



CNPC Economics & Technology Research Institute

ETRI

The Prospect of Natural Gas in China

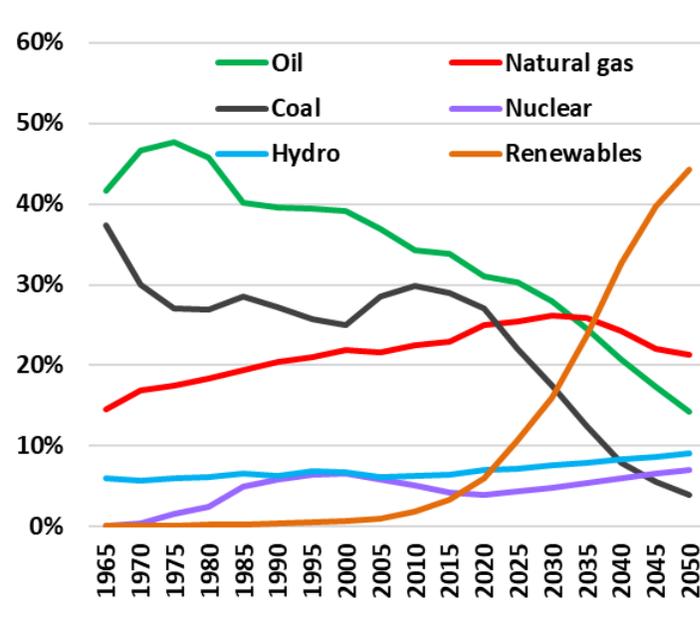
JIANG Xuefeng

October 5th, 2021

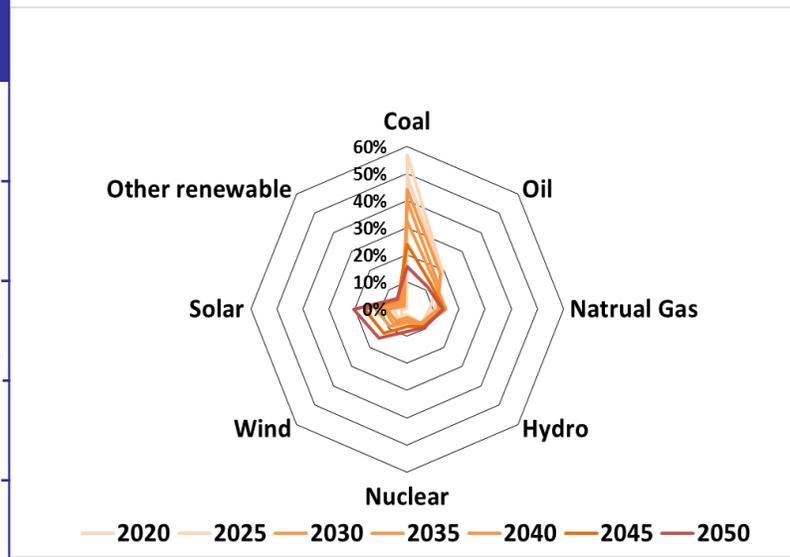
Gas is gaining a more consolidated position in global energy transition



- **Social consensus:** coal reduction and gas increase is a general trend, gas and renewables will keep growing.
- **China's energy mix outlook:** by 2050, gas share will rise to 14% in compare with 9% at present, and renewables will rise to nearly 60%.



