

OEET Workshop

Turin, 1-2/12/2022

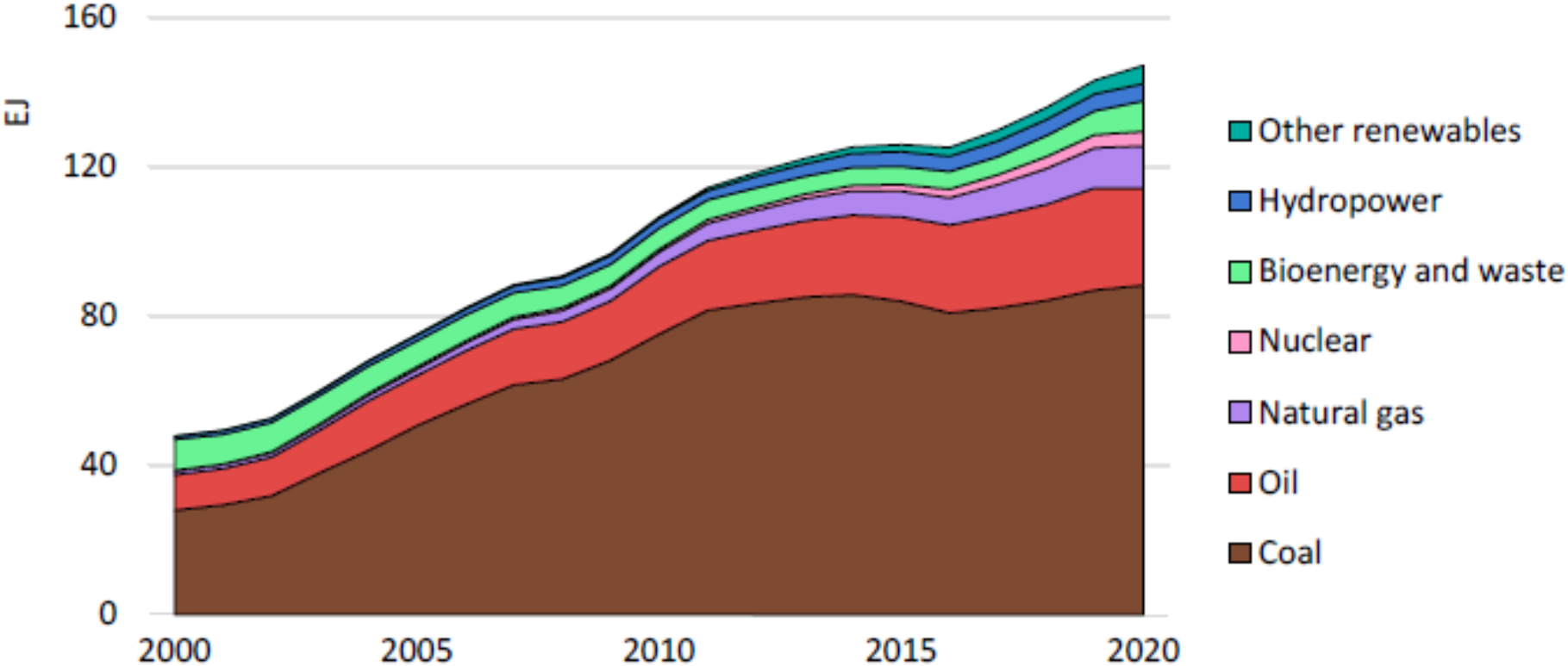
**Ignazio Musu,
Ca' Foscari University of Venice**

China in energy geopolitics.

China in energy geopolitics: fossil fuels.

