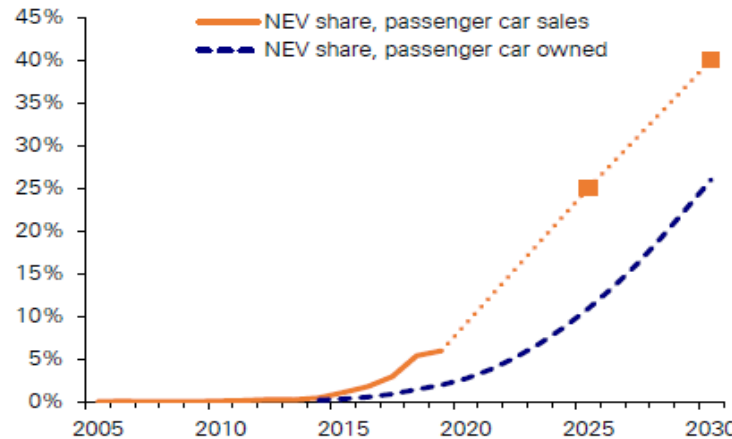
Required installations of wind and solar to reach net-zero target vs 2016-20E



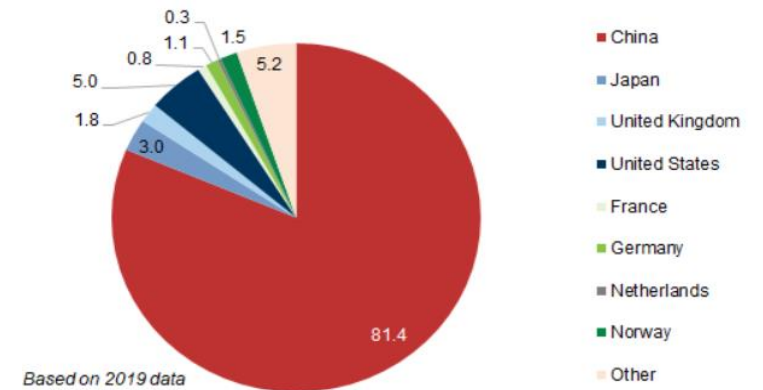
xEV new car sales 2012-19



NEV car sales projection



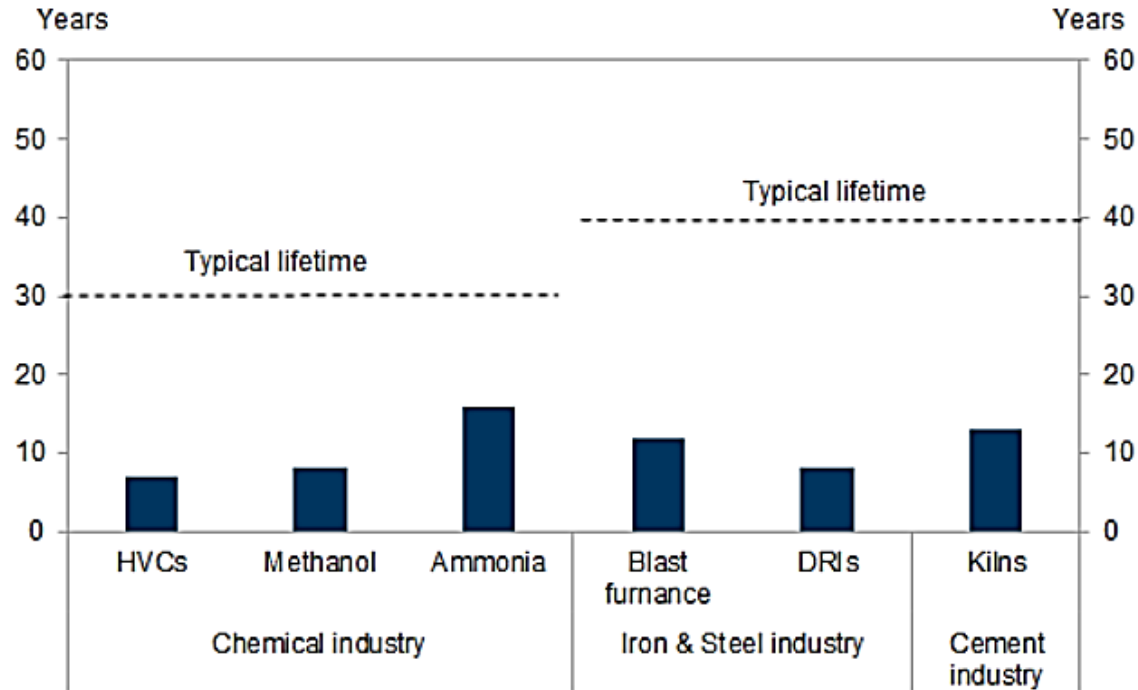
Share of world's publicly accessible fast chargers (%)