	Country	Coal Reserves	Coal Consumption	Energy Transition (year)	Structural change
Rich coal	United States	237.3	0.79	1910-1965	Coal: 76% → 23% Natural gas: 5% → 31%
	Russia	157	0.18	1950-1980	Coal: 80% → 31% Natural gas: 3% → 31%
	China	138.8	3.86	2007-present	Coal: 73% → 60% Natural gas: 3.0% → 8.0%
Poor coal	United Kingdom	0.2	0.047	1965-1993	Coal: 60% → 26% Natural gas: 0% → 26%
	Japan	0.3	0.239	1955-2003	Coal: 55% → 23% Natural gas: 0% → 13%



Historical changes and future trend of world energy structure

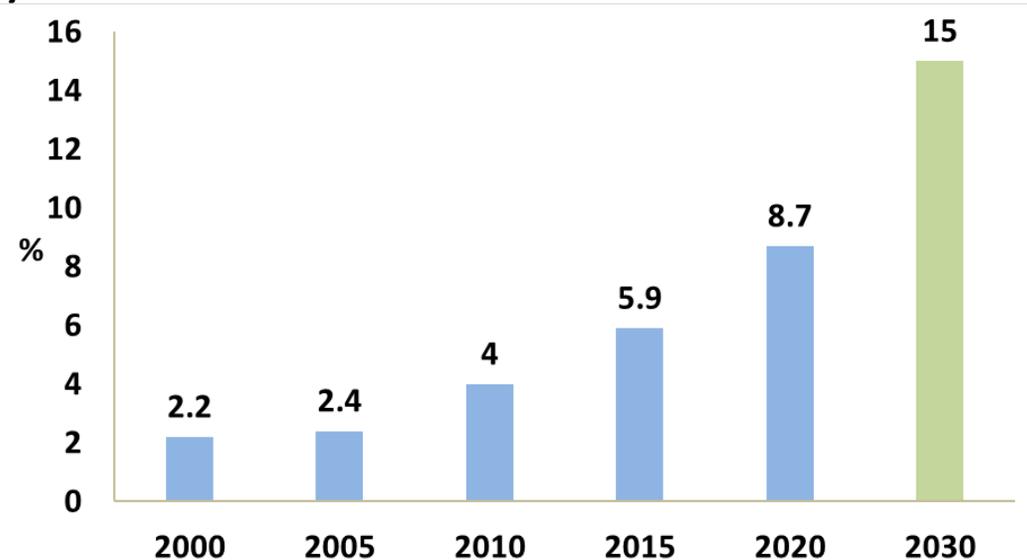
Evolution of energy resources in typical countries (billion tons)

China's energy consumption structure outlook

Gas in China: the most realistic and feasible clean energy



- Low-carbon energy system, driven and accelerated by the goals of carbon emission peak and neutrality by Chinese government.
- The relationship between **gas and renewables** will be **deep integration** rather than substitution.
 - Gas share in China's primary energy mix: 8.7% in 2020, 15% in 2030;
 - Gas will be an indispensable support to the scale development of renewables due to the intermittency.

