

Brighten Up Our Green Life



02	ABOUT THIS REPORT
04	MESSAGE FROM THE CHAIRMAN
06	FY2021/22 PERFORMANCE HIGHLIGHTS
08	ABOUT CHINA GAS
19	BOARD STATEMENT

21 1. RESPONSIBLE GOVERNANCE

22	1.1 Stakeholder Engagement
25	1.2 Materiality Assessment
28	1.3 Sustainability Strategies
29	1.4 Sustainable Development Goals
32	1.5 China Gas Sustainable Development Goals
32	1.6 Sustainable Corporate Governance
40	1.7 Corporate Risk Management
41	1.8 Corporate Code of Conduct

61 2. SAFETY AND QUALITY OPERATION

62	2.1 Health and Safety
64	2.2 Safety Management Policy
65	2.3 Safety Quantitative Target — Safety Management Target
65	2.4 Safety Training Plan
66	2.5 Ensuring Stable Supply of Gas
72	2.6 Ensuring Operational Safety
76	2.7 Objectives for Improving Health and Safety
97	2.8 Product Quality Inspection

102 3. GREEN ENVIRONMENT

103	3.1 Corporate Environmental Governance
106	3.2 Environmental Risks Identification and Control
111	3.3 Environmental Target and Management System

140 4. CARING FOR OUR SOCIETY

141	4.1 Customer Care
146	4.2 Resettlement of Indigenous Peoples
148	4.3 Social Responsibility

154 5. CARING FOR EMPLOYEES

155	5.1 Employee Management Policy
157	5.2 Talent Acquisition and Retention
158	5.3 Training and Development
168	5.4 Well-being of Employees
170	5.5 Staff Caring

173 6. SUSTAINABILITY OVERVIEW

180 7. CONTENT INDICES

180	HKEX ESG Reporting Guide Content Index
188	GRI Standard and CASS-CSR4.0
192	Topic-specific Disclosure
199	China Gas ESG Policy List

CONTENTS



ABOUT THIS REPORT

ABOUT THIS REPORT

This is the sixth sustainability report (the “Report”) issued by China Gas Holdings Limited (stock code: 384.HK) (the “Company”, together with its subsidiaries, collectively referred to as the “Group” or “China Gas”). This report provides transparent and open disclosure of the Group’s actions and performance on various sustainability issues over the past year, and demonstrates the Group’s strategy and commitment to sustainable development. The Group publishes a regular annual sustainability report for public access and continues to enhance the transparency of information disclosure.

SCOPE OF THIS REPORT

This report covers the sustainability performance of China Gas’ Headquarters and all companies under the operational control of the Group for the period from 1 April 2021 to 31 March 2022 (the “Reporting Period” or “FY2021/22”). Detailed contents are formulated with reference to materiality assessment, stakeholder engagement and other relevant disclosure guidelines. For details of the Group’s business development and consolidated financial statements, please refer to the Company’s 2021/22 Annual Report (“Annual Report”). Unless otherwise specified, the data of contractors and subcontractors is not reflected in this Report.

REPORTING GUIDELINES

This Report is prepared in compliance with the Global Reporting Initiative (“GRI”) Standards: Comprehensive option and Appendix 27 *Environmental, Social and Governance Reporting Guide* (the “ESG Reporting Guide”) of the Rules Governing The Listing of Securities on The Stock Exchange of Hong Kong Limited (the “HKEX”). This Report is also prepared with reference to GRI Oil and Gas Sector Disclosures, Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (“CASS-CSR4.0”) of the Chinese Academy of Social Sciences and the Sustainable Development Goals (“SDG”) of the United Nations. This report is based on the four reporting principles of “materiality”, “quantitative”, “balance” and “consistency” as mentioned by The Stock Exchange of Hong Kong Limited (the “Stock Exchange”) in its *Environmental, Social and Governance Reporting Guide*. It aims to provide objective and comprehensive coverage of substantive issues and demonstrates the Group’s commitment and determination to follow international best practices. A full index of contents is included in the final chapter of this report for the reader’s quick reference.

INFORMATION COLLECTION AND REPORTING

Information contained herein is collected from the documents and statistics provided by various departments of the Group. The summary of the monitoring, management and operational information is also rendered by the relevant departments and subsidiaries in accordance with the relevant systems and policies of the Group. Certain amounts and numbers in this Report have been rounded. To ensure that the information presented in this Report is as accurate and reliable as possible, the Group has established internal regulatory mechanisms and a review process. The content of this Report has also been reviewed by senior management, and approved by the sustainability committee of the Company (“Sustainability Committee”) and the board of directors of the Company (the “Board”).

ABOUT THIS REPORT



HOW TO ACCESS

This report is available in both English and Chinese electronic versions and has also been uploaded to the Stock Exchange's HKExnews website (www.hkexnews.hk) and the Company's website (www.chinagasholdings.com.hk). In the event of any inconsistency or discrepancy between the English and Chinese versions, the Chinese version shall prevail; in the event of any inconsistency or discrepancy between this report and the annual report, the annual report shall prevail.

FEEDBACK

China Gas values the opinions of its stakeholders and your valuable comments on the content and format of this report are a driving force for the Group's continued progress. If you have any questions or suggestions, please contact investor@chinagasholdings.com.hk to help us continue improving our environmental, social and governance performance.

MESSAGE FROM THE CHAIRMAN

Over the past year, the COVID-19 pandemic woes remained uncertain and volatile and negatively impacted the economic and social development. As a leading cross-regional integrated energy service provider in China, the Group followed the industry changes and market development and adopted a more stable and pragmatic operation strategy to fully implement the safe operation management, thus laying a solid foundation for our high-quality and sustainable development.

China Gas is committed to providing customers with safe and reliable gas, as well as high-quality services and mainly focuses on four aspects, namely natural gas, liquefied petroleum gas (“LPG”), integrated energy and value-added services. In February 2021, the Smart MicroGrid project, which was pioneered and promoted by China Gas and gained recognition of the State and policy makers, was initiated in response to the government’s goal of “promoting the use of gas in rural areas, and supporting the construction of safe and reliable gas storage tank stations and MicroGrid gas supply systems in rural areas” proposed in the “No. 1 Document” released by the government. In addition, with respect to road transportation, we are devoted to increasing the ratio of using natural gas in heavy trucks and promoting the oil-to-gas conversion. In addition, the investment and construction of LNG stations on national highways have been stepped up by construction and franchising, promoting the rapid development of LNG in domestic vehicles. The Group has also sped up the introduction of intelligent safety management equipment in gas stations. Through technologies such as the SCADA platform, the patrol inspection system, and the Geographic Information System, the Group has been monitoring business operations in real time, cautioning against risks and transforming and upgrading into an unattended digital security management to provide employees with a good and safe working environment.

In the future, we will focus on developing new energy and related businesses and pushing forward our three major new businesses, namely Smart MicroGrid, Urban Heating, and value-added services, while promoting our energy technology innovation in a continuous way and striving on our digital transformation strategy.

To help achieve the “dual carbon” goals of “carbon peak by 2030 and carbon neutrality by 2060” proposed in the “14th Five-Year Plan” and to accelerate the transformation and upgrading of its own business, China Gas is actively exploring various business scenarios related to energy conservation and carbon reduction. We propose to cooperate with local government investment platforms in key domestic regions to establish



MESSAGE FROM THE CHAIRMAN

carbon management service centres to provide carbon asset management and integrated energy management services as well as digital and modular technical solutions such as carbon footprint calculation systems for key industries and corporate customers which require energy conservation and carbon reduction, and gradually plan and promote the services nationwide. In November 2021, the Group entered into strategic cooperation agreements with each of Yangtze Three Gorges Investment Management Co., Ltd., a subsidiary under China Three Gorges Corporation, Shanghai Environment and Energy Exchange Corporation, and Dongfeng Motor Corporation, aiming to jointly create a cohesive low-carbon ecosystem. In addition, the Group, State Power Investment Corporation Carbon Asset Management Company Limited* (國家電投集團碳資產管理有限公司) and LONGI Green Energy Technology Co., Ltd. are to utilise their respective advantages in technologies, resources, capital and management and commence cooperation in the areas of distributed photovoltaic, building-integrated photovoltaics (BIPV), rural revitalisation, energy storage and electric vehicle charging, green hydrogen and its applications and other new energy system solutions, in a bid to jointly explore opportunities in the mainland China market as well as facilitate growth in the local economy.

China Gas adheres to the principle of “People-oriented and Strive for Excellence”. As a public utility enterprise, the Group integrates “Caring for the Community” into our daily operations. During the pandemic, China Gas Charity Foundation Ltd. (“China Gas Charity Foundation”) has responded actively to the government’s call of “Fight the virus together, support Hong Kong together” by donating HK\$1 million each to the Hong Kong Community Anti-Coronavirus Link and Agency for Volunteer Service to provide universal testing-related support. The donation was mainly used to help the elderly who are living alone or aged 65 or above to complete the testing successfully. China Gas Charity Foundation has responded actively to the government’s call of “Fight the virus together, support Hong Kong together” to provide support to those in need in local communities and help Hong Kong come out of the epidemic as early as possible.

As an employer, China Gas strives to implement the corporate culture with our employees and be a role model for the industry. The Group continues to build a diversified career development platform for employees and aims to provide employees with a harmonious and fulfilling working environment.

On 19 June 2021, the Group signed the Memorandum of Understanding with the United Nations Environment Programme (“UNEP”) and joined the Oil and Gas Methane Partnership (“OGMP”), becoming the first OGMP member company in China. On 7 December 2021, the Group received the “Outstanding Award for Green and Sustainable Loan Issuer (Natural Gas Industry)” at the “Hong Kong Green and Sustainable Finance Awards 2021” presentation ceremony cum “2021 HKQAA Symposium” hosted by The Hong Kong Quality Assurance Agency (“HKQAA”). Our management team also took home the “Outstanding Award for Leaders and Strategists Promoting the Issuance of Green and Sustainable Financial Instruments”, reflecting the recognition of capital market of our performance and sustainable development capabilities in environmental protection, social responsibility, and corporate governance.

Mr. Liu Ming Hui

Chairman, Managing Director and President

FY2021/22 PERFORMANCE HIGHLIGHTS

CHINA GAS FY2021/22 ENVIRONMENTAL, SOCIAL, GOVERNANCE KEY PERFORMANCES

The China Gas team has made significant efforts in environmental, social and governance aspects in the financial year of 2021/22, working together to attain the following key achievements. The Group will continue to improve its governance effectiveness and related achievements and make detailed disclosures to better performance.



Carbon Neutrality Target

- Completion of the China Gas Carbon Neutrality Roadmap, with the goal of achieving peak carbon emissions in 2030, carbon neutrality in 2050 and reducing GHGs emission intensity by 50% in 2030, compared to 2021



Health and Safety

- Establishment of a safety operation OMP system and five safety supervision centres

Supply Chain Management

- Proportion of local suppliers: **100%**
- Proportion of suppliers certified in Environmental Management (ISO14000 Family): **82.8%**
- Proportion of suppliers certified by Occupational Health and Safety Assessment OHSAS18001 and ISO45001: **84.4%**
- Number of cases where suppliers failed to meet the Group's inspection criteria and were terminated: **58** cases
- Number of cases where suppliers' appraisals were followed up with rectification: **Eight** cases

Product and Customer Service

- Customer satisfaction score: **92.36** marks

Community Investment

Total amount of donations: **HK\$14,170,203**

FY2021/22 PERFORMANCE HIGHLIGHTS



Governance

Anti-corruption

- Total number of people that received anti-corruption training, including general employees, management and key positions: **113,219** people
- Total hours of anti-corruption training: **100,056** hours
- Number of corruption case proceedings concluded: **0** cases



Achievements During the Reporting Year

China Gas is actively working on CDP questionnaire response this year.

Became the first company in China to be a member of the Oil and Gas Methane Partnership by entering a Memorandum of Understanding with the United Nations Environment Programme to reduce methane emissions

Awarded the “Hong Kong Green and Sustainable Finance Award” during the HKQAA Symposium “Sustainable Finance and Climate Resilience 2021” Awards Presentation Ceremony

China Gas’s US\$20 million loan financing project with Asian Development Bank won the Oil & Gas Deal of the Year at The Asset Triple A Infrastructure Awards 2021

ABOUT CHINA GAS

CORPORATE PROFILE

The Group is one of China's largest trans-regional, integrated energy suppliers and service providers. Focusing on China, it is primarily engaged in the investment, construction, and operation of city and township gas pipelines, gas terminals, storage and transport facilities, and gas logistics systems to deliver natural gas and LPG to residential, industrial, and commercial users. The Group also builds and operates CNG/LNG fueling stations while developing and applying natural gas and LPG technologies. In addition, it has drawn on its extensive consumer base to form a comprehensive business portfolio of value-added services, urban heating, new energy, electricity distribution and sales, and charging stations.

As at 31 March 2022, the Group had acquired a total of 660 urban piped gas projects in 30 provinces, municipalities and autonomous regions, The Group also owned 32 long-distance gas transmission pipeline projects, 533 CNG/LNG refilling stations for vehicles and vessels, one coal bed methane development project, and 106 LPG distribution projects. The connectable urban households covered by all of the Group's gas projects had increased to 53.5 million (up by 1.0% over the same period last year).

CORPORATE MISSION



CONVERGING IN HARMONY

By fully converging and allocating all capital and resources, China Gas can effectively achieve outstanding development and expand into "blue oceans", comprehensively building a new business ecosystem for China Gas. On the basis of "successful cooperation between people and enterprises", we will continue to convey our characteristics, spirits and core values to society, and ultimately strive to reach our corporate goal towards a "century of China Gas".



BENEFITING SOCIETY

China Gas provides a full range of clean and convenient energy for society and the people. China Gas provides innovative public utility services spanning from urban to rural communities, and corresponding smart commercial services. We enhance the efficacy and efficiency of the transformation of social public utility resources to improve the quality of life, promote regional economic development, and to fulfil civic responsibility by safeguarding the well-being of the public.

BUSINESS OVERVIEW



Natural Gas Business

The Group continues to innovate in clean energy and is committed to providing customers with quality services, improving the environment and enhancing the people's standard of living. We actively develop natural gas business to provide customers with a green, clean and low-carbon energy with high quality and efficiency. The Group continues to invigorate the global economic development and facilitate the transition of human society from industrial civilisation to ecological conservation. Owing 660 city and township gas pipeline projects, the Group currently has the largest number of projects in China.

Construction of Gas Pipeline Networks and User Connections

City gas pipeline networks are the foundation for the operation of gas suppliers. By constructing main and service pipelines of city gas pipeline networks, the Group connects natural gas pipelines to its residential, industrial and commercial users and charges them for connection fees and gas bills.

