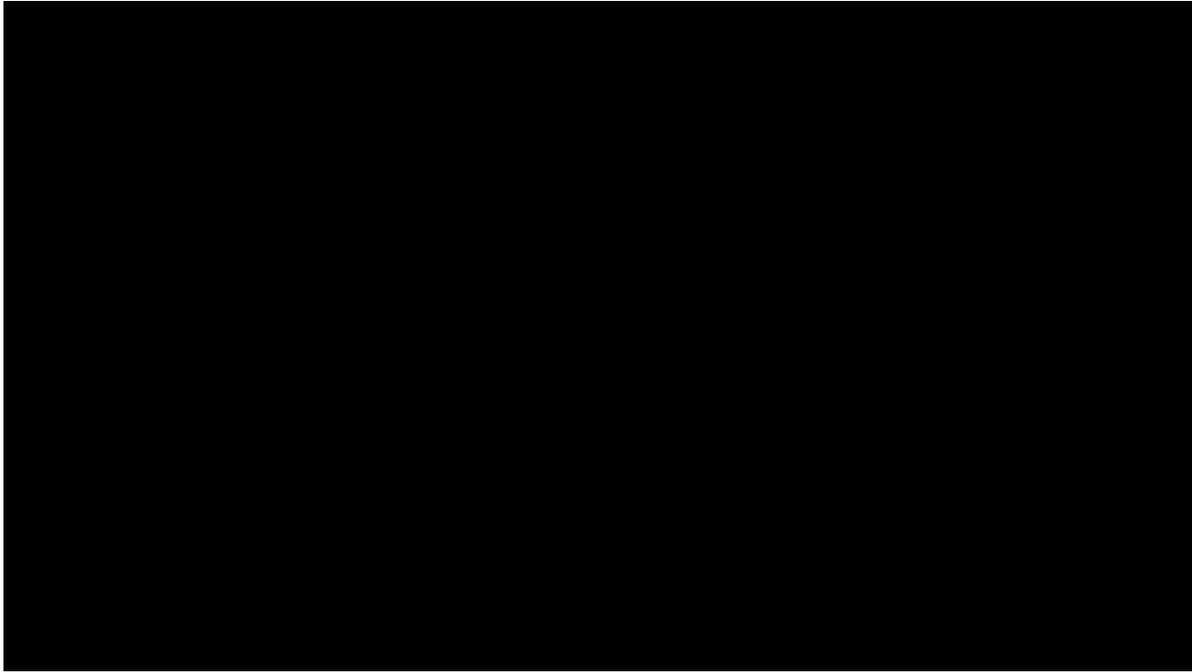




China's plans for a carbon neutral 2060

By Floriske Deutman-Bodisco Massink | DSBP

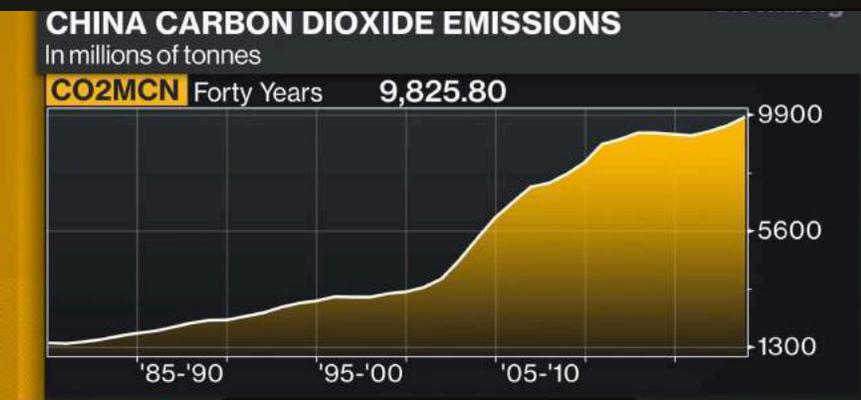
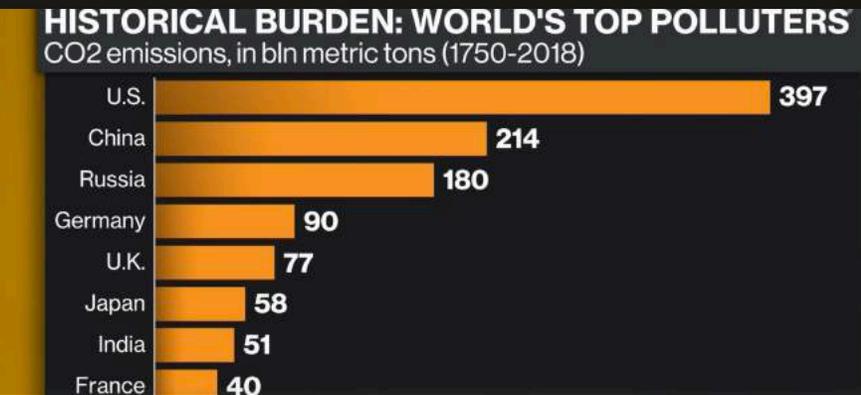
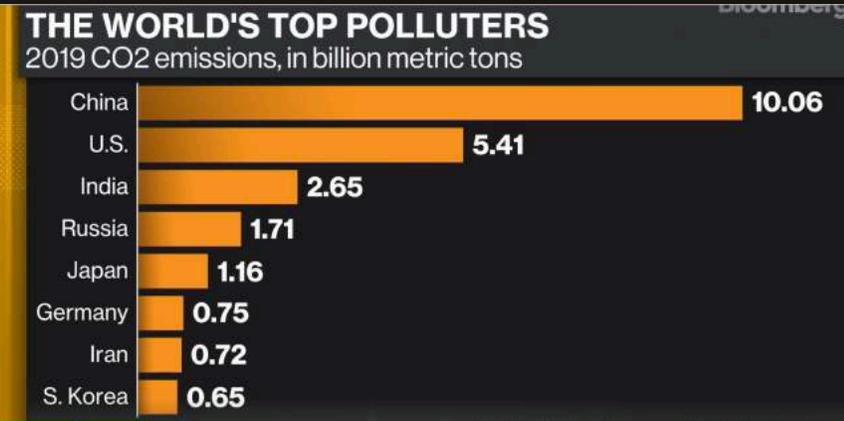


Anouncement Xi Jinping at UNGA on Sept. 22

- ▶ CO₂ emissions peak before 2030
- ▶ CO₂ neutrality before 2060