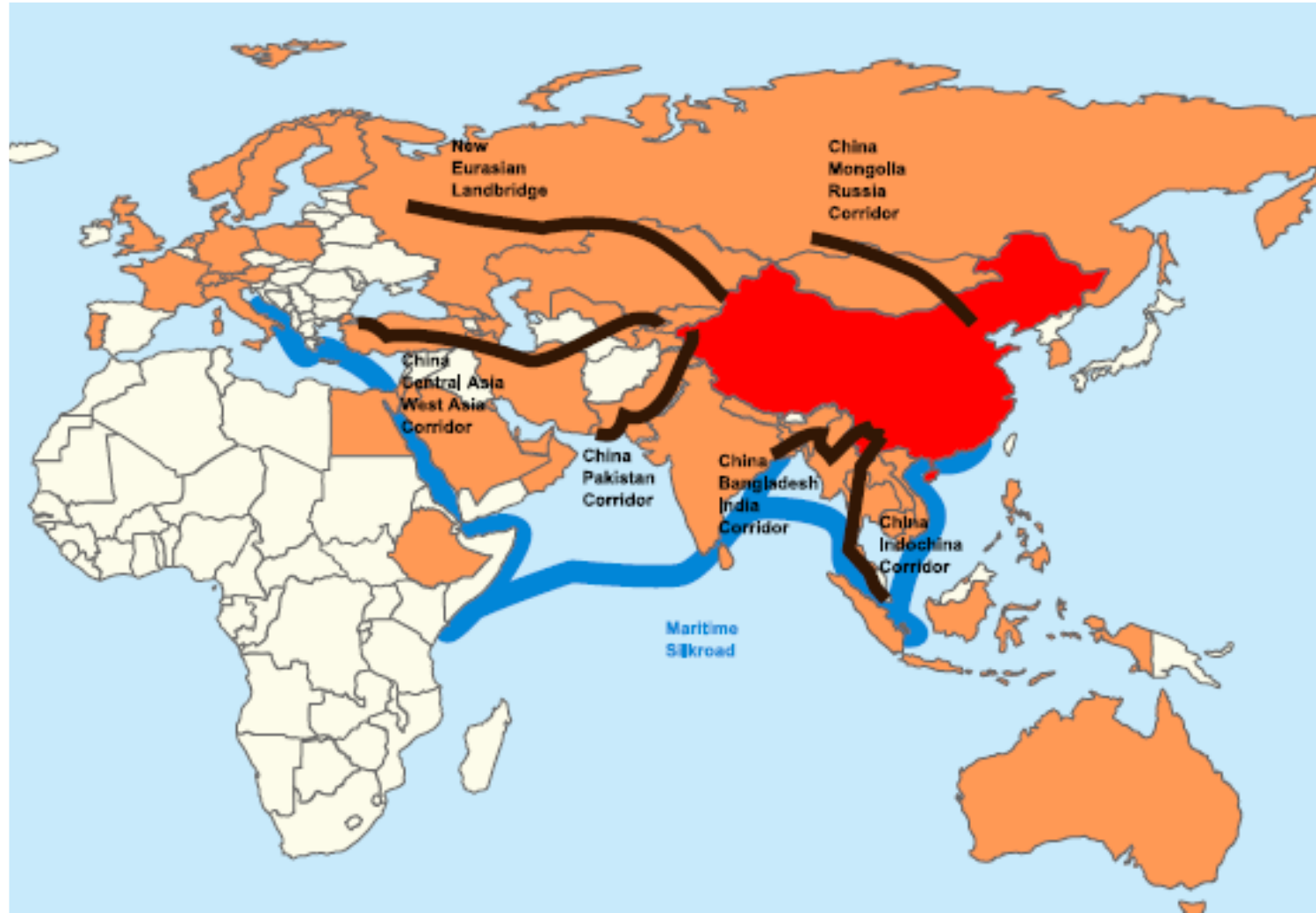
- Crucial role of China in energy geopolitics concerns fossil fuels energy sources (the energy system on which the whole world economy is still based for 80 per cent of its use) and renewable energy sources (whose development is required to deal with the climate change challenge).
- Energy based on fossil fuels has been at the foundation of China's extraordinary economic growth: 85 percent of China's energy comes from fossil fuels (60 percent coal, 20 percent oil, 5 percent natural gas).
- China overtook the United States becoming the world's largest energy consumer; it now represents almost 25 percent of the world's energy consumption.

Total primary energy demand by fuel in China (International Energy Agency)



- Energy plays a crucial role in the most important Chinese geoeconomics and geopolitical initiative: the Belt and Road Initiative, launched in 2013 by the Chinese president Xi Jinping.
- Belt is the set of land ways connecting China to the West through Central Asia countries, Pakistan, Mongolia and Russia.
- Road is the set of sea ways connecting China to Russia through the North Sea, to the Arabian countries and to the east coast of Africa through the Indian Ocean, to the South-Est Asia through the South China Sea.

The Belt and Road Initiative



- A crucial element of the Belt is Central Asia because of its energy richness.
- The 2500 km oil pipeline from the eastern coast of Caspian Sea in western Kazakhstan (20 million tons/year) is crucial to oil import by China.
- Turkmenistan, with the gas pipeline of 3600 km (25 billion cubic meters per year) to Xinjiang in China through Uzbekistan, has become the largest gas exporter to China.
- The Ukraine war has increased energy cooperation between China and Russia.

- Natural gas discovered above the Arctic Circle travels as LNG with tankers to Asia through the Arctic Ocean.
- Eastern Siberian-Pacific Ocean (ESPO) oil pipeline (3000 miles, 15 million tons per year) allowed Russia to eclipse Saudi Arabia as China's number one oil supplier.
- "Power of Siberia" gas pipeline (1300 miles, 38 billions cubic meters per year) brings natural gas not only to China but also to other East Asian countries.
- In 2030 Power of Siberia 2 gas pipeline (50 billion cubic meters per year) is expected to bring gas from a Russian deposit in the North Sea to China through Mongolia.

