# **INDUSTRY OVERVIEW**

The information set out in this section is derived from the CIC Report, which is based on information obtained from CIC's database, publicly available sources, industry reports, as well as data obtained from interviews and other sources. The information and statistics from official government sources have not been independently verified by us, the Sole Sponsor, the [REDACTED], the [REDACTED], the [REDACTED], the [REDACTED], any of their respective directors, officers, representatives, employees, agents or professional advisers, or any other person or party (except CIC) involved in the [REDACTED], and no representation is given as to the completeness, accuracy or fairness of such information. Accordingly, the information as presented herein should not be unduly relied upon. Our Directors confirm that after due and reasonable consideration, there is no adverse change in the market information since the date of the CIC Report and up to the date of this document which may qualify, conflict, or have a material impact on the information in this section.

#### INTRODUCTION

We commissioned CIC, an independent market research and consulting company, to conduct research and analysis on the PRC natural gas and city gas supply industry, and to produce the CIC Report on the city natural gas market in the PRC at a fee of RMB730,000, which we believe reflects market rate for reports of this type. The CIC Report has been prepared by CIC independent of our influence and other interested parties. CIC's services include, among others, industry consulting, commercial due diligence, and strategic consulting. Its consulting team has been tracking the latest market trends in industrial, energy, chemical, healthcare, consumer goods, transportation, agriculture, Internet, and finance, and has relevant and insightful market intelligence in the above industries. Founded in Hong Kong, CIC also has offices in Beijing and Shanghai.

#### SOURCE OF INFORMATION

CIC is commissioned to conduct research and analysis of the PRC's natural gas industry and city natural gas supply market, and to produce a report on the city natural gas supply market in the PRC, Shandong Province, Weifang Municipality and Gaomi City. The report commissioned has been prepared by CIC independent of the influence of our Company and other interested parties.

In preparing the CIC Report, CIC conducts both primary and secondary research through various resources. Primary research involves interviewing key industry experts and leading industry participants. Secondary research involves analysing data from various publicly available data sources, such as the National Energy Administration, National Bureau of Statistics of China, National Development and Reform Commission, and Ministry of Housing and Urban-Rural Development.

The market projections in the commissioned report are based on the following key assumptions: (i) economy and industry development in China is likely to maintain its steady growth in the next decade; (ii) related industry key drivers are likely to drive the growth of natural gas market in China, such as the increase of consumption demand for natural gas, the increase of natural gas production in China, and favorable policies and regulations issued by the government propelling the natural gas industry in China; and (iii) there will not be any extreme unforeseen circumstances or industry regulations in the near future that will result in the market being affected dramatically or fundamentally.

All statistics are reliable and are based on the most up-to-date information available as of the completion of this report. Other sources of information, including government, industry associations, and market participants, have provided some of the information on which the analysis or data within the report is based.

All information about our Company has been obtained from our Company's management interview. The information provided by our Company has not been independently verified by CIC.

#### OVERVIEW OF THE NATURAL GAS INDUSTRY IN THE PRC

#### Definition of natural gas

Natural gas is a finite fossil fuel that can be defined as a hydrocarbon gas mixture that consists primarily of methane (#CH<sub>4</sub>). It can be classified into Piped Natural Gas (PNG), Liquefied Natural Gas (LNG), and Compressed Natural Gas (CNG) by the perspective of transportation modes.

#### ANALYSIS OF THE CITY GAS SUPPLY INDUSTRY IN THE PRC

# Value chain analysis of the city gas supply industry in the PRC

The city natural gas supply market in the PRC is comprised of companies which are granted natural gas concessions. Such companies obtain natural gas supplies from their upstream suppliers at provincial gateway stations or through deliveries by CNG/LNG tankers. They supply PNG to end-users through pipeline networks, and generally provide installation, construction, maintenance, and other services to end-users, including residential end-users and non-residential end-users. PetroChina and Sinopec are the two major upstream suppliers in Gaomi city.

