

Seasonal trade

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- China's national strategy is to promote natural gas, thus leading to long-term demand growth
- Natural gas is gaining momentum with the upcoming winter season
- The substitute effect between LNG and coal is increasing
- China recently launched a new LNG price index

More room for the gas sector to grow

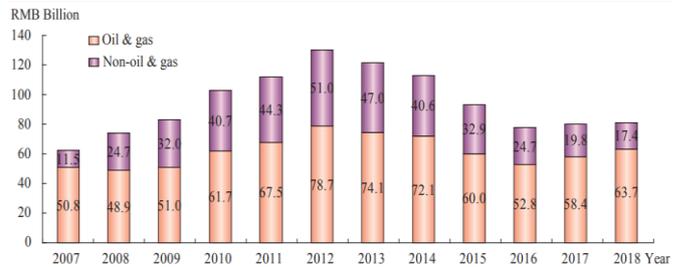
China has embarked on an aggressive campaign to boost natural gas demand as a substitute for coal consumption since 2016, in accordance with the 13th-Five-Year Plan for Natural Gas Development (2016-2020). The stated target and the current progress are shown below:

Area	Target	Progress
Reserve (tn cubic meter)	Newly-discovered	Accumulated
Natural gas	3	16
Shale gas	1	>1.5
Coal bed gas	0.42	>1
Supply	Security capacity	Accu as of 2018
Domestic comprehensive natural gas (tn cubic meter)	>0.36	2.11
Infrastructure	Length	Accumulated
Gathering pipeline network (km)	40k	104k
Transmission capacity of the main pipelines (tn cubic meter/year)	0.4	>0.31
Underground gas storage capacity (mn cubic meter)		148
		93

In general, the planned developments have been on track as of 2018. Driven by strong growth of natural gas consumption led by the transformation of China's energy development strategy, the related capital expenditure on exploration and exploitation lagged relatively after the oil market crash in 2015. From 2009 to 2018, the 12% CAGR of natural gas consumption dwarfed the 7% CAGR of domestic supply. Accordingly, the reliance on gas imports rose from 5% to 43%. It is worth noting that natural gas demand only accounted for 7.8% of non-renewable energy as of 2018. The long-term goal of the transformation of the energy consumption structure aims to lift the percentage to 15% by 2030. In 2018, the total mining fixed asset investment reached RMB959bn, 27% of which was spent on oil and gas development.

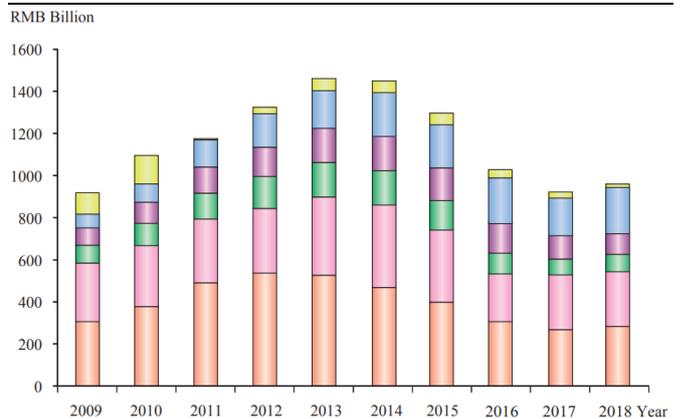
There is significant room for growth for the natural gas market. China will continue to ramp up infrastructure development such as pipeline network, transportation, and storage to expand the nationwide natural gas coverage and lower the cost of consumption.