- On the Road, China is the biggest customer for oil flowing out of the Persian Gulf and the Strait of Hormuz.
- Protection of oil transport through sea from Middle East has been the justification provided by China for its opening of a military base in Djibouti on the east African coast.
- The use of Indian Ocean to import fossil fuels is the reason for a presence of the People Liberation Army in the many ports related to the military Chinese expansion not only on the land (as it was the historical tradition), but also on the sea.

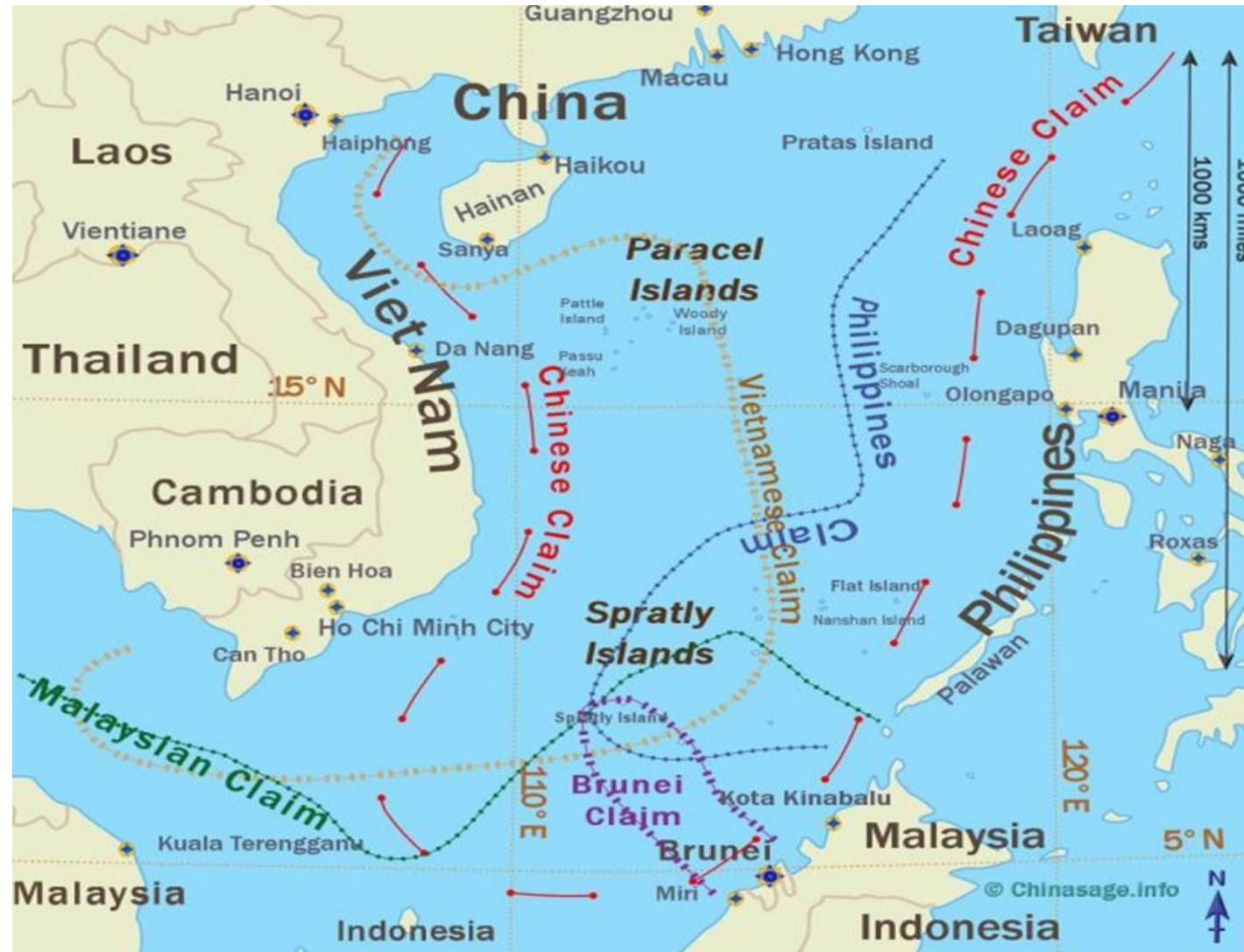
- The Road passes through the South China Sea faced by a number of countries (Indonesia, Malaysia, Singapore, Brunei, Philippines, Vietnam, Taiwan and China) and connected to the Indian Ocean by the 1.5 miles wide Malacca Strait, running between Malaysia, Indonesia and Singapore.
- South China Sea is the highway for one third of the world oil trade, for 15 million oil barrels per day and one third of the world traded LNG.
- South China Sea is also the highway for two thirds of the sea trade of China and 80 percent of the oil imports by China.
- Chinese refer to the “Malacca dilemma” as the risk that, in the case of war, the US navy can close the strait inhibiting China’s energy and trade by sea.