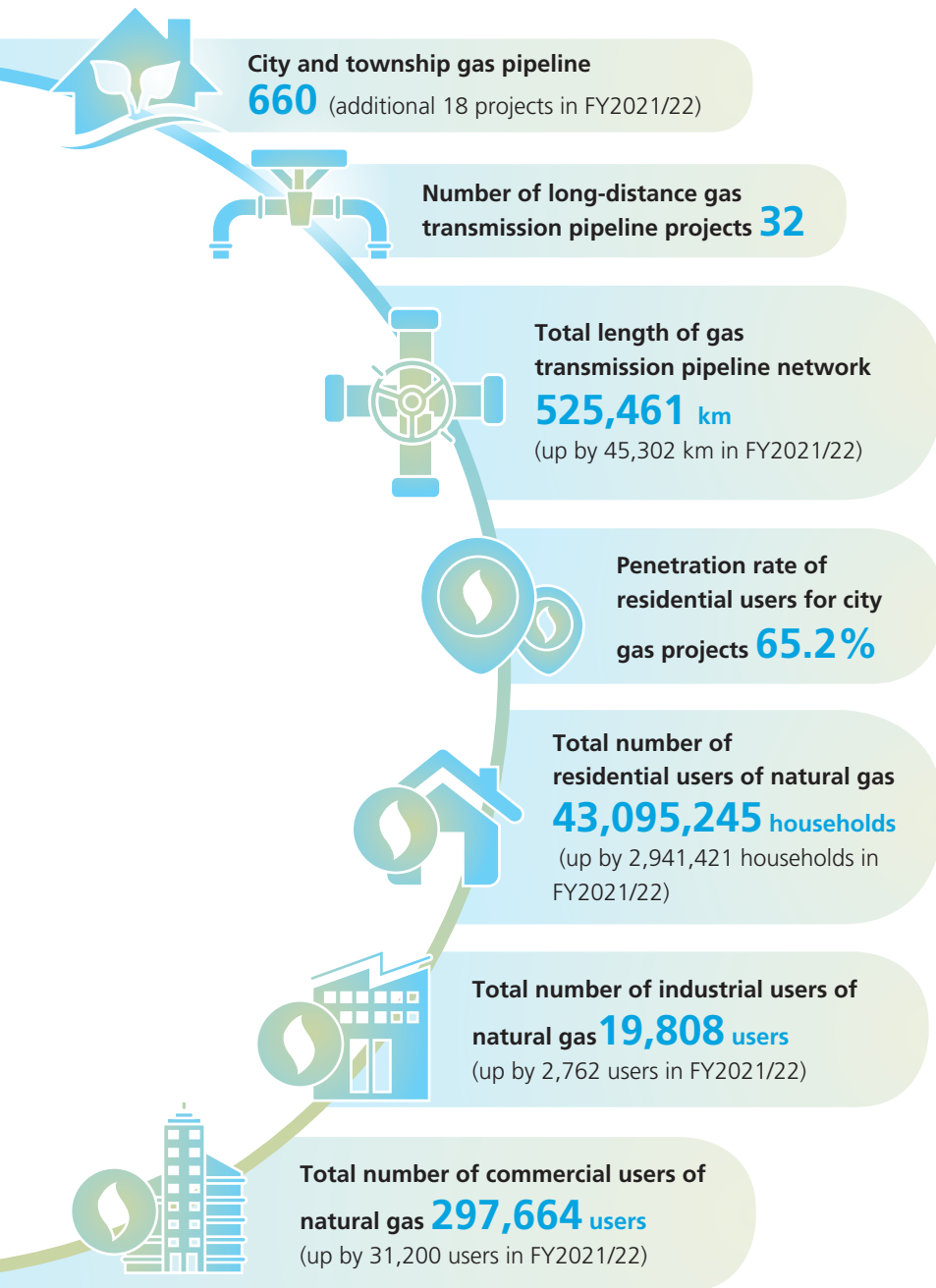
ABOUT CHINA GAS

BUSINESS OVERVIEW

Natural Gas Business

Construction of Gas Pipeline Networks and User Connections

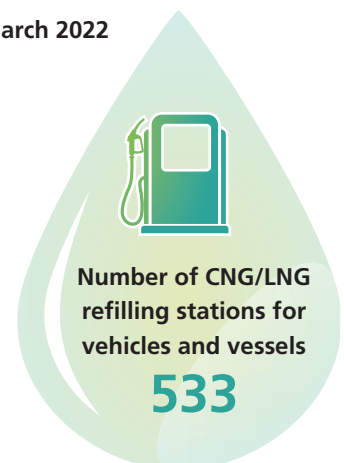
As at 31 March 2022



CNG/LNG Refilling Stations for Vehicles and Vessels

China Gas owns 533 vehicle refilling stations, either in operation or under construction. The Group has made continuous outstanding breakthroughs in industry research, business model, pipeline expansion and network construction. The Group has also successively entered into industry strategic alliances with leading domestic automotive and equipment manufacturers, established close cooperative ties with leading domestic LNG suppliers to secure gas supply for vehicle gas projects, and further accelerated the construction of provincial clean energy investment platforms, ensuring the rapid development of gas projects for vehicles and vessels. Concurrently, the Group is committed to leading the development of LNG application in the domestic water transportation industry, planning to build a green shipping centre along the Yangtze River Economic Belt and will lay out LNG import and filling stations along the Yangtze River in the coming years.

As at 31 March 2022





BUSINESS OVERVIEW

Natural Gas Business

Township “Replacement of Coal with Gas”

China Gas has actively responded to the central government’s policies and promoted the implementation of township “replacement of coal with gas” projects since 2017. To provide clean natural gas for residents in towns and villages in northern China, the Group has rapidly dedicated itself to facilitating the development of township “replacement of coal with gas” projects through maintaining high standard, high quality and high efficiency of construction projects and gas supply. In addition, the Group has successively established strategic cooperation with many provinces and cities in China to jointly facilitate the construction of beautiful villages and implement “township gasification” to promote the revitalisation of villages in various regions.

As at 31 March 2022



Accumulated number of township residential users completed gas pipeline connections

8.197 million households
(increased by 273,000 households in FY2021/22)

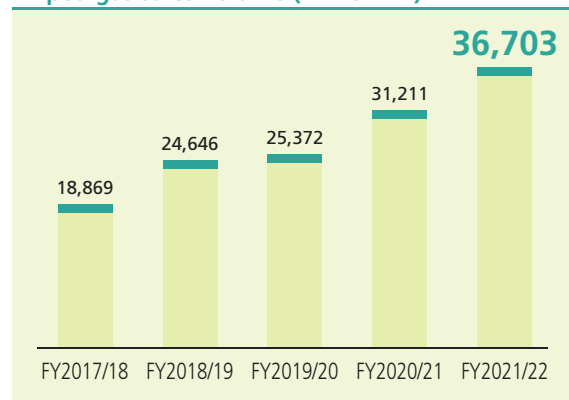
LNG Distribution Business

In order to promote the construction and development of “green water transport, and low-carbon ports” in China, China Gas has been committed to leading the development of LNG application in the domestic water transport industry and planning the construction of a green shipping centre along the Yangtze River Economic Belt. China Gas successfully converted the first LNG-powered vessel in China, took the lead in building the first shore-based LNG refuelling terminal along the Yangtze River and was selected as a pilot project for the application of LNG in the water transport industry by the Ministry of Transport. The Group provided energy security for the first LNG-powered vessel to cross the Yangtze River, and has advanced technology reserves and rich industry experience. In the next three to five years, China Gas will accelerate the layout of ship refuelling projects around the “two horizontal and one vertical network” (Yangtze River, Pearl River, Beijing-Hangzhou trunk line and along the Yangtze River Delta and Pearl River Delta), the coast and important tributaries, investing in the construction of a “river-sea intermodal transport” centre, and arrange the layout of LNG import, unloading and refuelling stations along the Yangtze River. This forms an LNG refuelling network on the main-stream of the Yangtze River to serve the passing vessels. At the same time, the land-based LNG storage tanks at the terminal can be used as storage and peaking facilities for the natural gas market along the river, while outbound gasification pipelines at the LNG import and transfer stations will be connected to the main natural gas network in each province, diversifying gas supply sources.

Sales of Natural Gas

China Gas’ total natural gas sales volume had a substantial year-on-year increase during the Reporting Period. In FY2021/22, the Group’s total natural gas sales volume increased by 17.6% year-on-year to 36.70 billion m³. Natural gas was mainly sold through networks of gas pipelines in cities and townships, trading business and direct-supply pipelines. Gas sales volume attributable to city gas pipelines recorded 21.92 billion m³, representing a year-on-year increase of 17.2%. Trading segment and direct-supply pipeline business recorded 14.78 billion m³ in gas sale volume, representing a year-on-year increase of 18.2%.

Piped gas sales volume (million m³)



Operational Locations of Natural Gas

1. INNER MONGOLIA AUTONOMOUS REGION

Hohhot, Wushen Banner, Baotou, Horinger County, Togtoh County, Tumed Left Banner, Wuchuan County, Alka League Wusitai Industrial Zone, Urad Front Banner, Liangcheng County, Dengkou County, Jining District, Ulanqab City, Dongshan Industrial Park, Ningcheng County, Hohhot Shengle Economic Zone, Qingshuihe County, Urad Middle Banner, Ejin Horo Banner, Yuanbaoshan District in Chifeng, Chifeng Economic Transformation and Development Pilot Zone, Xinghe County, Baarin Right Banner

2. XINJIANG UYGUR AUTONOMOUS REGION

Horgos Economic Development Zone, Huocheng County Economic Development Zone

3. HEBEI

Shijiazhuang Gaocheng, Cangzhou Development Zone, Nanpi County, Qinghe County, Wangdu City, Tangshan Nampo, Leting County, Xinle, Pingshan County, Fengnan District of Tangshan, Neiqiu County, Bohai New Zone, Cangzhou High-tech Zone, Tang County, Handan Jinan New Zone, Luquan, Quyang County, Raoyang County, Botou New Zone, Laishui County, Dingzhou, Dingxing County, Yutian County, Yutian Town and Caitingqiao Town of Yutian County, Changli County, Yu County, Xiahuayuan District, Chengan County, Wujiao County, Ningjin County, Linzhang County, Zaoqiang County, Longyao County, Xingtang County, Gucheng County City Area, Gucheng County Administrative Jurisdiction, Nangong City, Jize County, Xinhe County, Xingtai, Kangbao County, Zhanhuang County, Yu County Economic Development Zone, Nanhe County, Julu County, Linxi County, Xian County, Guangping County, Baixiang County of Xingtai City

4. GANSU

Lingtai County, Huating County, Jingning County, Chongxin County, Huachi County, Heshui County

5. TIANJIN

Baodi District in Tianjin, Jinghai Economic Development Zone, Ziya Industrial Zone

6. SHANXI

Shuozhou City, Xiangning County in Linfen City

7. SHANDONG

Dezhou, Qingdao, Leling, Qufu, Sishui, Qufu New Zone, Weifang Binhai Economic Development Zone, Liaocheng, Dezhou Tianqu Industrial Zone, Linyi City, Linyi Economic Zone, Linshu County, Zhangqiu District of Jinan City, Rongcheng City, Haiyang City, Wendeng City, Rushan City, Weifang Free Trade Zone, Jiexiang County, Ningyang County, Laiyang Economic Development Zone

8. NINGXIA HUI AUTONOMOUS REGION

Zhongwei, Guyuan City

9. HENAN

Xinyang, Jiaozuo City, Qinyang City, Wuzhi County, Xiuwu County, Luohe City 7 Projects, Xiping County, Jiuyan City, Sanmenxia City, Shanxian County, Sanmenxia Industrial Park, Lingbao City, Yanshi City, Yongcheng City, Yongcheng Industrial Zone, Xinmi City, Huangchuan County, Guangshan County, Gushi County, Huiguo Town, Gongyi City, Yuanyang County, Hui County, Mengzhou City, Wen County, Puyang County, Puyang Industrial Zone, Tangyin County, Nanyang City Wolong District, Suiping County, Shangcheng County, Ningling County, Xi County, Luoshan Town, Neihuang Town, Puyang Town, Yanjin Town, Changyuan Town, Gongyi Town, Nanyang Town, Luoning Town, Zhengyang Town

10. SHAANXI

Baoji, Qishan County, Yulin, Linyou County, Shangnan County, Heyang County

11. JIANGSU

Nanjing Jiang Bei, Pizhou, Yangzhong, Pu Kou District, Nanjing, Jiawang District, Xuzhou, Xinyi, Xuzhou, Yangzhou City, Taixing East District, Lianyungang Haizhou Economic Development Zone, Nanjing Jingqiao, Donghai County, Tong Shan, Sihong County City Center, Sihong County, Guannan County, Nanjing Changlu Industrial Park, certain villages and towns of Sihong County

12. ANHUI

Wuhu, Huainan, Shouxian, Suzhou, Wuhu County, Nanling County, Huoshan County, Fengtai County, Wuwei County, Qimen County, Xiuning County, Maoji Development Zone, Huoqu County, Susong Linjiang Industrial Zone, Suzhou Si County, Suzhou Yongqiao Economic Zone, Wuhe County, Si County, Susong City, Taihu County, Hefei Binghu New District, She County, Huinan Town of Wuhe County, Linbei Village, Xinji Town, Toupu Town, Wuhe Economic Zone, town of Si County

13. HUBEI

Yichang, Xiaogan, Hanchuan, Yingcheng, Yunmeng, Suizhou, Tianmen, Dangyang, Wuhan Jiangnan, Laohekou, Danjiangkou, Yuanan, Dawu County, Yun County, Wuxue Industrial Zone, Shiyang Wudangshan Zone, Donghu High-tech Zone, Jianli County, Honghu City, Songzi City, Xinzhou District in Wuhan, Wuxue City, Yingshan County, Tuanfeng County, Longganhu district in Huangmei County, Huanggang City, Xishui County, Meichuan Town in Wuxue City, Huangmei County, Shiyang, Zigui County, Yunxi County, Huangshi Port Industrial Park, Yunxi County, Xiaogan High-tech Zone, Chongyang County, Honghu Economic Development Zone of Wuhan, Yunxi County

14. ZHEJIANG

Hangzhou Xiaoshan District, Taizhou, Jinhua, Hangzhou Jiangdong Development Zone, Daishan Economic Development Zone, Yueqing City, Xiushan Village of Zhejiang

15. CHONGQING

Yubei

16. JIANGXI

Nanchang Wanli District, Xinfeng County, Wuyuan County, Yihuang County, Xinfeng Industrial Park, Nancheng County, Quannan County, Shangyou County, Jinyuan New District in Yichun City

