

# Energy Security and Its Impact on Chinese Economic Security Reality Challenges and Future Bets

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## Abstract

The paper discusses the energy security dilemma in China, which has become highly sensitive due to the security implications of its economic stability and the expansion of its political influence at regional and global levels, which has become a decisive factor in its foreign relations and a focal point for its defense policies. Due to the acceleration of its global economic and trade growth, consumption rates have increased significantly, which has become a factor confirming China's rise as a strong economy on the international stage on the one hand, and has become a strong player in the arena of global competition for energy resources against major powers on the other hand, with the energy factor having become a basic element and a security element that causes global geopolitical transformations. Accordingly, this contribution examines the ways that may affect China's strategies to achieve energy security and ensure continued economic and political stability.

**Keywords:** Geopolitics of energies; China energy security; Economic Security; Production and Consumption; Imports & competition

## La sécurité énergétique et son impact sur la sécurité économique chinoise Réalité Défis et paris futurs

### Résumé

L'article discute le dilemme de la sécurité énergétique en Chine, qui est devenu de haute sensibilité sensible en raison des implications sécuritaires de sa stabilité économique et de l'expansion de son influence politique aux niveaux régional et mondial, qui est devenu un facteur décisif dans ses relations extérieures et un point focal pour sa politique de défense. En raison de l'accélération de sa croissance économique et commerciale mondiale, les taux de consommation ont considérablement augmenté, ce qui est devenu un facteur confirmant l'ascension de la Chine en tant qu'économie forte sur la scène internationale d'une part, et est devenue un acteur fort dans l'arène de la concurrence mondiale pour les ressources énergétiques contre les grandes puissances d'autre part, le facteur énergétique étant devenu un élément de base et un élément de sécurité qui provoque des transformations géopolitiques mondiales, En conséquence, cet contribution examine les moyens qui peuvent affecter les stratégies de la Chine pour atteindre sa sécurité énergétique et assurer la continuité de sa stabilité économique et politique.

**Mots-clés :** Geopolitics of energies; China energy security; Economic Security; Production and

## **Introduction**

The steep economic growth that China has continuously achieved since the reform period and the open-door policy in 1978 has helped the country to demonstrate huge economic and financial transformations. This economic growth has also generated a voracious consumption of larger amounts of energy. Although China possesses diverse energy resources -most notably coal- it has emerged as a major importer of oil and natural gas in the world, which exposes it to the vulnerability and threat associated with dependence on imports. Within the framework of China's economic development and expansion, China's energy strategy has been directed towards ensuring adequate supplies at reasonable prices. However, with the beginning of China's economic shift towards consumer services away from heavy industry, its energy needs and choices will change over time, also, the negative environmental security impact resulting from the intensive reliance on the use of coal has become a matter of political, social and economic concern, as well as an investment opportunity. (Statista, 2024 )

### **Literature Review:**

To cover the subject and attempt to break down the research problem into the finest details, the paper relied on the contributions of some researchers who addressed the subject of Chinese energy security from several dimensions and perspectives, and discussed it from different points of view. as "Hongtu Zhao" raised the issue in his contribution "The Economics and Politics of China's Energy Security Transition" (Hongtu Zhao, 2019), in which she discussed the development of Chinese economic growth and its role in raising the demand for energy, starting from the early stages in which China began to turn to foreign markets to import its energy needs, and this is what is proven and indicated by the statistics recorded periodically and continuously (BP, 2022), as its increasing energy imports became a source of great concern for both the Chinese government, which seeks to ensure that China obtains the energy resources it needs to support economic growth, and Western analysts, who are concerned about the international political consequences of China's pursuit of energy security, in addition to reading China's strategies in moving towards developing sustainable alternative energies and trying to become independent from the state of dependency.

On the other hand, in studying China's strategies in trying to find sources of supply outside its borders, Africa, like the Middle East, has become the ideal source for this sensitive resource., Hussein Qawadra's spotted light on the issue of impact of Energy Resources on the Chinese Role in Africa in the Post-Cold War Period" (Hussein Qawadra, 2019), explaining

the stages of the transformation of the energy actor in China's security strategy and how Africa has become an important source of supply for it, relying on peaceful diplomacy with its countries. He concluded that China is expanding the size of its investments in the energy sector despite facing complex security challenges there.

While there is a doctoral thesis entitled “Energy Geopolitics and International Security: A Case Study of the Middle East” (Belmadi Sofiane, 2017), it explains in great detail the geopolitical movements of both China and the major countries competing over energy sources in the largest oil and gas producing countries, explaining the intensity of the competition that has often taken dangerous turns, such as in Libya, Sudan and Nigeria.

By reviewing the previous references and other contributions that dealt with the same topic from different dimensions, the following questions were raised based on what the researchers concluded in their conclusions as follows:

**1.1. *The Problematic Question:***

- What are China's bets in securing its energy security in light of global geopolitical shifts?
- What strategic options and alternatives are available to China to ensure its energy security and avoid any conflicts with major powers?

**1.2. *Hypotheses:***

- China is developing its international status cautiously and on two parallel lines: the line of ensuring energy supplies and developing alternatives, and the line of ensuring balanced and stable diplomatic relations with major competing powers in the global energy market without collision.