Strait of Malacca



- The South China Sea is where the risks of a military confrontation are higher.
- Taiwan is located there.
- The small Diaoyu Island occupied by Japan at the end of the World War II and claimed by China are located there.
- There is a contrast between those pretending the control of the Spratly Islands occupying a large area of the South China Sea from Vietnam to Philippines.
- There is a contrast between China and Vietnam concerning the Paracelsus Islands, also located in the South China Sea.

The South China Sea claims



- Claims by the other countries didn't succeed in blocking China from digging tons of rocks and sand to build artificial islands on which install military bases.
- Also, their initiatives didn't succeed in blocking China from drilling operations to extract oil and gas.
- The South China Sea has abundant energy resources, with a huge potential of oil and natural gas on the seabed.
- Estimates are that the South China Sea holds about 60 billion cubic meters of natural gas and 10 billion barrels of oil reserves: an enormous economic value for any country with territory in the South China Sea.

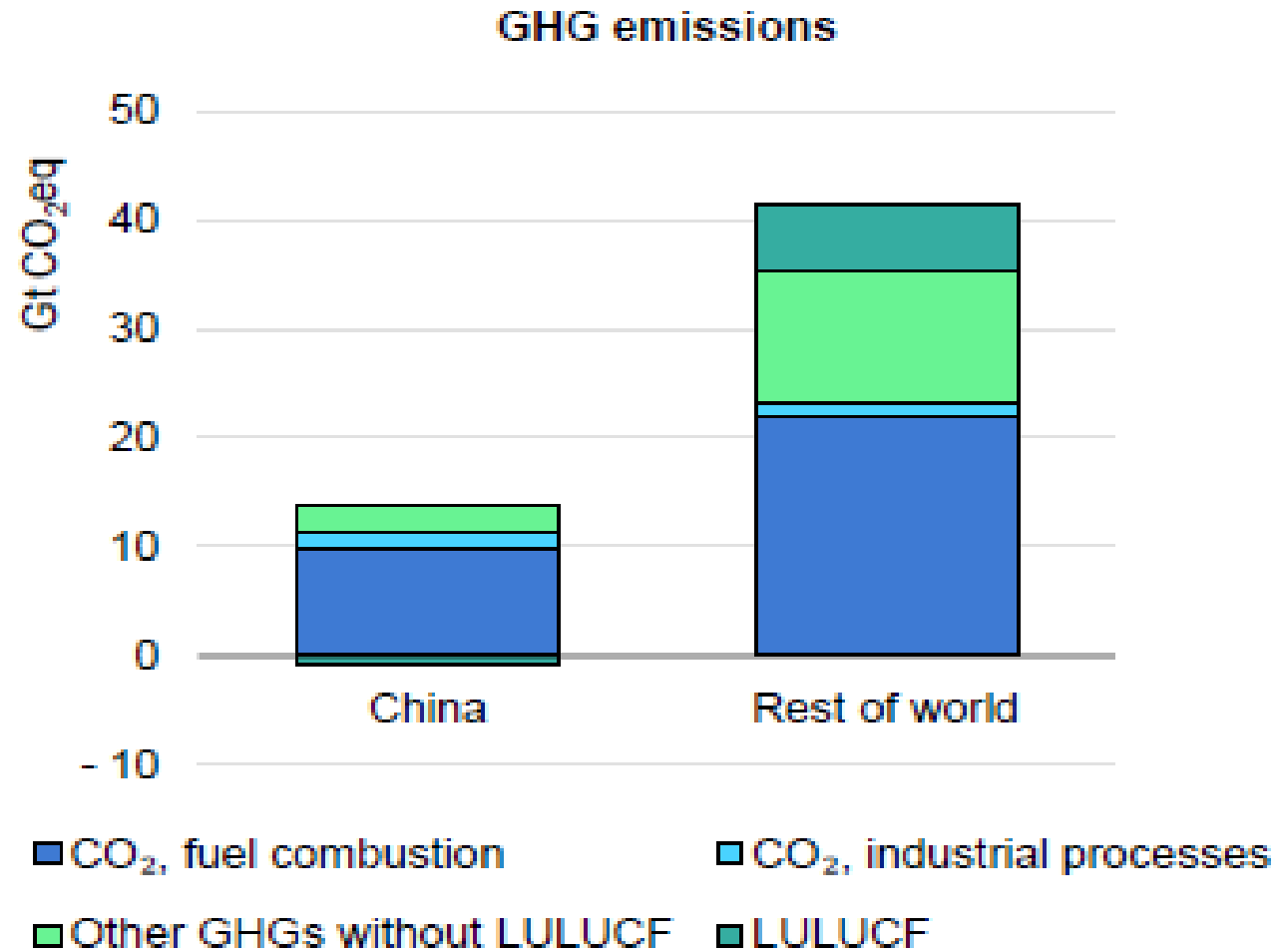
- China's initiatives to discover and drill oil and gas resources deep beneath the South China Sea have been a source of problems with Vietnam and even with Russia.
- In May 2014, China National Offshore Oil Corporation (CNOOC) placed a huge equipment, capable of drilling up very deeply under the seabed, in waters claimed by Vietnam east of its coasts as "territorial waters".
- The Vietnamese protested also in the streets, with deaths of Chinese nationals, many thousand of which had to be evacuated; eventually the equipment sailed away.