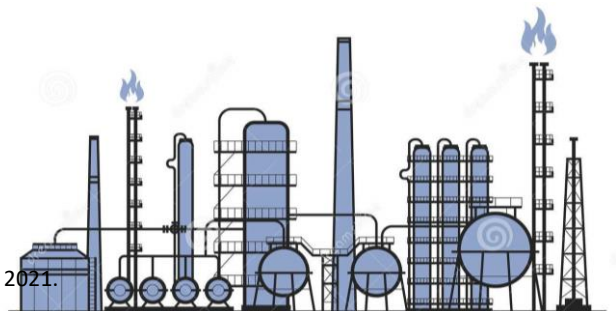
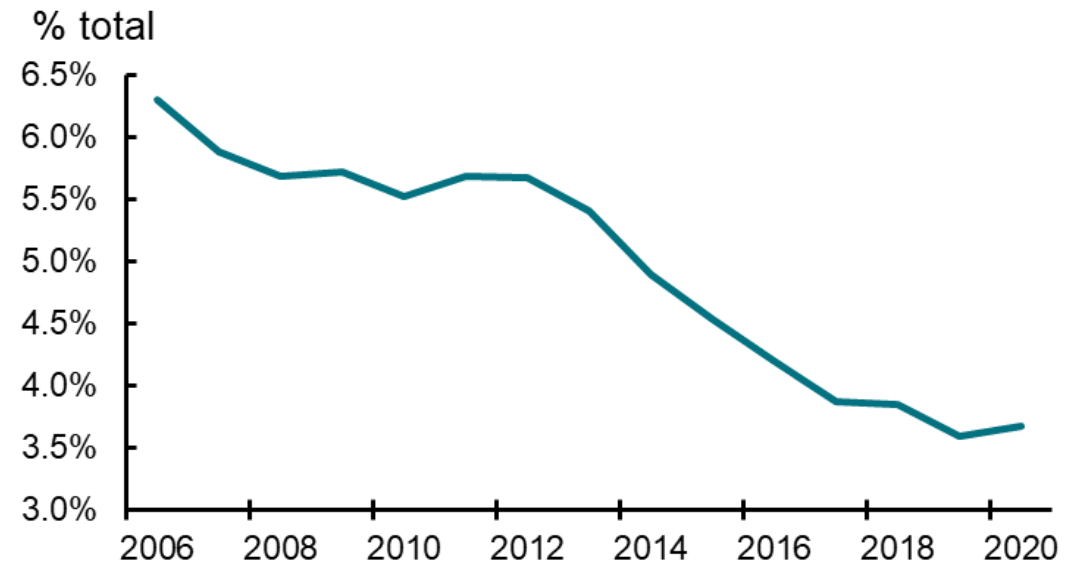
Source: UBS, DB, EV volumes, Electrek October 2021.