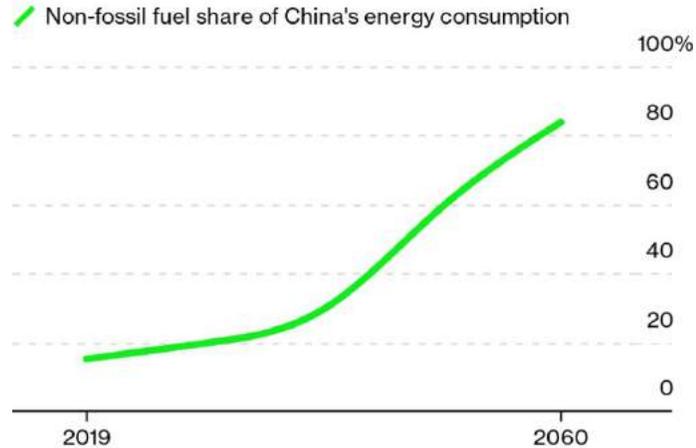
Polluter China

- ▶ China has quickly become the biggest polluter and CO₂ emitter in the world
- ▶ China emitted more than 10 billion metric tons of CO₂ in 2019, almost twice as much as the US
- ▶ In historical terms, the US still has emitted most CO₂ in total, followed by China and Russia
- ▶ China's carbon emission has grown 10-fold in 40 years