- In 2017, China threatened to attack Hanoi's outposts in the Spratly Islands if it did not stop drilling in an area on Vietnam's continental shelf that overlaps with China's expansive claims.
- In July 2019, the Russian company Rosneft, in partnership with the Vietnam's state oil company, started drilling in what Vietnam was claiming its Exclusive Economic Zone.
- The Chinese sent ships from their navy, which sailed away only after Rosneft and its Vietnam partner stopped drilling.

China in energy geopolitics: the climate change challenge.

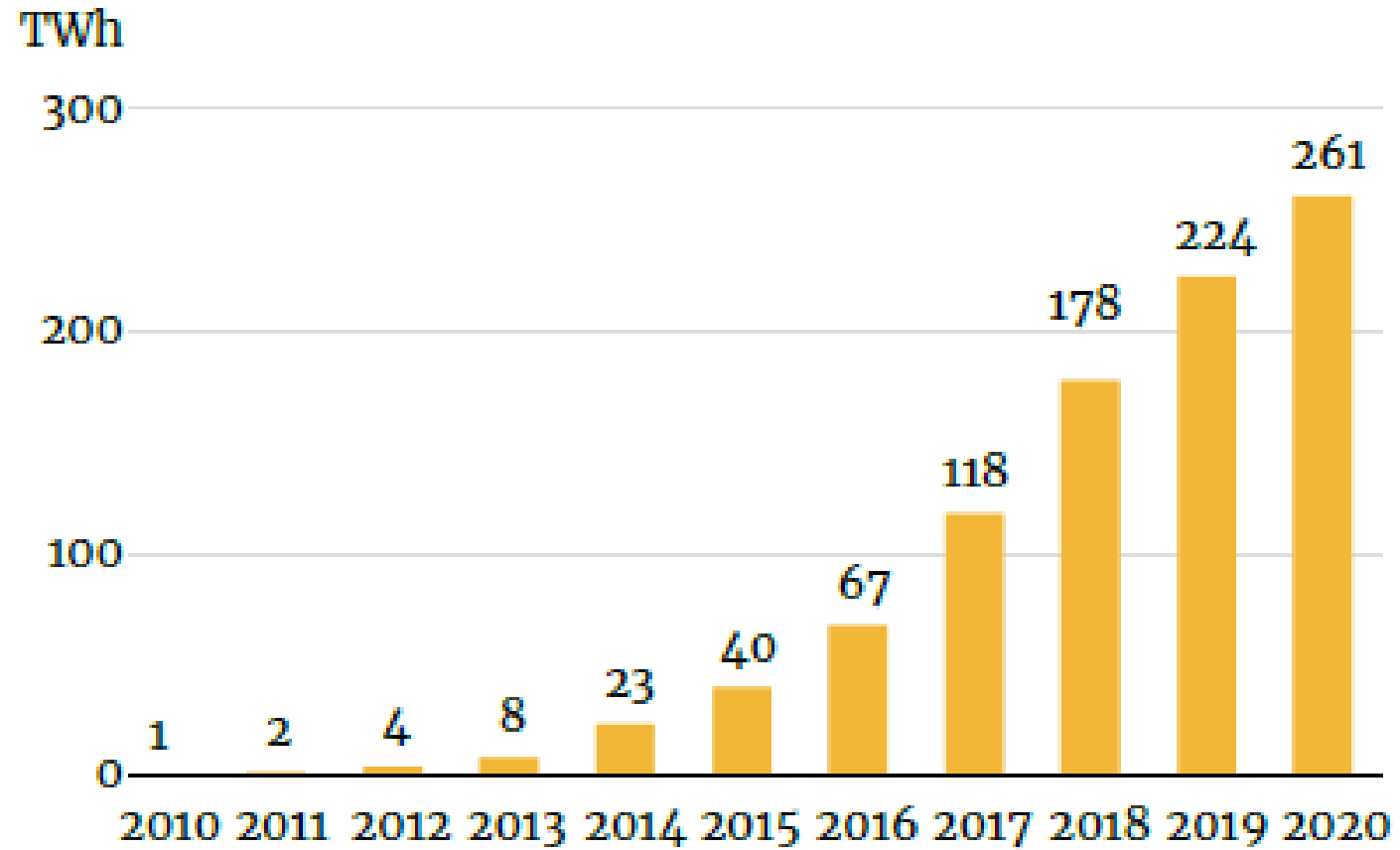
- The role of China in energy geopolitics also concerns its commitment in the global fight to global warming and climate change.
- China is the biggest world producer of plants for solar and wind energy, but it continued its yearly emissions of CO₂, overcoming, since 2006, those of the United States to become the world most important country emitting greenhouse gases.
- In 2019 China's greenhouse emissions also overcame those of all the developed countries jointly considered.