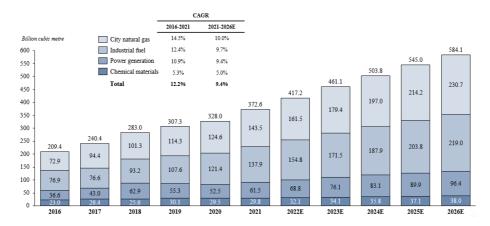
Value chain analysis of the city gas supply industry, the PRC Middle-stream Upstream supplies Downstream distribution operation Manufacturing companies Long-Province distance gates Power generating stations pipelines (PNG) City natural gas suppliers Chemical companies CNG/ CNG/LNG LNG tank lorries City gas users The Company's focus - Direct supply of natural gas

Source: CIC report

# Market size of the city gas supply industry in the PRC

The consumption volume of the city natural gas supply industry in the PRC can be classified into four sectors, namely, city natural gas, industrial fuel, power generation, and chemical materials. The consumption volume of the city natural gas supply industry in the PRC increased rapidly from 209.4 billion m<sup>3</sup> in 2016 to 372.6 billion m<sup>3</sup> in 2021, representing a CAGR of 12.2%.

# Consumption volume of the natural gas supply industry, classified by use, the PRC, 2016-2026E



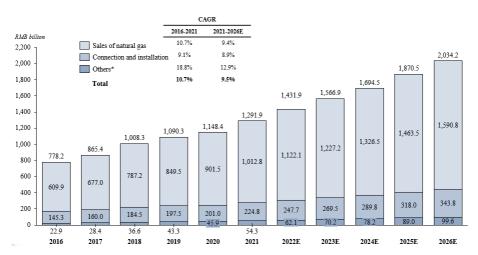
Source: National Bureau of Statistics, Ministry of Housing and Urban-Rural Development of the PRC, CIC report

#### **INDUSTRY OVERVIEW**

According to the "Three-year Action Plan for Cleaner Air" (《打嬴藍天保衛戰三年行動計劃》) issued by the State Council in 2018, China will boost the share of natural gas in its total primary energy consumption from less than 8.0% in 2018 to 10.0% by 2020. Thus, gas consumption is expected to increase to approximately 584.1 billion m³ by 2026, with a CAGR of 9.4% between 2021 and 2026.

The main revenue of downstream city natural gas suppliers in the PRC generally derives from natural gas distribution, construction and installation services and other value-added services such as sale of gas appliances, operation of natural gas refuelling stations and integrated energy services. The market size of the city natural gas supply industry in the PRC in terms of sales value increased from RMB778.2 billion in 2016 to RMB1,291.9 billion in 2021, representing a CAGR of 10.7% over the period, which was mainly driven by the increasing number of power stations fuelled by natural gas, and was also attributed to the expansion of household heating systems, as well as the government's and implementation of the "coal-to-gas project" ("煤改氣工程"). The sales value of the city natural gas supply industry in the PRC is expected to reach RMB2,034.2 billion in 2026, representing a CAGR of 9.5% between 2021 and 2026. Driven by the increasing consumption volume of PNG and the expansion of pipeline networks, the market size of the connection and installation services by sales value in the PRC increased from RMB145.3 billion in 2016 to RMB224.8 billion in 2021, with a CAGR of approximately 9.1% over the period. The market size is expected to continue to grow, reaching RMB343.8 billion in 2026, representing a CAGR of approximately 8.9% between 2021 and 2026.

Sales value of the city natural gas supply industry, classified by service type, the PRC, 2016-2026E



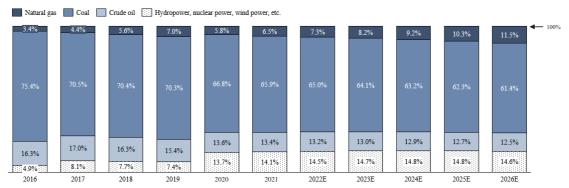
\*Note: Others refers to the revenues of city natural gas suppliers generated from maintenance and repair services, sale of gas appliance, etc.

Source: National Bureau of Statistics, Ministry of Housing and Urban-Rural Development of the PRC, CIC report

# **INDUSTRY OVERVIEW**

#### ANALYSIS OF THE CITY GAS SUPPLY INDUSTRY IN SHANDONG PROVINCE

#### Energy consumption composition of Shandong Province, 2016-2026E



Source: National Bureau of Statistics, Ministry of Housing and Urban-Rural Development of the PRC, CIC report

Shandong Province will continue to optimize its energy consumption structure. The consumption portion of coal and crude oil will continue to shrink as the consumption of clean energies like natural gas steadily increases under the guidance of the *Three-year Action Plan for Cleaner Air* (《打贏藍天保衛戰三年行動計劃》) and *Mid-to-Long term development plan of crude and oil in Shandong Province* 《山東省石油天然氣中長期發展規劃(2016-2030年)》).

