



WORLD  
RISK &  
GOVERNANCE

# Energy Crisis Due To Heatwave & Drought In China

## Summary

In a once a century event of severe heat wave and drought in China, has led to possible crisis in industry productivity of the nation. The insight dwells in what are implications for the business thereafter globe wide.

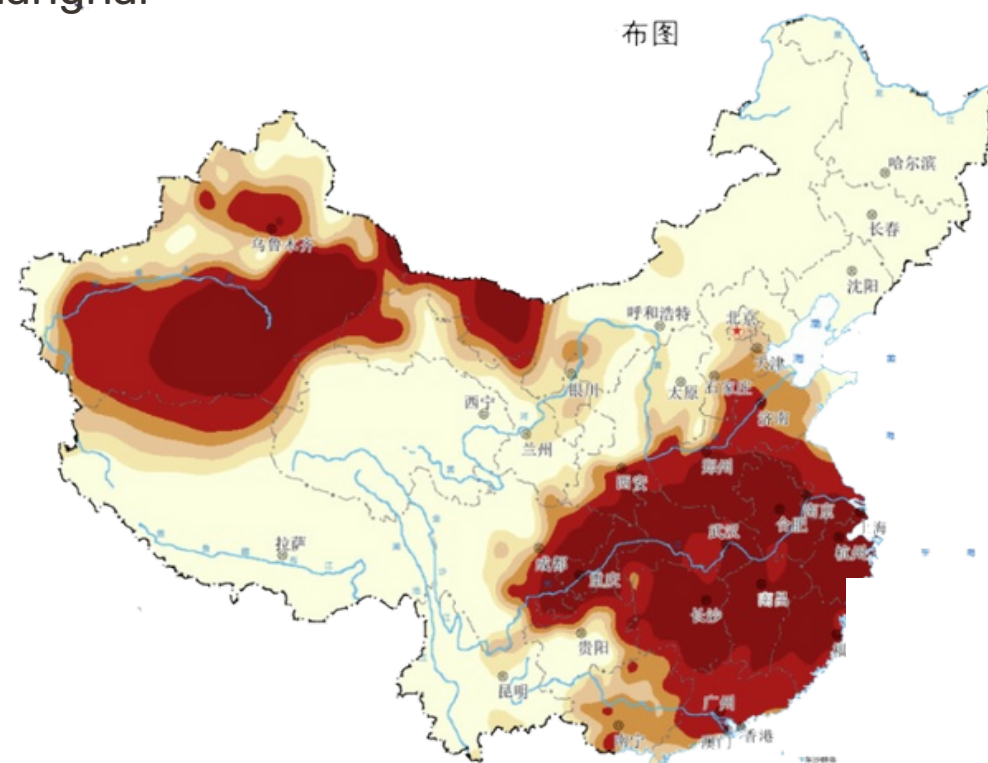
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## Heatwave: Present Scenario

- China is currently facing the most severe heat wave since 1961. According to China Meteorological Administration, *it is the country's worst heatwave on record*.
- The heatwave has been persisting in China for the past 70 days, starting since Jun 2022.
- Around 30% of the 600 weather stations along the Yangtze river have recorded their highest temperatures ever.
- The power demand surged 25% as compared to 2021 because of the use of air conditions due to the heatwave.
- The nationwide average temperature in Jun was 21.3°C. It was 0.9 degrees higher than in the same period of 2021, making Jun the warmest since 1961.
- In Aug, the weather reached 43.5 °C in Gao County, 43.4 °C in Jianyang and Zigong, 41 °C in Mianyang, 34.9 °C, and 45 °C in Beibei.
- The continuing heatwave has afflicted more than 900 million people in 17 provinces, from southern Sichuan to eastern Jiangsu and Zhejiang, as well as Shanghai