Risk for “old industries” is more sectoral than systematic

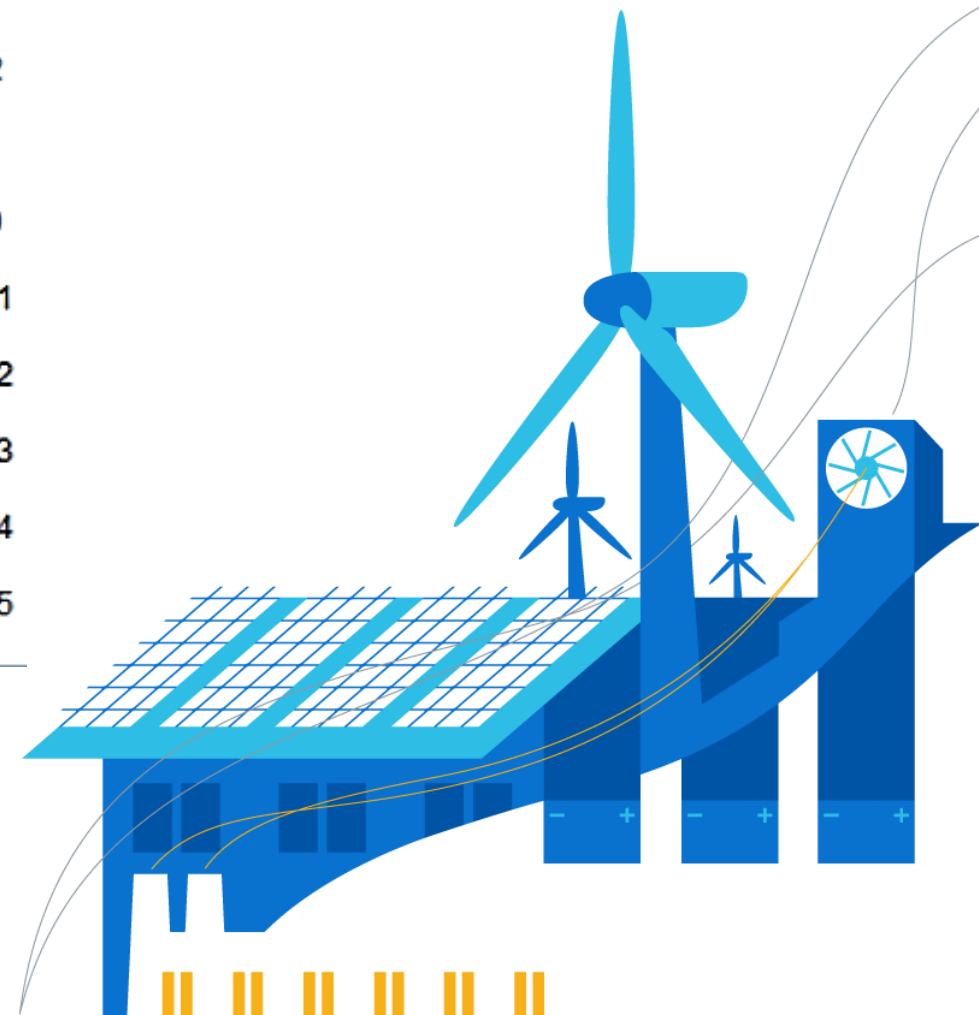
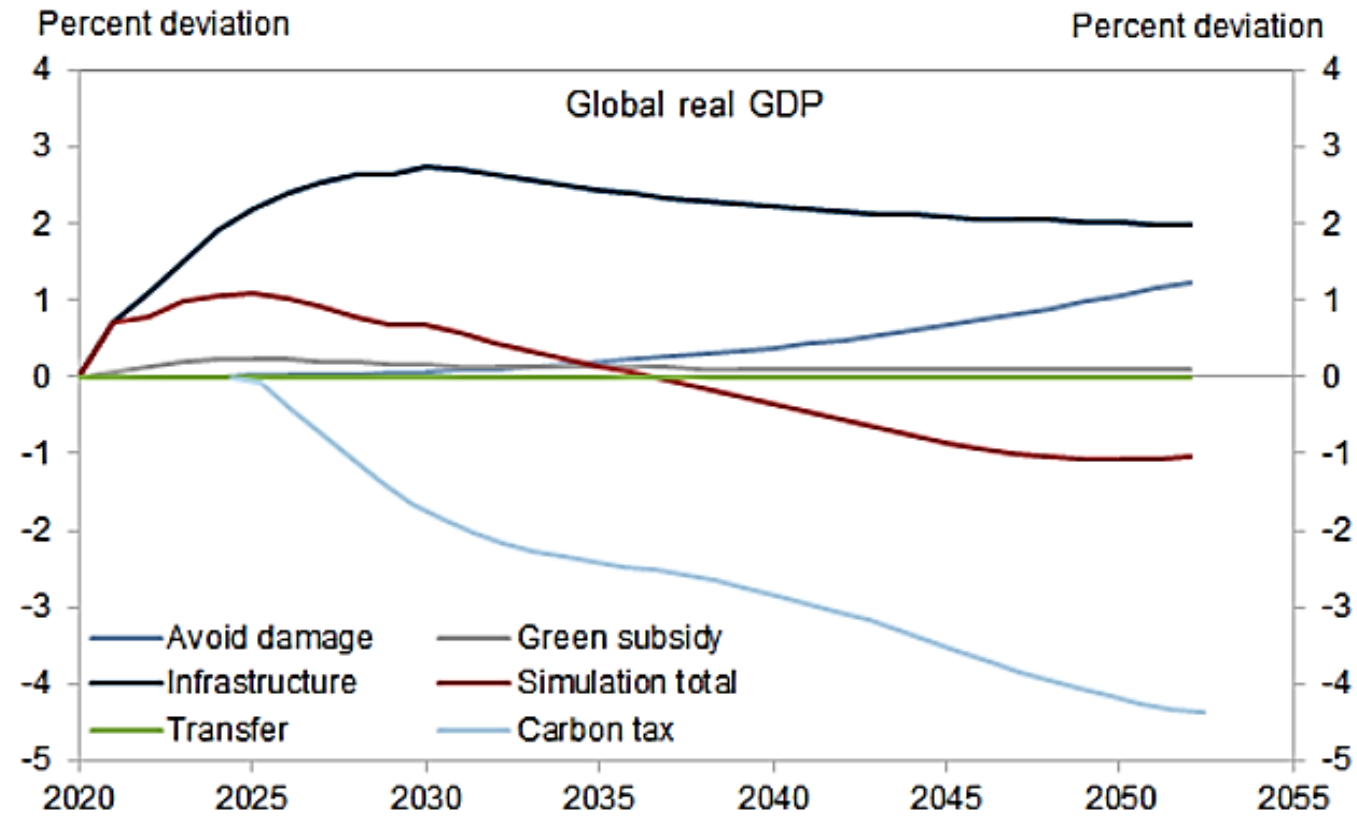
Average age of assets in China



