Peak China?

Exploring Opportunities in China's Natural Gas Industry

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By Michel Brekelmans

China has been a key player in the global economy, experiencing significant growth over the past few decades. Its rapid industrialization, export-oriented policies, and massive infrastructure projects have propelled it to become the world's second-largest economy. However, in the last few years China his witnessed significant headwinds with a collapsing property sector, declining working population, sagging consumer confidence and significant constraints around technology trade. Reports of ‘Peak China’ have become frequent in the international media.

Peak China? Has China peaked or is it ‘Open for Business’?

Based on recent project experience we’re diving into a number of industry sectors to explore whether China truly has become ‘uninvestible’, as some commentators believe, or whether China remains ‘open for business’, a narrative currently pushed hard by China’s government. We start this series with a look at one of the more sensitive industries for investment, the energy sector, and more specifically China’s natural gas sector.

Overview of the Natural Gas Industry

China's natural gas industry has witnessed exponential growth in recent years, driven by the country's increasing energy demands and a focus on transitioning towards cleaner energy sources. With a strong emphasis on reducing pollution and achieving energy security, China presents several investment opportunities for both local and international companies within the natural gas sector.

China's natural gas industry is a complex and evolving landscape. Following are several key aspects that shape the industry:

1. **Rapid Growth:** China has become the world's largest natural gas consumer, with an escalating demand for cleaner energy alternatives to combat pollution and reduce emissions. This demand has led to a significant increase in natural gas consumption, making it one of the main themes in the country's energy landscape. Natural gas accounts for approximately 8% of China's energy mix. This is comparatively lower than the average of 23-24% in OECD countries. Companies like China Gas Holdings have a presence in over 600 cities and supply a significant amount of gas. However, there is still growth potential, with the possibility of reaching up to 80-90% coverage.

Figure 1: Energy Mix (2021)

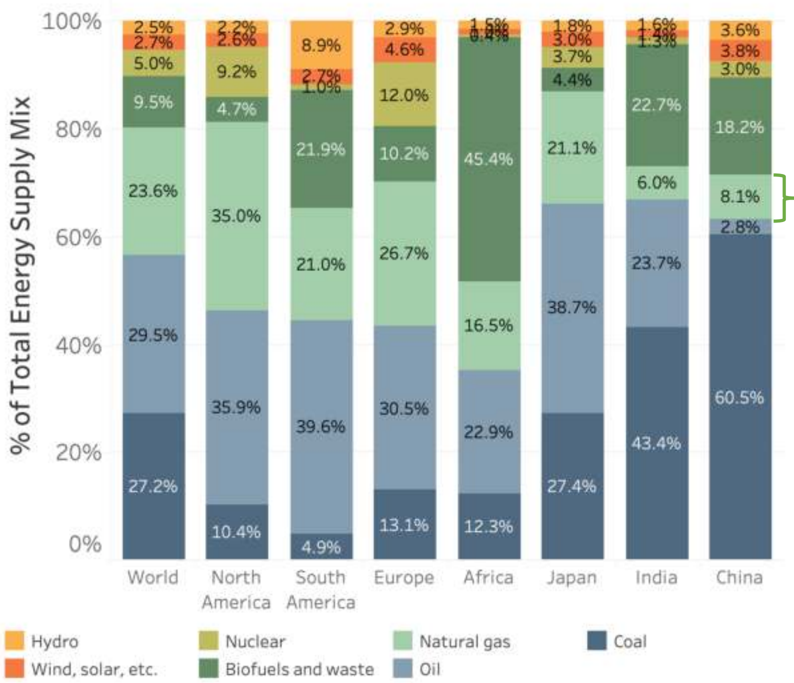
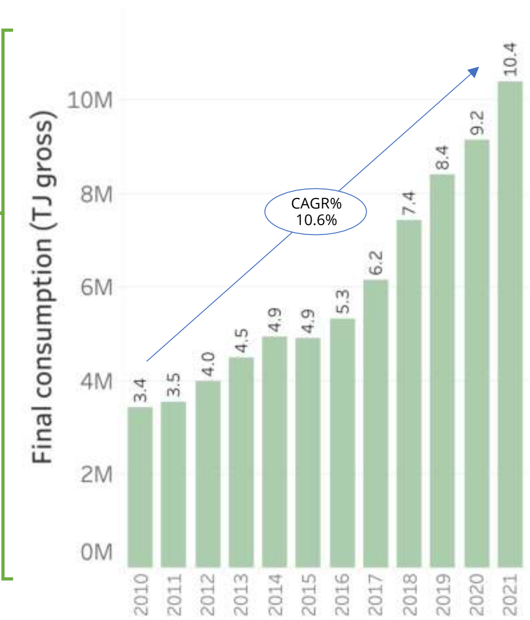


Fig. 2: China Natural Gas consumption



Source: IEA, SCP/Asia Research & Analysis

The Chinese government aims to displace coal usage with natural gas, thereby improving air quality and reducing greenhouse gas emissions. A challenge here is that natural gas is relatively expensive compared to other sources, making 'gas to power' uncompetitive compared to coal. Not surprising, China's 'addiction' for coal is hard to stem, with coal production reaching record levels in 2023.