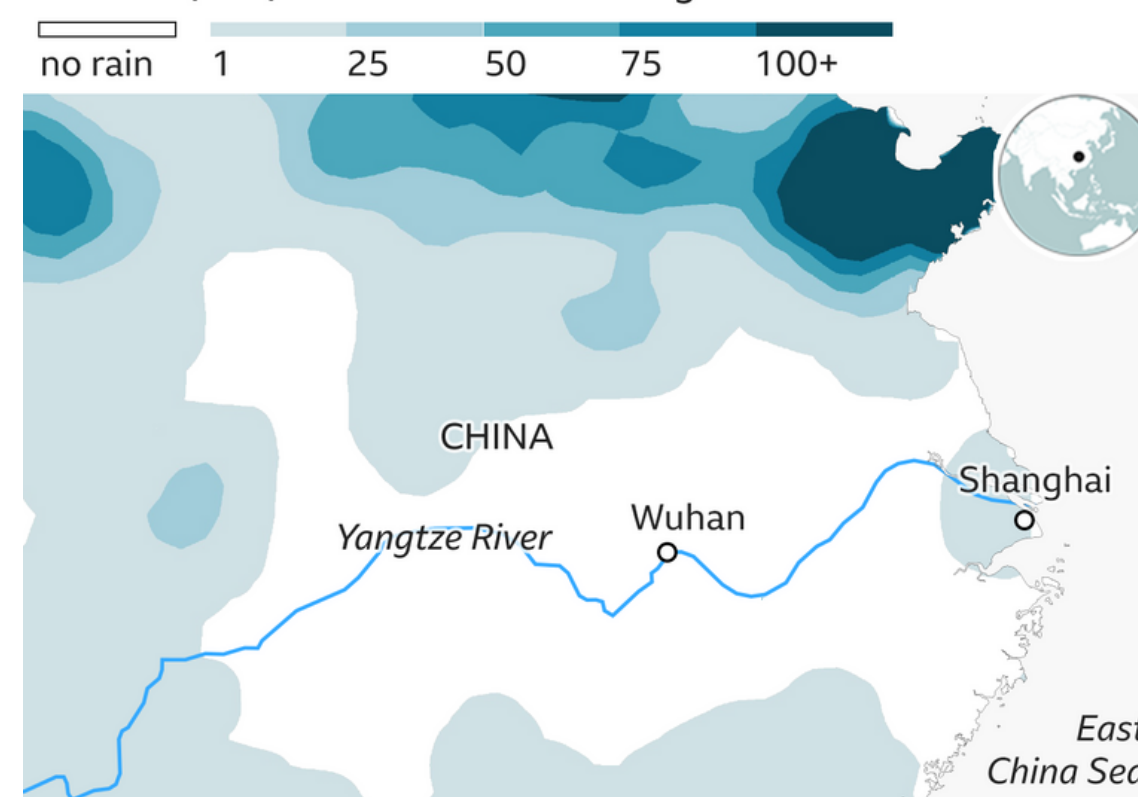


## Drought Alert Issued In China



- A nationwide drought alert has been issued on 19 Aug as the ongoing heatwave in southwest region of China has been forecasted to continue until Sep
- Poyang Lake, the largest freshwater lake in China, has entered the dry season ahead of schedule due to hot weather. The Yangtze River have receded to its lowest level since records began in 1865.
- Hydropower generation in southwest Sichuan Province is heavily affected as the volume of water in major rivers is estimated to be at the deficit of 20% to 50% .
- The drought coincides with a crucial time for rice, soybean and other water-intensive crops ahead of the autumn harvest, raising fears of reduced grain output.
- The drought has affected around 2.46 million people and 2.2m hectares of agricultural land in Sichuan, Hebei, Hunan, Jiangxi, Anhui and Chongqing.

Rainfall (mm) between 7 and 13 August







# Yangtze River Drying Up- Crisis Warning

- More than one third of China's population lives in the Yangtze basin, the longest river in Asia and the third longest in the world.
- It provides drinking water to more than 400 million Chinese people.
- The Yangtze River is the most vital waterway to the Chinese economy.
- This summer, rainfall in the Yangtze basin is the lowest since 1961.
- The river's tributaries are drying up, while water flow in the main trunk is 50% below the average for the last 5 years.