**1.3. *Importance of contribution:***

- Definition of the importance of conventional energies, economically and security.
- The sensitive place of energy to China's security strategy.
- Possible strategic alternatives and solutions that reduce dependence on conventional energies and freedom from energy dependency.

## 1. Methodology

In addition to the descriptive-analytical approach, the research was based primarily on a theoretical method represented by the geopolitical approach, which includes a breakdown of the origins of the relationship between the dilemma of achieving energy security and ensuring the security of its supplies, based on real and theoretical data, they are manifested in practices on the field, starting from the ideas of its theorists that translate the policies and strategies of its systems and the interests, especially for Chinese decision makers.

## 2. Results

The limits of China's reliance on imported energy to strengthen its economy vis-à-vis major countries, and the geopolitical challenges that the world is constantly witnessing, the results show that: the total primary energy demand will reach 4840-5070 Mtce in 2024, 5580-5870 Mtce in 2030; the share of coal in primary energy will decrease, and that of oil, natural gas and non-fossil energy sources will increase. After China adopted the strategy of transitioning to renewable energies and setting energy laws (Chinese government, 2006), for all the three economic enhancement scenarios, 40-45% carbon emission intensity reduction goal can be achieved. If renewable energy can be further developed, carbon emission intensity can load more than 40% by 2025. The target of the 20% share of non-fossil energy in primary energy is hard to realize, unless the most development potentials of hydro power, but solar, wind and power and wind power can be reached.

China's continued reliance on strengthening its economy, including its international political position, in light of its dependence on the outside with regard to energy resources, will threaten its ability to maintain its productive gains (partly, because it was unable to find a final solution to the dependency), and was unable to transform into a high-income economy. Despite the varying expectations between the statistics provided about the amount of China's oil production and the volume of demand and consumption over the next twenty years, it expects that its oil production will not record a significant increase, and that its future consumption of oil will double with a significant increase comparable to what Europe consumes as a whole. To a large extent, and that the degree of its dependence on imported oil will increase further.

China may be at a crossroads. The World Bank classifies the development levels of economies using the gross national income (GNI) per capita methodology. Based on a World

Bank report, China moved from a low-income to a middle-income economy in 1999, and in 2011, it became an upper middle- income economy. The per capita gross national income in 2018 (at \$8,690) was 38.7% lower than the level that China needs to achieve in order to become a high national income economy. China expects that it will be able to achieve the high-income threshold in 2025. This is after reducing reliance on the costs of importing energy resources or those allocated to producing energy from renewable sources, but expensive. Even though the IMF expects that China's economy by 2024; will be 56% larger than the U.S. economy on a PPP basis.

**Table I. Oil trade by region in IEA scenarios**

STEPS							APS			
Net Importer in 2021	Net Imports (mb/d)			Share of Demand			Net Imports (mb/d)		Share of Demand	
	2021	2030	2050	2021	2030	2050	2030	2050	2030	2050
China	12.3	13.0	10.6	78%	75%	76%	12.2	6.9	75%	82%
European Union	9.7	8.9	5.7	93%	95%	92%	7.6	2.0	95%	93%
Other Asia Pacific	6.4	10.0	13.5	70%	82%	87%	9.3	7.9	83%	87%
Japan and Korea	5.8	5.5	4.1	96%	98%	98%	5.0	2.3	98%	97%
India	4.1	6.2	8.0	87%	89%	89%	5.4	3.8	90%	90%
Other Europe	0.3	0.9	2.2	7%	25%	25%	0.7	0.9	21%	60%

**Source:** <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2023/06/CE8-The-outlook-for-Chinas-fossil-fuel-consumption>

## 2- The reality of Chinese energy security

China has become the largest importer of oil in the world and is on its way to becoming the largest consumer of liquefied natural gas as well, in 2022. China relied on imports for 75% of its oil consumption (IEA, 2023) and 41% of gas was imported that year (Sharma Shardul, 2024). China views this situation as a state of dependency and is considered a point of weakness although China is looking to lower its consumption of coal to contribute to reducing global pollution, reducing carbon emissions, and preserving the environment, Coal is expected to become increasingly less important in the future.

However, the speed at which China will reduce its dependence on it remains unclear. This is due to the abundance of local reserves of Coal\***[Table 1]**, which provides it with flexibility in supplying its economic with energy and a strategic alternative to avoid any potentially fatal economic crisis due to interruption or fluctuation of energy supplies, the use of which leads to undermining emission reduction goals.

On the other hand, based on statistics issued by (Enerdata, 2024), an increase in the volume of China's imports of coal was recorded by 62% in 2023, as well as in its imports of crude oil by 11%, and the volume of its imports of natural gas also increased by about 10%. Thus, China's oil and coal imports reached a high record in 2023, while natural gas imports reached the second-highest record level (after the record recorded in 2021). (IEA, China Country Analysis Brief, 2023), therefore, based on the Chinese prediction based on the data and data of its economic reality and development strategies Side by side with the reality of global geopolitical and geo-economics transformations, it built its security in the field of oil and gas into the objectives of its external foreign, security and defense policies in parallel with its continuing and increasing needs.

