BRIEFING

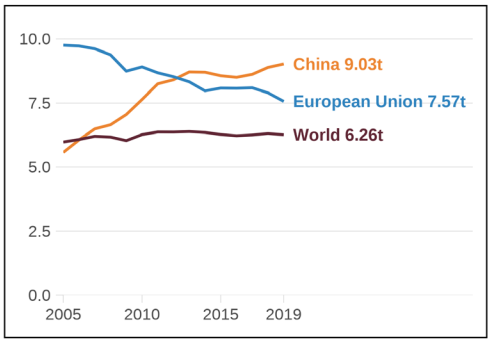
International progress on climate action

European Parliament

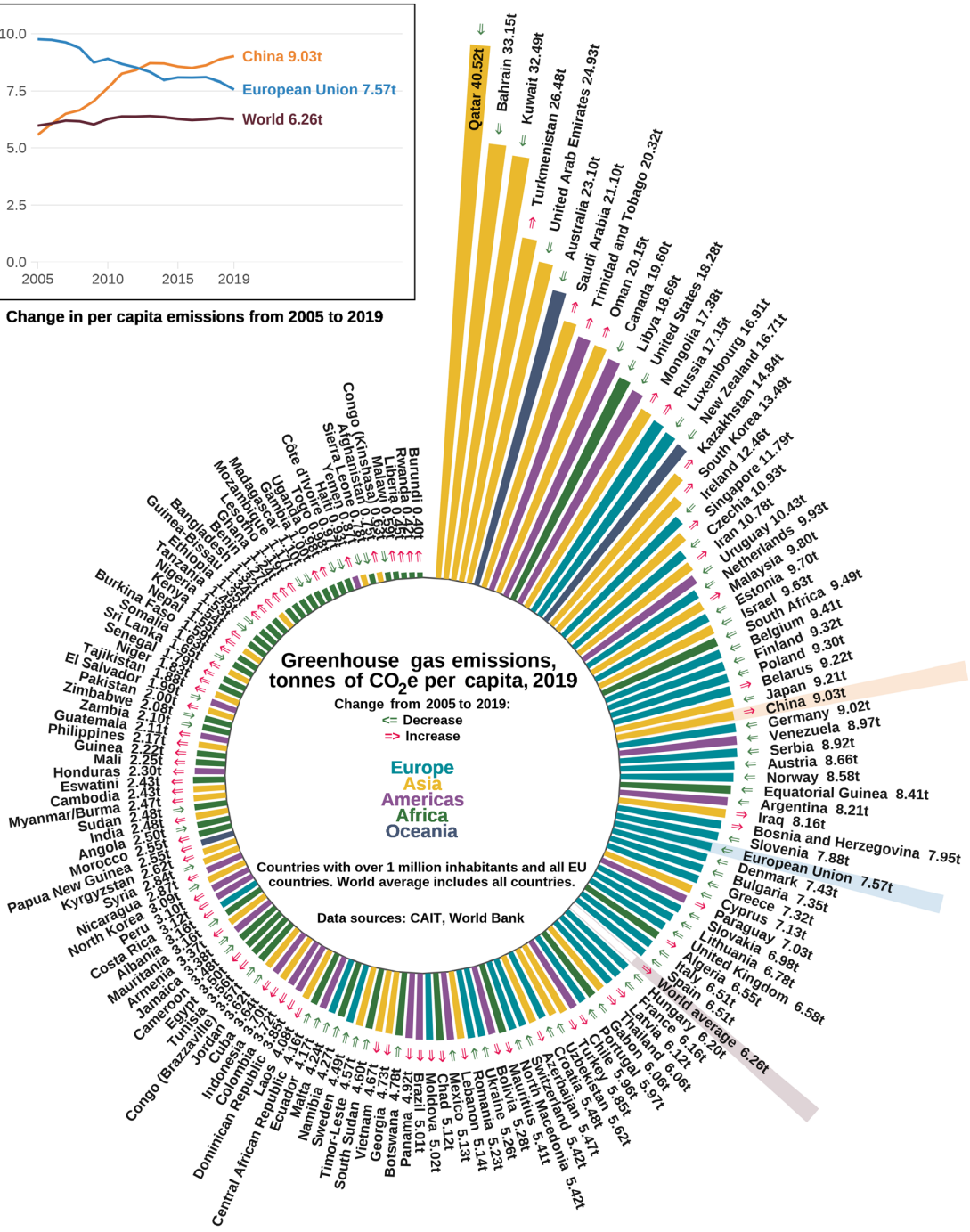
China's climate change policies

State of play ahead of COP27

China was responsible for more than a quarter of global greenhouse gas emissions in 2019. China's per-capita emissions of 9 tonnes CO_2 equivalent in 2019 were well above EU levels and far above the global average.



Change in per capita emissions from 2005 to 2019



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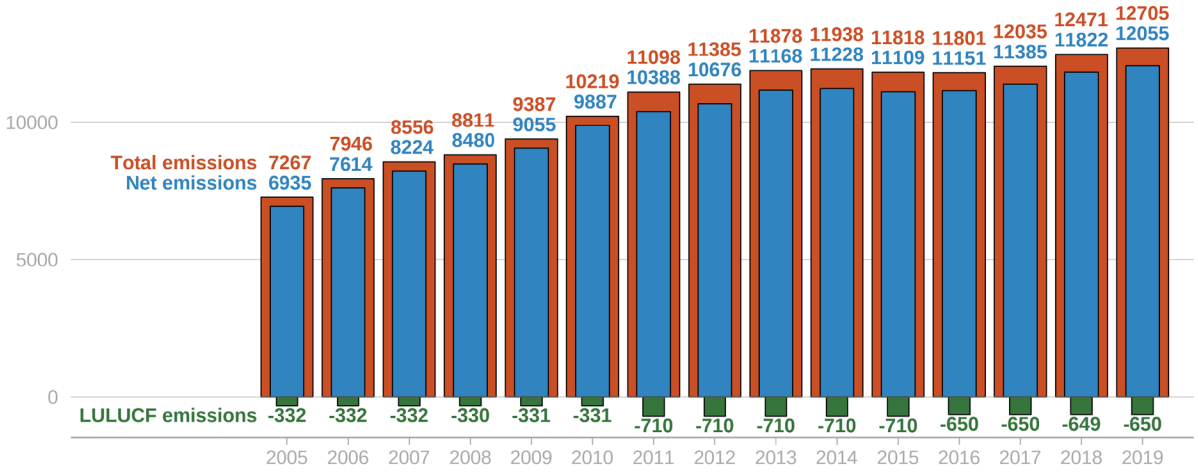
Trends in China's emissions

China is the world's largest emitter of greenhouse gases (GHG), with 12.7 billion tonnes CO_2 equivalent (CO_2e) in 2019 and a 26 % share of global GHG emissions, compared to a 7 % share for the EU-27. China's consumption-based emissions, adjusted for international trade, are around 10 % lower. Between 2005 and 2019, China's GHG emissions grew by 75 %, driven by strong economic growth and burgeoning energy demand. For comparison, the world's emissions grew by 24 % in the same period, while the EU-27 reduced its emissions by 20 %.

The land use, land-use change and forestry (LULUCF) sector in China is an important carbon sink, absorbing around 5 % of China's GHG emissions in 2019. The capacity of China's LULUCF sink almost doubled since 2005, thanks to large-scale reforestation and landscape restoration programmes.

Figure 1 – Total, LULUCF and net greenhouse gas (GHG) emissions ($MtCO_2e$), 2005-2019



Data source: Climate Watch (CAIT): Country Greenhouse Gas Emissions Data, FAOSTAT. Note: emissions data from the Climatewatch/CAIT dataset may differ from countries' official greenhouse gas inventories.