17. HUNAN

Yiyang, Youxian, Zhangjiajie, Yiyang Datonghu, Yiyang City New Zone, Huaihua National Agriculture and Technology Zone, Anhua County, Zhijiang Dong Autonomous County, Baojing County, Huishangang Concentrated Industrial Park of Yiyang, Chaling County, Nan County, Lu Kou County, Yanlin County

18. FUJIAN

30 cities/regions, Sanming City, Shaowu City, Wuping County, Taining County, Qingluo County, Youxi County, Datian County, Jianning County, Huanan Economic Zone, Ninghua County in Sanming

19. GUIZHOU

Kaili City

20. YUNNAN

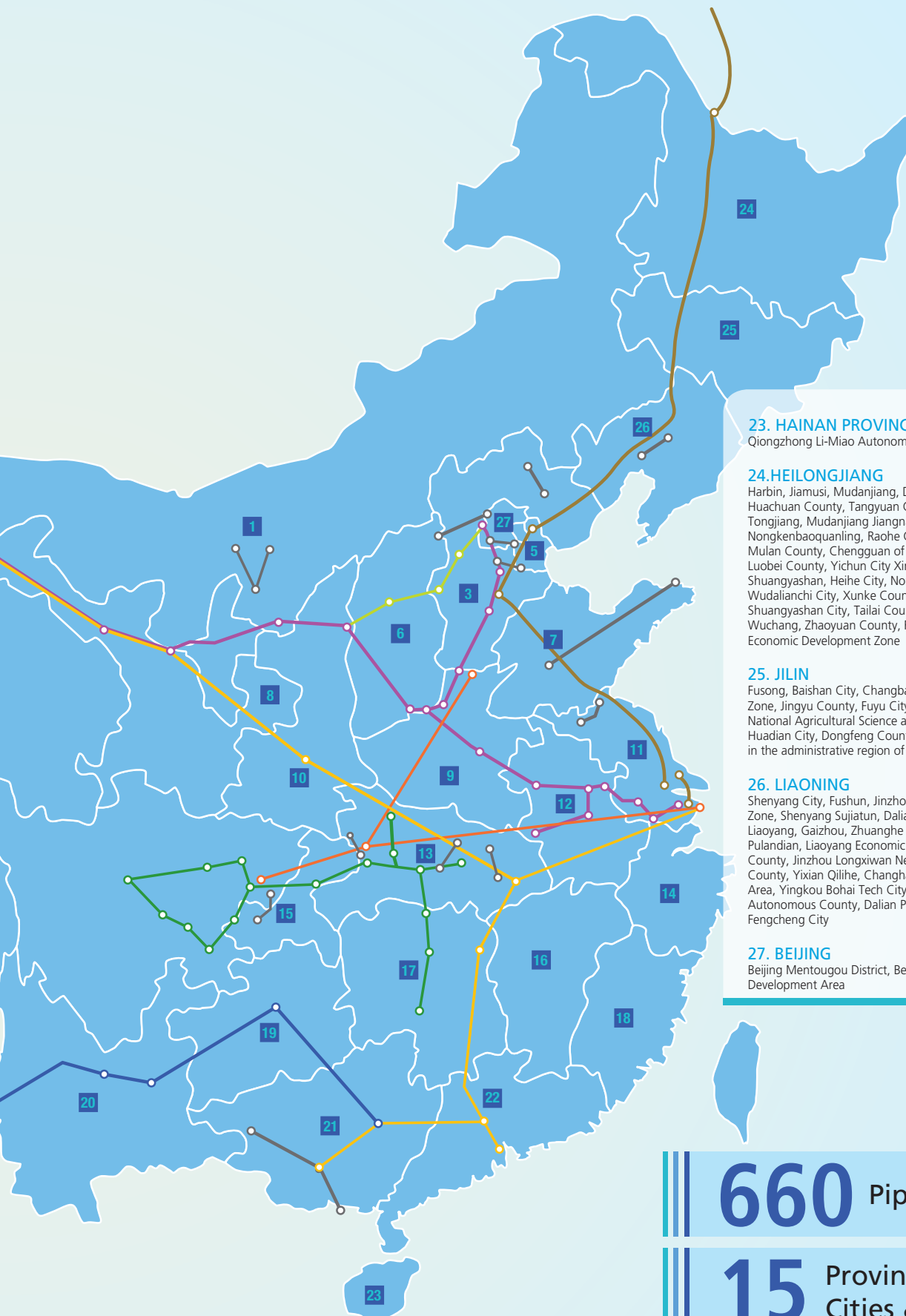
Dali Haidong New Zone, Baoshan City, Luchun County

21. GUANGXI ZHUANG AUTONOMOUS REGION

Nanning, Yulin, Qinzhou, Liuzhou, Fangchenggang, Nanning ASEAN Development Zone, Laibin, Baise, Bobai, Chongzuo, Guiping, Luchuan, Tiandeng County, Dahua County, Hechi, Tianlin County, Cenxi, Napo County, Liucheng County, Luocheng Mula Autonomous County, Yulin Environmental Protection Industrial Park

22. GUANGDONG

Maoming, Conghua, Meizhou, Yunfu, Shanwei, Xinxing County, Fengshun County, Pingyuan County, Dapu County, Wuhua County, Huazhou, Luhe County, Mei County, Jieyang Industrial Park, Ruyuan County



23. HAINAN PROVINCE

Qiongzong Li-Miao Autonomous County

24. HEILONGJIANG

Harbin, Jiamusi, Mudanjiang, Daxing'anling Jiagedaqi District, Huachuan County, Tanguan County, Huanan County, Suibin County, Tongjiang, Mudanjiang Jiangan Development Zone, Nongkenbaoquanling, Raohe County, Qitaihe Jinsha New Zone, Mulan County, Chengguan of Teili City, Fuyu County, Boli County, Luobei County, Yichun City Xinqing District, Jixi, Lingdong District in Shuangyashan, Heihe City, Nongken Hongxinglong District, Wudalianchi City, Xunke County, Qingan County, Sunwu County, Shuangyashan City, Tailai County, Acheng, Anda, Bin County, Wuchang, Zhaoyuan County, Fangzheng County, Jiansanjiang, Yilan Economic Development Zone

25. JILIN

Fusong, Baishan City, Changbai Mountain International Tourist Resort Zone, Jingyu County, Fuyu City, Zhenlai County, Gongzhuling City National Agricultural Science and Technology Park, Jiaohe City, Huadian City, Dongfeng County, Lushuihe Town and Quanyang Town in the administrative region of Fusong County, Changbai County

26. LIAONING

Shenyang City, Fushun, Jinzhou Economic Hi-Tech Development Zone, Shenyang Sujiatun, Dalian Jinzhou Development Zone, Liaoyang, Gaizhou, Zhuanghe City, Zhuanghe Industrial Park, Pulandian, Liaoyang Economic Zone, Liaoyang Taizi River, Xinbin County, Jinzhou Longxiwan New Zone, Qingyuan County, Fushun County, Yixian Qilihe, Changhai County, Jinzhou Dayou Economic Area, Yingkou Bohai Tech City, Jinzhou City, Kuandian Manchu Autonomous County, Dalian Puwan Economic Zone, Dandong City, Fengcheng City

27. BEIJING

Beijing Mentougou District, Beijing Economic-Technological Development Area

—○— Long Distance Pipeline Project

Major National Natural Gas Pipelines

—○— West-East Gas Pipeline No. 1

—○— West-East Gas Pipeline No. 2

—○— Shaanxi-Beijing Pipeline No. 2

—○— Zhongwu Pipeline

—○— Sichuan-East Gas Pipeline

—○— China-Russia Natural Gas Pipeline

—○— China-Myanmar Natural Gas Pipeline
(not drawn to scale)

CHINA GAS HOLDINGS LIMITED

660 Piped Gas Projects

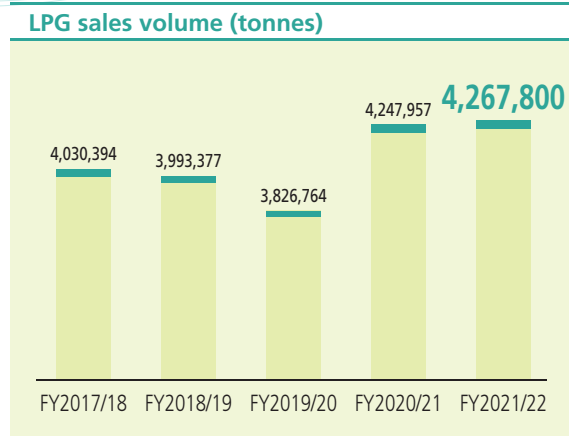
15 Provincial Capital Cities & Municipalities

ABOUT CHINA GAS

BUSINESS OVERVIEW

LPG Business

As the largest comprehensive liquefied petroleum gas (LPG) supplier in China, China Gas has the most extensive LPG import and distribution network in China. Seven large-scale petrochemical product terminal and logistics bases have been put into operation in the southeast coast of China. The annual throughput capacity of the terminal is more than 10 million tons, the total LPG storage capacity is more than 400,000 cubic meters, and the chemical storage capacity is more than 100,000 cubic meters. The annual import and distribution of LPG is more than 4.2 million tons. To follow the development trend of clean energy and lighter raw materials, China Gas has started a new process in the whole industry chain of liquefied hydrocarbons.



In the upstream, on the basis of the existing domestic coastal LPG transportation fleet, a large-scale VLGC ocean-going transportation fleet has been established. In addition, there are dozens of supporting professional dangerous chemicals transportation fleets and advanced logistics management systems; in the midstream, on the basis of liquefied hydrocarbon import bases such as Fangchenggang in Guangxi, Nansha in Guangzhou, Xiaomen Island in Wenzhou, etc., wharfs and petrochemical base projects have been laid out in coastal and riverside. Chemical parks in Dongying in Shandong, Taixing in Jiangsu, Quanzhou in Fujian and other coastal and riverside chemical parks have gradually covered the whole Chinese mainland; in the downstream, China Gas now has 106 liquefied petroleum gas terminal distribution projects and 894 stores in total, the sales volume of bottled gas and the number of users ranks first in the country. Based on this, with the advantages of gas sources, China Gas intensively deployed in core areas such as Guangxi, Guangdong, Fujian, Zhejiang, and Jiangsu, and in core cities such as Jiangxi, Shandong, Hebei, Shanxi, Henan, Beijing, Tianjin, Shanghai, etc., to implement trade coordination, and promote mutual development; in terms of deep processing, with in-depth cooperation with domestic chemical industry giants, the jointly built propane dehydrogenation project will be put into production within this year. As a dedicated brand for China's gas bottled gas business, "China Gas Baijiang" has become a leading brand with the highest coverage in China's LPG industry, and has also become a leading China's LPG terminal retail selling model.

In the future, by constructing wharfs along the river and coasts, supporting storage tank farms and chemical bases, improving logistics and transportation capabilities, and building an intelligent distribution network and other means, China Gas will integrate its various advantages including the resources procurement, ocean transportation, wharf loading and unloading, tank farm storage, park processing, and land-based resources will be integrated to build a comprehensive and efficient industrial ecological value chain. While meeting the demand for raw materials for rapidly developing olefin projects, it also provides safe and high-quality energy guarantee for civil and commercial users and builds the most extensive industry supply and marketing network in mainland China, making China Gas the unique owner and leader of the entire industry chain in China.

As at 31 March 2022



Large-scale petrochemical product terminal storage and logistics base in operation and under construction

7



Accumulated number of LPG distribution projects

106



Operational Locations of Liquefied Petroleum Gas



LPG terminal



LPG storage facility



LPG wholesale



LPG retail

The Largest Vertically Integrated

Liquefied petroleum gas operator in China

ABOUT CHINA GAS

BUSINESS OVERVIEW

LPG Smart MicroGrids

The Group developed the first domestic LPG Smart MicroGrid gas supply system platform based on intrinsically safe and digitally based operations management, providing a new model for the construction of rural 'gas networks'. The original model of "supplying gas in bottles, storage in individual households and maintenance by individuals" has been transformed into a model of "centralised supply of gas, decentralised access to households by an intelligent micro-pipeline network and remote online monitoring by enterprises", bringing revolutionary and innovative technology to suburban and rural communities. Work on market development continues to proceed smoothly, and strategic agreements have been signed with Yunnan and Qinghai provinces, three prefecture-level cities and 28 counties, and engineering design and construction work is being carried out rapidly and steadily, in an effort to create a low-carbon economy and a livable environment.

Value-added Services

In order to provide a more advanced and convenient gas service experience to the Group's key service users, the Group is committed to building an e-commerce portal and marketing platform, "Smart Living", which covers gas services and gas-related products. Currently, the Group has over 50 million natural gas and LPG customers in 30 provinces, municipalities and autonomous regions across China, which has huge potential for developing the customer networks in value-added services. The Group will continue to enhance its branding through enriching the value-added services and gradually increase the proportion of operating revenue from this segment, enhancing the profitability and overall competitiveness of the Group's operational service network. The Group's value-added services include sales of wall-hung boilers and kitchen gas appliances, kitchen appliances, smart home equipment, comprehensive gas insurance agency, corrugated pipes, gas alarms, water purifiers and fast-moving consumer goods under the Group's own brand "GASBO".

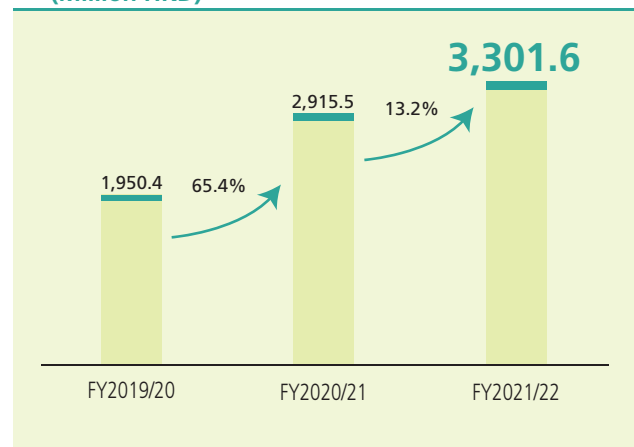
Empowered by technology and driven by big data, Smart Living has carefully polished its New Retail 3.0 system around its strategic direction, forming a GaaS model (Grid as a Service) that integrates the utility base grids, empowerment grids and community grids. Through the operation of "people", "goods" and "channels", Smart Living drives product iterations and service upgrades for 500,000 commercial users, 46 million user households, over 30,000 grid operators, over 1,000 business offices and over 300 project companies located in all regions of the country. This opens a new way of doing business — "community "shop" business". And we aim to create a family-oriented neighbourhood "shop" with new social attributes based on lifestyle services.