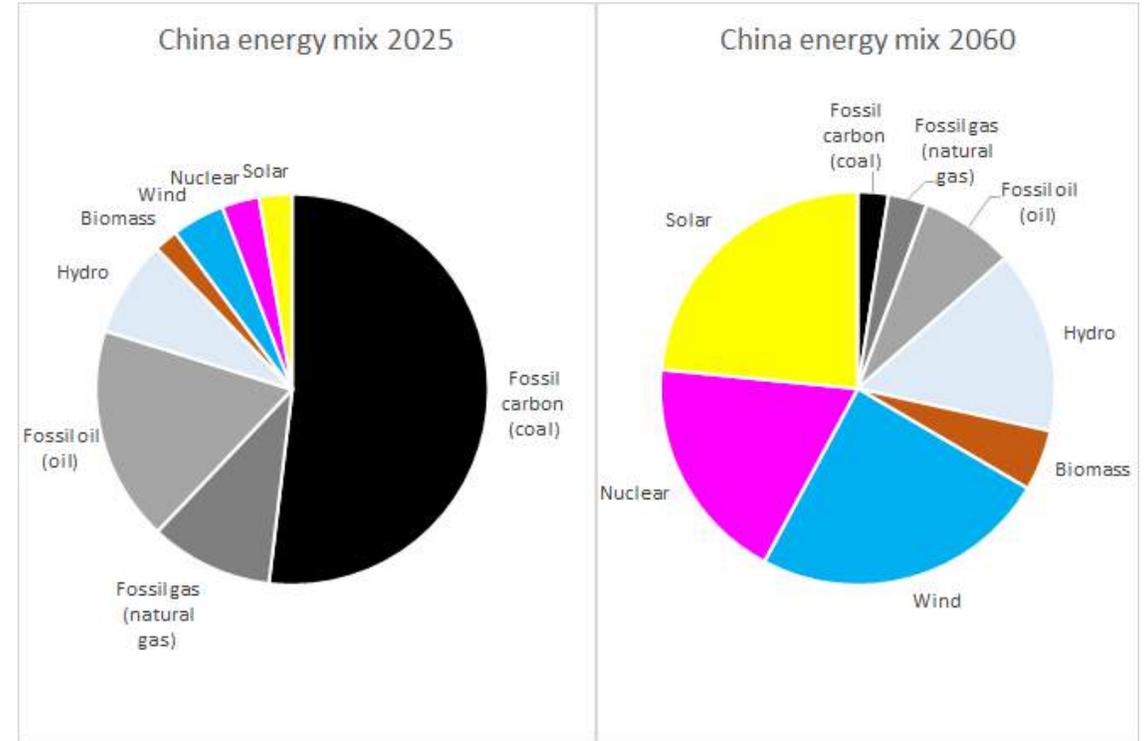


Rising Renewables

China is seen boosting non-fossil fuel energy sources to help meet climate targets



Source: Tsinghua University's Institute of Energy, Environment and Economy
Bloomberg Green



China's Future Energy Mix

- ▶ Tsinghua University's Institute of Energy, Environment and Economy laid out a plan on Sept 27th with a more gradual transition over the next decade and a half, with a rapid acceleration after 2035.
- ▶ Investments needed to meet the 2060 target could total 100 trillion yuan (\$15 trillion) over the next 30 years.