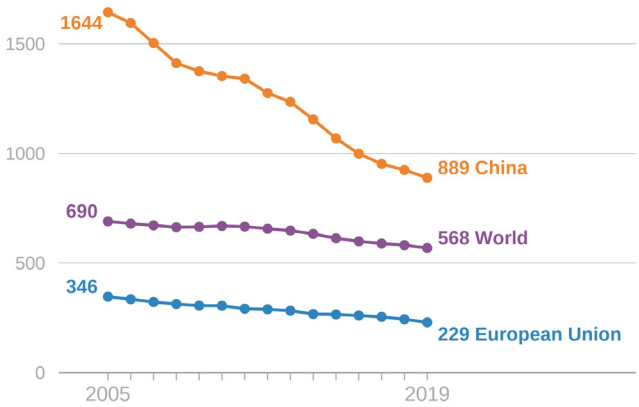
China is a party to the United Nations Framework Convention on Climate Change (UNFCCC), and has ratified the Paris Agreement. It belongs to the non-Annex I group of developing countries, which have less strict requirements and are entitled to support from the developed countries listed in Annex I of the convention. Nationally determined contributions (NDC) set out parties' targets and commitments to climate action with updates every five years.

Carbon intensity

China is one of the world's fastest-growing economies. Its economic output grew by 224 % between 2005 and 2019, outpacing the growth in GHG emissions. As a result, the carbon intensity of the Chinese economy fell by 46 %, but is still far above the world average.

China is a major industrial powerhouse and major exporter, with almost a third of gross domestic product (GDP) coming from industry and manufacturing. To incentivise exporting countries to lower their carbon intensity, the EU plans to introduce a carbon border adjustment mechanism that puts a price on the GHG emissions of imported goods.

Figure 2 – Carbon intensity of the economy: GHG emissions (gCO_2e) per unit of gross domestic product (GDP) (US$ in 2015 prices)



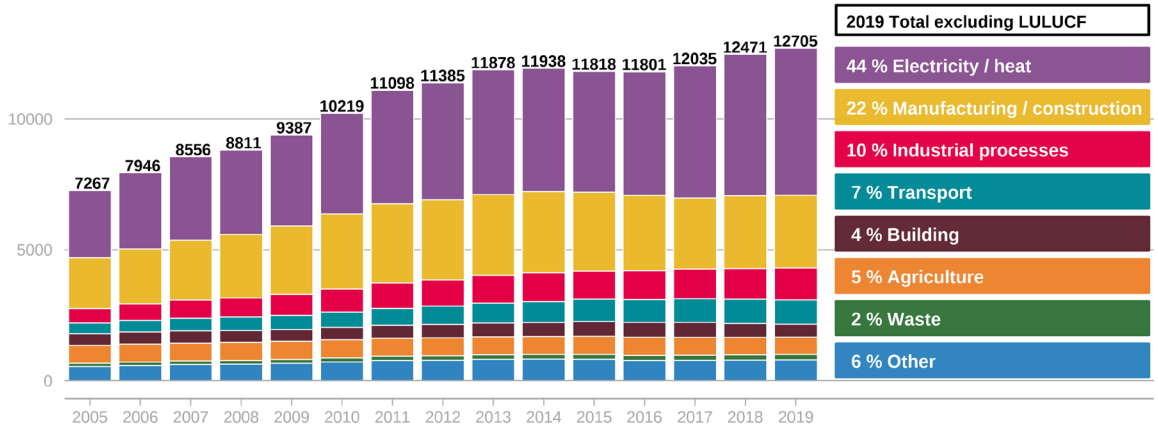
Data sources: World Bank GDP data and Climate Watch (CAIT): Country Greenhouse Gas Emissions Data.

Emissions across the economy

Energy industries continue to account for the bulk of China's GHG emissions. In 2019, emissions from electricity and heat production had a 44 % share of the total and were 119 % above 2005 levels.

GHG emissions from manufacturing and construction grew by 43 % between 2005 and 2019, while industrial process emissions experienced fast growth at 121 %. Together, these sectors account for 32 % of China's GHG emissions. The strong growth in industrial process emissions is related to China's construction boom and the associated cement production.

Figure 3 – Total GHG emissions by sector ($MtCO_2e$) (rounded data)



Data source: Climate Watch (CAIT): Country Greenhouse Gas Emissions Data.

Transport accounted for 7 % of China's GHG emissions in 2019 and was the sector with the fastest emissions growth (127 % between 2005 and 2019). Agriculture was the only sector that reduced its GHG emissions, with a 3.6 % drop between 2005 and 2019.