Recognizing the interconnectedness of energy security with national security and international relations, China has adopted proactive measures to safeguard its access to critical resources vital for sustaining its economic growth and geopolitical influence. Considering China's increasing dependence on imported energy resources and its expanding global footprint, the country has placed greater emphasis on securing its energy supply chains as an integral component of its national security strategy. This entails not only diversifying energy sources but also enhancing infrastructure resilience, fostering diplomatic relations with energy-producing nations, and investing in overseas energy assets to ensure a steady flow of resources. By embedding energy security considerations within its broader security and foreign policy frameworks, China seeks to mitigate vulnerabilities, pre-empt potential threats, and assert its influence in shaping the global energy landscape in alignment with its long-term economic and strategic objectives.

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\* China's heavy reliance on coal has made it the world's largest carbon emitter, with five of the world's most polluted areas and still encouraging investment in coal production despite the environmental degradation the world is experiencing and the dangerous climate change caused by pollution. Despite international agreements stipulating the need to preserve the environment, China still relies on coal for 44% of its electricity production. The American Research Center recorded the emissions of these gases

from 1990 until 2019, amounting to 151 billion tons of toxic gas emissions.

**Table II. China Coal in 2022**

	<b>Tons</b>	<b>Global Rank</b>
Coal Reserves	149,818,259,000	4th in the world
Coal Production	3,708,155,408	1st in the world
Coal Consumption	4,319,921,826	1st in the world
Yearly Deficit	- 611,766,418	
Coal Imports	375,754,534	1st in the world
Coal Exports	9,532,676	14th in the world
Net Imports	272,221,858	

**Source:** <https://www.statista.com/statistics/1279667/leading-coal-importing-countries-worldwide>

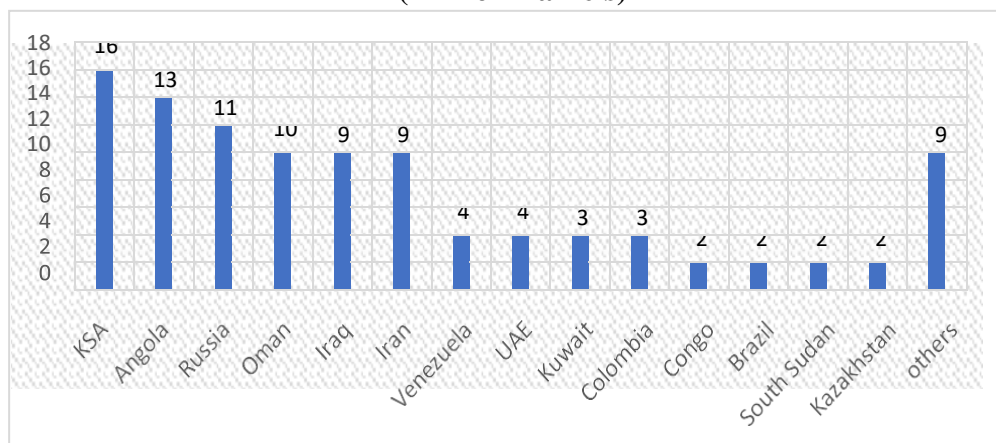
### **3- Energy: China's economic security dilemma**

#### **3.1- Oil as an actor influencing the Chinese economy and power**

Since the 1990s, China's economy has been witnessing rapid growth, which has increased the volume of its demand for energy and raw materials, especially oil. With the high proportion of its imports of energy resources around the world, China today lives under the pressure of providing guaranteed alternative sources. Especially it is the second largest oil consumer in the world, which prompted the global competition to enter energy resources, although it possesses the second largest global charcoal reserves of 149,818 million tons in the statistics of 2022, and the largest producer with 1,827 million tons annually, according to 2016 statistics (BP, 2022), which indicates that it suffers from limited energy sources; Until 1992, China was able to achieve self-sufficiency in the field of oil, but starting in 1993, China became dependent on abroad to meet the requirements of increasing domestic consumption (Figure1), and China became a net importer of oil (AL-Tamimi Naser, 2012) therefore, Chinese energy security faces problems atboth the internal and external levels at the same time.

On the internal level, this leads to the inability of local oil and gas sources to meet the needs and requirements of economic development, especially since its strategic oil reserve system has not yet been formed. As for the external level, China still relies heavily on imported oil to cover its needs, which poses severe risks to its energy security, after recording a very high percentage of its dependence on abroad, estimated at 73.6 percent in 2022, after it was only 7.6 percent in 1995. Furthermore, China's quest for energy security extends beyond oil to encompass diverse energy resources such as natural gas, nuclear power, and renewable energy. Despite its efforts to diversify its energy mix and enhance domestic production, China remains reliant on foreign sources for a significant portion of its energy needs, underscoring the importance of securing stable and diversified energy supply chains. As China continues to strive for economic growth and technological advancement, ensuring energy security becomes increasingly crucial to safeguarding its national interests and maintaining stability both domestically and internationally.