Figure 1: Investments in geological exploration in China



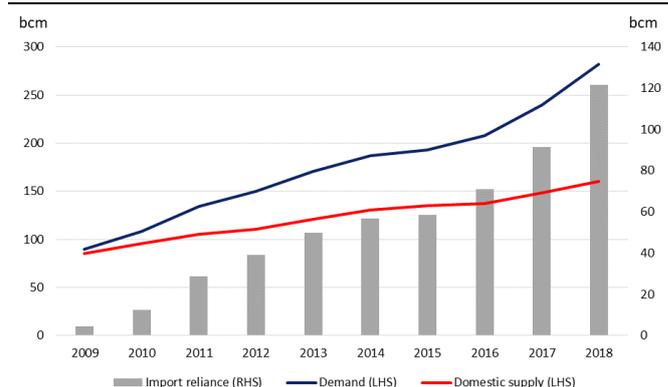
Source: China Mineral Resources 2019

Figure 2: Mining fixed assets investment in China



Source: China Mineral Resources 2019

Figure 3: Growth of natural gas demand outpaces domestic supply



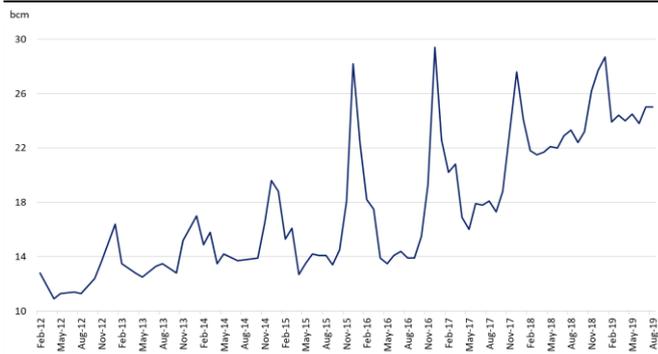
Source: CEIC, KGI Research

Seasonality effect

Domestic natural gas consumption shows a strong seasonality. Residents consume heating in the northern part of China during the cold winter season, and heating is mainly generated by coal or natural gas. However, coal usage causes serious haze problems, a long-standing concern for authorities. Over the past few years, the government has been clamping down on coal consumption, especially during

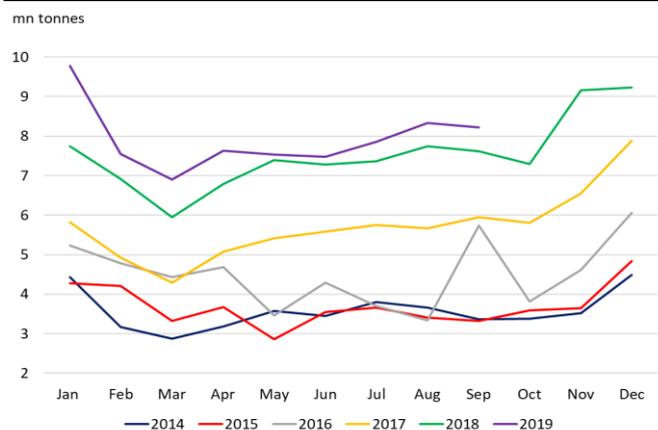
the winter season. One of the solutions is to switch from coal to gas or electricity. Thermal power, the major form of electricity supply in winter, still consumes coal. As a result, the authorities have been aggressively promoting natural gas as the preferred choice. Demand for natural gas has been increasing YoY since the initiation of the 13th-Five-Year Plan in 2016. Generally, the peak season of natural gas consumption starts in October and ends the following March. In August and September, the authorities normally releases guidelines to plan the heating supply, which could then provide visibility of natural gas demand to some extent.