Figure 3: Coal Consumption by Country (2022)

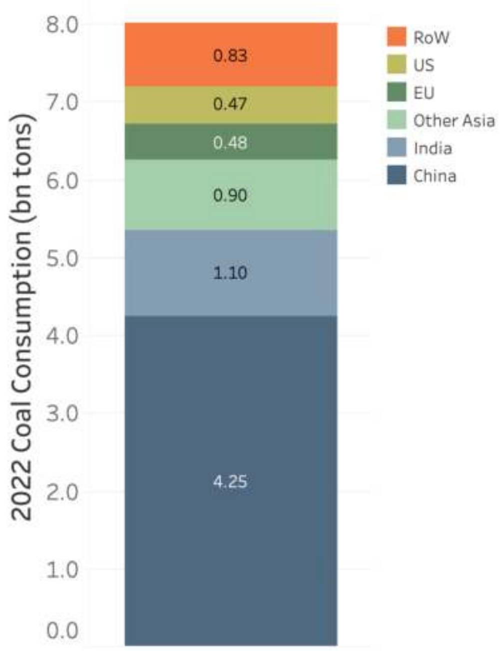
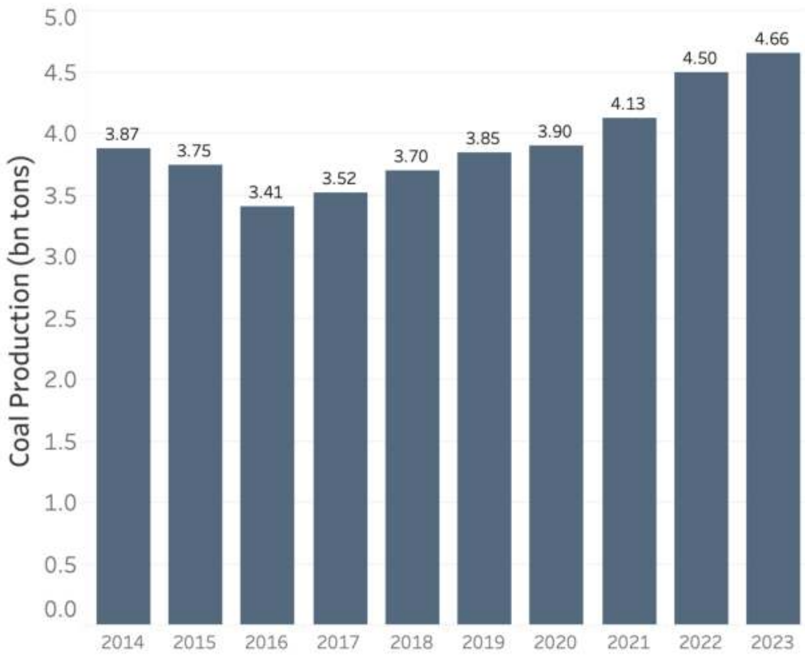


Figure 4: China Coal production (2014-23)



Source: IEA, National Bureau of Statistics China, SCP/Asia Research & Analysis

Carbon capture for coal-fired power plants may prolong China’s coal consumption although the high costs associated with that technology means that natural gas would become a relatively cheaper option and offers a more feasible solution for power generation.

2. **Coastal Concentration:** China's natural gas consumption is primarily concentrated in the coastal regions. This concentration presents a unique market dynamic, as infrastructure development and supply chain optimization become crucial factors for companies looking to capitalize on the growing demand. China has made significant investments in infrastructure to support the use of natural gas. For example, there are pipelines like the West-East Pipeline, which transports gas from Xinjiang to Shanghai and Guangdong.

3. **LNG Imports:** China's liquefied natural gas (LNG) imports have soared, driven by the need to meet growing energy demands. This trend provides investment opportunities for companies involved in LNG production, import terminals, and LNG transportation.