## IMPLICATIONS

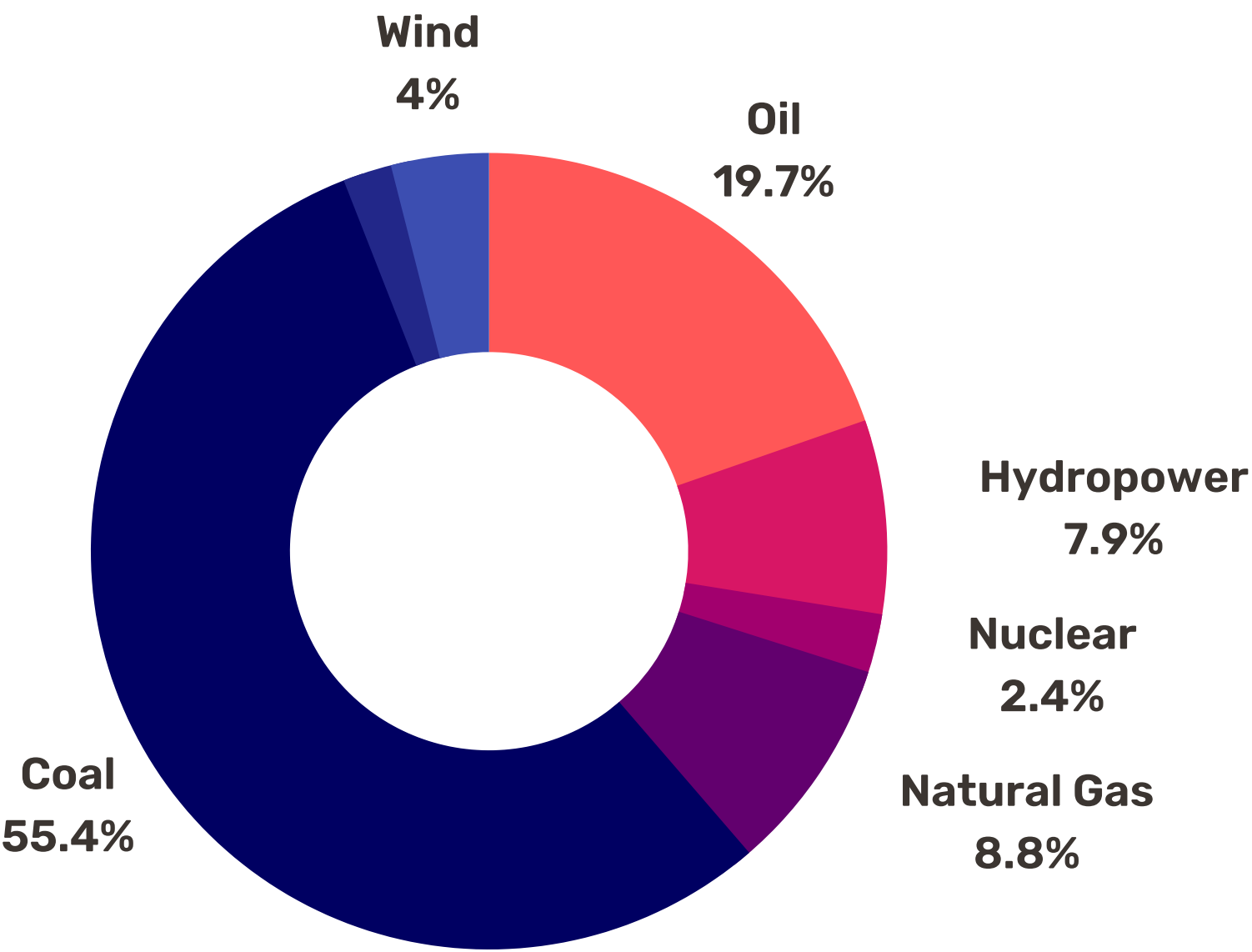
- Important ports like Shanghai and Chongqing are located in the basin which facilitates the shipping of industrial and production units across the world.
- It poses a serious challenge to the functioning of important ports in the river basin.
- Shipping routes are closed in the middle and lower reaches of the Yangtze, from central Hunan province to Anhui in the southeast.
- Reduced water flow to China's hydroelectric system has caused electric shortages in Sichuan province.