**Figure. 1. the most important sources of China's oil imports in 2016  
(Million Barrels)**



**Source:** International Energy Agency (EIA)

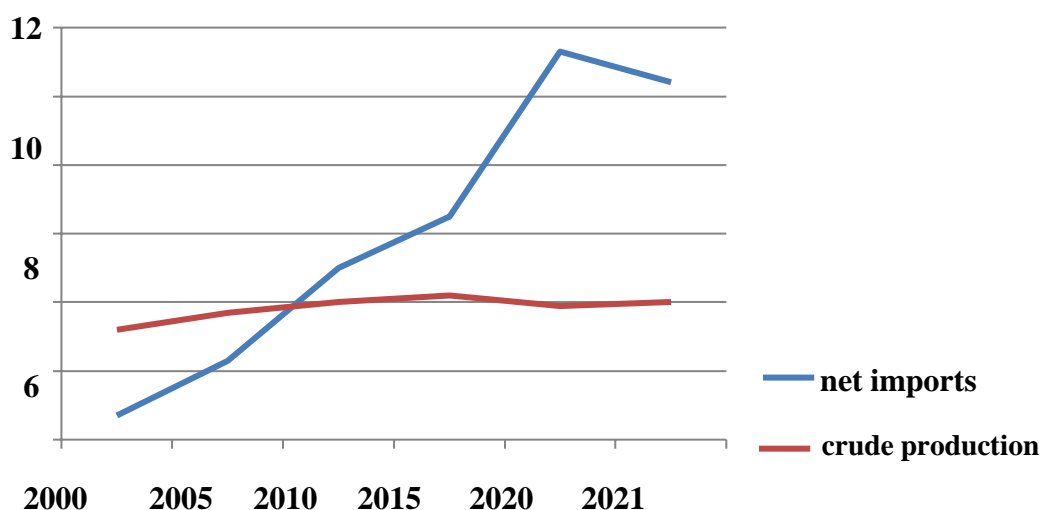
According to available information, the total volume of Chinese consumption of various energy resources is estimated at 23% of the total global energy consumption, and its consumption of oil is estimated at 11.9 MB/d in 2022, of which about 4.3 MB/d is from domestic production, and it imports about 7.6 MB/d, China consumed about 659.2 m/b in 2022 [Figure. 3]

Despite the varying predictions between Chinese and foreign sources about the amount of China's oil production and the share of demand for it over the next twenty years [Table 2],



they unanimously expect that its production will not record a significant increase unless there are new oil discoveries, its future consumption will double with an increase of about 5% (BP, 2022), [Figure. 2] leading to a further increase its dependency on imported oil. China's oil supply security has become a strategically significant issue for its economic and social development. This is crucial as China's population represents over 22% of the world's total population. China's major oilfields in the coastal regions of eastern China have entered a phase of gradual decline after sufficient years of extraction.

**Figure. 2. China's oil imports and domestic production, mb/d**



**Source :** <https://www.eia.gov/todayinenergy/detail.php?id=43216>

In addition, its security of oil supply has become an issue of strategic importance for its economic and social development process, at a time when China's population represents more than 22% of the world's total population, in addition to the fact that the main oil fields in China are located in the coastal areas. Eastern China has entered a phase of gradual decline after many years of extraction. China has begun to move according to more than one path. On the one hand, China has resorted to the alternative of importing crude oil in more than one region [Figure. 3], including the countries of the Middle East, Russia, the countries of Central Asia, and some African countries (Hussein Qawadra, 2019), in addition to some countries. Latin America, the Arab countries (especially the Gulf countries) represented the largest supplier of crude oil to China.

**Figure. 3. Import value of crude oil to China between 2012 and 2022 (in billion U.S. dollars)**



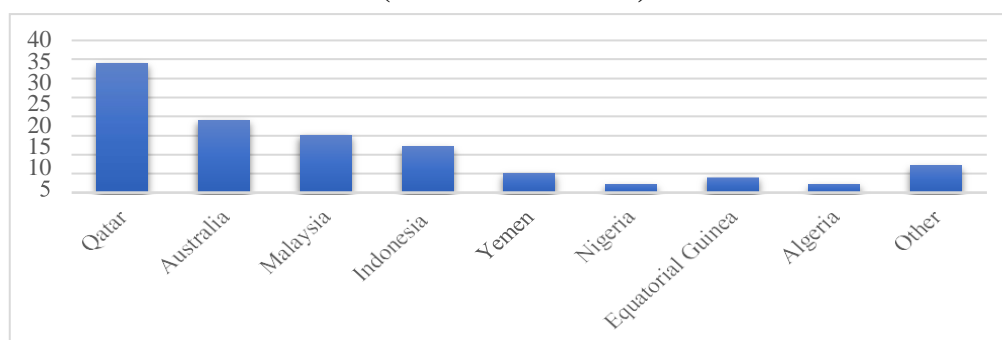
**Source :** <https://www.statista.com/statistics/232199/import-value-of-crude-oil-to-china/>

### 3.2- Gas: The worrying strategic alternative for the Chinese economy

More than 80% of China's marine oil imports pass through the Strait of Malacca. Therefore, this strategic waterway represents a potential danger to the Chinese economy if it is unable to protect its maritime interests in that narrow strait. China currently relies on imported natural gas delivered via land pipelines and tankers in the form of liquefied natural gas, two existing pipelines supplied 46% of China's natural gas imports in 2017 [Figure. 4], with three-quarters of that amount coming from Turkmenistan. The share of land-based energy sources is likely to increase in the coming years, in 2014, China and Russia signed a 30- year, \$400 billion deal to deliver Russian natural gas to China.