Coal and mining sector employment



Gains and losses of decarbonization

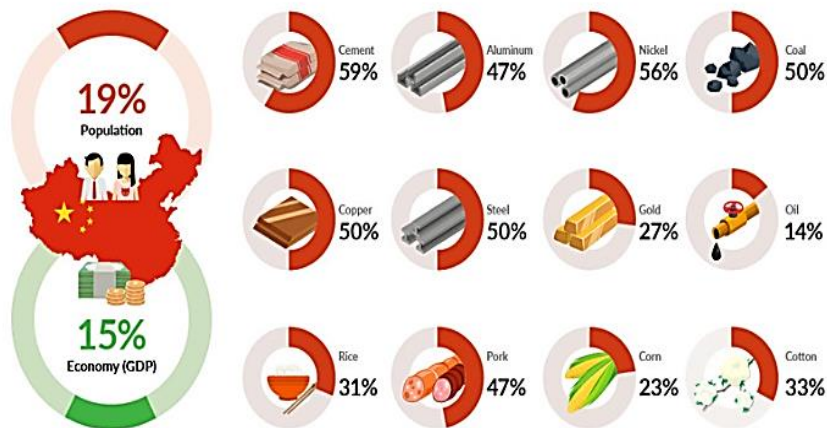


Source: IMF, October 2021.

China's energy transition has global ramifications

Energy transition to reduce demand for traditional energy

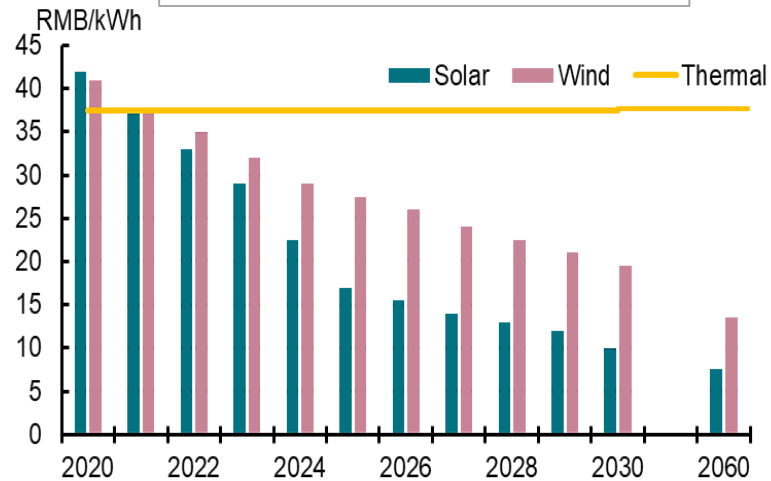
- Lower demand leads to lower prices
- Changing global balance of payments
- Implications for financial markets



