



GNSI DECISION BRIEF:

China's Energy Insecurity

Understanding the Chinese domestic demand for energy and the need to secure energy resources will provide insights into the CCP's foreign policy objectives.



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China's Energy Insecurity

Overview

Scholars and policymakers alike have used energy production and consumption as a measure of a state's power and influence.ⁱ A state's energy sector indicates the potential for use in the production of war materials or as an export to use as leverage over other nations. China produces and consumes more energy than any other country in the world and has done so since 2006 and 2009 respectively. Chinese consumption continues to outpace its production as its demand for energy grows.ⁱⁱ China's large, aging population (around 1.41 billion people) and fast-growing economy have pushed the Chinese Communist Party (CCP) to look for ways to secure energy resources and the land or sea routes that deliver them.ⁱⁱⁱ Understanding the Chinese domestic demand for energy and the need to secure energy resources will provide insights into the CCP's foreign policy objectives.

Chinese Domestic Energy Demands

China consumes more energy than it produces across all major energy types: Coal, Petroleum, Natural Gas, Nuclear, Hydroelectric, and Non-hydro renewables. This has forced the CCP to import resources to offset this gap as well as implement policies to reduce domestic energy consumption during energy crises.

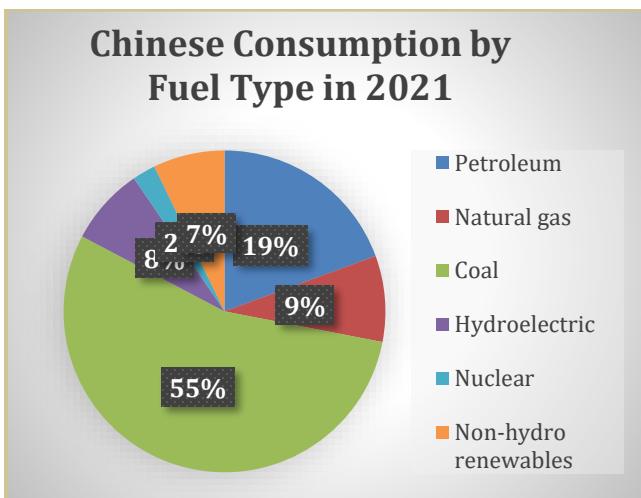


Figure 1: Total Primary Energy Consumption in China by Fuel Type 2021. Source Data: [BP Statistical Review of World Energy](#)

Coal

Coal usage has dropped steadily from 70% in 2001 to 55% in 2021, but it continues to serve as China's primary fuel source as seen in Figure 1. Even with that

drop in usage China still accounts for over half (53%) of all global coal consumption.^{iv} In Sept 2021, China implemented expansive restrictions to lower electricity use in response to high coal prices while also aiming to increase domestic coal production.^v In 2022, China's National Development and Reform Commission launched a plan to diminish dependence on imports of coal as prices skyrocketed after Russia's invasion of Ukraine.^{vi} These events highlight some of the vulnerabilities of the Chinese energy sector. Chinese imports of coal primarily come from Indonesia (60% of all Chinese coal imports), Russia (18%), and Mongolia (5%). Australia typically holds a top three spot, but the CCP has yet to completely lift its informal ban on Australian coal.^{vii} Coal will remain China's main energy source for the medium-term as China slowly increases its power generated from renewable sources.^{viii} When energy demands soar because of weather or draught, the CCP typically falls back on coal generated energy.^{ix}

Crude Oil and Other Liquids

China has led the world in crude oil imports since 2017.^x China has prioritized oil production at home. Between oil and other liquids (converting coal and methanol to liquids and biofuels) China only produces around 5 million barrels a day (b/d) while it consumes some 15 million b/d. In 2021, China's imported crude oil mainly from Saudi Arabia (17% of all crude oil imports), Russia (15%), Iraq (11%), Oman (9%), and Angola (8%).^{xi} China has focused on further exploration of its own oil resources and securing the shipping lanes for import.

Natural Gas

China leads the world in natural gas and LNG imports.^{xii} In December of 2019, the CCP created the China Oil & Gas Pipeline Network Corporation (PipeChina) to consolidate control of its pipelines. Pipeline natural gas makes up around 35% of China's imports of gas primarily coming from Turkmenistan (20%) and Russia (6%). Liquid natural gas (LNG) makes up the remaining 65% of imports mainly from Australia (26%), Malaysia (7%), and Qatar (7%).

Renewable Resources and Electric Power

After coal, hydroelectric power accounts the next largest electricity generating source at 17% of all Chinese output. This number varies as drier years reduce hydroelectric output. Solar and wind energy produce 12% and 13% of China's electric output.