# Market size of city natural gas supply industry in Shandong Province

The market size of the city natural gas supply industry in Shandong Province in terms of consumption volume increased from 9.8 billion  $m^3$  in 2016 to 23.3 billion  $m^3$  in 2021, representing a CAGR of 18.6% between 2016 and 2021. Such surge was driven by the growth in city natural gas, industrial fuel and construction, power generation and chemical materials and other sectors. More specifically, the government's promotion and implementation of the "coal-to-gas project" ("煤改氣工程") for residential end-users and industrial fuel providers, which has greatly contributed to natural gas consumption in these sectors. With the rapid development of gas-fired power stations and the government's further implementation of "coal-to-gas project" ("煤改氣工程"), the consumption volume of natural gas in Shandong Province is expected to reach 38.7 billion  $m^3$  in 2026, representing a CAGR of 10.8% between 2021 and 2026.

# Consumption volume of natural gas, classified by use, Shandong Province, 2016-2026E



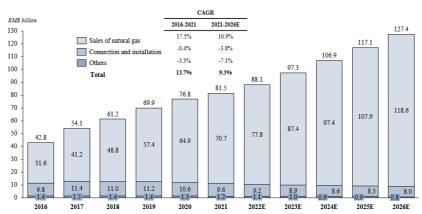
Source: National Bureau of Statistics, Ministry of Housing and Urban-Rural Development of the PRC, CIC report

Between 2016 and 2021, the market size of the city natural gas supply market in Shandong Province, as measured by sales value, grew from RMB42.8 billion to RMB81.5 billion at a CAGR of 13.7% and is expected to grow to RMB127.4 billion in 2026, representing a CAGR of 9.3% between 2021 and 2026. Sale of natural gas increased rapidly with a CAGR of 17.5% and are expected to maintain a CAGR of 10.9% from 2021 to 2026.

The overall growth in the sales value of the city natural gas supply industry over the past five years was primarily driven by economic growth in Shandong Province. Other contributing factors include (i) sufficient supply of natural gas under the "West-East Natural Gas Pipeline Project" ("西氣東輸工程"), (ii) local government's implementation of the "coal-to-gas project" ("煤改氣工程") and (iii) the target of realising "natural gas coverage to each village and town" ("村村通和鎮鎮通").

The expected increase is mainly based on the rapidly-developing natural gas-powered electricity generation industry, steadily increasing natural gas consumption in city natural gas, industrial fuel and construction sectors.

# Sales value of the city natural gas supply market, by service type, Shandong Province, 2016-2026E



Source: National Bureau of Statistics, Ministry of Housing and Urban-Rural Development of the PRC, CIC report

#### ANALYSIS OF THE CITY GAS SUPPLY INDUSTRY IN GAOMI CITY

#### Market size of natural gas in Gaomi City

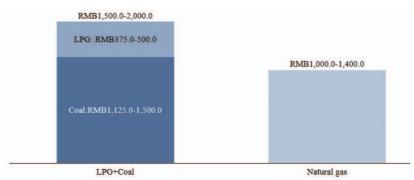
Gaomi City is located in the east of Shandong Province, China. It is a county-level city under Weifang Municipality, with a total area of  $1,606.0~\mathrm{km^2}$ . Gaomi City is  $265~\mathrm{km}$  away from Jinan City (the capital city of Shandong Province) and  $75~\mathrm{km}$  away from Weifang Municipality. Gaomi City is one of the earliest counties (cities) in coastal areas approved by the State Council to adopt the "Open to the Outside" policy (對外開放政策). Since the 1990s, Gaomi City's economy has grown rapidly, manufacturing industry being the dominant industry within the city. Gaomi City was selected as one of the Top  $100~\mathrm{counties}$  in China in terms of the business environment and the Comprehensive Well-off Index (全面小康指數).