Upstream and downstream activities in the natural gas value chain are dominated by SOE's

4. **State-Owned Enterprises:** The natural gas sector in China is predominantly controlled by state-owned enterprises (SOEs), both upstream and downstream. The upstream gas sector in China is primarily controlled by state-owned enterprises such as CNOOC, Sinopec, and PetroChina. These companies dominate conventional gas production and exploration activities. These SOEs play a significant role in the industry, shaping market dynamics and influencing investment opportunities. As a result, private and foreign players may face limitations in terms of investment opportunities in certain areas of the natural gas sector, particularly in upstream and downstream gas distribution.

5. **Market Reshaping:** The industry is experiencing a shift in market dynamics, with the entry of large city gas companies and oil majors. This reshaping presents challenges and opportunities for smaller city gas companies, as they seek to secure gas supply and maintain profitability amidst competition.

   City gas companies have more freedom in supply choices now that Pipe China is acting as a public service entity. But smaller city gas companies face challenges sourcing feed gas from bigger competitors who control provincial grids and can sell cheaper LNG into their regions through trucking. These factors make investing in city gas companies unfavourable unless they have their own upstream sourcing or established partnerships with major energy players like BP.

6. **Unconventional Gas:** While state-owned enterprises have traditionally controlled the conventional gas sector, there have been opportunities for foreign enterprises to participate in unconventional gas developments. China has sought Western technology to facilitate the growth of unconventional gas resources like coal bed methane.

Investment Opportunities in the Natural Gas Industry

1. **Infrastructure Development:** China's expanding natural gas market requires substantial infrastructure development. Opportunities exist for companies involved in the construction of pipelines, liquefied natural gas (LNG)

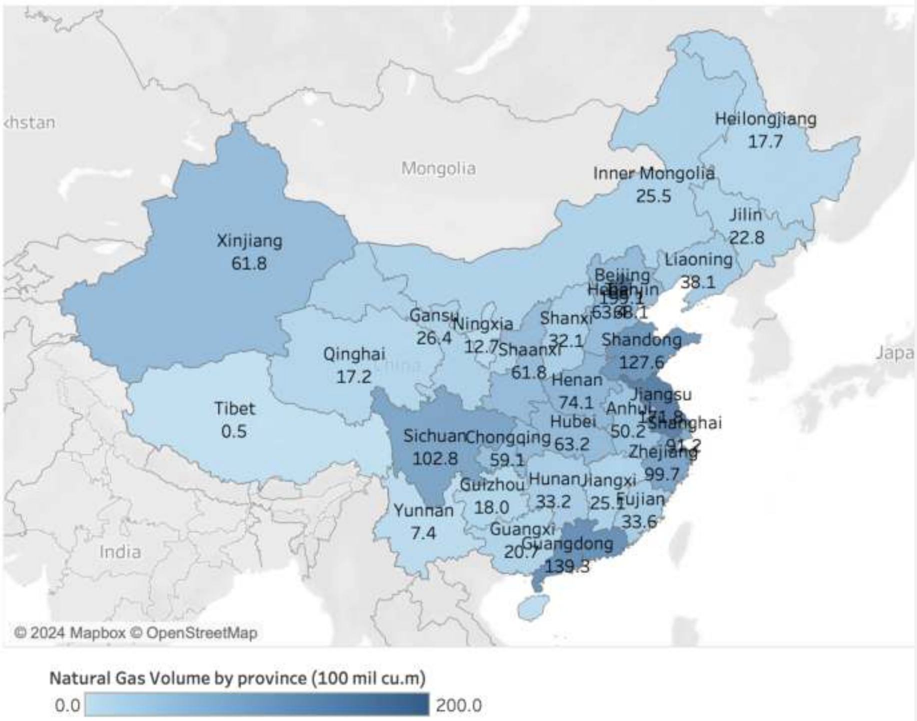
terminals, and storage facilities. Investing in the expansion of gas transmission and distribution networks can provide significant returns.

2. **LNG Imports:** China is the world's largest LNG importer. With an increasing demand for cleaner energy, there are opportunities for investment in LNG import terminals, especially in coastal cities. Collaborations with existing state-owned enterprises such as Sinopec and PetroChina can provide a pathway for market entry.

Demand is strongest in coastal provinces, but some inland provinces are showing high growth rates

3. **Distribution and Retail:** China Gas Holdings, a major player in the industry, supplies gas to over 600 cities. Investing in gas distribution networks and retail operations, including connection fees and related services, can be a lucrative venture. Additionally, investing in the development of compressed natural gas (CNG) and LNG refuelling stations for the growing vehicle market presents further opportunities.