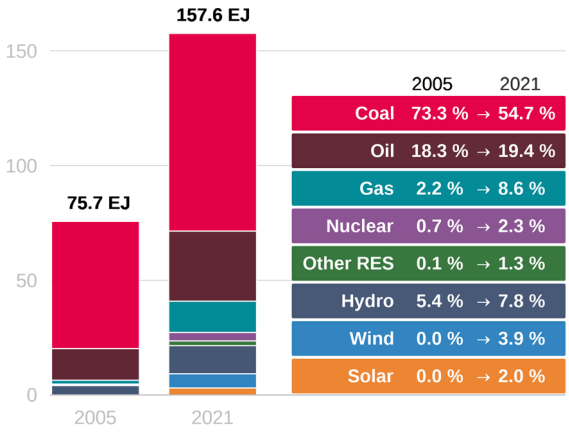
Energy transition

China's primary energy consumption more than doubled between 2005 and 2021. Coal accounted for 54.7 % of China's energy use in 2021, followed by oil with 19.4 % and gas with 8.6 %. Although the share of coal fell from 73 % to 55 %, absolute coal consumption grew by 55 % due to rising energy demand. In 2021, China opened coal power plants with a total capacity of 25.2 gigawatts (GW), more than half of the coal power capacity added globally. The share of renewable energy sources (RES) increased from 5.5 % to 15 % between 2005 and 2021, while total RES production grew by 462 %. However, the impressive growth in renewable energy was outpaced by the growth of fossil fuel consumption.

China has a strong wind power industry and dominates the global market for photovoltaic solar panels. Hydropower plays an important role in the Chinese energy system. Ahead of the COP27 climate change conference, China proposed a global clean energy partnership to support investment and integrate clean energy supply chains.

China is a net energy importer. Two thirds of China's natural gas imports consist of liquefied natural gas transported by ship from Australia, Qatar, Malaysia and other countries.

Figure 4 – Primary energy consumption by energy source (exajoules, 2005 and 2021)



Data source: BP statistical review of world energy, 2022.

China's climate policies

The Three Gorges Dam on the Yangtze River is the world's largest hydroelectric power station, with a capacity of 22.5 GW.

China officially submitted its mid-century long-term low greenhouse gas emission development strategy and an updated NDC in October 2021, ahead of COP26, pledging to reach carbon neutrality before 2060 and peaking CO_2 emissions before 2030. By 2030, China aims to decrease its carbon intensity by over 65 % from the 2005 level, and to reach over 1 200 GW installed wind and solar power. The share of non-fossil fuels in primary energy consumption should reach 25 % by 2030. China's forest stock should be 6 billion cubic metres above the 2005 level by 2030.

China's targets are supported by its action plan for carbon dioxide peaking before 2030 and working guidance for carbon dioxide peaking and carbon neutrality, as well as the 14th Five-Year Plan (FYP). China had announced that it will 'strictly control coal consumption' over the period of the 14th FYP (2021-2025) and phase down coal consumption over the period of the 15th FYP. In 2021, however, China's yearly coal production reached its highest-ever level and consumption of coal also increased by 4.6 % due to an increase in energy demand. China's energy-related CO_2 emissions in 2021 consequently rose by 5.8 % compared to 2020, according to the BP statistical review.

In his opening speech to the Chinese Communist Party's 20th National Congress on 16 October 2022, President Xi Jinping said China plans to promote its energy revolution and engage in global climate governance. China and the Group of 77 developing countries have been pushing to put the issue of loss and damage on the agenda of the upcoming COP27 climate change conference in Egypt.

Climate Action Tracker rates China's climate policy as 'highly insufficient' and recommends that China reduce emissions as early as possible and well before 2030, decrease coal and other fossil fuel consumption much faster than currently planned and set clear phase-out timelines. Climate Change Performance Index gives China a low overall rating, but with mixed ratings across categories: very low for GHG emissions and energy use, medium for renewable energy, and high for climate policy.

MAIN REFERENCES

Sandalow, D. et al., *Guide to Chinese Climate Policy 2022*, Oxford Institute of Energy Studies, 2022

Tracking Clean Energy Innovation: Focus on China, International Energy Agency, March 2022

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