In 2021, Gaomi City is ranked 74 in "Top 100 counties in China" according to the China County Research Institute. The GDP of Gaomi City reached RMB 61.5 billion in 2021, which is ranked No.4 in Weifang Municipality . GDP of the secondary industry and the tertiary industry reached RMB20.4 billion and RMB35.6 billion in 2021, respectively. The industrial and commercial development of Gaomi City is still at a relatively fast level. Driven by policies, the demand for natural gas is still at a sufficient level. The number of industrial enterprises in Gaomi City increased from 8,220 in 2016 to 17,460 in 2021, representing a CAGR of 16.3%. While the number of industrial enterprises is predicted to further increase to 28,089 in 2026, representing a CAGR of 10.0%. The number of commercial units in Gaomi City increased from 81,200 in 2016 to 117,200 in 2020, representing a CAGR of 9.6%. The number of household units in Gaomi City decreased from 334,591 in 2016 to 330,852 in 2020.

Other than natural gas (which includes both PNG and LNG), liquefied petroleum gas (LPG) and coal are the other two major energy sources for cooking and heating in rural areas in Gaomi City. Generally, coal is used for cooking and heating in winter, and LPG is used for cooking in other seasons. Natural gas is cheaper, cleaner and more convenient than LPG and coal. On average, a typical rural household in Gaomi City incurred from approximately RMB1,500 to RMB2,000 on LPG and coal in 2021. A typical rural household can save approximately RMB500 to RMB600 for its overall energy expense when natural gas is substituted for coal. Substitution of natural gas for coal and LPG is generally affordable for rural households across the rural area of Gaomi City. For the information related to affordability of PNG end-users, please refer to "— Market drivers of the city natural gas market — Growing urbanisation rate and increasing consumption capacity" in this section.

The consumption volume of natural gas by residents in Gaomi City from 2016 to 2021 are 14.6 million m³, 22.0 million m³, 18.6 million m³, 19.1 million m³, 22.7 million m³, 22.9 million m³, respectively. The estimated consumption volume of natural gas by residents in Gaomi City from 2022 to 2026 would be 27.2 million m³, 29.2 million m³, 31.1 million m³, 32.8 million m³, 34.1 million m³, respectively. The consumption volume of natural gas by residents in Gaomi City is expected to maintain its growth in the next five years, hitting 34.1 million m³ in 2026 with a CAGR of 8.3% between 2021 and 2026. In addition, the total consumption volume of city natural gas in Gaomi City from 2016 to 2021 are 22.7 million m³, 35.0 million m³, 39.6 million m³, 43.3 million m³, 47.5 million m³, 48.4 million m³, respectively. The estimated total consumption volume of natural gas from 2022 to 2026 would be 56.1 million m³, 61.9 million m³, 68.0 million m³, 73.9 million m³, 79.2 million m³, respectively. Such increase will be ensured by the Gaomi City People's Government' target to reduce fuel emissions and increase the replacement of coal-fired boilers with clean energy-powered boilers and continue shanty towns transformation. Since the promulgation of the "coal-to-gas project" (煤改氣工程) in 2017, installation of clean energy gas burning appliances has been warmly welcomed by rural residents in Gaomi City.

Cost analysis of major types of energy used in rural areas of Gaomi City, 2021



Rural residents typically make their own decisions as to whether to choose natural gas for usage. By choosing to use natural gas, rural residents can save energy consumption expenses. Natural gas is cheaper, cleaner and more convenient than LPG and coal. On average, a typical rural household in Gaomi City incurred from RMB1,500 to RMB2,000 on LPG and coal in 2021. After converting to consumption of natural gas, the overall energy expense can be reduced to around RMB1,000 to RMB1,400 per rural household. Rural residents typically would be more interested in participating in the Clean Energy Projects as they are more price-sensitive, and the participation in Clean Energy Projects could help them save energy costs. According to "Shandong Province Clean Heating Plan in Winter Notice (2018-2022) (《山東2018-2022清潔取暖計劃》)", Government of Shandong Province puts forward the requirements for the number of households adopting clean heating in urban and rural areas. Pursuant to which a target had been set for 70% households in rural areas of Weifang Municipality to adopt clean energy by the end of 2022. As at the end of 2021, only around 20% of rural households in Gaomi City had adopted clean energy. Driven by the policy to populate clean energy in Weifang Municipality, the Gaomi City People's Government will continuously introduce a series of policies and grant allowances to rural residents in order to help them reduce the cost of choosing natural gas for usage. Such measures will enhance the rural residents' willingness in participating Clean Energy Projects. Rural residents participate in Clean Energy Projects and undertake installation of natural gas equipment largely due to the government subsidy which they will be entitled to if they are committed to use natural gas supplied by the Group in the Concession Area. The residents who do not participate in the Clean Energy Projects have an option to choose whether to use natural gas as primary energy source within the Concession Area at their discretion.