Greenhouse gas emissions in China and rest of the world, 2020 (IEA)

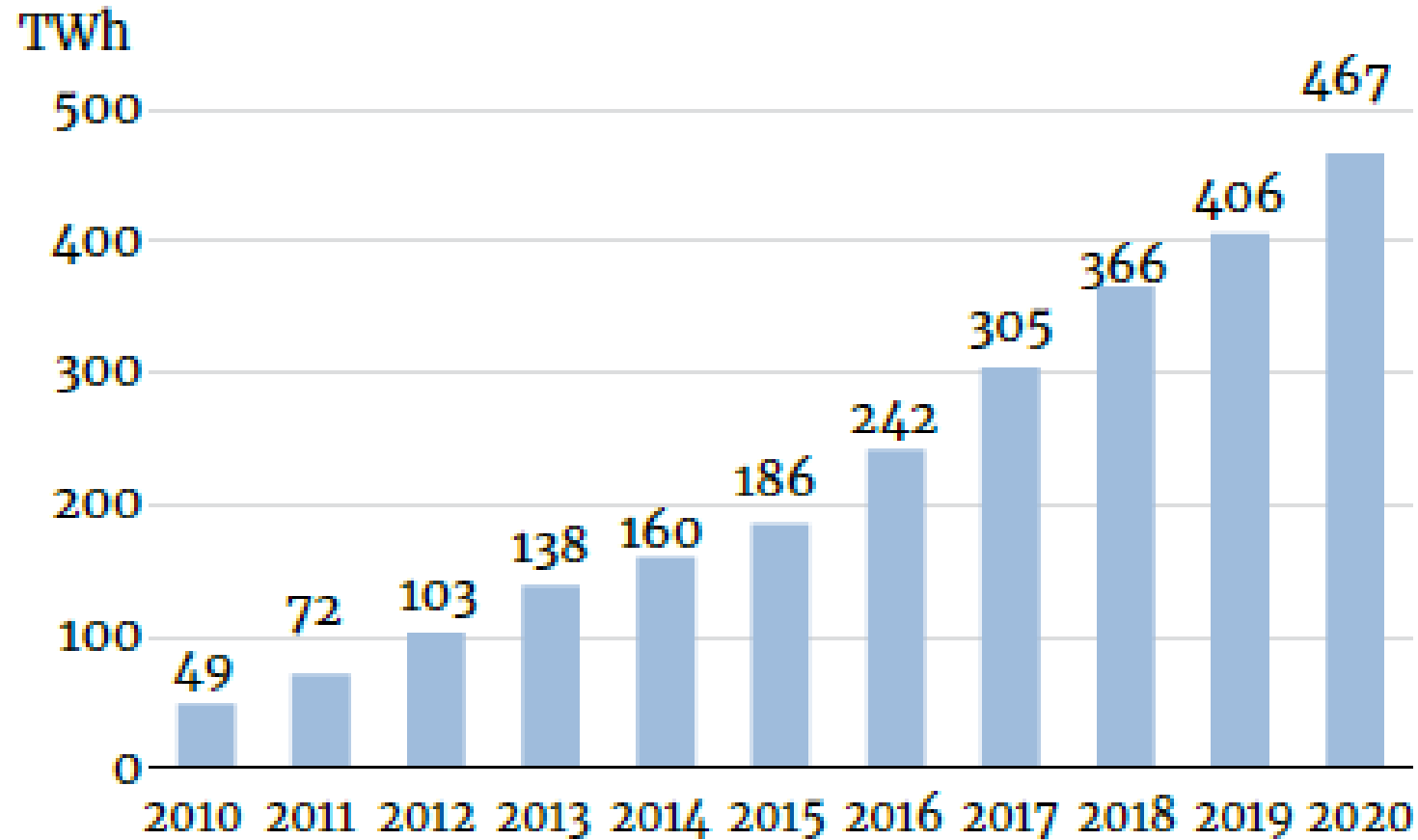


LULUCF = Land Use, Land Use Change and Forestry

China's PV power generation (National Energy Administration).