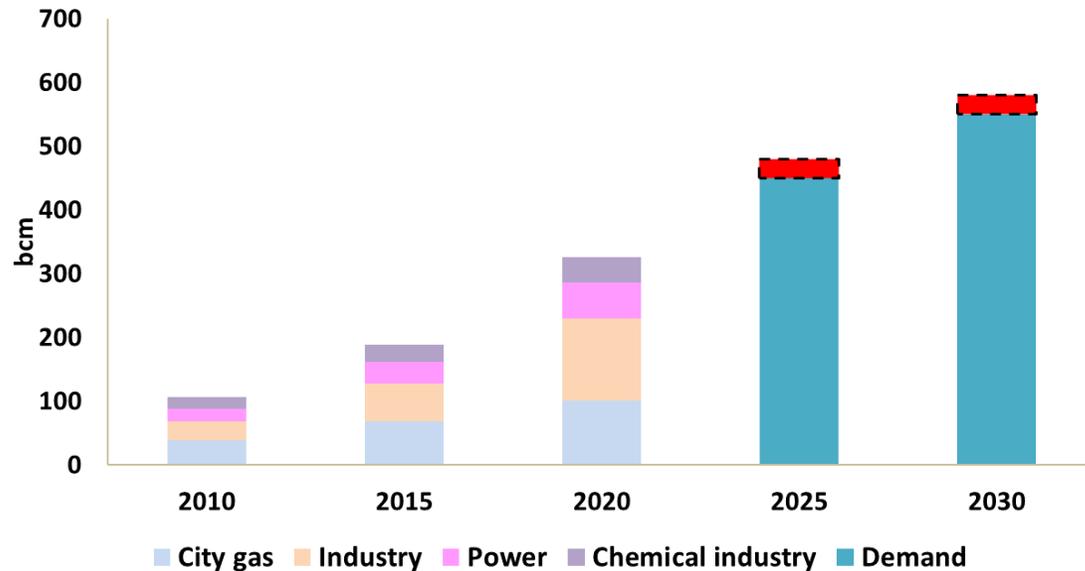


Perspectives of the share of gas in primary energy mix

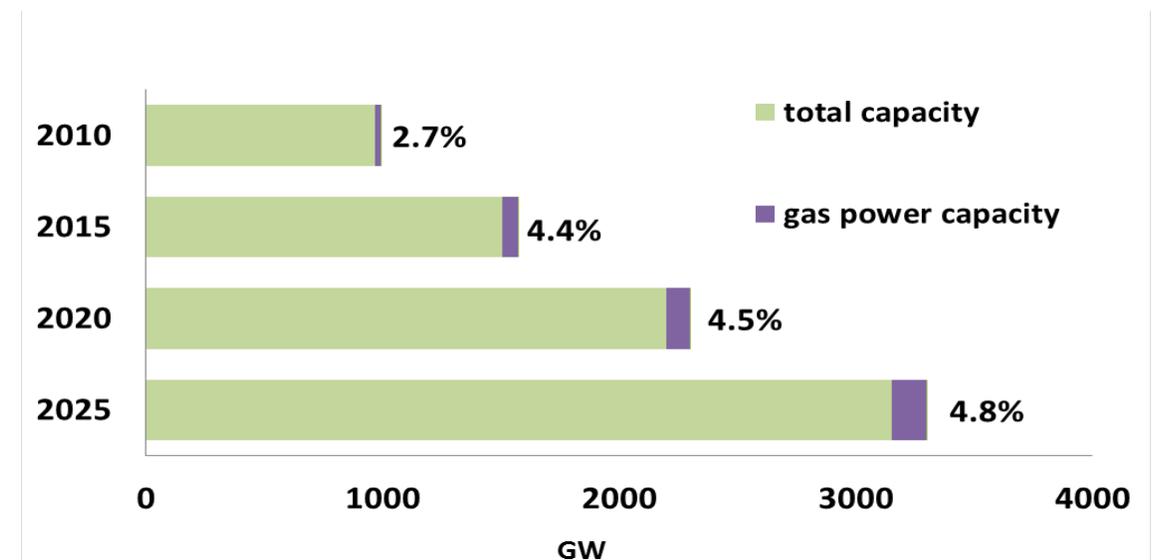


China's gas demand: keep increasing steadily

- By 2030, **China's gas demand** will keep increasing steadily.
 - 450-480 bcm in 2025, and 550-580 bcm in 2030.
- **Gas consumption by sector:** In 2020, industry 39.5%, city gas 30.6%, power generation 17.6%, chemicals and fertilizer 12.3%.
 - To improve the flexibility of China's current power system and enhance the security of power supply, gas power will be more focused.