The consumption volume of natural gas in Gaomi City increased from 54.9 million  $m^3$  in 2016 to 139.1 million  $m^3$  in 2021, representing a CAGR of 20.8%. This growth is mainly due to the surge in natural gas consumptions in residential, industrial fuel and power generation sectors. The industrial consumption volume of natural gas has grown significantly in the past five years. Additionally, the Gaomi City People's Government has been promoting the "coal-to-gas project" ("煤改氣工程") for both residential and industrial PNG end-users since the beginning of the "13th Five-Year Plan" (《中華人民共和國國民經濟和社會發展第十三個五年規劃綱要》). This has resulted in the increase of natural gas consumption level, especially within the industrial fuel and construction sectors. Supportive government subsides also contributed to the increase of natural gas consumption levels in

#### **INDUSTRY OVERVIEW**

industrial fuel and construction sectors. According to Eight measures to ensure heat supply in Gaomi during the 2021-2022 heating season《高密市2021-2022年供熱季保暖保供八條措施》, Gaomi City's bureau of finance will provide temporary gas price subsidies (2 RMB/m³) for the gas purchased by gas companies which is used to ensure gas supply for clean heating "coal-to-gas" users.

The consumption volume of natural gas in Gaomi City is expected to continue in the next five years, reaching 254.4 million  $m^3$  in 2026 with a CAGR of 12.8% between 2021 and 2026. This increase will be ensured by the Weifang and Gaomi City People's Government's target to reduce fuel emissions and increase the replacement of coal-fired boilers with clean energy-powered boilers and continue shantytowns transformation. According to Weifang Municipality's new round of "four reductions and four increases" three-year action plan 《維坊市新一輪"四減四增"三年行動方案 (2021-2023年)》, by 2023, there should be no less than 400,000.0 newly completed clean heating renovations in rural areas of Weifang Municipality, and the clean heating rate should increase by more than 30.0%

#### Consumption volume of natural gas, classified by use, Gaomi City, 2016-2026E

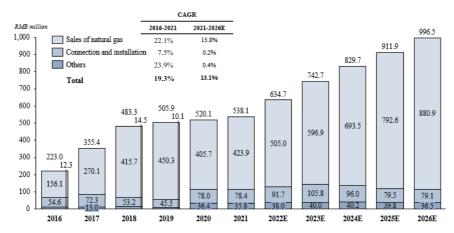


Source: National Bureau of Statistics, Ministry of Housing and Urban-Rural Development of the PRC, CIC report

The sales value of the city natural gas supply market in Gaomi City increased from RMB223.0 million in 2016 to RMB538.1 million in 2021, representing a CAGR of 19.3%. The overall growth in the sales value of city natural gas supply industry in the past five years was primarily driven by (i) economy growth, (ii) sufficient supply of natural gas upon the operation of LNG receiving stations, and (iii) local government's implementation of the "coal-to-gas project" ("煤改氣工程"). These factors stimulated the increase of natural gas consumption in Gaomi City.

The sales value of gas is expected to reach RMB996.5 million by 2026, representing a CAGR of 13.1% between 2021 and 2026. The expected increase is primarily driven by the steadily increasing natural gas consumption in industrial fuel and construction sectors as well as city natural gas sector.