# Looming Energy Crisis

- In China, hydropower is the fourth largest source for electricity consumption.
- High summer temperatures have impacted hydropower output in Sichuan province, resulting in power outages and rationing.
- In Jul, electricity consumption rose by 6.3% year-on-year, with residential consumption jumping to 26.8%.
- Provinces like Sichuan and Yunnan rely on hydropower for energy supply. Dry periods create risks for industries that require continuous production, such as electrolytic aluminium industry.
- To meet the power demand, manufacturing hubs along the Yangtze River are limiting electricity use in a variety of industries.
- Sichuan, which generates 82% of its power from hydropower, is the hardest hit.
- Sichuan factories that create processor chips, solar panels, vehicle components, and other industrial items were shut down or have reduced production to conserve power.
- Sichuan has enforced a production shutdown across various industries since 15 Aug.
- Chengdu have issued power restrictions on commercial and residential power use.
- Daily hydropower output has dropped to 51%, and reservoir levels are down by 4 billion compared to 2021.

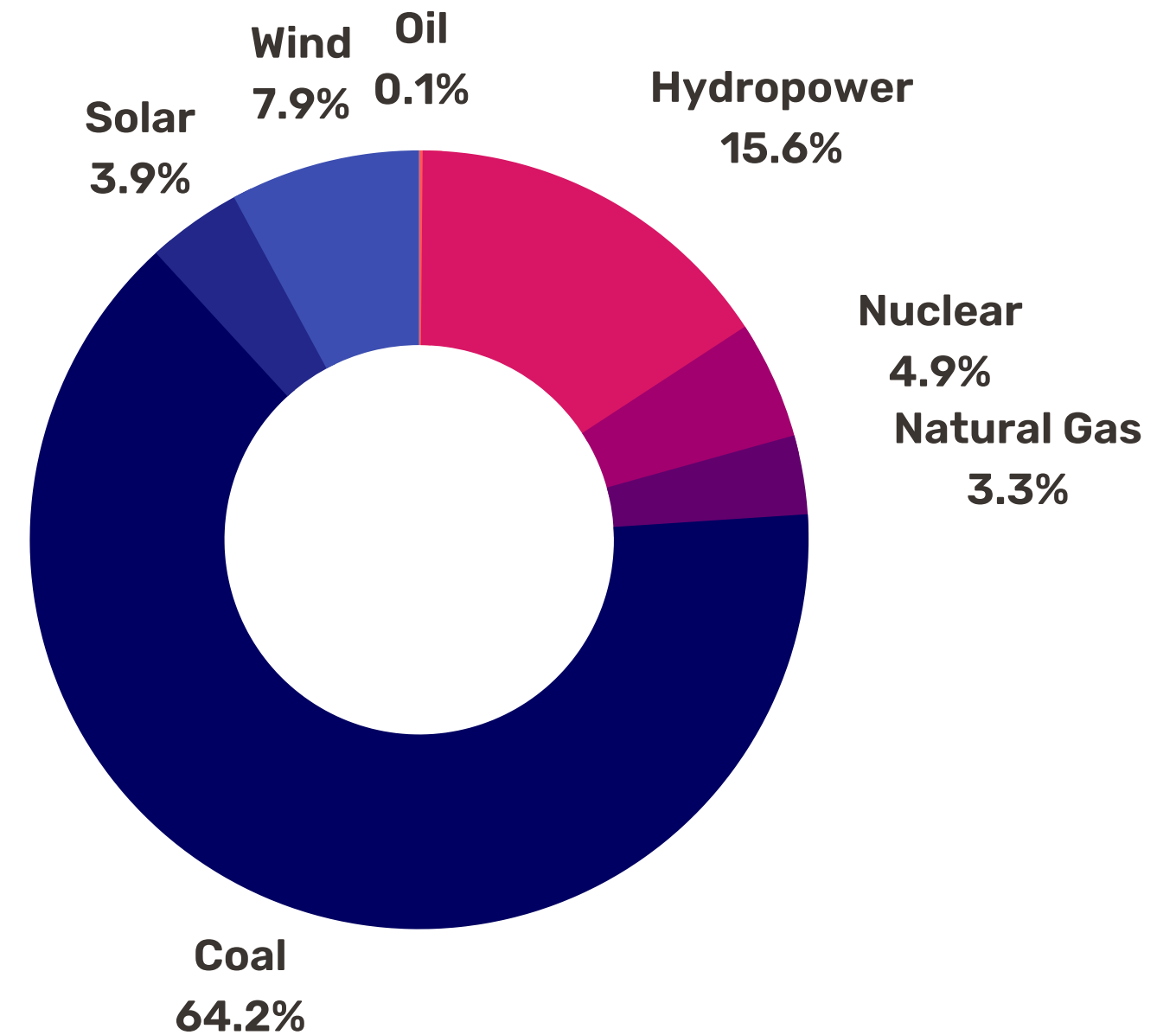


Electricity Consumption by Source (%)



## Industrial Implications

- Hydropower is the third largest source of electricity production for China
- In 2021, the combined production capacity of the manufacturers in the Yangtze river basin area was about 2.7245 million cars, which is 10.3% of the entire annual production capacity of the China.
- The major battery maker and automobile manufacturing giants are experiencing a power crunch due to the intense temperatures in Southwestern China.
- The world's largest battery producer, Contemporary Amperex Technology Co., (CATL), has ceased operations at a plant in Yibin, Sichuan.
- In Neijiang, Sichuan, all of Haowu's production lines in a unit have shut down, and the firm expects future production and operation to be disrupted