Figure 5: Natural Gas Volume by Province (2022)



Source: National Bureau of Statistics China, SCP/Asia Research & Analysis

There is growing market for LNG-fuelled trucks and vessels, particularly in North China and Northwest China. However, it notes that the development of this market in other regions is still new. The transcript emphasizes that electric heavy trucks are not a viable option due to long charging times, making LNG trucks a more popular choice among truck drivers.

4. **Technology and Innovation:** As China seeks to enhance the efficiency and sustainability of its natural gas industry, there is a demand for advanced technologies. Companies specializing in gas processing, liquefaction, and gas-to-power conversion technologies can find potential investment opportunities in China. Companies specializing in advanced drilling technologies, pipeline construction, and environmental solutions can should also find significant opportunities by partnering with Chinese counterparts or establishing a presence in the market.

Potential in Unconventional Gas?

China's unconventional gas resources, such as coal bed methane and shale gas, have previously been seen to present investment opportunities. However, there are several barriers and challenges to investing in unconventional gas:

Unconventional gas is less attractive in China due to high costs and state control

1. **State control**: As mentioned, the upstream gas industry in China, including unconventional gas, is largely controlled by state-owned enterprises. These state enterprises have control over conventional gas basins and also participate to some extent in unconventional gas projects. Collaborating with state-owned enterprises can provide access to these resources and contribute to China's clean energy goals but for many players this is not seen as a viable option.

2. **Geological and geographical limitations:** The viability of shale gas in China is limited compared to for instance the US, due to geological and geography factor. Compared to shale gas in the US, extraction in China is considerable harder and more expensive.

3. **Pricing and economics:** Gas in China is relatively expensive compared to international markets. There are concerns about the economic viability of large-scale gas-to-power projects due to the pricing of power of power generators, which makes it less economically feasible compared to coal. This may impact the attractiveness of investing in unconventional gas projects given the relatively high cost of extraction.

4. **Intrinsic barriers:** There are intrinsic barriers to accessing existing pipelines and infrastructure owned by state-owned enterprises, namely that third-party investors may not get an attractive price for their gas if they want to put it in the existing pipelines controlled by state-owned enterprises.

Overall, the challenges to investing in unconventional gas in China include state control, limited foreign participation, geological and geographical limitations, pricing and economics, and potential barriers to accessing existing infrastructure.

Potential in Other Alternative Energy Sources?

China is aiming to become a global leader in hydrogen

Besides natural gas there is potential for hydrogen and fuel cells in China's energy landscape. China's current hydrogen production is mostly not green or clean, as it has carbon emissions. However, China's solar power and wind power costs are dropping, which could lead to the future production of cheap electric and green hydrogen.

Currently, the market for hydrogen in China is in the early stages with many demonstration pilot programs. There are massive investments and commitments associated with these projects. 70+ cities participating in a China initiative to roll out hydrogen. These projects are aimed at demonstrating the viability and potential of hydrogen as an alternative energy source.

Currently, China has a cost advantage in certain sectors related to hydrogen production. For example, in terms of electrolyzers or fuel cells, China's costs are approximately one-third of Western costs.

Western companies are entering into partnerships with Chinese players in the hydrogen sector. This indicates a growing interest and collaboration between domestic and international companies. Suppliers of fuel cell stacks or electrolyzers may present opportunities for investment in the development and manufacturing of fuel cell technology in China.

Hydrogen maturity is still some way off but eventually China will look to replicate its success in solar and wind

Hydrogen will not be a main component in China's carbon peak goal by 2030 or its carbon neutrality goal by 2040 but it is likely there will be specific applications that will present significant opportunities for suppliers of technology, products and services, similar to what we have seen in the solar, wind and LNG value chains in the past 2 decades.

Conclusion

We don't believe the 'Peak China' theory applies to the natural gas sector. Ongoing growth of China's economy, albeit at a slower rate, will continue to drive demand for energy. Natural gas consumption will likely grow as a result. The industry in China is undergoing significant transformation, driven by the country's commitment to cleaner energy and reducing reliance on coal. As China continues to expand its natural gas infrastructure and explore alternative gas resources, there are numerous investment opportunities for local and international companies.

By focusing on infrastructure development, LNG imports, distribution and retail, technology and innovation companies can tap into the immense potential of China's natural gas market while contributing to its sustainable energy future. At the same time we are not blind to the fact that challenges exits, most notably the heavy hand of SOE's in key parts of the value chain as well as government pricing mechanisms that sometimes favour affordability rather than economic returns to investors in the sector.

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