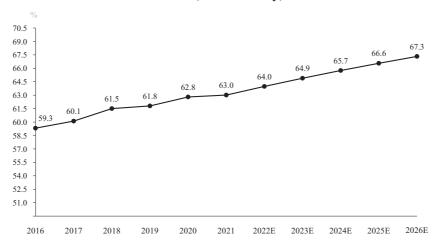
Sales value of the city natural gas supply market, by service type, Gaomi City, 2016-2026E



Source: National Bureau of Statistics, Ministry of Housing and Urban-Rural Development of the PRC, CIC report

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Urbanisation rate, Gaomi City, 2016-2026E



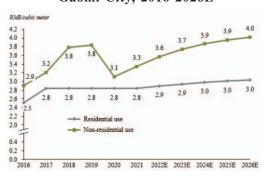
Source: National Bureau of Statistics, CIC report

The urbanisation rate in Gaomi City increased from 59.3% in 2016 to estimated 63.0% in 2021 and is predicted to grow to 67.3% in 2026. Increased number of urban households will continue to contribute to natural gas market growth.

Average PNG purchasing price (without VAT) of city natural gas companies,
Gaomi City, 2016-2026E

Source: National Bureau of Statistics, CIC report

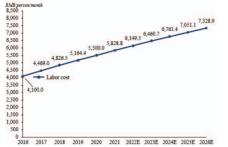
Average PNG retail prices (without VAT) of city natural gas companies,
Gaomi City, 2016-2026E



The average PNG procurement price of city natural gas companies is the PNG cost price, which is regulated by relevant governments and/or authorities in the PRC.

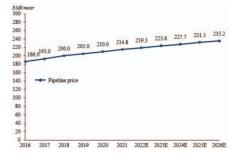
Average PNG retail prices of city natural gas companies include PNG retail price for residential end-users and for non-residential PNG end-users. Both prices are guided by the Gaomi City People's Government. In 2020, the average PNG purchase and retail prices decreased due to Gaomi City government's policy on ensuring the resumption of work and production ("保障復工複產") after COVID-19.

Labor cost, Gaomi City, 2016-2026E



Source: National Bureau of Statistics, CIC report

Pipeline price, Gaomi City, 2016-2026E



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The average procurement and retail prices of PNG have been relatively stable from 2016 to 2021. It is predicted that the average procurement and retail prices of PNG will continue to be stable and to grow if no extreme situations occur.

Both labor cost and pipeline price have been gradually growing from 2016 to 2021 in Gaomi City. It is predicted that both labor cost and pipeline price will continue to steadily increase from 2021 to 2026 with no big fluctuations.

# Market drivers of the city natural gas market

# Growing urbanisation rate and increasing consumption capacity

The urbanisation rate in the PRC increased from 57.3% in 2016 to 64.7% in 2021 and is expected to grow further in the future. The urbanisation rate in Gaomi City increased from 59.3% in 2016 to estimated 63.8% in 2021 and is predicted to grow to 69.0% in 2026. More urban households and stronger consuming capacity will continue to contribute to natural gas consumption.

Natural gas installation fee is generally affordable for rural households across the rural area of Gaomi City. Information in relation to the affordability of PNG end-users in the Target Area are set out as follows:

	2016	2017	2018	2019	2020	2021
Per capita disposable income of rural residents in Gaomi City (RMB)	15,589.0	16,885.0	18,168.0	19,749.0	21,013.0	23,355.0
Per capita disposable income of rural residents in Shandong province (RMB)	13,954.0	15,118.0	16,297.0	17,775.0	18,753.0	20,794.0
Per capita disposable income of rural residents in China (RMB)	12,363.4	13,432.4	14,617.0	16,020.7	17,131.5	18,931.0

Gaomi City has enjoyed better per capita income level comparing with that of Shandong Province and across China from 2016 to 2021. In 2021, per capita disposable income of rural residents in Gaomi City is RMB23,355 per capita, which is RMB4,424 or approximately 23.4% higher than that of China, indicating the stronger purchasing power of rural residents in Gaomi City. In comparison, the installation fee of natural gas appliance eventually borne by a single rural household pursuant to the Clean Energy Projects, which is RMB2,000, would only take up to approximately 4.3% of the total annual disposable income per household (i.e., assuming each household is comprised of two income-earning family members).

#### Expanding natural gas infrastructure

China's pipeline networks for natural gas have stretched from approximately 498,000 km in 2015 to approximately 768,000 km in 2019. Expansion of natural gas networks can drive the supply market by relieving supply bottlenecks. Gaomi City has the target of realising "natural gas coverage to each village and town" ("村村通和鎮鎮通"). 800 kilometers of medium and high-pressure natural gas pipeline networks have been built in 2020. All towns and districts have been covered by the natural gas pipeline networks, benefiting approximately 102,000 residents. However, many villages in Gaomi City are still not covered by natural gas pipeline networks, indicating great potential for natural gas consumption volume increase.