As at 31 March 2022



Gross profits of Yipihui security, insurance and kitchen products increased by **32%**, **37%** and **13%**

Total Gross Profit of Value Added Business (Million HKD)





BUSINESS OVERVIEW

Urban Heating Project

The Urban Heating Project is a newly integrated solution for the heating needs of the south-central region, eliminating the need for large municipal networks and destructive excavations, and providing customers with a high quality of life while reducing environmental pollution and waste of resources. The project provides a distributed heat source to heat individual communities, schools, hospitals, shopping malls and office buildings. Through the construction of community heat stations and courtyard pipe networks, hot water is transported to individual buildings, and the heat is delivered to customers' rooms through building risers, where heaters or floor heating systems are installed to supply the customers. This minimises primary pipe networks, reduces heat loss and improves heating efficiency. As at 31 March 2022, China Gas had signed strategic cooperation agreements with 48 cities for the project.

New Energy and Integrated Energy Business

Driven by the progress made in implementing national and regional environmental protection policies, the changes in energy consumption structure and the transformation in consumption patterns, China's energy industry is witnessing an unprecedented wave of significant changes towards cleaner energy, diverse energy consumption habits and energy supply integration. Over the years, the Group has been committed to pushing forward the extensive deployment of new businesses, from natural gas-powered distributed energy resources, photovoltaic power generation, distribution and sale of electricity, as well as central heating, charging piles and hydrogen energy in China, on the basis of the huge market and large customer base gained by its gas projects. China Gas seeks to carry out integrated utilisation of energy resources with years of cumulative experience in market development and technical innovation, in an effort to provide customers with highly efficient integrated energy resources that address their needs for gas, heating, electricity and cooling.

Solar Power Production, Power Storage and Charging Business, and Building-Integrated Photovoltaic ("BIPV") System Power Generation Business

China Gas actively responds to the call of the government's commitment to the dual-carbon goals to support and promote the development of new energy. The Group actively deploys for distributed photovoltaic power generation, energy storage system, charging piles and other projects while engaging in the BIPV business and green infrastructure construction. The Group conducts electricity sales and distribution network businesses in 12 provinces and cities across the country, engaged in electricity trading, investing in the construction of incremental distribution network projects, and carrying out integrated electricity operation and maintenance management business to serve a wide range of industrial and commercial customers. China Gas currently has 55 electric vehicle charging stations actively operating in provinces such as Guangdong, Guangxi, Hainan, Fujian, Zhejiang, Jiangsu, Anhui, Shandong, etc.. During the financial year, the Group completed consolidated energy sales of 7.60 billion kilowatt hours. The Group will lead by example in the areas of energy conservation, emission reduction, low carbon development and environmental protection, and move towards becoming an international first-class integrated energy services company.

ABOUT CHINA GAS

BUSINESS OVERVIEW

New Energy and Business Development

The China Gas Building uses a digital dual control platform for energy consumption to centrally manage and optimise the building's ventilation, heating, lighting and air conditioning systems, providing support for energy management and energy-saving control of the building. The China Gas Building PV project is a major initiative by China Gas to lead by example in promoting the use of PV. Using the "self-generation and grid-connection" method, the Group designed and installed a small photovoltaic power station on the 35th floor of the China Gas Building. The project has a design capacity of 19.8 kilowatts, with an estimated annual electricity generation capacity of approximately 20,000 kWh. The average annual energy saving and coal reduction is expected to be 7.15 tonnes, including 19.79 tonnes of carbon dioxide, 0.6 tonnes of sulphur dioxide and 0.3 tonnes of nitrogen oxides. Photovoltaic power generation can be fully consumed and can provide green and clean energy for the China Gas building, ensuring a green sustainable electricity source for a green building.

In 2022, China Gas plans to invest in 200 MW of distributed photovoltaic power projects, amounting to approximately 150 projects. Currently these projects are located in 20 cities in North China, East China, Shandong Province, Central China, South China and Southwest China, with projects already signed in Wuhu and Hangzhou, and projects coming soon in Handan, Zhangzhou and Panyu. At the same time, we are actively working on the construction of household PV projects in Hebei, Shandong and Henan provinces, and the Shijiazhuang area is now in the preparation stage for implementation. The Hangzhou China Gas Light Storage and Charging Integration Project is also being tendered and is expected to come into operation this year, and it will be using photovoltaic power generation to provide new energy vehicles with electric energy.

Utilization of Hydrogen Energy

China Gas is fully deploying strategies for the hydrogen energy industry, striving to achieve the "Carbon Peak" and "Carbon Neutrality" goals. In terms of hydrogen energy production, the Group utilized the by-products of LPG chemical projects for the purification and production of hydrogen. Through the cooperation with CNOOC Gas and Power Group Co., Limited* (中海石油氣電集團有限責任公司), the Group commenced research, development, and application of skid-mounted natural gas technology to produce hydrogen. Through cooperation with the leading photovoltaic enterprise, LONGi Green Energy Technology Co., Ltd., the Group has carried out research, and application of hydrogen production through photovoltaic power generation hydrolysis. In terms of hydrogen energy storage and transportation, the Group has carried out research and application with its extensive experience in CNG and LNG storage and transportation and the national leading specialized delivery fleet. In terms of hydrogen energy application, China Gas leverages its nationwide business network, its substantial user resources and 533 gas filling stations to construct an integrated energy supply station of oil, gas, electricity and hydrogen.

BOARD STATEMENT

China Gas adheres to the corporate mission of “Converging in Harmony and Benefiting Society” and the core values of sustainable development and operates its business in a responsible and transparent manner. It has established a sound sustainable corporate governance structure to manage work related to sustainable development, in order to create value for stakeholders such as shareholders, customers, employees and society.

The Board, as the highest authority of the Group’s governance structure, places great emphasis on sustainable development and possesses the highest decision-making authority for sustainable development work and is responsible for the decision-making, deployment and guidance on material sustainability issues and reviewing the progress towards various sustainable development goals. We have established a Sustainability Committee with a view to assisting the Board in governing sustainability matters and monitoring and managing the Group’s progress in sustainable development. The Sustainability Committee has established the Sustainability Committee Leadership Group and the Sustainability Committee Office. The Sustainability Committee comprises the senior management and administrative staff of the Group, who represent different functional and operational departments, to effectively coordinate and implement sustainable development measures. For details of sustainable corporate governance and the responsibilities of each sustainability organisation, please refer to Chapter 1.6 “Sustainable Corporate Governance” in this report.

In addition, the Group conducts materiality assessment annually and prioritises sustainability issues by collecting opinions from various stakeholder groups. The Board participates in the discussion of determining material sustainability issues and verifies the priority, coverage, boundaries and integrity of material issues with the management to identify sustainability issues that are most important to our business operation and of greatest concern to stakeholders. We formulate sustainability strategies and conduct sustainability management with reference to the results of the materiality assessment, and refine our sustainability strategies, enhance the management system as well as incorporate sustainability into corporate decision-making and daily operations. For details of the material issues analysis and its results, please refer to Chapter 1.2 “Materiality Assessment” in this report.



BOARD STATEMENT

To tie in with the national goals of carbon peak by 2030 and carbon neutrality by 2060, in 2022, a third-party institution was commissioned by the Group to assist in formulating the roadmap for carbon neutrality, conducting carbon emission verification for our operation and proposing phased goals in the roadmap for carbon neutrality and carbon reduction roadmap, with an aim to achieve carbon neutrality ahead of the schedule by 2050. Besides, we have studied various carbon asset management strategies to strengthen the carbon reduction efforts of various businesses, and conducted training on carbon reduction to improve the efficiency of emission reduction in 2022, with the established goals approved by the Board. In terms of water consumption, using 2020 as the baseline year, China Gas aims to reduce water consumption by 16% by 2025. Progress towards the goals and the results achieved will be reported in the sustainability report to improve the management and disclosure of environmental performance. In response to the pressing issue of climate change, the Group formulated the Climate Change Policy, providing guidance on the work on climate change at the group level. In 2022, we also invited a third-party institution to conduct a climate change risk assessment for our business operation to identify and deal with climate related risks and opportunities. The assessment began by reviewing the company's business model and gathering information about existing policies and the latest market trends. Transition and physical risks were then identified and analysed with reference to the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) classification of climate-related risks. Among them were transition risks such as policy and legal risks, market risks. Physical risks such as extreme precipitation, river flooding, extreme heat, etc. were identified. Climate assessment tools were used to analyse the likelihood and severity of physical risks in China's gas business locations. Based on the assessment results, a series of mitigation measures has been implemented to reduce the risks of climate change to our business operations.

China Gas understands the importance of safe production and has formulated the safety management approach of "Safety First, Prevention Foremost, and Integrated Management" to strengthen the operation safety, putting the safety of employees, customers and residents first. We have established a comprehensive Safety Management System, together with the detailed safety management guidelines, to guide the health and safety work. The directors and management are deeply saddened by the natural gas explosion incident occurred in Shiyan City, Hubei Province and have learnt the painful lessons from the incident. In response to the incident, the Group required all subordinate project companies to conduct comprehensive safety inspections and immediately address potential safety hazards. The Group has also announced 13 June each year as the Safe Production Warning Day of the Group to alert all employees and improve the safety management level to prevent the recurrence of material safety incidents. During the year, the Group further promoted the implementation of the health and safety management system. By publishing a series of documents such as system manuals, high-risk operation procedures and safety cards, we actively built a long-term mechanism for safe production in order to ensure operational safety. In addition, we have formulated health and safety targets to improve our health and safety performance and assure the safety of our stakeholders.

This report has been reviewed by our senior management and approved by the Board and the Sustainability Committee on 24 June 2022, ensuring that the relevant information is accurate and reliable. We, under the leadership of the Board, review the progress of sustainability work on an ongoing basis and monitor the effectiveness of relevant policies and practices, in order to fulfil our responsibilities as a corporate citizen.

22	1.1 Stakeholder Engagement
25	1.2 Materiality Assessment
28	1.3 Sustainability Strategy
29	1.4 Sustainable Development Goals
32	1.5 China Gas Sustainable Development Goals
32	1.6 Sustainable Corporate Governance
40	1.7 Corporate Risk Management
41	1.8 Corporate Code of Conduct

1. RESPONSIBLE GOVERNANCE



1. RESPONSIBLE GOVERNANCE

The Group maintains a comprehensive sustainability governance structure and continues to improve its corporate governance mechanisms and implement sustainable development governance. The Board and management are responsible for the monitoring and determination of relevant environmental, social and governance issues. Through our regular materiality assessments, we continue to review sustainability issues that are important to our stakeholders and have a significant impact on our development, so as to develop the Group's sustainability strategy, which is then highlighted in this report.

1.1 STAKEHOLDER ENGAGEMENT

The Group strives to establish a close and long-term relationship with its stakeholders. The main stakeholders of China Gas include shareholders, investors, creditors, financial analysts, employees, government and regulatory authorities, community groups, customers, business partners, suppliers, etc. In formulating our corporate sustainability development blueprint, we take the opinions of various stakeholders into account to establish a feasible and comprehensive development strategy.

We have diversified channels to maintain communication with stakeholders and adhere to three principles:





We adopt a proactive communication strategy with external stakeholders to disclose relevant environmental, social and governance information to the affected groups, thus in return, receive their support. For example, our project companies are required to formulate a stakeholder engagement plan in accordance with the environmental impact assessment report and the relevant requirements as stipulated in the Safeguard Policy Statement of the Asian Development Bank ("ADB"), and regularly publish environmental and social information of the projects to local communities and governments during project development, so that the local residents and the governments can keep abreast of project development. For stakeholders who are less affected, our engagement policy is more specific, which usually involves direct communication with stakeholders. The Group also regularly evaluates the effectiveness of each engagement activity and explores areas for improvement.

1. RESPONSIBLE GOVERNANCE



The Group communicates with different groups of external stakeholders through the main communication channels below, to understand their expectations and requirements of China Gas on a deeper level, and to fulfill the needs of our stakeholders. The Group's reaffirming actions are as follows:

Stakeholders	Communication Channels	Expectations	Actions from China Gas
 Shareholders, investors, creditors and financial analysts	<ul style="list-style-type: none"> • General meetings • Annual reports, interim reports, announcements and circulars • Investor roadshows • Investors/analysts/creditors meetings • Project visits for investors/analysts/creditors • Telephone/email 	<ul style="list-style-type: none"> • Excellent performance • Continuous and stable growth • Clear operational strategy • Efficient corporate governance • Timely and accurate information disclosure 	<ul style="list-style-type: none"> • Maintaining good profitability and competitiveness • Continuing to improve corporate governance • Regular disclosure of business information
 Employees	<ul style="list-style-type: none"> • Work/project meetings • Training programmes • Employees' congress • Internal publications • Team building activities • Face-to-face meetings • Complaint mailbox • WeChat groups and WeChat official accounts 	<ul style="list-style-type: none"> • Equal employment opportunities • Clear career development and promotion opportunities • Healthy and safe working environment • Comprehensive education and training system 	<ul style="list-style-type: none"> • Diversified recruitment • Organising staff events • Valuing Employee Health • Organising training • Providing online and offline learning platforms
 Government and regulatory authorities	<ul style="list-style-type: none"> • Research and meetings on special topics • Environmental impact assessment reports • Environmental monitoring reports • Daily report and communication • Industry association activities • Relevant forums and exchange activities • Site inspections • Telephone/emails 	<ul style="list-style-type: none"> • Daily communication • Information reporting • Routine inspection • Thematic presentations • Government-enterprise cooperation projects • Participate in the formulation of relevant policies 	<ul style="list-style-type: none"> • Improving safety standards • Improving risk management • Compliance with relevant laws and regulations • Continuing business activities in line with needs of the industry and regional economic development • Developing a safe, stable and efficient energy supply model • Actively supporting government policies

1. RESPONSIBLE GOVERNANCE

Stakeholders	Communication Channels	Expectations	Actions from China Gas
 <p>Business partners and suppliers</p>	<ul style="list-style-type: none"> • Supplier conferences • WeChat and QQ • Supplier training programmes • Strategic cooperation plans • Supplier performance communication meetings • Telephone/emails 	<ul style="list-style-type: none"> • Open and transparent procurement process • Localised sourcing • Fair and equitable tendering 	<ul style="list-style-type: none"> • Open tender • Establishment of a supplier management system • Continuing to improve policies • Improving management efficiency
 <p>Customers</p>	<ul style="list-style-type: none"> • Telephone service hotlines • Community service stations • Electronic customer service system • Customer satisfaction survey • WeChat groups and WeChat official accounts • China Gas "Smart Living" Platform 	<ul style="list-style-type: none"> • Safe and stable energy supply • High quality, efficient and fast service 	<ul style="list-style-type: none"> • Carrying out customer safety checks • Responding to customer requests promptly and efficiently • Maintaining a high level of quality customer service • Customer satisfaction surveys
 <p>Community groups</p>	<ul style="list-style-type: none"> • Press release/announcements • Community promotion activities • Safety and science activities • Social welfare volunteering activities • Site inspections/visits • Stakeholder engagement plans 	<ul style="list-style-type: none"> • Operating safely • Promoting community development • Pursuing public welfare activities • Building a harmonious society • Supporting public welfare 	<ul style="list-style-type: none"> • Charitable donations • Commitment to charitable activities • In-depth community building • Helping the poor and giving to the needy • Participating in community volunteer services • Organising charity and environmental activities

1. RESPONSIBLE GOVERNANCE



1.2 MATERIALITY ASSESSMENT

The Group conducts materiality assessment annually to identify sustainability issues that are of greatest concern to business operations and stakeholders. Based on this, we have formulated and improved our sustainability strategies, sharpening the focus regarding our sustainability report.