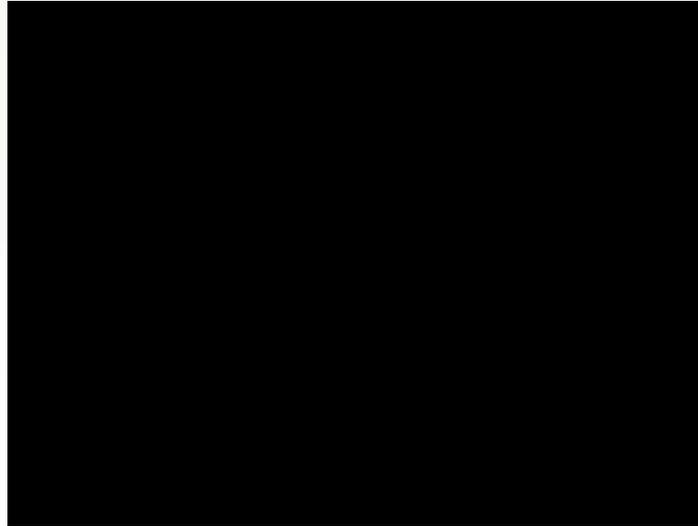
Roadmap to 2060

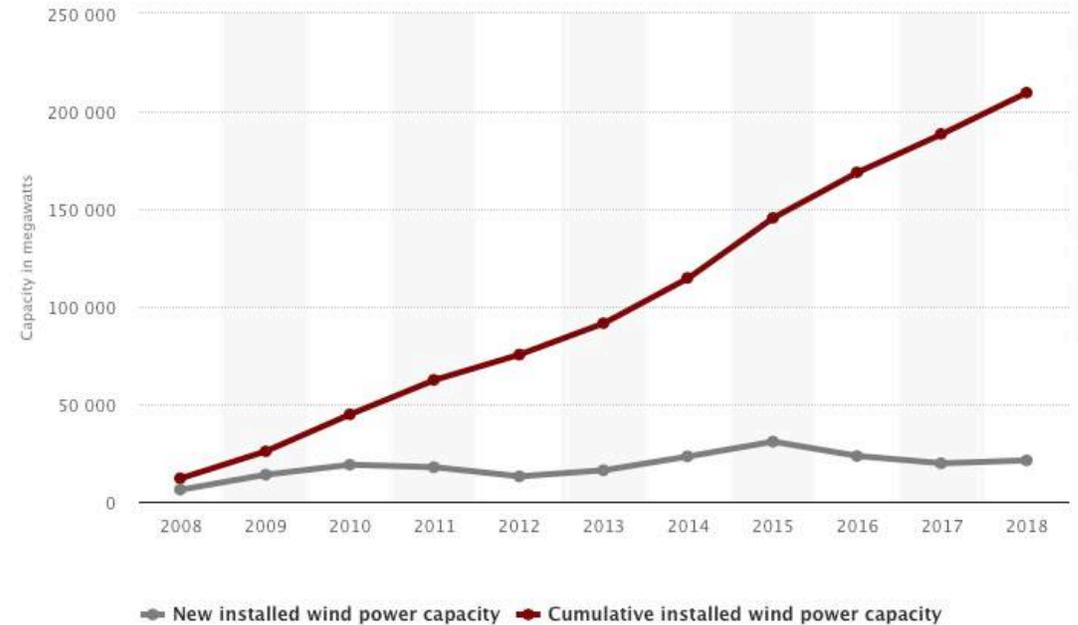
- ▶ China's carbon emissions are projected to rise from about 9.6 billion tons a year to 10.2 billion between 2025 and 2030.
- ▶ Emissions will fall to about 9 billion tons in 2035, and then will decline dramatically to 3 billion per year by 2050, 900 million by 2055.
- ▶ Energy demand will peak around 2035 at somewhere between 6 billion and 6.5 billion tons of coal equivalent.
- ▶ Coal-fired power will be phased out around 2050.
- ▶ The share of non-fossil fuels in total energy demand will grow from about 15% last year to 20% by 2025, 24% in 2030, 62% in 2050, and 84% in 2060.
- ▶ Power generation would nearly double between 2025 and 2060, with electricity making up 80% of total energy consumption by 2060. Wind, solar and nuclear power will have to be boosted to offset the decline of dirty power as total electricity demand keeps increasing.
- ▶ China will have to apply carbon capture and storage or bio-CCS to mitigate the remaining CO₂.

Energy source	2025	2060	Percent change
Coal	2.86 billion tons of coal equivalent	110 million	-96%
Natural gas	560 million	140 million	-75%
Oil	980 million	340 million	-65%
Hydro	440 million	660 million	+50%
Biomass	110 million	220 million	+100%
Wind	240 million	1.07 billion	+346%
Nuclear	170 million	820 million	+382%
Solar	150 million	1.03 billion	+587%

Solar power in China

- Within 25 years, China became leading in the world by a margin of more than 100%.
- China's photovoltaic panel installations will hit a cumulative total of 370 GWdc by 2024.
- China has been the world's largest manufacturer of solar panels since 2008 and, since 2011, has produced the majority of global photovoltaics on an annualized basis
- The industry is dominated by several major manufacturers: CHINT Group Corporation, JA Solar Holdings, Jinniu Energy, Suntech Power, Yingli, China Sunergy and Hanwha SolarOne