#### Policies regarding natural gas use

不有潔取暖規劃(2017-2021年)》), which aims to promote clean winter heating by phasing out coal-fired appliances in the north of the country by 2021. The plan pledges that the share of clean energy heating will reach 50 percent by 2019, replacing 74 million tons of coal in the process. That target rises to 70 percent for 2021. The coal-to-gas project (煤改氣工程) will be further implemented going forward at the end of 2022 in some rural areas, including towns and shantytowns, by some natural gas operators to expand its sales of PNG business in their respective operating areas. Notice of the State Council on a Comprehensive Work Plan for Energy Conservation and Emission Reduction during the "Fourteenth Five-Year Plan" period (《國務院關於印發"十四五"節能減排綜合工作方案的通知》), has further given a guidance on the transformation of energy from coal to natural gas and the reduction of coal burning. The notice is to be implemented for five years till 2025. According to Clean Winter Heating Action Plan of Gaomi City in 2021 (《高密市2021年冬季清潔取暖工作實施方案》), in order to speed up the progress of clean energy heating by applying natural gas, the Gaomi Municipal Party Committee and the Municipal Government listed clean heating on the work list of the secretary of party committee in charge of each town and district, and required the secretary of party committee of each town and district to be in charge of this work.

In general, the Gaomi City People's Government provides strong incentives by subsidies for rural natural gas end-users. According to "Implementation plan for rural clean heating in Gaomi City in 2021" (《高密市2021年農村清潔取暖工作實施方案》), the Gaomi City People's Government will:-

- (i) provide subsidies for rural natural gas users from 2021 to 2023 for the installation of natural gas appliances. According to the abovementioned policy relating to Clean Energy Projects promulgated by the local government, the connection and installation fee of natural gas appliance is around RMB6,600 per household (usually comprising of two income-earning individuals), out of which a fixed amount of RMB4,600 will be subsidised by the government; whilst the rest of around RMB2,000 will be paid per household. A household may choose to pay more if it wants to upgrade its choice of wall-hang gas boiler to a larger size or better model; and
- (ii) up to the amount of RMB1,000 of the annual natural gas tariff per household can be subsidised by the Gaomi City People's Government for the heat supply season in winters.

After 2023, natural gas related subsidies are predicted to continue. According to "Shandong Province's 14th Five-Year Plan for National Economic and Social Development and Outline of Vision 2035" (《山東省國民經濟和社會發展第十四個五年規劃和2035年遠景目標綱要》), promoting and accelerating implementation of natural gas infrastructure in rural areas is one of the important measures to promote clean energy development and utilization in rural areas.

#### COMPETITIVE LANDSCAPE OF CITY NATURAL GAS MARKET IN GAOMI CITY

#### City natural gas suppliers in Gaomi City in terms of sales revenue

Our Company ranked No.1 in the Gaomi City natural gas market in terms of sales revenue from 2016 to 2021. Natural gas distribution revenue in Gaomi City is around RMB0.62 billion in 2021.

Ranking	Company	Business scope	Sales revenue	Market share
			(RMB billion)	
1	The Group	Currently the biggest natural gas supplier in Gaomi City and is the sole supplier of LNG. There are over 600 natural gas suppliers in China in 2020. Our Company ranked in top 50 in terms of the total sales revenue, and is currently operating in the Operating Area under an effective term of 30 years from 18 August 2009 according to the Concession Agreement.	0.44	70.6%

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Ranking	Company	Business scope	Sales revenue	Market share
			(RMB billion)	
2	Company Z	Company Z is the other natural gas supplier in Gaomi City, which was established 10 years later than our Company. It operates a natural gas refuelling station, which is located at a suburban area in Gaomi City. The location of its refuelling station does not overlap with the Group's three CNG and LNG refuelling stations which are located in the Group's Operating Area in Gaomi City.	0.18	29.4%
	Total		0.62	100.0%

Source: CIC report

Our Company is ranked the sixth in terms of sales revenue among all of the non-state-owned city natural gas operators in 2020 in Shandong Province.