The major steps of the materiality assessment in FY2021/22 are outlined as follows:

01
STEP

Identifying sustainable development topics ●●●●●

China Gas conducted a comprehensive review and revision on the list of topics related to sustainable development of the Group. During FY2021/22, we identified a total of 33 topics that were most closely related to the Group's businesses and impacts, covering five realms from "economy", "environment", "society", "employees" to "customers", and started to analyse and communicate with various stakeholder groups.

02
STEP

Conducting materiality assessment ●●●●●

China Gas conducted materiality analysis in two approaches, namely stakeholder engagement and peer benchmarking analysis, so as to gain an in-depth understanding of stakeholders' opinions and market trends as well as identifying the relevant material issues.

In terms of stakeholder engagement, we conducted a questionnaire with the assistance of an independent consultant, aiming to collect and evaluate stakeholders' opinions through a fair and balanced approach. With this quantitative data, we have collected and analysed the expectations, views and suggestions of internal and external stakeholders of China Gas on environmental, social and governance issues and management, and identified material issues.

In terms of benchmarking analysis, we analysed the performance of peers in sustainable development and understood the expectations of the capital market, so that the environmental, social and governance disclosure and material issues of China Gas would be in line with the industry's focus and trends.

03
STEP

Verifying material topics ●●●●●

During FY2021/22, the Board and the senior management of the Group have verified the priorities, coverage, boundaries and completeness of the material topics to ensure they are significant to the Group.

1. RESPONSIBLE GOVERNANCE

Materiality Matrix

A materiality analysis was conducted to identify the most critical topics based on the results of the stakeholder questionnaires, and the topics are presented in a matrix. The materiality matrix prepared based on two dimensions, namely "importance to stakeholders" and "importance to corporate development", which fully considers the feedback of all stakeholders and the management of the Company. The matrix quantitatively prioritises 33 sustainability topics, and identifies 15 highly material topics, 16 material topics and two relevant topics. The details are as follows:



1. RESPONSIBLE GOVERNANCE



Material Topics

Categories	Ranking	Topics
Economy	1	Safe and stable supply
Economy	2	Corporate governance and compliance
Employees	3	Occupational health and safety
Economy	4	Anti-corruption
Employees	5	Rights and well-being of employees
Employees	6	Training and development
Environment	7	Climate change and greenhouse gas (GHG) emission management
Customers	8	Customers' health and safety
Society	9	Disaster and emergency planning
Society	10	Community engagement, impacts, assessment and investment
Economy	11	Economic performance
Employees	12	Diversity, anti-discrimination and equal opportunity
Employees	13	Internal communication
Employees	14	Employee satisfaction and productivity
Society	15	Product services and information
Society	16	Support local development
Economy	17	Market presence
Society	18	Suppliers' and contractors' social performance
Environment	19	Consumption and efficiency of resources and energy
Employees	20	Prevention of child labour and forced labour
Economy	21	Innovation and sustainable technology
Economy	22	Anti-competitive behaviour
Economy	23	Procurement practices
Environment	24	Effluents and waste management
Customers	25	Customer care and satisfaction
Society	26	Respect the rights of indigenous peoples
Environment	27	Management of projects under construction
Environment	28	Biodiversity
Customers	29	Protection of customers' privacy and information security
Environment	30	Water consumption and efficiency
Society	31	Protection of intellectual property rights
Environment	32	Waste recycling
Environment	33	Suppliers' environmental performance

1. RESPONSIBLE GOVERNANCE

1.3 SUSTAINABILITY STRATEGIES

China Gas is guided by the concept of “Successful Cooperation Between People and Enterprises, for a Century of China Gas” and actively seeks to integrate the expectations of our stakeholders into our corporate vision and balance their needs while achieving sustainable development. We believe by aligning our development approach with the goals of our stakeholders, we will jointly shape China Gas into a top energy service company with responsible operations. Adhering to the corporate mission of “Converging in Harmony and Benefiting Society”, China Gas strives to provide clean and convenient energy for society while fulfilling our social responsibility as well as seeking the well-being for the public. With the ambitious vision and mission of ours, in addition to the China Gas development philosophy of “Always Satisfying the Needs of Our customers by Putting the Successful Entrepreneur at the Forefront,” we have formulated a sustainable development strategy and have used it as the principal guidelines for investment decisions and operations. China Gas’ core values for sustainable development revolve around four categories: “Customer Trust”, “Social Respect”, “Employee Happiness” and “Win-Win for Shareholders”.

While realising our own economic value, we are committed to safe, energy-efficient and environmentally friendly energy production and supply, in order to better serve the community and strive for harmonious integration with resources and the environment, and to protect the common home of mankind on earth. We operate our business in a responsible and transparent manner, and continuously enhance our core competitiveness and sustainable development capabilities by integrating environmental, social and corporate governance (ESG) into its business blueprint and implementing it in its daily operations from the top down to create maximum value for our shareholders, customers, employees and the community.

We believe that under the long-term vision of China’s dual carbon goals, the optimisation of the country’s energy mix will be further accelerated, and the implementation of environmental protection and air pollution control policies will continue to be promoted, making the natural gas and LPG sectors play an increasingly important role in the national energy system.



1. RESPONSIBLE GOVERNANCE



1.4 SUSTAINABLE DEVELOPMENT GOALS

As a leading urban gas operator in China, China Gas recognises its three major responsibilities concerning the economy, environment and society and understands the impacts of project operations on the surrounding environment, communities and climate change. Hence, the Group is highly aware of the United Nations Sustainable Development Goals (SDGs) and has identified 13 SDGs that are most relevant to our own business. Through targeted strategies and actions and high standards of corporate governance and risk management, the Group makes use of its influence to implement and promote sustainable development in line with the United Nations.



Sustainable Development Goals	Strategies and Actions	Relevant Chapter(s)
SDG 1: No Poverty  <p>End poverty in all its forms everywhere.</p>	<p>Upholding the mission of “Converging in Harmony and Benefiting Society” to undertake social responsibility through carrying out poverty alleviation work to help vulnerable groups and becoming an active promoter of charitable activities.</p>	Social Responsibility
SDG 3: Good Health and Wellbeing  <p>Ensure healthy lives and promote well-being for all at all ages.</p>	<p>Improving operational safety, enhancing employees’ safety awareness and operation, and protecting customer’s safety and health;</p> <p>Raising employees’ awareness of self-care and health-related issues. Providing employees with occupational health and body checks so as to take practical action to care for their physical and mental health.</p>	Safety and Quality Operations; Well-being of Employees
SDG 5: Gender Equality  <p>Achieve gender equality and empower all women and girls.</p>	<p>Achieving equal pay for both men and women and providing equal opportunities on career development for female employees. Ensuring that they are fully protected by maternity and lactation leave regulations.</p>	Well-being of Employees
SDG 7: Affordable and Clean Energy  <p>Ensure access to affordable, reliable, sustainable and modern energy for all.</p>	<p>Providing customers with affordable photovoltaic energy solutions and contributing to “defending the blue sky”.</p>	Environmental Target and Management System
SDG 8: Decent Work and Economic Growth  <p>Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.</p>	<p>Providing competitive welfare and adopting an incentive and encouraging remuneration system, allowing employees to receive fair remuneration and benefits.</p>	Employee Management Policy

1. RESPONSIBLE GOVERNANCE

Sustainable Development Goals	Strategies and Actions	Relevant Chapter(s)
<p>SDG 9: Industry, Innovation and Infrastructure</p>  <p>Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation.</p>	<p>Promoting the “replacement of coal with gas” projects in rural areas, further innovating and expanding the LPG industry chain, and providing integrated clean energy solutions such as various types and forms of distributed energy, centralised heating and photovoltaic power generation services in various markets and regions.</p>	<p>Environmental Target and Management System</p>
<p>SDG 10: Reduced Inequalities</p>  <p>Reduce inequality within and among countries.</p>	<p>In response to the central government’s policies and promoting the implementation of the township “replacement of coal with gas” projects in remote areas to provide good quality of life to villagers and to reduce the economic and environmental gap between urban and rural areas.</p>	<p>Environmental Target and Management System</p>
<p>SDG 11: Sustainable Cities and Communities</p>  <p>Make cities and human settlements inclusive, safe, resilient and sustainable.</p>	<p>Facilitating the construction of smart cities by applying OMP to realise dynamic management of the production and operation of existing businesses, providing accurate decision-making, monitoring and early warning, and dispatching support for our business.</p>	<p>Ensuring Stable Supply of Gas: Ensuring Operation Safety</p>
<p>SDG 12: Responsible Consumption and Production</p>  <p>Ensure sustainable consumption and production patterns.</p>	<p>Implementing responsible procurement to ensure that suppliers comply with relevant laws and regulations in their operations to maintain the sustainability of the Group. In terms of production, the Group continues to deepen its natural gas business and LPG industry chain, and strives to become a responsible clean energy operator.</p>	<p>Corporate Code of Conduct; Environmental Target and Management System</p>
<p>SDG 13: Climate Action</p>  <p>Take urgent action to combat climate change and its impacts.</p>	<p>Engaging in the main business of natural gas operation and responding to the climate disasters and crisis caused by global warming through replacement of coal with gas and renewable energy.</p>	<p>Environmental Risks Identification and Control: Environmental Target and Management System</p>
<p>SDG 15: Life on Land</p>  <p>Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss.</p>	<p>Promoting biodiversity, particularly the natural habitats along the pipelines and sensitive areas with high ecological value, in order to fully protect the ecological environment around project areas.</p>	<p>Environmental Target and Management System</p>

1. RESPONSIBLE GOVERNANCE



Sustainable Development Goals	Strategies and Actions	Relevant Chapter(s)
<p>SDG 16: Peace, Justice and Strong Institutions</p>  <p>Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.</p>	<p>Strictly abiding by national laws and regulations and safeguard the rule of law. Emphasising corporate ethics and establish an efficient, responsible and transparent system at all levels within the group. Significantly promoting anti-corruption and reduce all forms of corruption and bribery.</p>	<p>Corporate Code of Conduct</p>
<p>SDG 17: Partnerships for the Goals</p>  <p>Strengthen the means of implementation and revitalise the global partnership for sustainable development.</p>	<p>Cooperating with government departments and industry companies in different regions strategically, signing long-term strategic cooperation agreements, building shared experimental bases and establishing exchange platforms for regular communication, in order to promote efficient implementation of the local energy projects and increase the utilisation rate of city and township natural gas.</p>	<p>Environmental Target and Management System</p>



Case 1: Loan financing with environmental and social responsibility

When carrying out loan financing activities, the Group takes into account social corporate responsibility, promotes sustainable development in all aspects, and considers the contribution of projects in environmental and social responsibility.




In March 2021, the Group and Sumitomo Mitsui Banking Corporation completed the first bilateral sustainability-linked loan of RMB1 billion, with a loan term of 4 years. The loan modification innovatively links the Group's energy efficiency and greenhouse gas efficiency targets to the cost of financing. It is subject to an annual certificate audit as well as certified by the HKQAA, an external third-party evaluation agency.

In August 2021, the Group obtained another sustainability-linked club loan of USD900 million granted by Mitsubishi UFJ Financial Group and HSBC. The loan links the Group's energy efficiency and greenhouse gas emission targets, as well as staff training hours, to the operation of the loan. Continuous tracking and verification were conducted by Vigeo Eiris in France and HKQAA, the third-party evaluation agencies. HKQAA will act as the external institution granting the annual sustainability performance certificate.

1. RESPONSIBLE GOVERNANCE

1.5 CHINA GAS SUSTAINABLE DEVELOPMENT GOALS

China Gas sets management targets for key sustainability issues in the areas of environment, society and governance, and regularly tracks and continuously reviews the achievement of these targets. These targets are also integrated into the annual work plans of the relevant departments to ensure the implementation of the management objectives.

 <p>Environmental Targets</p>	Greenhouse Gases	Achieve carbon peak by 2030 and carbon neutrality by 2050 GHGs emission intensity in 2030 reduce by 50%, compared to 2021
	Energy	Continuously decline in energy use intensity
	Waste	Improve waste data collection and consolidation process by the next financial year.
	Water Resources	Using 2020 as baseline year, reduce water consumption by 16% by 2025.
 <p>Social Targets</p>	Occupational Health and Safety	Accident rate 0%
	Supply Chain Management	Maintain a 100% local supplier ratio
 <p>Governance Targets</p>	Operational Compliance	Eliminate corruption, environmental violations and other non-compliance behaviours

1.6 SUSTAINABLE CORPORATE GOVERNANCE

In FY2021/22, China Gas continued to optimise and improve the sustainable development management system and incorporated environmental, social and governance factors into the Company's decision-making and daily operations so as to comprehensively promote the sustainable development of the Company. Corporate governance was enhanced by formulating and updating relevant board policies and improving sustainability management processes. Besides, we have adopted a win-win approach to corporate sustainable development by communicating with stakeholders through various channels, listening to different parties' feedback, and the Board's participation in the discussion of determining material issues of sustainable development.

1.6.1 Roles and Functions of the Board

The Company is headed by the Board, and as the head of the organisation's governance structure, the Board assumes responsibility for leadership and control of the Group. The Board, through a number of board committees, audits and manages the overall strategic planning and annual work plan of the Company, sets and monitors the achievement of goals, formulates corporate governance practices and policies as well as reviews internal control and risk management systems, and is accountable to the shareholders of the Company for enhancing shareholders' value. The directors are collectively responsible for promoting the success of the Group by directing and supervising its affairs in an effective manner. In terms of sustainable development, the Board bears the responsibility of overseeing the Group's environmental, social and governance issues, formulating management policies and strategies, including assessing, prioritising and managing major environmental, social and governance issues, and identifying risks to the business. The Board will also review the progress of environmental, social and governance goals in order to lead the sustainable development of the Group.

1. RESPONSIBLE GOVERNANCE



1.6.2 The Effectiveness of the Board

The Board of China Gas comprises 15 directors, including six executive directors, four non-executive directors and five independent non-executive directors. There are the Audit Committee, the Remuneration Committee, the Corporate Governance and Risk Control Committee, the Executive Committee (making all operational decisions) and the Nomination Committee (reviewing Board composition on a regular basis) under the Board. Internal policies including the Board Diversity Policy and the Nomination Policy are in place to improve the governance efficiency of the Board.