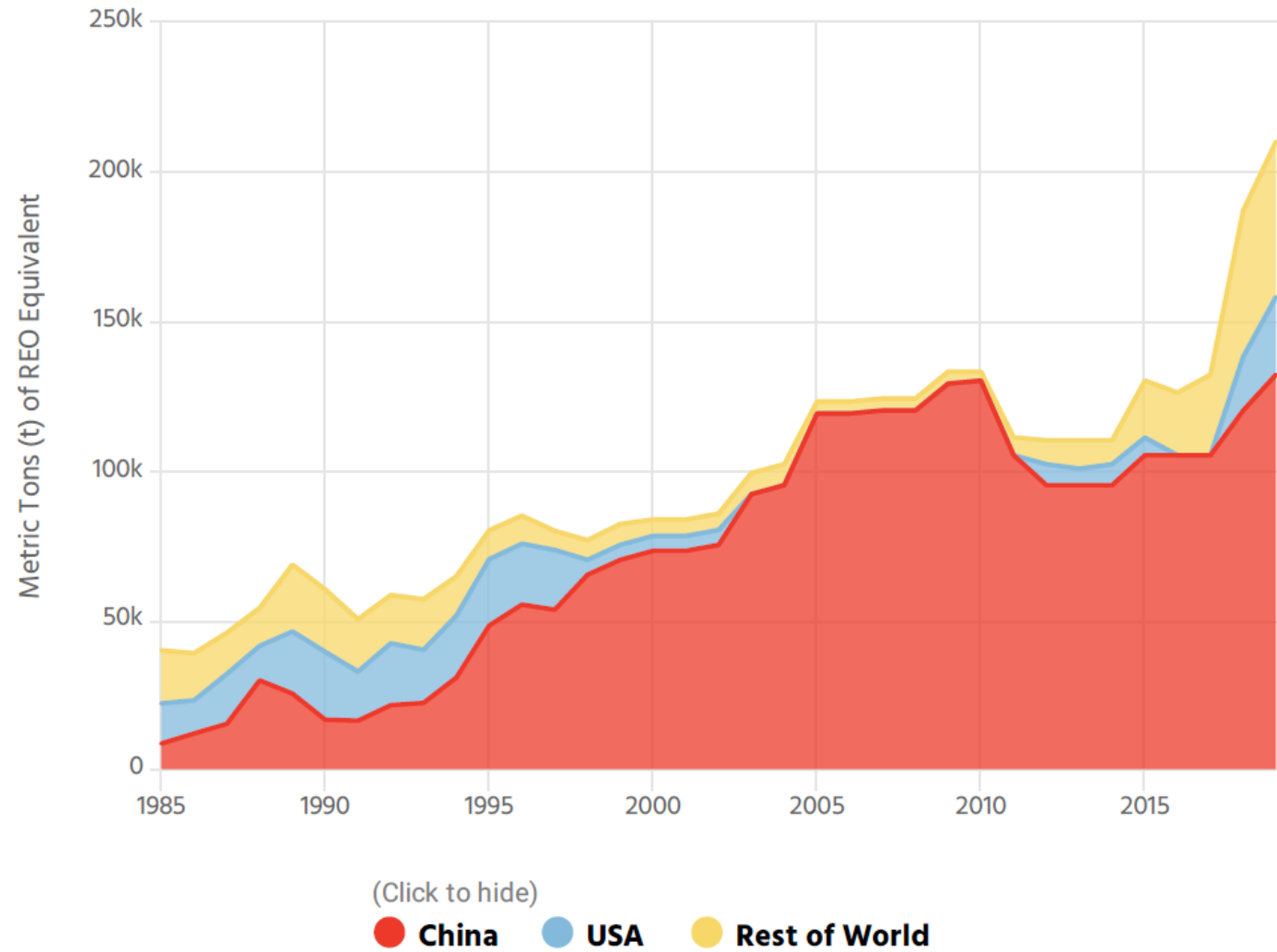


China's wind power generation (National Energy Administration).



- An advantage of China in renewable energies is its being now the biggest world producer of batteries allowing to deal with solar and wind energy intermittance.
- China controls 90 percent of the global production of rare earth products, a number of them (such as copper, lithium, and cobalt) are required in manufacturing wind turbines, solar panels, and batteries.
- In extraction and processing of these materials China has a first-mover advantage, as Chinese companies have invested a lot in various countries; for instance, in cobalt mines in the Democratic Republic of Congo, in lithium reserves in Argentina and lithium production in Chile.