In December 2019, the \$55 billion Energy of Siberia pipeline sent the first shipments of natural gas from Russia to China (csis, 2023).

**Figure. 4: The most important sources of China's imports of LNG 2022 (Billion Cubic Feet)**



**Source: International Energy Agency (EIA)**

#### 4- China's strategy for Transitioning to Renewable Energies

Today, China is becoming a global leader in investing in clean and renewable energy sources, something that may allow for the “resistance” of renewable energy. In July 2022, China launched the 14th Five-Year Plan for Renewable Energy Development (2021-2025), it is a comprehensive plan to further accelerate the expansion of renewable energy in China. The plan targets a 50% increase in renewable energy generation (from 2.2 trillion kw/h in 2020 to 3.3 trillion kw/h in 2025) (Zhou Feng and Peng Linan and LI Jie, 2022).

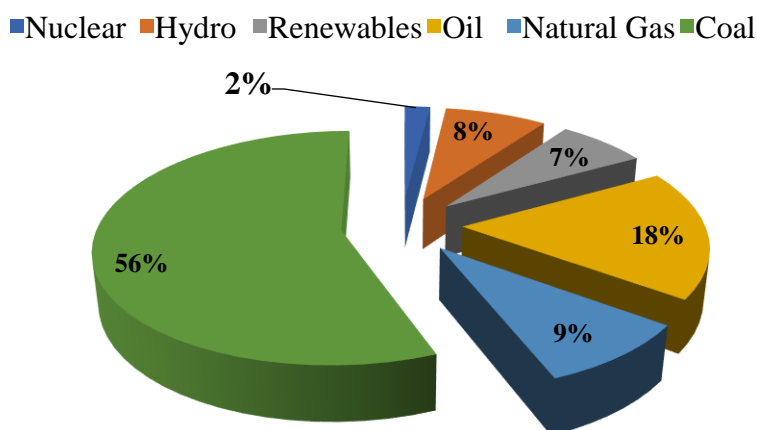
In 2022, China invested in new projects for this sector, including more investments than the size of the world's countries combined. China is still supplying coal-fired plants and other traditional fossil fuel sources currently. China's rapid economic growth has relied on fossil fuel energy sources. The enormous domestic coal wealth, along with China's oil and gas imports, played a central role in the development process. However, as the effects of climate change deepened, represented by rising sea levels, changes in rainfall seasons, increased frequency of strange weather phenomena, increased spread of infectious diseases, and decreased availability of food, water, and health care, the Communist Party leadership tended to adopt successive strategies to bring about a “revolution in the transition to clean energy sources”.

The Renewable Energy Law drawn up by (Bloomberg NEF, 2024) has become a turning point towards reducing dependence on fossil energies. In 2007, the medium- and long-term development plan for renewable energy was adopted, which set the goal of reaching the proportion of clean energy sources in China's total energy sources from 7.5% in 2007 to 15% in 2022. In 2017, Chinese National Energy Authority published the “Strategy for the Revolution of Energy Supply and Consumption” (IEA, Energy Supply and Consumption Revolution Strategy (2016-2030), 2021), [Figure. 5], which identified five major priorities in the sector:

- 1- Rationalization of energy consumption.
- 2- Diversifying energy supplies.
- 3- Encouraging energy technology innovations.
- 4- Reforming the energy and electricity system at the national level.
- 5- Improving energy security by enhancing international cooperation.

In March 2021, another turning point in China's energy system, President Xi Jinping pledged to build "a new energy system, with renewable energy at the center" in plans to reach the goals of peak emissions by 2030 and carbon neutrality by 2060. In the same year, during the Leaders' Summit on Climate and later the COP26 summit in Glasgow, Xi pledged to control the increase in coal use during the 14th Five-Year Plan (2021-2025) and gradually reduce dependence on it during the 15th Five-Year Plan (2026-2030). (David Stanway and Cate Cadell, 2021).

**Figure. 5. China's percentage energy mix, 2022**



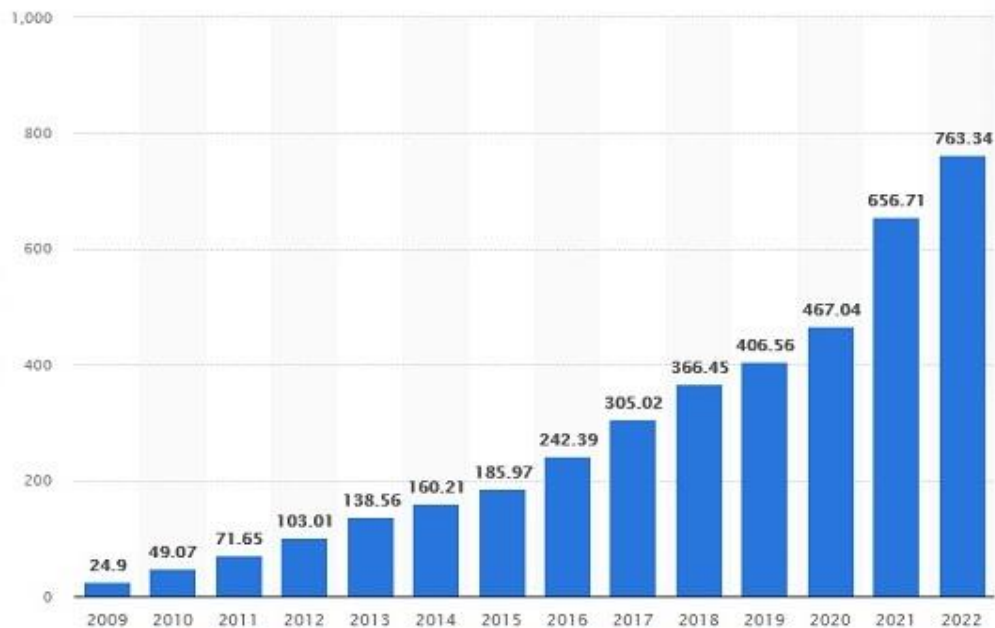
**Source:** <https://www.statista.com/statistics/1235176/china-distribution-of-electricity-Production-by->