The Board meets regularly at least four times each year and additional meetings are arranged as and when required. The Group schedules regular board meetings in advance. Directors receive written notices of the regular board meetings at least 14 days in advance and the agenda with supporting board papers no less than three days prior to the meeting, to encourage active participation of directors. All directors are consulted for matters to be included in the agenda for regular Board meetings. For non-regular Board meetings, reasonable notices are given. Special board meetings are convened as and when needed. Minutes of meetings of the Board, Board committees and general meetings are kept by the company secretary and are made available and circulated to all directors periodically. Directors have full and timely access to all relevant information as well as the advice and services of the company secretary, with a view to ensuring that Board procedures and all applicable rules and regulations are followed. Management has an obligation to supply to the Board and its committees adequate, complete and reliable information in a timely manner to enable them to make informed decisions. Each director also has separate and independent access to the management.

Board Structure



Executive Committee
Audit Committee
Nomination Committee
Remuneration Committee
Corporate Governance and Risk Control Committee

1. RESPONSIBLE GOVERNANCE

1.6.3 Board Nomination Policy

The Nomination Committee of the Board currently consists of three independent non-executive directors and two executive directors. The Nomination Committee annually reviews the composition, structure and size of the Board and makes recommendations to enhance and strengthen the management of the Board. The Nomination Committee identifies and nominates suitable candidates to the Board from time to time based on the principle of achieving a balance of skills, experience and diversity of perspectives appropriate to the requirements of the Group's business. The Nomination Committee has adopted a Nomination Policy and considers the following criteria in evaluating and selecting candidates for directorships:

- reputation for integrity;
- accomplishment and experience in the industry and scope of businesses of the Group;
- time commitment;
- the diversity policy of the Group;
- requirements of the memorandum of association and the bye-laws of the Group, and the laws and regulations of Bermuda, Hong Kong and other applicable laws and regulations; and
- any other factors which the Nomination Committee considers relevant.

With due regard to the Board Diversity Policy and the Nomination Policy, the Nomination Committee makes recommendations to the Board when it identifies an individual who is suitable for becoming directors of the Company. The Board shall consider the recommendation and make a decision for the appointment.

1.6.4 Board Diversity Policy

A Board Diversity Policy has been adopted by the Company since 2013 so as to ensure that the Board has a balance of skills, experience and diversity of perspectives appropriate to the requirements of the Group's business. The diverse backgrounds of the Board members ensure that they can fully represent the interests of all shareholders of the Company and to enhance the effectiveness of the Board and corporate governance. The Company believes that the active involvement of the non-executive directors and independent non-executive directors in the management and decision-making of the Board and its committees strengthens the objectivity and independence of the Board. The Company believes that a diverse composition of the Board brings a diversity of experience and skills to the Group and helps to provide a holistic perspective and viewpoint to enhance corporate decision making. The Board adopted a Board Diversity Policy upon the recommendation of the Nomination Committee to set out the approach to achieve diversity of the Board members. When recommending nominations to the Board for approval, the Nomination Committee will consider the merits and contribution that the selected candidates will bring to the Board, having due regard for a range of diversity perspectives (including but not limited to gender, age, cultural and educational background, ethnicity, professional experience, skills, knowledge and length of service) as set out in the Board Diversity Policy. As at 31 March 2022, the Board has three female members (20%) and five independent non-executive directors (33.3%). In the future, the Board will actively consider and gradually increase the proportion of female directors and independent directors to allow different voices to participate in setting the direction of the Group's business and to express positive and objective views on issues facing the Board.

1. RESPONSIBLE GOVERNANCE



1.6.5 Linking Board Remuneration with Sustainability Performance

To enhance the awareness of the Board and senior management to environmental, social and governance issues, the Group links the remuneration of directors and senior management with sustainability performance indicators, including but not limited to operational safety, carbon neutrality, energy conservation and emission reduction and technological innovation. The Company conducts a value creation assessment on senior management annually. The ESG indicators have become an important indicator that affects the assessment results of senior management. In FY2021/22, the Company further implemented ESG performance assessment and incentive measures for regional companies and project companies, and included indicators including carbon emission management, biodiversity protection, environment and health and safety, renewable energy utilisation, customer satisfaction, anti-corruption, compliance operation and climate risk governance in the annual value creation assessment. The results of the assessments will directly affect the total incentives of regional companies and project companies, thus ensure the implementation of key ESG goals and measures and strengthen sustainability governance capabilities.

1.6.6 Sustainable Development Management

The Board is the highest authority of the Group's governance structure and is responsible for arranging and making final decisions for sustainable development. The Board assumes the responsibility of our long-term strategic planning and annual review of work plans as well as the decision-making, deployment and guidance on material sustainable and social responsibility issues.

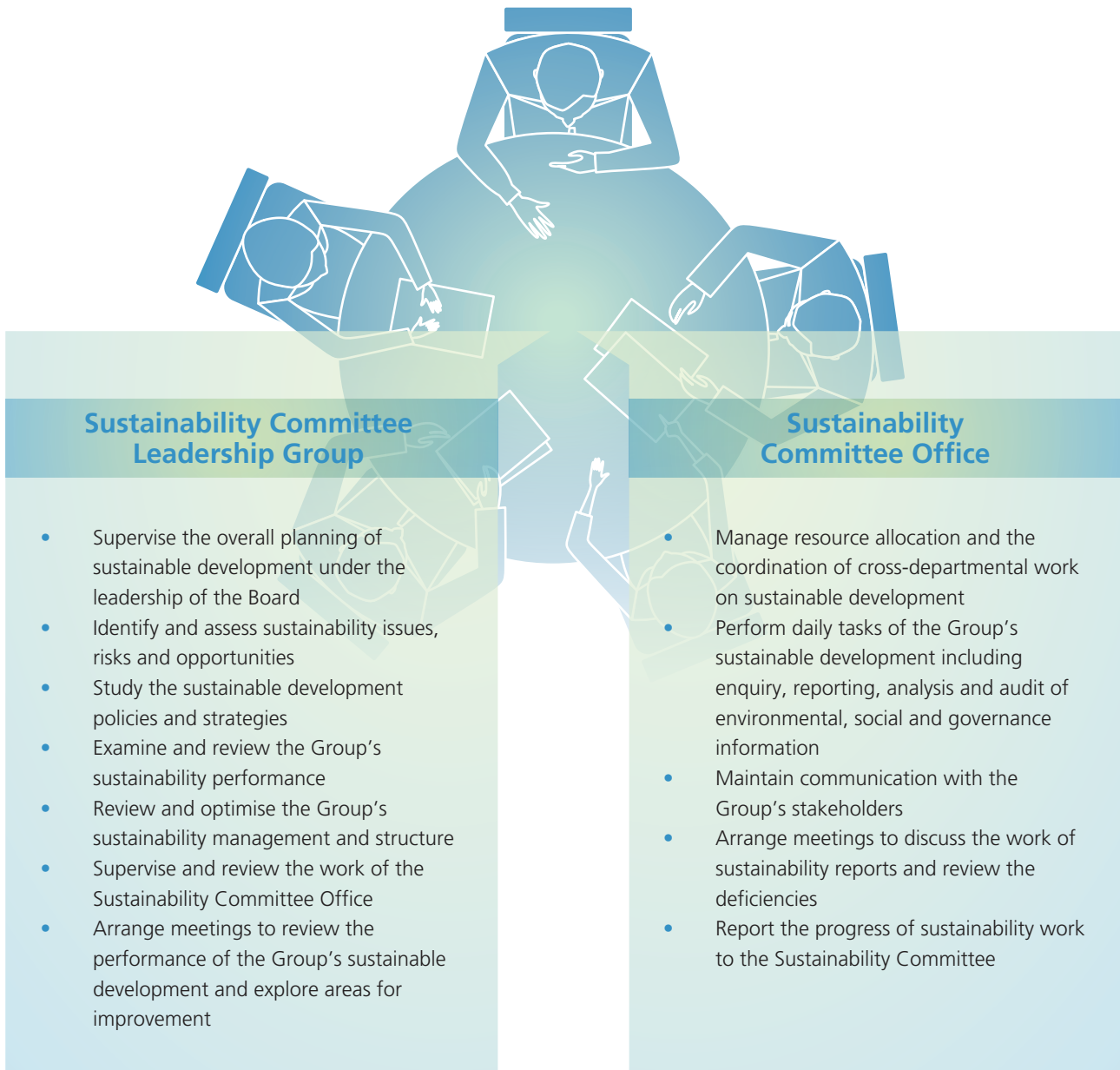
In 2020, we established the Sustainability Committee to enhance the management of sustainable development and monitor the progress on sustainable development. The Committee is led by Dr. Ma Weihua ("Dr. Ma"), an independent non-executive director of the Company, as the chairman of the Sustainability Committee. Dr. Ma joined the Company in February 2022. He was appointed as a Special Advisor by United Nations Development Programme in China and chairman of SDG Financing Advisory Committee in March 2019, and was appointed as a member of SDG Impact Steering Group* (可持續發展影響力投資全球指導委員會) by the United Nations Development Programme in April of the same year. Dr. Ma works together with the members of the Committee, Mr. Liu Ming Hui (the executive director, chairman of the Board and President of the Company) and Mr. Zhu Weiwei (the executive director and managing vice president of the Company) to lead and supervise the sustainability work of the Group and improve the level of governance in sustainable development. The Sustainability Committee has established the Sustainability Committee Leadership Group and the Sustainability Committee Office to assist the committee in coordinating, implementing and monitoring the Group's sustainability tasks.

The Sustainability Committee working groups comprise the senior management and administrative staff from different departments of the Group, including Office of the Board of Directors, Capital Management Centre, Audit and Supervision Department, Legal and Compliance Department, Safety Supervision Department, Engineering Management Department, Value-added Services Business Department, Digital Development Department, Electricity and New Energy Business Department, Operational and Customer Service Management Department, Procurement Management Department, Corporate Planning and Management Department, Human Resources and Corporate Culture Department, Administrative Department and Financial Management Department. Various functions allow them to cooperate with each other and fully devote themselves to our sustainable development and to effectively coordinate and implement sustainable development measures.

1. RESPONSIBLE GOVERNANCE

Sustainability Committee Leadership Group and the Sustainability Committee Office under the Sustainability Committee are as follows:

Under the Sustainability Committee, four working groups have been formed, namely “Dual-Carbon Working Group”, “Methane Control Working Group”, “Rural Coal-to-Gas Working Group” and “Safety Monitoring Working Group”.



1. RESPONSIBLE GOVERNANCE



Dual-Carbon Working Group	Methane Control Group	Rural Coal-to-Gas Working Group	Safety Monitoring Working Group
<ul style="list-style-type: none"> Investigate the total greenhouse gas emissions of the group, set the group's dual carbon goals, and formulate feasible and implementable carbon emission reduction measures Verify the Group's greenhouse gas emissions and the implementation of emission reduction measures to ensure the realization of the dual carbon goals Explore new business opportunities in the dual-carbon field, and look for new business growth 	<ul style="list-style-type: none"> Verify the group's overall methane emissions, formulate methane emission reduction targets and supervise the attainment of the targets Research on methane emission of the Group's gas facilities, obtain methane emission factor data of the city gas industry, and gradually improve the transparency of methane emission data Participate in domestic and foreign methane emission reduction alliances and organizations to gain advanced experience in the industry Comprehensively analyze the advanced technologies for methane emission reduction in the industry, and formulate and update the Group's methane emission reduction implementation plan Compile methane emission reduction industry technical standards to lead the development of the industry 	<ul style="list-style-type: none"> Be responsible for the formulation of the Group's rural gas market development policies and strategies Coordinate the dynamic management of user installations in the group, supervise the targets of user installation Empower the front line to solve urgent and difficult problems such as the group's rural gas market-based pricing and gas price rationalization Build a market-oriented charging training system, empower marketization teams, and enhance business capabilities Track and understand changes of various factors such as the national macro-economy, natural gas industry policies, upstream and downstream industries, and end customers, to find policy support and market space for the group's rural business development 	<ul style="list-style-type: none"> Identify national laws and regulations, policy requirements, rules and regulations related to safety, and formulate safety principles, plans and standards in line with China Gas' actual situation, lead the group's continuous improvement in safety, as well as inspect on health and safety violations Incident Be responsible for the data collection, investigation, analysis and handling suggestions of the group's production safety, environmental protection, quality and occupational health accidents (incidents) Be responsible for the supervision and management of the group's quality, environmental protection and occupational health Be responsible for coordinating the group's safety management work, implementing supervision, inspection, assessment, training, guidance and services, and responsible for the supervision and data statistics of the group's safety activities

1. RESPONSIBLE GOVERNANCE

1.6.7 Regional Management and Control Mode

To effectively improve the management efficiency of sustainable development, China Gas has implemented a management and control mode of “headquarters, regional operational and management centres and management group/project companies”. By strengthening the headquarters, regional operations, management centres, operation and management groups and project companies, we will continue to strengthen the delegation of authority while continuing to streamline process settings and gradually promote the realisation of localised closed-loop decision-making management.

Through the strategic leadership of the headquarters, management at the regional level and dedication from project companies, we are able to maximise the creativity and vitality of each unit and make the management mechanism in line with the business development of the Group.