Turning energy from natural resources to manufacturing goods

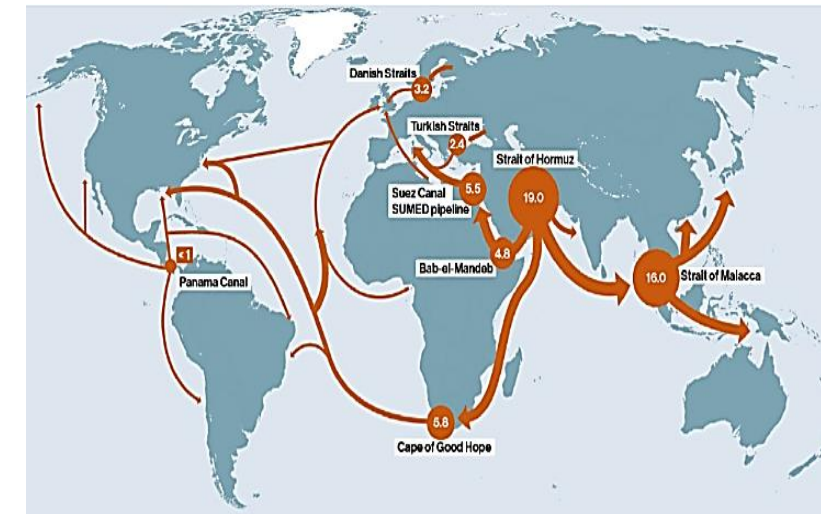
- Lower costs of renewable energy
- China from energy importer to exporter
- Making tradition easier for others

Cost estimation for electricity generation from renewables



Geopolitical and financial market implications are far reaching

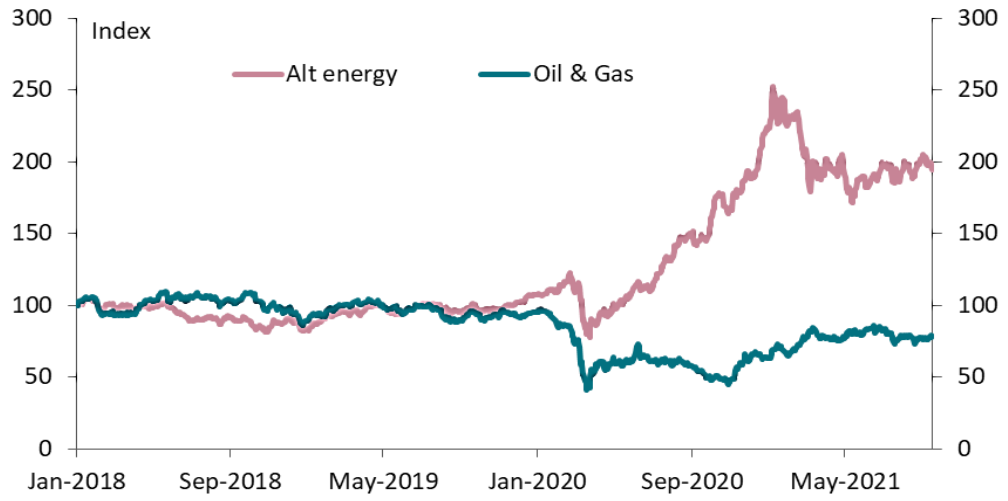
- South China Sea as an energy trade route
- Stability in the middle east and south America
- Dominance of USD under "Petrol-Dollar"



Source: Visualcapitalist, UBS, CSIS, October 2021.