Figure 4: China's LNG consumption



Source: Bloomberg, KGI Research

Figure 5: Yearly comparison of China's LNG demand

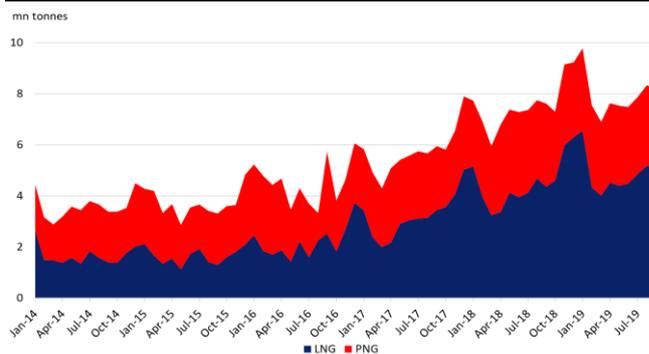


Source: Bloomberg, KGI Research

Relative inverse relation between LNG and thermal coal imports

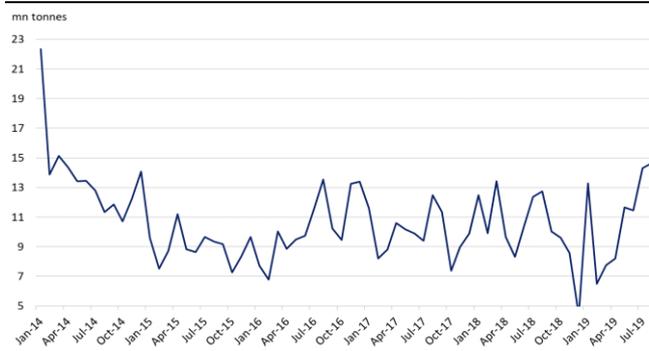
Coal, mainly used to generate power and heating, has two peak seasons in the year: summer and winter. With the acceleration of natural gas consumption, the substitute effect has recently been amplified. Based on our analysis, the import volumes of these two fossil fuels have moved against each other in recent years. This could be the result of a flexible energy supply policy between peak and low season. The government prioritise power and heating supply while balancing the demand for feedstock amid the long-term strategy of growing natural gas share.

Figure 6: China LNG and PNG import



Source: Bloomberg, KGI Research

Figure 7: China thermal coal import

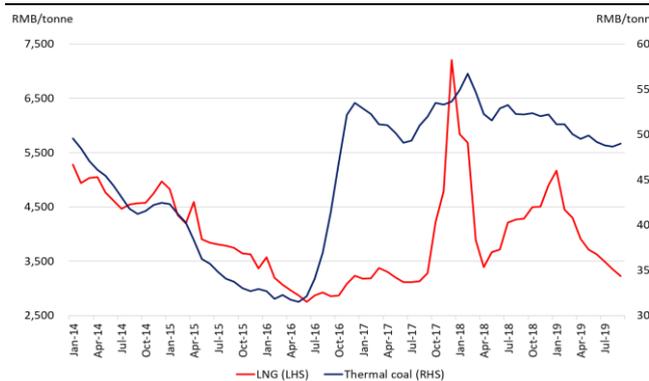


Source: Bloomberg, KGI Research

Recent development

In October, China launched the LNG comprehensive import price index, a new weekly price index for LNG imports into China. It is jointly developed by the General Administration of Customs and Shanghai Petroleum and Natural Gas Exchange. Together with the LNG producer price, we believe it will provide increased visibility of LNG prices for trading companies.

Figure 8: China LNG and thermal coal price movement



Source: Bloomberg, KGI Research

Figure 9: Peer comparison in the gas sector

Ticker	Name	Market Cap (USD bn)	1M Return (%)	6M Return (%)	1Y Return (%)	P/B	P/E	12M FWD PE	Net D/E (%)	ROA (%)	ROE (%)
China											
600903 CH	GUIZHOU GAS GROUP CORP LTD-A	3.1	10.0	11.1	-5.9	6.7	78.8	N/A	110.0	2.2	7.6
601139 CH	SHENZHEN GAS CORP LTD-A	3.4	15.0	24.3	34.3	2.0	21.4	15.9	28.7	4.8	10.2
600635 CH	SHANGHAI DAZHONG PUBLIC UT-A	2.4	3.0	-22.9	59.9	N/A	N/A	N/A	53.3	2.7	7.6
600917 CH	CHONGQING GAS GROUP CORP L-A	1.5	9.4	-2.9	5.6	2.8	31.1	31.4	Net Cash	4.3	9.4
002267 CH	SHAAN XI PROVINCIAL NATURA-A	1.4	2.2	-8.9	4.9	1.4	27.9	16.3	50.9	2.5	5.1
Hong Kong											
135 HK	KUNLUN ENERGY CO LTD	15.3	10.5	-5.5	-12.4	1.2	11.6	8.0	26.1	1.8	4.3
1193 HK	CHINA RESOURCES GAS GROUP LT	13.7	18.7	23.3	50.1	3.9	20.9	17.7	Net Cash	1.8	4.3
2688 HK	ENN ENERGY HOLDINGS LTD	14.8	5.7	18.5	32.9	3.7	20.0	14.7	45.4	1.8	4.3
956 HK	CHINA SUNTIEN GREEN ENERGY-H	4.5	9.3	11.6	34.9	2.1	N/A	4.8	154.0	N/A	N/A
3633 HK	ZHONGYU GAS HOLDINGS LTD	3.7	0.1	4.4	46.1	4.5	27.6	N/A	152.3	1.8	4.3
1600 HK	CHINA TIAN LUN GAS HOLDINGS	1.7	-2.9	-5.7	29.1	1.8	8.6	5.7	126.1	7.0	23.2

Source: Bloomberg, KGI Research

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