Headquarters

- Responsible for formulating strategies, policies, systems and standards, decision-making, core cadre management and controlling budget as well as supervision and control



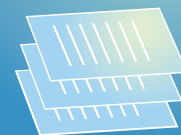
Regional operational and management centres

- Undertaking and implementing main management functions of the Group, held accountable for return on capital employed and management of territorial business decisions



Project companies

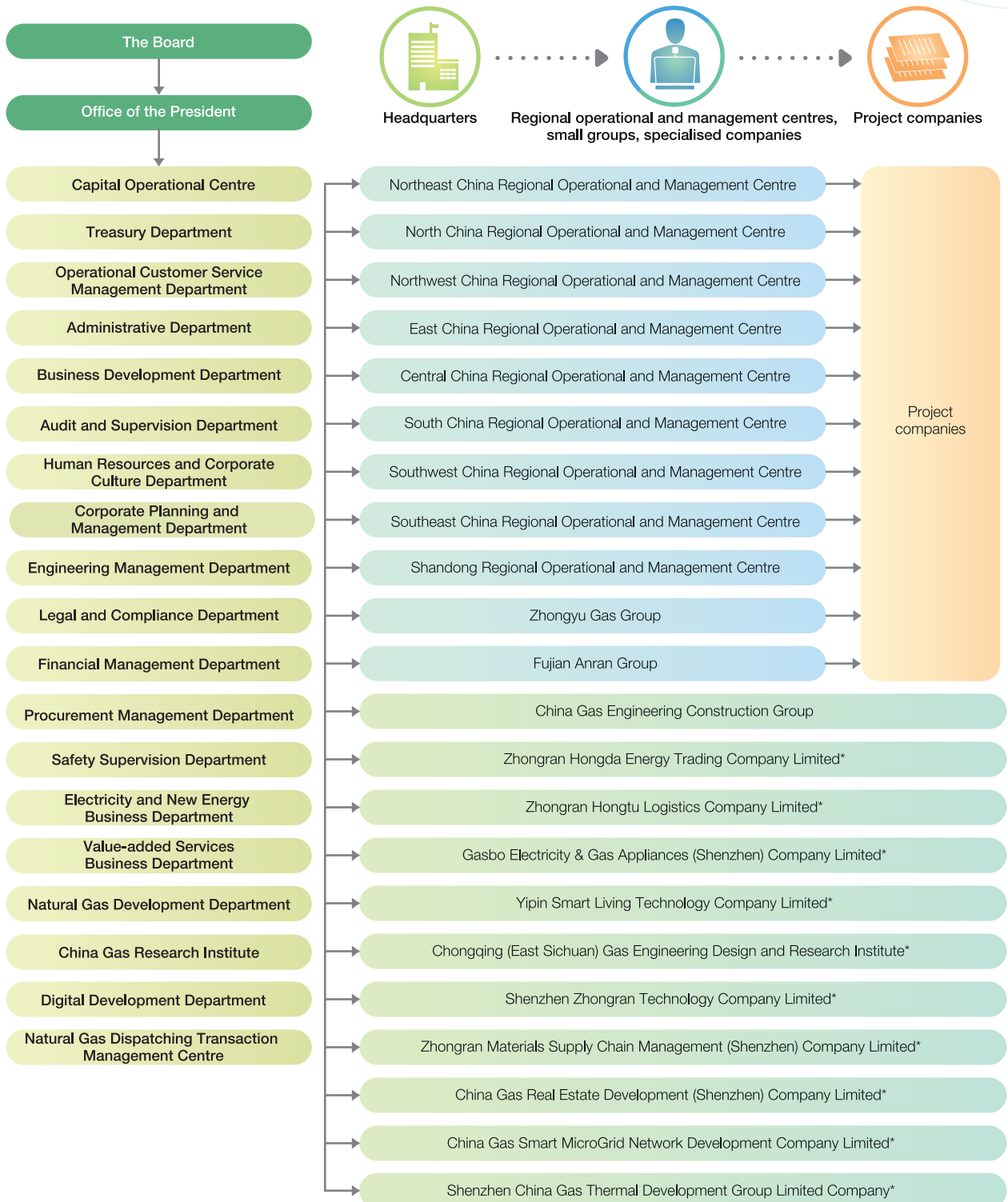
- As profit centres and independent accounting units, they are subject to strategic leadership and management of the Group’s headquarters and regional operational and management centres while enhancing its self-management capabilities and increasing profitability of various businesses at the same time



1. RESPONSIBLE GOVERNANCE



Group organisational structure under the Regional Management and Control Mode



1. RESPONSIBLE GOVERNANCE

1.7 CORPORATE RISK MANAGEMENT

In order to avoid major misrepresentation or loss that may harm the interests of stakeholders, China Gas has attached great importance to risk management. In this regard, the Group has established a sound risk identification and management system, in order to maximise the internal supervision and check-and-balance system. The Group has formulated the Comprehensive Risk Management System, which provides detailed provisions on the organisational risk management, risk management process, internal control system, risk reporting mechanism, risk management information system, risk management culture, and risk supervision and assessment. We have also formulated the Risk Management Guidelines to regulate the business process and accountability system at all levels of the Group and further improve the corporate internal control system. We have also formulated the Engineering Construction Risk Management and Control Guidelines to improve the safety and risk control awareness of construction personnel and effectively prevent various risks involved in the construction process.

The Corporate Governance and Risk Control Committee of the Group are responsible for risk control of the Group's business operations and financial management and assisting the Board in monitoring corporate governance. In addition to actively promoting and carrying out internal risk self-assessments, the Group also assign full-time/part-time risk management personnel in project companies to ensure effective implementation of the risk management system. We continue to improve the corporate governance and internal control through internal audit and referencing to the professional opinions of independent third parties to ensure that we are moving towards a higher level of governance and internal control.

The Group conducts internal risk assessment and management, covering risks and impacts on our business from policy, environment, and regulatory aspects. During the Year, the Company identified six major types of risks including policy risks, resource risks, safety risks, ESG risks, business ethics risks and corporate image risks, and adopted different measures and policies to deal with different risks and reduce the losses caused by those risks.

Risk	Impact	Solution
Policy risks	Dual carbon goals policies that are unfavourable to the energy industry	<ul style="list-style-type: none"> Committed to promoting new business including natural gas distributed energy, photovoltaic power generation, distribution and sales of electricity, central heating, charging piles and hydrogen energy
Resource risks	Natural gas prices and reserves	<ul style="list-style-type: none"> Strengthened the cooperation with PipeChina on LNG terminal slots and increasing the processing capacity of the LNG import terminals, which effectively enhanced the Group's natural gas supply capacity and achieved price stabilisation
Safety risks	Accidents, illegal construction, or accidents caused by mismanagement	<ul style="list-style-type: none"> Established five major safety supervision centres, pipeline surveying and mapping companies and pipeline inspection companies in China, and hired third-party safety assessment companies to perform their respective duties in terms of operation, monitoring, and testing to comprehensively improve safety levels Established and improved occupational health management systems and operating procedures, such as <i>China Gas Group HSE Management Manual</i>, <i>China Gas Group's Seven High-Risk Operations One Case-by-Case Process</i>, <i>China Gas Group Project Company HSE Management Rating Implementation Measures</i> and <i>China Gas Group Safety Supervision Center Management System</i>, etc.

1. RESPONSIBLE GOVERNANCE



Risk	Impact	Solution
ESG risks	Climate risks, environmental pollutions	<ul style="list-style-type: none"> Established the Sustainability Committee to continuously improve the sustainable development of the Group Formulated the <i>Climate Change Policy</i>, formulated environmental protection goals, using scientific methods to reduce greenhouse gas emissions and energy consumption, and strive to achieve carbon neutrality within the Group by 2050 Established <i>Biodiversity Conservation Policy</i> to minimise habitat disturbance, degradation and indirect impacts on habitat during operations Before construction commencement for all projects, China Gas follows the legal process of environmental impact assessment, and strictly implements the <i>Outline of Environmental Impact Assessment Report and Guidelines for Construction Risk Management and Control</i> formulated by the Group to identify the potential environmental impacts that may be caused by our projects and the risks we may face
Business ethics risks	Misconducts, such as bribery and corruption	<ul style="list-style-type: none"> Formulated anti-bribery and anti-corruption policies, intensified anti-corruption work, carried out systematic anti-corruption publicity and training for all employees, and committed to creating a culture of integrity
Corporate image risks	Incidents leading to negative corporate image	<ul style="list-style-type: none"> Cooperated with the local government for rescue and relief work, and actively cooperated with the investigation of relevant PRC government departments Enhanced security measures and inspections to prevent recurrence of similar incidents

1.8 CORPORATE CODE OF CONDUCT

1.8.1 Business Standards and Supply Chain Management

Corporate ethics and professional conduct are essential to China Gas' business operations. We have never stopped strengthening the systems and measures of internal compliance control, business ethics and integrity and self-discipline, and have established a stable internal corporate culture through long-term efforts. At the same time, through various supplier management systems and certifications, and a clean supplier ecosystem, we can also reflect our emphasis on supply chain management.

1. RESPONSIBLE GOVERNANCE

Business Standards

China Gas's operations strictly comply with national and local laws and regulations, including the *Anti-Unfair Competition Law of the People's Republic of China* and the *Prevention of Bribery Ordinance in Hong Kong*, and we have high standards for integrity, anti-corruption and anti-malfeasance. In order to strengthen the governance and internal control of the Company and its subsidiaries that have adopted the Company's management and control model, prevent corruption, and reduce the Group's operational risks, China Gas has established the *Anti-bribery and Anti-corruption Policy*, *Internal Audit Supervision and Management System*, *Internal Supervision and Reporting Management System*, *Integrity and Diligence Handbook*, *Engineering Materials Supplier Management System*, and *Anti-corruption Work Regulations of China Gas Group*, etc. These also help ensure the realisation of the Group's business objectives and the Group's sustainable, stable and healthy development. In addition, to avoid employees from accepting bribes or non-pecuniary benefits offered in any form (including kickbacks) in proportion to any contract sum from any third parties, suppliers, subcontractors or other parties who have dealings with the Group's business, the Group formulated the *Employees' Code of Conduct*, *China Gas Group Regulations on Supervision and Punishment for Employees' Misconduct* and *Anti-corruption Work Regulations of China Gas Group*, and incorporated *China Gas Group Employees' Rewards and Punishments Regulations* and *China Gas Group Red and Yellow Lines Management Regulations*, to further restrict and manage misconduct such as corruption and malfeasance.

The Group has zero tolerance for any corrupt practices. All corruption cases will be investigated by the Anti-Corruption Office, which will submit a report on handling opinions or accountability to the Anti-Corruption Leading Group for approval. We do not condone any dereliction of duty. Once employees are confirmed to have engaged in corrupt behaviours, the Company will handle the cases impartially and punish them accordingly in accordance with *China Gas Group Regulations on Supervision and Punishment for Employees' Misconduct*. If the behaviour violates the law, the case will be handed over to the judicial authority to be dealt with according to laws. We will immediately take remedial measures to evaluate and improve the involved and affected business units or departments. There were no corruption lawsuits during the reporting period.

Measure 1: Set up an Anti-Corruption Task Force

In order to effectively combat corruption, China Gas has established the Group's Anti-Corruption Leading Group and the Office of Anti-Corruption Leading Group within the Audit and Supervision Department (the "Anti-Corruption Office"), which are responsible for guiding and supervising the Group's anti-corruption practices and investigating corruption cases respectively. In addition, China Gas conduct internal business ethics audit every two years. At the same time, the anti-corruption inspection post, the organisation in which the audit and supervision department actually performs its supervision duties, will maintain mutual communication and cooperation with various parties within the audit and supervision department. The Anti-Corruption Office will also carry out anti-corruption prevention activities to combat corruption and promote integrity.

1. RESPONSIBLE GOVERNANCE



Measure 2: Fair and Transparent Complaint and Whistle-blowing Procedures and Implementation Monitoring Methods

The Group is committed to establishing fair and transparent complaints and whistle-blowing procedures and implementation monitoring methods. Suspected misconduct can be reported through official WeChat account, email, address and phone. We have formulated the *Whistle-blower Protection Policy*, and the Anti-corruption Office is responsible for the handling and registration of cases and reports directly to the President and the Executive President of the Group to ensure that the work is not affected. The Anti-corruption Office handles the incidents independently. The privacy and safety of whistleblowers can also be protected. Our whistle-blowing and investigation team has undergone professional training to fully protect the personal information of the whistleblowers and the reported details. Disciplinary actions will be taken against responsible personnel who violate the confidentiality provisions and those suspected of having committed a crime are subject to investigation by judicial authorities in accordance with laws. In addition, individual departments also set up independent whistle-blowing methods and measures. For example, the Engineering Management Department has established a rectification action working group for engineering management officers, formulated a self-inspection and self-correction form for engineering cadres, and the engineering department's whistle-blowing mailbox, and the auditing and inspection department. An "Anti-corruption Hotline" has been set up to provide a variety of whistle-blowing methods.



Case 1: Special Rectification Campaign for Engineering Management Officers

In order to set up a punishment system and establish a good environment for the Group's engineering management, and effectively protect the engineering management officers, the Engineering Management Department organised and implemented the special rectification campaign for the Group's engineering management officers, and set four goals and tasks:

1. Address the engineering management officers' weak consciousness of responsibility
2. Solve the problems of inadequate policy implementation and discipline
3. Tackle the improper working culture and poor performing of duties
4. Combat the acceptance of bribes and the use of power for personal gain

The Engineering Management Department started the plan in October 2021, set up a team, and organised self-inspection. Through the establishment of a rectification working group for engineering management officers, a self-inspection, self-correction and rectification form for engineering management officers was formulated in response to bribery and the use of power for personal gain. Hotlines have been established as a whistle-blowing and supervision channel.

1. RESPONSIBLE GOVERNANCE

Measure 3: Promoted External Expert Training

During the FY2021/22, the Group further strengthened its anti-corruption efforts. In order to improve employees' anti-corruption awareness, the Group has held a series of training and activities, and specially invited external experts to train employees. In December 2021, the Group invited the team leader of the Disciplinary Committee of Shenzhen Luohu District and the head of the General Department of the Luohu District Enterprise Service Center to hold a publicity meeting at the Group Headquarters in Shenzhen and a publicity event for the 100-member Integrity Education Group. The purpose of the event is to advocate the idea that helping eliminate corruption is everyone's duty and to raise awareness of corruption and the role of *United Nations Convention against Corruption* in combating and preventing corruption on the basis of the International Anti-Corruption Day established by the United Nations awareness.

Measure 4: Internally Carried out Anti-corruption, Compliance Training, and Integrity Publicity and Education Work

We carried out anti-corruption initiatives, compliance training, and integrity publicity and education work internally to help employees build up anti-corruption awareness and foster integrity. Sixteen internal anti-corruption training sessions were held during FY2021/22, covering all operating regions, departments and all new and existing staff. At the same time, we issued periodical anti-corruption brochures during the year. Also, in order to improve employees' anti-corruption awareness and uphold integrity, in addition to printing and distributing the *Integrity and Diligence Handbook* and various promotional posters, we also required employees to conduct online learning, training and examinations on the topic of the Group's policies and regulations, including the *Integrity and Diligence Handbook*, *China Gas Group Regulations on Supervision and Punishment for Employees' Misconduct (Trial)*, *Anti-corruption Work Regulations of China Gas Group (Trial)*, etc. During the FY2021/22, a total of 113,219 people participated in anti-corruption training, covering a total of 100,056 hours. At the same time, we have organised various educational activities to promote integrity. In April 2021, the Group held the "Ring the Bell against Corruption" event in Shandong region. During the activity, employees watched the *China Gas Group Anti-Corruption Warning Educational Film*. The education film introduced and analyzed the corruption and improper working culture issues that occurred within China Gas, and introduced and analyzed typical cases of corruption, which reflects the Group's Anti-Corruption policy in our rapid expansion nowadays: the alarm must be ringing in the fight against corruption, and the uprightness and discipline must be strengthened. Subsequently, the participating employees signed the commitment to integrity and self-discipline. The Group also held the "Keep Integrity" short video creation contest with the theme of improving self-restraint and prevention awareness, hoping to guide every employee of China Gas to resist all kinds of temptations consciously through the contest.