Markets are seizing the enormous opportunities

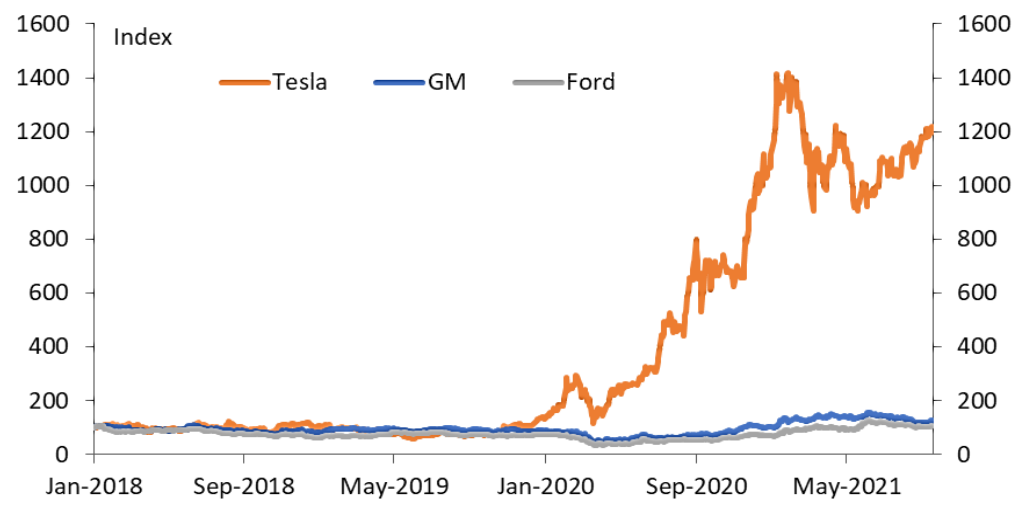
MSCI oil & gas and alternative energy indexes (total return)



Green, social, and sustainability bond Issuance doubled in 2020 (Climate bonds)