China natural gas consumption forecast

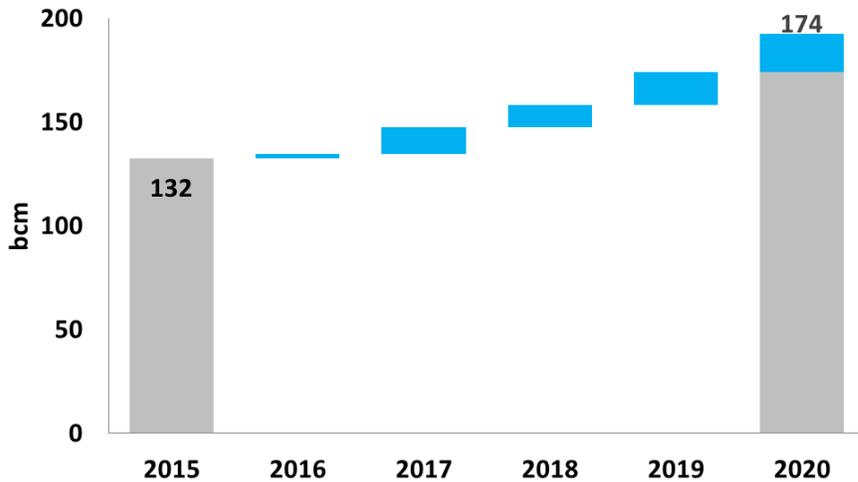


Gas power in China's power mix

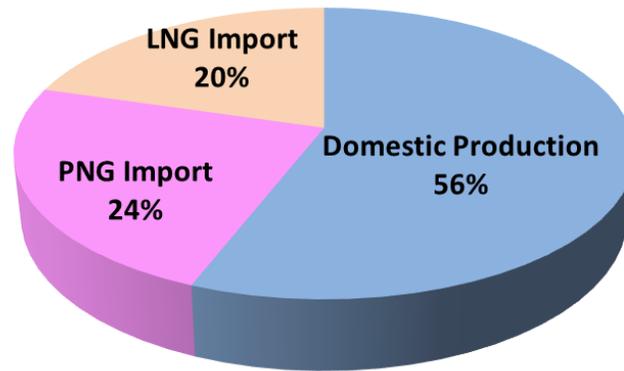
China's gas supply: enhanced security by remarkable domestic production, and progressing and optimized infrastructure



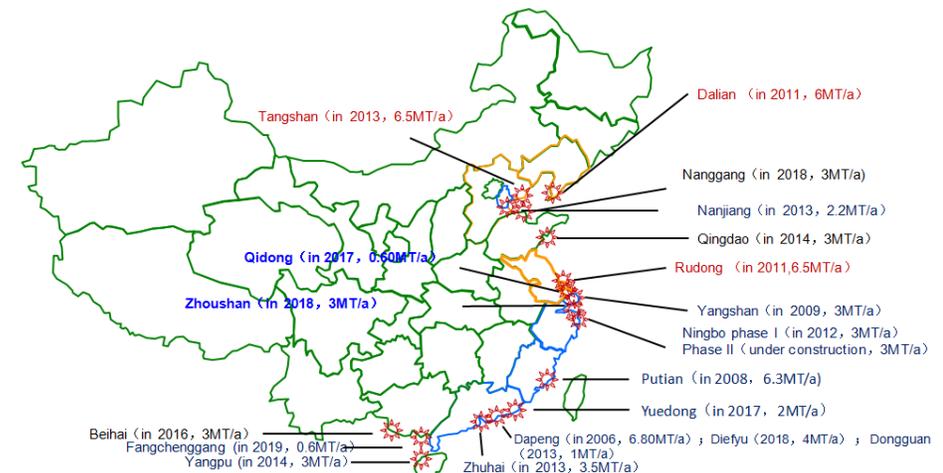
- **Remarkable domestic gas production growth:** 240~260 bcm in 2025, accounts for 56% of national gas supply, and 280~300 bcm in 2030.
- **Infrastructures:**
 - **Massive increase of capacity:** e.g., 190 mmtpa regasification capacity by 2025; nearly 8000 km trunk and branch pipelines will be constructed each year till 2025.
 - **Developing vision:** overall planning and optimization, better inter-connection and efficient operation, open and transparent service.



China's domestic gas production



China's gas supply mix outlook in 2025



China's LNG regas. terminals, as of Sep., 2021