As China has become the largest emitter of CO<sub>2</sub> in the world, it has also become the largest producer of renewable energy, from wind, solar, and hydroelectric sources [Fig 5-6]. It also seeks to achieve 25% of China's total renewable energy sources by 2030, and more than 80% by 2060. Regarding the global competition for the energy transition, China produces energy from clean and renewable sources every year with a capacity exceeding all countries in the world combined. For example, China adds about 75% of the world's total wind and solar energy annually and about 80% of its total hydropower energy too [Figure. 7]. In addition, China now owns nearly half of the world's wind energy. It also accounts for half of the number of electric cars in the world.

Additionally, China's dominance in renewable energy production reflects its strategic focus on transitioning towards a more sustainable energy future while also addressing environmental concerns and reducing carbon emissions. The country's significant investments in renewable energy infrastructure, research, and development have propelled

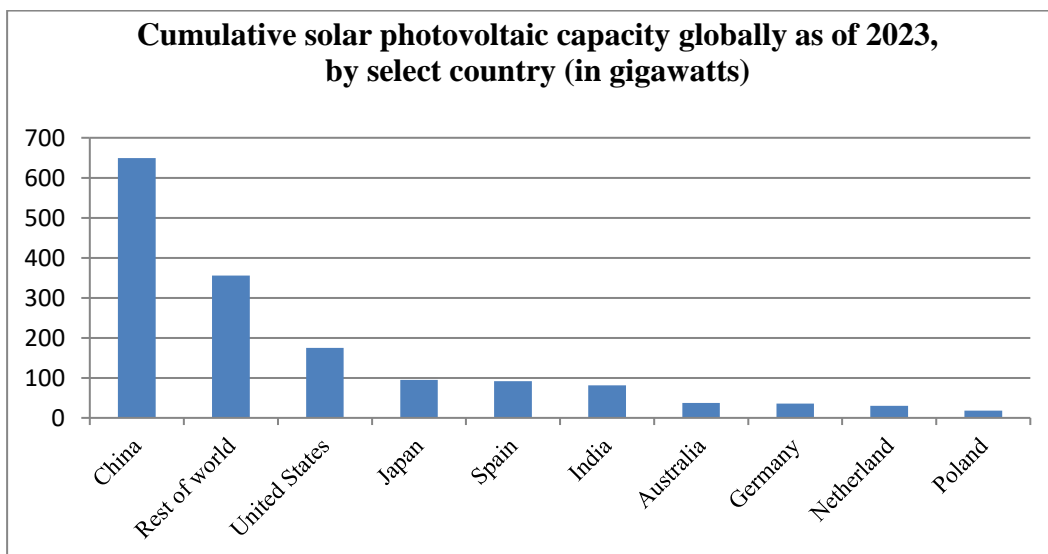
it to the forefront of the global clean energy market. China's ambitious targets for renewable energy expansion and adoption, coupled with supportive government policies and incentives, have accelerated the deployment of renewable energy technologies across various sectors. As a result, China not only enhances its energy security and reduces reliance on fossil fuels but also positions itself as a key player in shaping the trajectory of global energy transition efforts.

**Figure. 6. Wind energy production in China from 2009 to 2022 (In terawatt hours)**



Source: <https://www.statista.com/statistics/224763/energy-production-from-wind-energy-in-china/>

**Figure. 7. Cumulative solar photovoltaic capacity globally as of 2023, by select country**



Source: <https://www.statista.com/statistics/264629/existing-solar-pv-capacity-worldwide/>

## **5- China's Hydrogen Industry Strategy to Strengthen the Economy**

Today, China is considered the largest producer of green hydrogen, with about 25 million tons, or nearly a quarter of the total global production. Most of the volume is produced from fossil fuels (60% from coal, 25% from natural gas) as raw materials in refineries or chemical facilities, however, China is increasingly exploring the production and consumption of low-emission hydrogen to help meet energy needs and stimulate industrial development while also addressing climate concerns. In particular, China's commitment to carbon neutrality by 2060 pledged in 2020 is a major policy-oriented development that could help shift hydrogen production away from Conventional Sources of Energy to renewable energy sources, in addition to increase the deployment of fuel cells and vehicles, and use hydrogen in sectors which is difficult to mitigate.