Ranking		Company	Sales Revenue	Market share
			(RMB billion)	(%)
1	Company A		12.87	16.8%
2	Company B		5.29	6.9%
3	Company C		2.14	2.8%
4	Company D		1.64	2.1%
5	Company E		0.64	0.8%
6	Our Group		0.35	0.5%
7	Company F		0.33	0.4%
8	Company G		0.10	0.1%
9	Company H		0.06	0.1%
10	Company I		0.05	0.1%

Company A: The company was established in 2005 with comprehensive development of various industrial clusters such as clean energy, comprehensive urban operation, and strategic entities. It operates in Linyi City, Yantai City and Qufu City in Shandong Province. It has more than 300 subsidiaries in China covering five provinces. The company is principally engaged in the production and sales of PNG, design, construction of gas projects, repair, maintenance and sales of gas facilities.

Company B: As the largest private-owned Chinese clean energy distributor in terms of revenue in 2021, company B started city pipeline gas business in 1992 and was listed in 2001 in Hong Kong. It operates in Yantai City in Shandong Province. Company B is engaged in design, construction of gas projects, the transmission, distribution and sales of PNG, and the repair, maintenance and sales of gas facilities.

Company C: The company was established in 2002 and was listed on the Main Board of the Hong Kong Stock Exchange in 2012. It has operating areas in Linyi City and Dezhou City in Shandong Province. The company has developed into a comprehensive gas enterprise including the design, construction of gas projects, the transmission, distribution and sales of PNG, and the repair, maintenance and sales of gas facilities.

Company D: The company was based in Hong Kong and was listed on the Main Board of the Hong Kong Stock Exchange in 2001. It operates in Jinan City, Weifang Municipality and Binhai City in Shandong Province. The company engages in natural gas business investment, development and operation management. Its main business involves the sales and management of pipeline gas in China, including the gas pipeline network construction, the operation of urban pipeline gas, the operation of automobile gas filling stations and natural gas related appliances.

# **INDUSTRY OVERVIEW**

Company E: The company is based in Henan Province and listed in Hong Kong in 2010. The company mainly engages in the operation of urban pipeline gas. It has an operating area in Heze City in Shandong Province.

Company F: The company was established in 1996 and listed on the Main Board of the Hong Kong Stock Exchange in 1997. The company mainly engages in sales and distribution of natural gas and liquefied petroleum gas, which operates in Linyi City in Shandong Province.

Company G: The company was established in 1997, and is mainly engaged in investing, operating and managing urban gas pipeline infrastructure to deliver natural gas to residents, businesses and industrial users, building and operating LNG and CNG vehicle filling stations, It operates in Heze City in Shandong Province.

Company H: The company was established in 1997 and has been listed on the Shanghai Stock Exchange since 2016. Company H is a clean energy company and is principally engaged in pipeline gas sales. It operates in Langfang City in Shandong Province and is engaged in design, construction of gas projects, the transmission, distribution and sales of PNG, and the repair, maintenance and sales of gas facilities.

Company I: The company was established in 1985 and has been listed on the Shenzhen Stock Exchange since 1996. Company I's principal business includes comprehensive utilization of natural gas, including gas source development and transportation, long-distance pipeline network construction and management, urban gas operation and sales, vehicle gas station investment and operation, LNG point supply, etc. Company I operates in Yantai City in Shandong Province.

# Key success factors of the city natural gas market

- Sufficient and stable cash flow of natural gas operators is critical.
- Gas safety and stability is guaranteed by virtue of effective operational capacities.
- Proven track record of operating natural gas sales and related businesses from outstanding natural gas operators.
- Concession rights are obtained to conduct natural gas sales exclusively in the granted area.
- Experienced business development teams help to achieve success in city natural gas market.

# Entry barriers of the city natural gas market

- Obtaining a concession in the natural gas supply market is a major entry barrier for new market entrants.
- Infrastructure for gas distribution is monopolised in the PRC.
- Substantial initial capital investment is required to be granted a concession right.

## Future opportunities for the city natural gas market

- PNG end-users will continue to use natural gas due to the coal-to-gas project (煤改氣工程).
- China-Russia Energy alliance business potentials of natural gas operators.
- Adoption of intelligent equipment enhances the operational efficiency of natural gas operators.
- Widened market access under the updated negative lists for foreign investment.