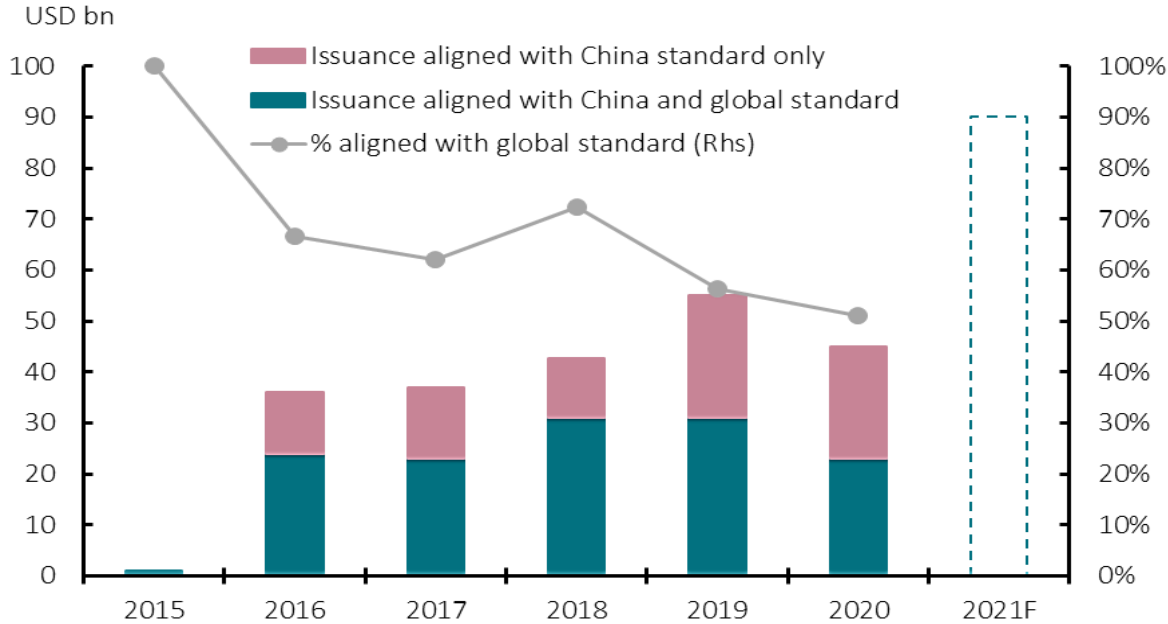
Stock performance of GM, Ford and Tesla



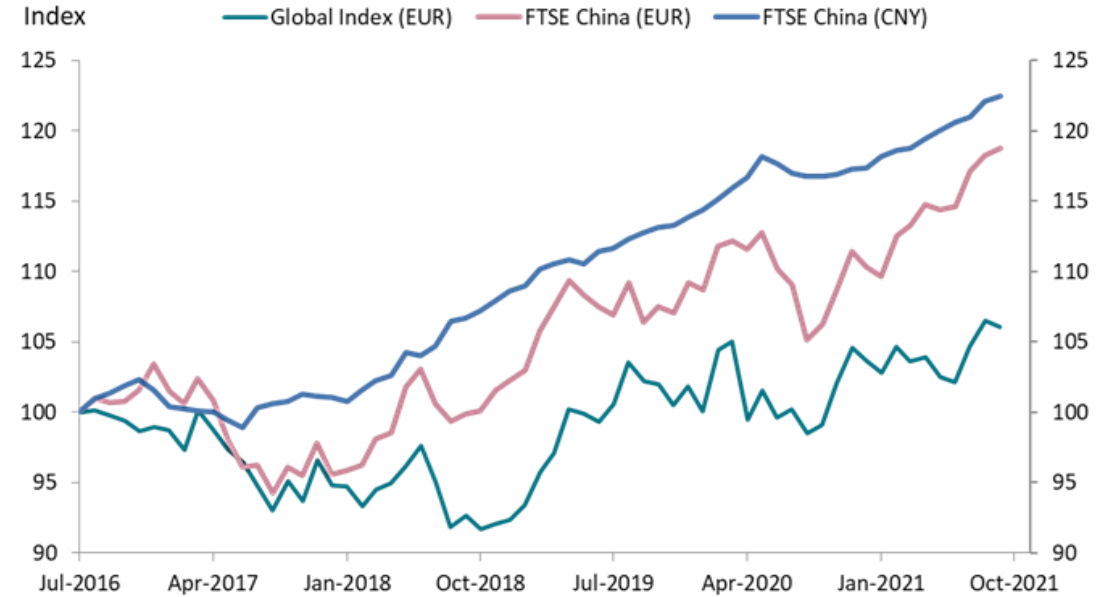
Source: Bloomberg, CBI, October 2021.

Burgeoning Chinese green bond market offers opportunities

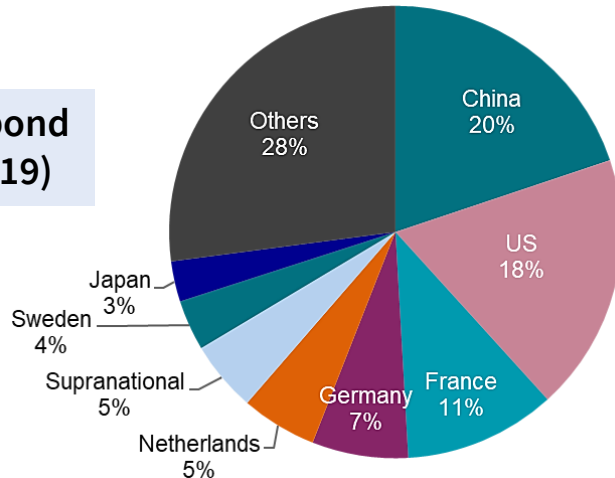
China green bond issuance aligned with local and global standards



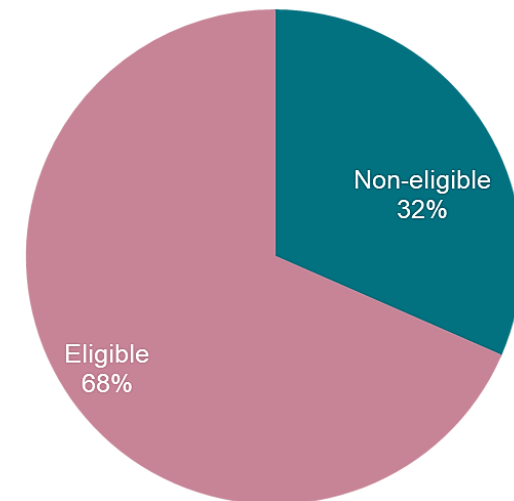
Performance of China green bonds vs. global green bonds



Top green bond issuers (2019)



Percentage of analyzed onshore green bonds



Summary:

- ❑ China is a critical player in the fight against climate change
- ❑ There are social, economic, security and strategic reasons for China to join the fight
- ❑ A two-pronged strategy to net zero will illicit profound changes in China's macro system
- ❑ Decarbonization will create winners and losers; differentiated policies needed to contain risks
- ❑ China's green transformation will have profound and lasting global ramifications



By 2025
Lower carbon intensity



By 2030
Peak carbon



By 2060
Carbon neutrality



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