China is dependent on importing massive amounts of energy resources to maintain its growing economy and large population. China's need for imports may slow over the next few decades, but remains vulnerable if its energy imports are cut. High coal prices and the war in Ukraine have proven when imports are limited the CCP must react. The CCP has worked to create and secure the means to keep energy imports stable, with the Belt and Road Initiative (BRI).^{xiii}

BRI: Enhancing Energy Security

China launched the BRI in 2013 to develop a global network of infrastructure and trade projects it could influence. Currently, the initiative involves over 100 countries.^{xiv} As the BRI expanded it has allowed China to secure access to external sources of food, energy, and mineral resources. It offers the CCP a multitude of countries to import from and several routes (beyond the Malacca Strait) to get those energy resources to China proper. The projects that China undertakes in the BRI supports, to varying degrees, Chinese control of key infrastructure (railroads, ports) and energy supplies (power grids) within the host nations.^{xv}

Between 2021 and 2022, Chinese-controlled companies invested in 28 international energy projects through the BRI. Projects varied from natural gas development in Uzbekistan, oil production in Guyana and alternative fuel source projects in Chile.^{xvi} There is speculation on how much leverage these projects, typically supported by massive Chinese loans to the host nation, give the CCP in negotiations with the receiving country. In many cases, the BRI projects are too costly for the host nation to afford causing side deals to be made such as natural resource concessions to China.^{xvii} This concept has been called "debt-trap diplomacy" and has seen several countries with BRI projects cancel or renegotiate deals, notably Pakistan, Malaysia, and Myanmar.

The CCP has also used the prospect of overseas basing as ways to secure and influence energy exports. In 2017, China opened its first overseas military base in Djibouti strategically located on the Bab al-Mandab Strait. This Chinese base is located only a few miles from the US military base in Djibouti; Camp Lemonnier. China has explored other locations in the Middle East for future bases that would further secure sources of its crude oil imports.^{xviii}

The CCP's 2017 constitution included the requirement to sustain the BRI. Despite some setbacks, the BRI will continue to get support from the Chinese government for the foreseeable future.^{xix}

Influence in Global Energy Transition

China has a strategic lead in the mining and processing of the 17 rare earth elements (REE) amounting to roughly 60% of global output. REEs provide the

fundamental resources for renewable energy technologies. To further support their move to renewables, China refines 73% of cobalt globally, 68% of nickel, 59% of lithium, 40% of copper.^{xx} It also plays a major role in later stages of the supply chain for renewables including the production of battery cell components. All the mining and production mentioned here has placed China in a position to develop a massive renewable energy sector of wind, solar, and electric vehicles (EVs) in the long-term.^{xxi}

China has the required materials and production capacity to transition to renewable resources, but the process is slow and costly. Of all the power generated from wind and solar worldwide, China produces a third of the wind and a quarter of the solar.^{xxii} However as of 2019, China accounted for around 30% of global greenhouse gas (GHG) emissions and still faces the threats posed by climate change in the long-term.^{xxiii} Although China continues to move to renewable sources, its leader Xi Jinping has declared climate targets cannot compromise energy security in the short-term.^{xxiv}

Competing through Energy

If one defines energy independence as a state producing more energy than it consumes, the United States met the mark in 2020 and 2021.^{xxv} With the United States producing an energy surplus, it has less to fear from possible global shocks to supply chains or the rise in energy costs compared to China. Both the United States and China are investing in renewable energy sources, which will make them more energy secure in the long-term. Regardless, for the near-future, China is heavily dependent on energy imports to maintain its economy, military, and population.

The important role energy resources play in strategic competition can be highlighted by examining the lead up to the attack on Pearl Harbor in 1941. In July of that year, the United States, the UK, and the Netherlands all embargoed oil exports to Imperial Japan. Imperial Japan lacked many natural resources and depended on imported resources, including oil, to fuel its growing economy and military operations. Imperial Japan depended on United States oil imports, and once cut off, they had to drain their stockpiles as no other country could or would export oil to Imperial Japan at pre-embargo levels. This embargo pushed Imperial Japan into action, and in part, led to the attack on Pearl Harbor.^{xxvi}

As the CCP works to solidify its energy security, any major disruption to its imports would force the CCP to act. Those actions could range from restricting energy use or increasing energy production domestically to actions far more drastic.

Decision Points

- The United States is energy independent while China is heavily reliant on energy imports. This situation will not change in the near-term. Where do US interests collide with the CCP's expanding influence and control of energy resources and REEs through the BRI especially in the Western Hemisphere in places like Guyana and Chile?
- If the CCP takes aggressive actions toward Taiwan and the United States aims to enact energy related sanctions, what is the expected CCP response keeping in mind history?
- How will countries surrounding the South China Sea react to China discovering oil or other energy resources near its [artificial islands in that sea](#)? Will international organizations or the United States involve themselves in a dispute between China and another country over mineral or resources rights near these man-made islands?
- The United States has focused on securing many shipping lanes for its own oil and energy imports, but those imports have drastically declined in recent years, should the US military continue to protect waterways mainly used by China and other nations?
- China's population is aging rapidly, this demographic shift will affect energy consumption. A recent study shows that this shift will cause a "[substantial increase in energy consumption](#)." If true, China will struggle to produce and import enough energy resources in the future. Should the United States respond? If so, how?

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