While China has not yet announced a national hydrogen strategy, predict for hydrogen demand indicate strong growth, while "the China Hydrogen Alliance"- which is a government-backed industry group launched in 2018- expects demand to reach 35 million tons in 2030 (at least 5% of China's energy supply) and 60 million tons in 2050 (10%). meanwhile the same organization also expects hydrogen production based on renewable energy to reach 100 million tons by 2060, accounting for 20% of the country's final energy consumption. (Jane Nakano, 2022).

### **5.1. Green Hydrogen: An investment for building a stronger economy and reducing dependence**

China's interest in developing hydrogen began with its use in the transportation sector in the early 21st century, as policymakers saw the growing automotive sector and the accompanying rise in fuel imports as a strategic weakness leading to worsening air pollution in cities. By the end of 2020, 8,400 fuel cell vehicles were deployed in China, making the country the third-largest market for fuel cell vehicles and the largest in the world for fuel cell trucks and buses. According to the roadmap for hydrogen fuel cell technology, issued in 2016, China aimed to establish a national fleet of over 50,000 hydrogen fuel cell vehicles and 300 hydrogen refueling stations by 2025 (FCW, 2022), and one million hydrogen fuel cell vehicles and 1,000 hydrogen refueling stations by 2030. Expectations for hydrogen refueling station deployment are stronger today. According to the New Energy Vehicle Industry Development Plan, published in October 2020, HRS capacity could grow from 72 units as of mid-2020 to 2,000 units by 2035, showing a sped-up pace of infrastructure rollout. (Jane Nakano, 2022).

The uptake of hydrogen/fuel cells for the transportation sector is weak given the use of electric vehicles in China, although Made in China 2025 - a 10- year industrial plan to upgrade China's manufacturing industry, released in 2015 - included hydrogen as a key technology in developing the new energy vehicles sector. China classifies FCVs as a high-end type of new energy vehicle, which also includes battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs). In fact, China's primary focus has been on developing and deploying battery electric vehicles and plug-in hybrid vehicles (PHEV) By the first half of 2020. A combination of generous subsidies for production and sales led to electric vehicle sales in China growing by 160 percent in 2021 alone, to about 2.91 million units. (ShunsukeTabita, 2022).

The cost of producing hydrogen from coal remains very low in China, with the cost of producing it being about half that of renewable energy-based production. The development of green hydrogen, which currently accounts for 1.5% of the country's total energy supply, faces cost barriers. However, the Chinese government appears to be increasingly focusing on the prospects of developing green hydrogen, highlighting a potential combination of energy storage technologies in the context of expanding renewable energy supplies.

## **5.2. Green Hydrogen Production Cost**

The production cost remains the primary obstacle to expanding the scope of green hydrogen for China, with cost components divided into production, transportation, and fuel supply stations. Among these, production represents the highest cost and poses a major supply-side challenge. Green hydrogen is currently produced through electrolysis of water powered by renewable energy. The production cost of this type of hydrogen is currently estimated at (4.92-6.23 USD/kg).

Assuming production runs at full load for 7,500 hours per year and average electricity prices (\$0.07/kWh). Taking into account the fluctuation of raw material prices, the cost of producing green hydrogen is on average three times that of hydrogen produced with coal (\$0.99-1.76/kg), and much more than hydrogen produced either by natural gas (\$1.09-3.53/kg) or as an industrial by- product (\$1.35-3.25). USD/kg). (IEA, Opportunities for Hydrogen Production with CCUS in China, 2022), The Chinese government has spent a huge budget on developing hydrogen, and on research and development. With the end of the Thirteenth Five-Year Plan (2016-2020), spending on research and development in hydrogen technology in China increased six-fold, reaching more than \$600 million in 2019, the support

program is also available on the fuel cell battery development plan. Thus, China has become the largest producer of greenhydrogen, it has the third largest global market for fuel cell cars, and China continues to develop strategic plans for green hydrogen. (CGTN, 2023 ), These huge investments contribute to stimulating technology and reducing the costs of clean and renewable energy. It is expected that these investments will not only reduce new costs, but will also lead to “spillover” impacts on the rest of the world, the most important of which are related to innovation and cost. (WEF, 2022).

## **6- The Role of Energy in Building Chinese Military Power**

Oil, as a strategic economic commodity, plays an important role in building the military power of the great powers during the twentieth century, and it continues to do so by the twenty-first century, even if the balance of military power is the result of economic capacity. The spread of this force and its strategies are shaped by the requirements of protecting and defending economic and commercial interests, especially the security of vital supplies and their areas of presence (Kai-Hua Wang and Chi-Wei Su, 2021), It is known that the Chinese economy accounted for 28% of global economic growth in the period from 2013 to 2018, which is twice the United States’ share of its global ratio, which indicates that China has a tremendous influence on the global economy.