World Rare Earth Mining Production



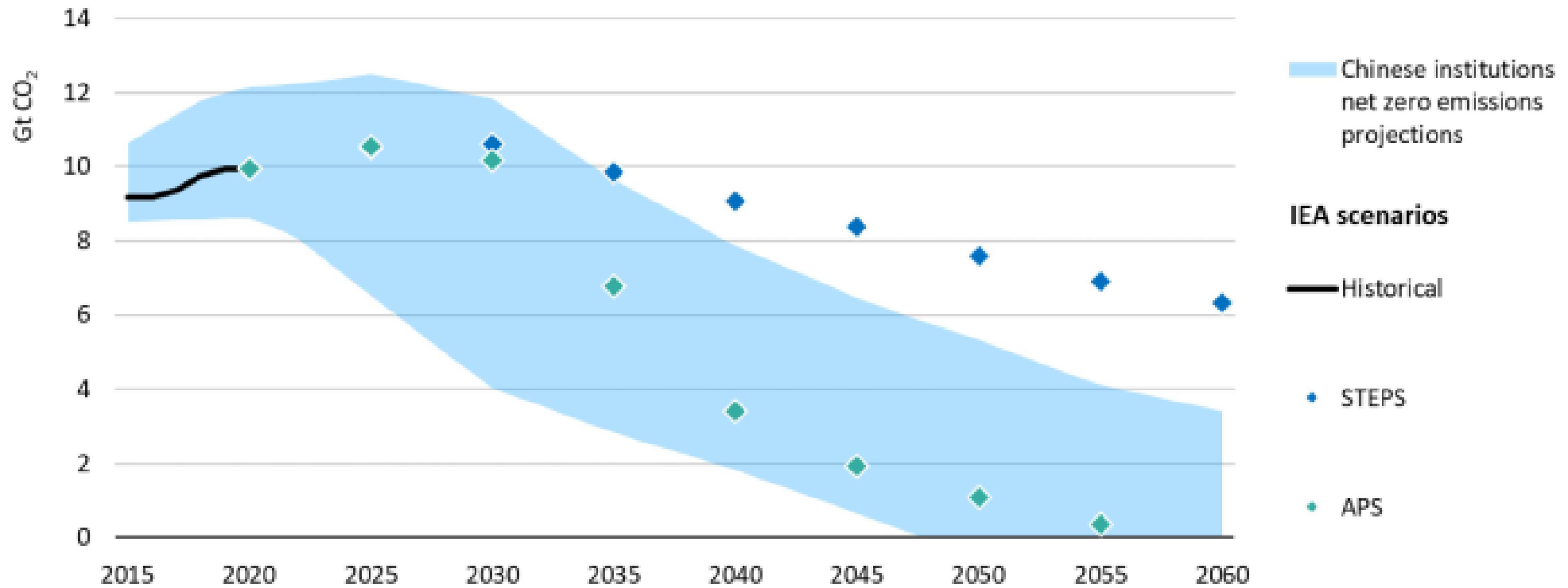
(Click to hide)
● China ● USA ● Rest of World
CSIS China Power Project | Source: US Geological Survey

- China is also dominant in battery manufacturing.
- CATL (Contemporary Amperex Technology (CATL) in Fujian, China, has become the largest world producer of batteries with 30 percent of the world's market.
- In 2019 China was able to sell more than half of all electric vehicles sold in the world, its target being to have 40 percent of the vehicles sold in the country be electric vehicles by 2030.
- By 2025, the Chinese government aims to have in place electric vehicles charging infrastructure to meet the needs of more than 20 million cars.

- The pace of China's emissions reductions over the coming decades will be important in determining whether the world succeeds in preventing global warming from exceeding 1.5 °C.
- In September 2020, President Xi Jinping announced that China will “aim to have CO2 emissions peak before 2030 and achieve carbon neutrality before 2060”.
- China committed at the United Nations General Assembly in September 2021 to discontinue building coal-fired power projects abroad and to step up support for clean energy.

- The Chinese government asked the International Energy Agency to write a Roadmap on carbon neutrality
- The IEA Roadmap has two scenarios:
- Stated Policy Scenario (SPS) is based on the existing policies until now,
- Announced Pledges Scenario (APS) reflects the targets declared in 2020, in which emissions of CO₂ reach a peak before 2030 and will be net zero by 2060.

Energy-related CO2 emissions in China by scenario: Stated Policies Scenario (STEPS) versus Announced Pledges Scenario (APS).



IEA, 2021.

- In the APS natural gas (with a carbon footprint half of coal and a quarter less than petroleum) is the only fossil fuel allowed to grow in the energy consumption mix: to 14 per cent from 8 per cent.
- Coal's contribution has to shrink to 3 per cent from 57 per cent, while oil has to decline to 8 per cent from 20 per cent.
- Solar energy will rise from 1 per cent to 22 per cent, wind power from 3 per cent to 17 per cent, nuclear energy from 2 per cent to 8 per cent.
- Hydrogen will grow from almost zero to 11 per cent, with China aiming at becoming a leader in producing “green hydrogen” with renewable power.
- Carbon capture, utilization and storage (CCUS), will be developed post-2030.

- The latest China's Five-Year Plan accepted the IEA Roadmap .
- At the beginning of November 2022, China presented the result that its CO2 emissions per unit of GDP halved since 2005, with a fall of 3.8 percent with respect to 2021.
- The recent tensions between China and the US, related to the Ukraine war and the question of Taiwan, may however affect negatively the China's commitment to fight to climate change.