Wind Power in China

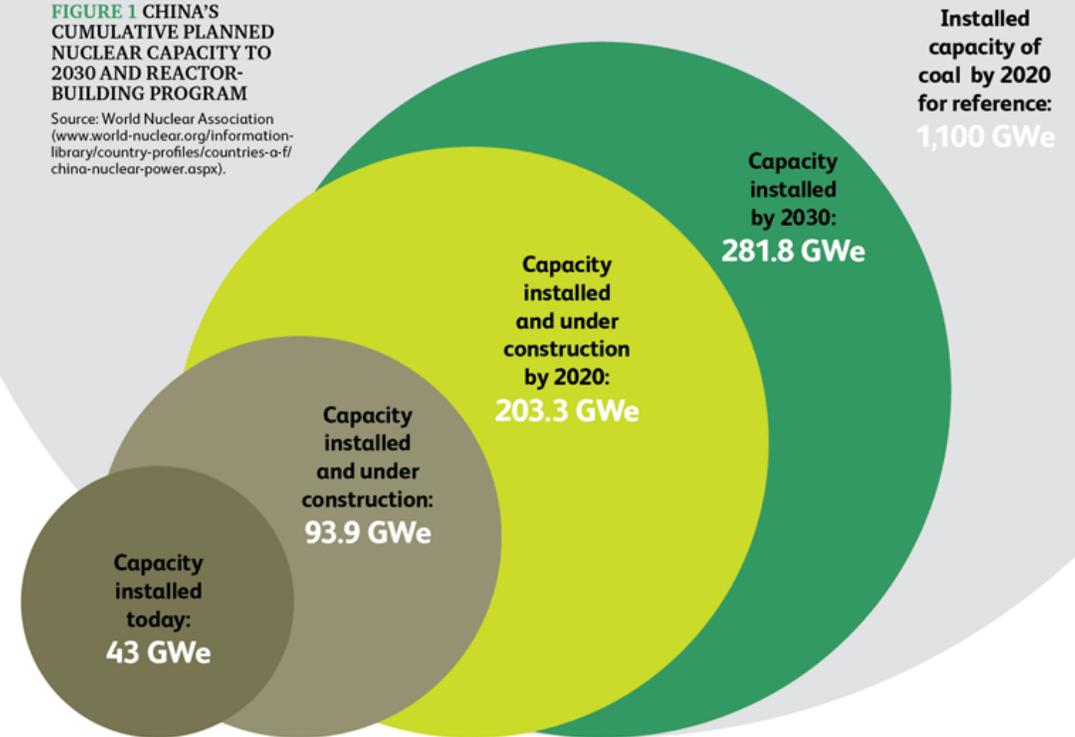
- ▶ China is the world leader in wind power generation, with the largest installed capacity of any nation and continued rapid growth in new wind facilities
- ▶ A record 2.4GW of offshore wind power capacity came onstream in Chinese waters last year, followed by the UK and Germany.

Nuclear Power in China

- ▶ Nuclear is set to expand from 43GW in 2018 to 281.8 GW by 2030 in China
- ▶ China has become the world's third-largest nuclear-power country
- ▶ By 2030, China will have 42 coastal reactors operational and 18 inland
- ▶ China National Nuclear Corporation and the China General Nuclear Power Group
- ▶ Many new developments and innovations (GEN-IV reactors, river water coolant, etc)

FIGURE 1 CHINA'S CUMULATIVE PLANNED NUCLEAR CAPACITY TO 2030 AND REACTOR-BUILDING PROGRAM

Source: World Nuclear Association (www.world-nuclear.org/information-library/country-profiles/countries-a-f/china-nuclear-power.aspx).

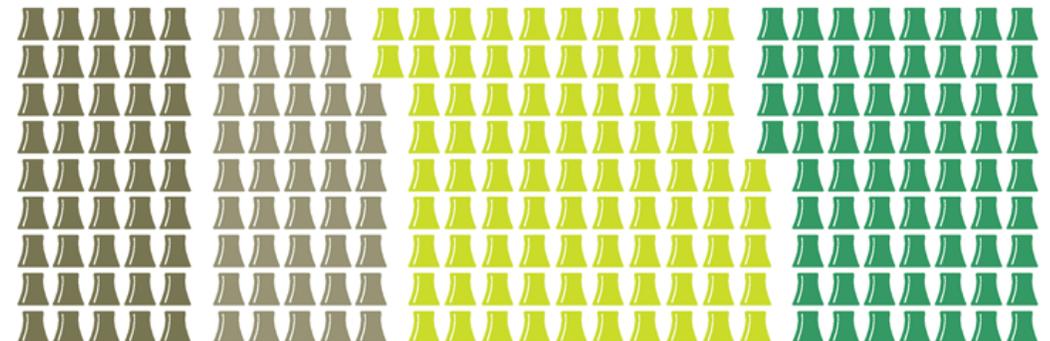


Reactors in operation today: 45

Reactors being built today: 43

New reactors to be under construction by 2020: 52

New reactors to be completed by 2030: 67



Conclusions

- Will China be the game changer it now pledges to be?
- Will China formalize the targets in its upcoming five-year plan?