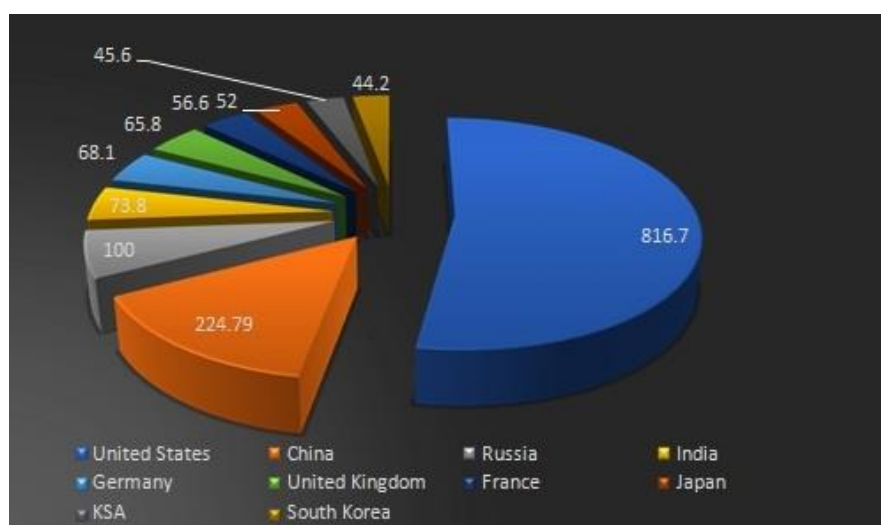
On the other hand, in light of the global geopolitical and security transformations, foreign companies operating in China have become in a critical situation due to the energy crisis, and this is what always prompts the United States of America to monitor the development of China’s economic situation alongside its military development. Accordingly, based on the annual reports issued by the US Department of Defense to Congress on security and military developments, which include the People’s Republic of China, which talk about the continuous development in Chinese military power and security strategy, this demonstrates the ambition of the Chinese state to develop and modernize its military power that fit with its economic position extends throughout the world, most importantly, protect its vital and strategic energy supplies (Belmadi Sofiane, 2017). This relationship is clearly evident in the development of the US military power, as protecting its trade routes across the world required the creation of the largest naval force. This force grew its bases spread and it expanded with the growth of its imports and exports. As was the case for the United States, the situation has become consistent with China, which is developing its economic and military capabilities in parallel, pushes it to be a major player in the global



economy and international politics. On the other hand, with the significant and continuous growth in China's need for energy resources, especially those coming from the Middle East, it has brought production and transit areas into China's vital strategic scope, which requires it to strengthen its military presence in the Indian Ocean, the Arabian Sea, and various important maritime straits (Hendun Abd Rahman Shah, 2013), For the purpose of protecting its supplies, it has deployed some of its naval forces to different areas, such as those near the coast of Sri Lanka, the eastern coast of Africa and the Red Sea (Hussein Qawadra, 2019), while its operational presence was limited to protecting commercial ships from acts of piracy in the Malacca Strait and those departing from the coast of Somalia (Hendun Abd Rahman Shah, 2013), This presence is a prelude to a larger and more effective military presence in the future that protects its growing interests in the region.

China has greatly enhanced its military capabilities in recent years, and this is proven by the budget allocated to this sector [Figure. 8] which continued to rise significantly from 2000 to 2016 by 10% annually, although this growth later slowed to about 5-7% annually. According to PRC government sources, China's defense budget reached \$224.79 billion in 2023, ranking second after the United States, and Western experts indicate that the difference could reach \$60 billion annually. Moreover, China's continued economic growth requires a more capable military force to deal with an expanding range of protection and defense tasks, including the possibility of conflict with Taiwan, especially after the ongoing events coinciding with the Russian-Ukrainian war. (Timothy R. Heath, 2023).

**Figure. 8. Top ten military spending countries 2023 (Billion US Dollars)**



**Source:** <https://fairbd.net/top-10-military-spending-countries/>

### **3. Discussion**

The findings represented in this paper show that China with its large and rapid economic growth, increases the degree of China's need for various energy resources, especially traditional ones (oil and gas), which makes it in a state of dependence until now due to the continuous import in huge quantities, especially from the Middle East, Africa and Russia. It has included the production and transit areas within the scope of its security and strategic calculations, as well as its diplomatic relations with those countries in particular, which requires it to strengthen its relations in an international environment that is witnessing continuous geopolitical movements in which the nature of strategic diplomatic relations enters a sensitive area in which the evaluation of relations with others depends on the degree of mutual interests and the degree of threat to the interests that are to be achieved.

Since the issue of energy is considered a file that is almost completely subject to the control of the major powers, China is working to achieve of security balances between its vital interests and building its strength in all areas in exchange for maintaining peaceful relations with those powers and the important producing countries in the global energy market. Any failure in these arrangements will be a direct threat to its stability and future position.

### **Conclusion**

Through an in-depth reading of the Chinese policies and strategies that it adopts, it appears clearly that seeks to achieve high levels of economic growth, which will transform it into a "global industrial region par excellence" but at high costs, especially with regard to ensuring the continuation of its economic prosperity, which gives it that superior position, in addition to fulfilling the need for domestic consumption as well as preserving the environment, on the other hand, this major transformation of the economy also constitute the backbone of China's foreign and defense policy, and ensure its stability in an international environment that is witnessing successive geopolitical shifts. Based on the statistics presented, it is clear that China today quest for stable and clean energy alternatives has undoubtedly made significant progress. However, the nation is now confronted with a daunting challenge of striking a delicate balance between economic development, energy sustainability, and environmental security. In this paper, we delved into the intricacies of this triad to shed light on the multifaceted challenges facing China. Adopting a comprehensive geo-economics' and

geopolitical approach, we dissected China's energy dilemma and its far-reaching implications on the economy and the environment.

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