- Tesla have declared all Chongqing charging stations must offer restricted services or close temporarily due to power shortage.
- Due to the effect of energy restrictions, China's 2022 GDP growth in Jul reduced to 3% from 3.3%.
- The power rationing might impact the supply chain network as Chongqing Municipal Corporation has various car and computer production units.
- Jiangsu, Anhui, Zhejiang and Shanghai have also limited power that has affected manufacturing and business activities.



Electricity Production by Source (%)

# Assessment



## Business Ecosystem

*Medium to High Risk*

- High possibility of impact on trade through Yangtze River as water level has receded drastically
- High likelihood of disruption in supply chain and production of automobile production units, lithium battery units and solar panels
- High likelihood of declined production of non-ferrous metals such as aluminum, ferroalloy, copper and battery metals
- High likelihood of diminishing demand for Electric-Vehicles (EV) as power shortage has already affected 400,000 public charging facilities.
- Medium possibility of increasing electricity imports from other nations such as Russia, North Korea



## Citizen Safety

*Medium to High Risk*

- High likelihood of drinking water crisis in the Yangtze river basin as Yangtze River have receded to its lowest level
- High likelihood of decreased output in water-intensive crops such as rice and soyabean, thereby raising possibilities of price rise in basic food commodities
- Medium possibility of increased hospitalizations due to health problems arising out of extreme heatwave



## Environmental Impact

*High to Extreme Risk*

- High possibility of frequent droughts and heatwave in the coming years due to climate change
- High likelihood of carbon emissions to increase, therefore possibility of postponement of China's net zero emissions target
- High likelihood biodiversity in the Yangtze region getting impacted due to heatwave and drought crisis





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