In order to create and maintain a clean and upright political and business environment from which to further combat corruption and uphold integrity, the Group not only avoids political lobbying and policy influence donations, but also prohibits employees from supporting organisations and activities that violate the laws or international conventions, terrorist activities and donations and sponsorships to events or organisations suspected of discriminating against religion and gender. The relevant amount for the year was zero.

1. RESPONSIBLE GOVERNANCE



- **Quantitative Indicators:**

Anti-corruption training for Directors and staff

Total training hours on anti-corruption (hours)	FY2021/22	FY2020/21
By employment category, training hours on anti-corruption for senior management	1,235	498
By employment category, training hours on anti-corruption for middle-level management	12,353	4,980
By employment category, training hours on anti-corruption for general staff	86,468	34,860

Supply Chain Management FY2021/22 Highlights

- *Adopted the supplier quality management system, 6S policy content and evaluation of 6S aspects of supply chain*

The Group benchmarked the 6S management experience of suppliers of advanced gas groups in the industry, formulated 6S training course materials, set supplier 6S scoring points and scoring system, and required suppliers to conduct 6S self-examination and self-assessment against the scoring system. Suppliers were required to hire third-party consulting agencies to conduct 6S management training for suppliers according to their own 6S management status. Then the Group reviewed suppliers self-assessment results and their supporting documents and images. By promoting the establishment of rules and regulations for centralised procurement suppliers, publicity and training, regulation samples, accountability interns, strict inspections, and strict assessments, 6S management has been integrated into the daily production management of suppliers, which effectively improved management standards.

1. RESPONSIBLE GOVERNANCE



Green Product Management Case: Introduction of New Technology Steel Pipes (Double-layer Sintered powder anti-corrosion technology)

The steel pipes centrally purchased by the Group were originally hot-coiled with steel plates and then unloaded from the warehouse to the construction site. The construction team would then carry out anti-corrosion painting operations on the construction site, or applied anti-corrosion paint or spray paint or other methods. However, chemicals such as in-situ anti-corrosion powders, paints, etc. are destructive to the environment. During the FY2021/22, we introduced new technology-based steel pipes (double-layer sintered powder anti-corrosion technology). Now the anti-corrosion processing process of steel pipes is completed in the supplier's factory, and the anti-corrosion powder can be collected in the factory for reusing. Reusing not only improves product quality, but also reduces resource consumption and environmental impact.

- *Green Product Management*

China Gas is committed to promoting a culture of integrity in the supply chain and actively preventing anti-competitive behaviours. During the bidding process, the Group strictly follows national laws and regulations including the *Anti-Unfair Competition Law of the People's Republic of China* (the "PRC"), *Bidding Law of the PRC*, *Government Procurement Law of the PRC*, and strictly prohibits illegal activities such as colluded bidding and bid rigging. The Group will continue to uphold the values of equality and respect, while abiding by business ethics and maintaining market order in its business operations.

The Group attaches great importance to the responsible management of the supply chain, and through active involvement in the upstream and downstream markets, it seeks to establish an open and orderly platform for healthy competition among business partners with win-win cooperation. The Group's Supplier Management System is the foundation of the entire supply chain management, and supplier management is the responsibility of the Group's Tender and Procurement Management Department, including the preparation and revision of the management system for suppliers of construction materials, the compilation of the "Management System for Construction Materials Suppliers", and the guidance, supervision and inspection of the implementation of the supplier management system for each business division, regional management centre and project company. We also conduct regular training for suppliers on the requirements of China Gas' procurement management. Thus, the Group has formulated the *Engineering Materials Supplier Management System* and adheres to the principles of openness, fairness and justice to regulate benign competition and cooperation. We clearly stipulate the terms of integrity and compliance when signing contracts with suppliers and strictly require the personnel of both parties to comply with regulations, advocate integrity management, and oppose commercial fraud. We also conduct comprehensive performance assessment and rating on the winning suppliers every quarter, and publicize the rating results on the China Gas Tendering Platform, and issue warnings and conduct interviews with suppliers with level 3 performance. For key materials such as high-pressure pipe fittings, pipes, valves, etc., third-party manufacturers are hired to supervise the production in the factory to ensure quality. For key suppliers, on-site inspections are carried out from time to time to ensure production compliance; every year, 100% of all shortlisted suppliers of the group will receive annual audits to ensure the quality of suppliers and the suppliers are in good operating conditions, and risks are controllable. On-site audits are also conducted for 100% of the winning suppliers that have not been audited on site for more than two years. During the on-site audit of the supplier, we will require both China Gas and the supplier to sign the "Sunshine Audit Agreement" (陽光審核協定) and keep it on file.

1. RESPONSIBLE GOVERNANCE



Measure 1: Supplier Performance Appraisal and Indicators

The Group's Procurement Management Department is responsible for supply chain management, preparing and revising various supplier management systems, supervising and guiding the suppliers' management at regional management centres and project companies. We have formulated the *Contractors' Management Policy and Tendering Management System* and established strict procurement procedures. All major suppliers must be registered in the China Gas Bidding and Procurement Platform, go through inspection and pass the relevant approval process of the Group to become "eligible suppliers". No other registration methods are available. Only the "eligible suppliers" are allowed to participate in the annual or quarterly tender invitation of the Group. We give priority to suppliers with the same commitment to sustainable development as the Group to ensure the traceability and sustainability of products and services provided by suppliers. Since 2019, we have considered whether suppliers (for manufacturers) have obtained the ISO9001 system as a threshold condition for supplier access. During the FY2021/22, in the management of suppliers for important and key materials, we determined whether suppliers had obtained the ISO45001 certification system certificate, established environmental protection system management, and used environmental protection products and services as the basic conditions for doing business with us. We continuously monitor various supply chain indicators for proper supplier management and maintain stable and efficient supply chain operations. In FY2021/22, the Group did not have any major quality incidents arising from procurement quality issues.

As at 31 March 2022, 302 suppliers had completed registration on China Gas Bidding and Procurement Platform.

Supply Chain Indicators	FY2021/22
Supplier Compliance Rate	100%
On Time Delivery Rate	92%
Centralised Procurement Rate	94%

1. RESPONSIBLE GOVERNANCE

Measure 2: Maintain Fair Competition in the Supply Chain

The Group formulated the *Suppliers' Code of Conduct* and prepared the 6S training course materials for suppliers, and continued to monitor "eligible suppliers". In 2022, we further updated our Supplier Code of Conduct to require suppliers to provide a safe and healthy working environment for employees. We required the suppliers to eliminate any working conditions that seriously endanger life or health, guard against any major fires or explosions, and prevent fatal accidents at the work site. We also required them to obtain, maintain and renew all necessary health and safety approvals such as the ISO 45001 certificate and comply with the relevant provisions of these approvals. For monitoring, the Procurement Management Department will select a certain number of "eligible suppliers" from time to time annually and conduct on-site investigations on them in order to ensure consistent management capacity and technical competence. We clearly classify our suppliers into three categories, including "verified", "suspended" and "blacklisted". If a supplier is involved in bid rigging, colluded or malicious bidding during the tendering process, or violates contractual requirements or national laws and regulations, the Group will blacklist and prohibit the supplier from participating in any tendering or procurement activities organised by the Company and its subsidiaries. At the same time, we have required suppliers to carry out 6S self-inspections and self-assessments against the scoring system. Suppliers are required to hire third-party consulting agencies to conduct 6S management training for suppliers according to their own 6S management status. During FY2021/22, we carries out on-site inspections and verified 102 suppliers, and carries out reviews for eight times. 11 suppliers failed in the inspection reviews, and the review coverage was 100%.

In FY2021/22, the Procurement Management Department conducted annual reviews on 357 suppliers. 57 of them failed to pass the review. The main areas of the reviews were the supplier's business licenses, production licenses, ISO9001 certificates, API certificates, ISO14001, ISO18001 certificates and external audit financial statements, corporate credit reports and other documents from the past three years. The annual review pass rate was 84.3%. In FY2021/22, a total of 61 centralised procurement suppliers who won the bid signed the *Product Quality Commitment*, and the signing completion rate was 100%.

In addition, we also began to carry out spot quality checks on 13 suppliers. On-site reviews were carried out over supplier quality organisations and personnel, incoming material management, production process management, finished product management, engineering project non-conformity assessment and handling, laboratory management, and traceability and sampling inspections, etc., and suppliers who failed to pass the reviews were suspended until they pass our rectification and acceptance standards.

1. RESPONSIBLE GOVERNANCE



Measure 3: Mentoring and Training

The Group's Procurement Management Department is responsible for providing guidance and training related to the Group's material procurement management business, and providing special support and training to key project companies. In FY2021/22, China Gas coordinated internal and external resources to carry out online and offline training for more than 60 key project companies, with more than 1,000 participants, and provided training material support for project companies. At the same time, a quick response mechanism was established by creating a WeChat group, and WeChat groups were set up according to provinces and key project companies to publicise and implement management requirements and answer project companies' questions in a timely manner. In addition, in this financial year, China Gas also organised the first "Quality Year" activity to enhance suppliers' quality awareness by empowering suppliers. We comprehensively carried out four Quality Year activities of comprehensively launching of total quality management (TQM), controllable key processes of suppliers, lean production promotion and education and training. We also organised supplier open day activities. We conducted training for suppliers with unsatisfying management level and arranged visits to the production management sites with advanced management level in order to establish examples for learning goals, helping suppliers to continuously improve their quality control. Every quarter we conduct suppliers performances communication meetings to demonstrate the performance of different suppliers and drive the healthy development of the Group's overall supplier ecosystem.

During the tendering exercise in the fiscal year 2021/22, China Gas organized six large-scale centralized product evaluations for key suppliers, covering laser inspection vehicles, household and industrial and commercial alarms, pressure regulating equipment, flow meters, gas leak detection equipment valve well leak detection equipment, etc. Experts from well-known testing institutions are invited to inspect the quality of each manufacturer on site to help suppliers in the industry improve their quality control capabilities. During the cooperation process, for the quality problems of individual manufacturers, China Gas will share the cases with all suppliers to remind all manufacturers to prevent quality risks in advance.

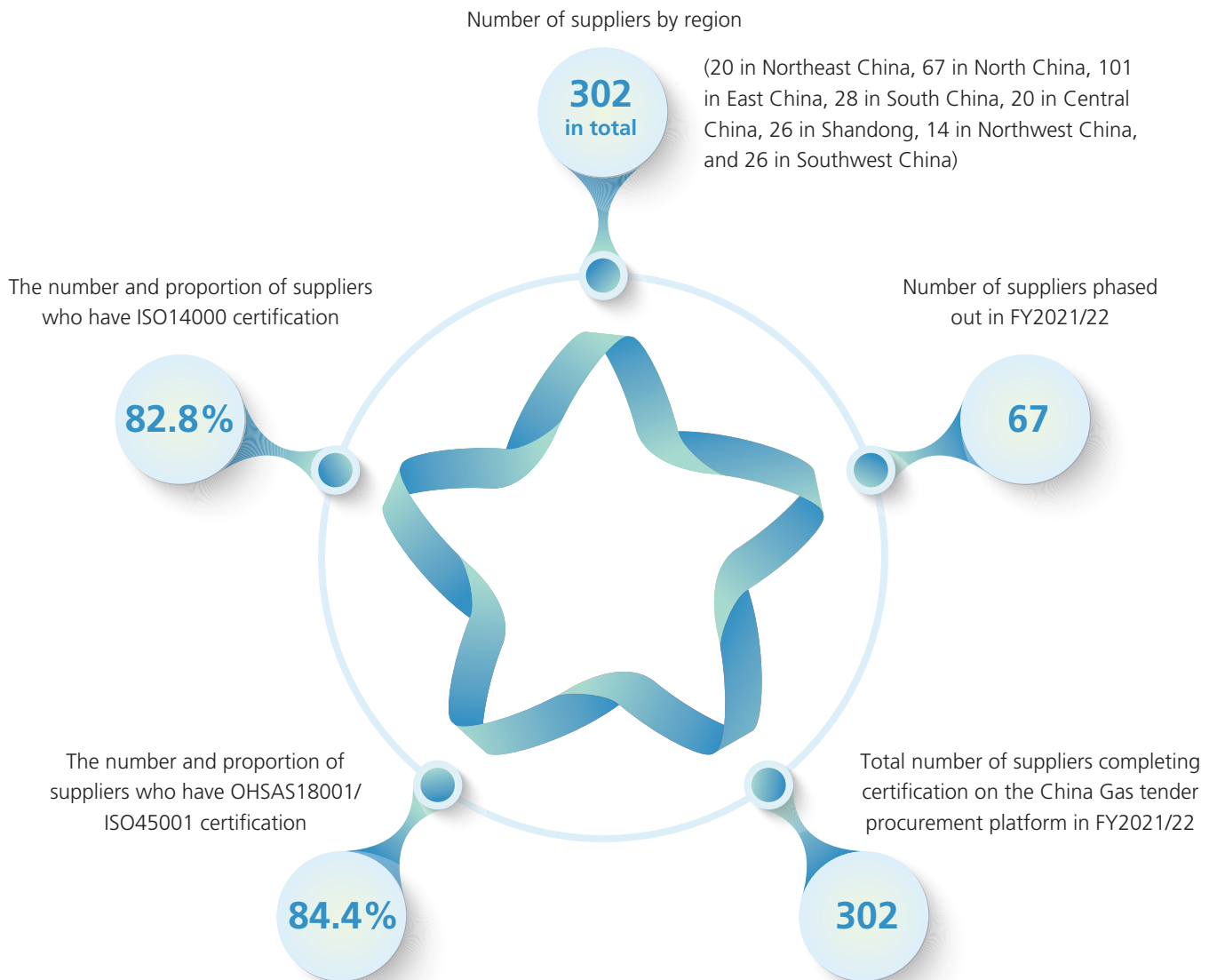
Measure 4: Green Procurement Process

In order to meet the Group's green requirements for sustainable products, during FY2021/22, we strengthened the cooperation with outstanding suppliers in the industry with sustainable development commitments and emphasis on environmental protection. We gave priority to suppliers with similar sustainable development goals as China Gas, to ensure the traceability and sustainability of products and services provided by suppliers. We require the suppliers to comply with the ISO45001 standards. Our policies mainly include formulating the Group's procurement technical standards as the basis for the Group's procurement of products and sampling standards, introducing a product certification system, carrying out the review of samples and drawings, so as to find out the differences in the suppliers' product configuration, design and manufacturing. The differences between the design and configuration of the products of different suppliers are found, which provides a basis for the Group to refine the procurement technical standards and improve the procurement quality requirements. At the same time, we continuously increase the standard of sampling inspection of purchased products by increasing the frequency and inspection items of sampling, so as to ensure the purchased products can pass strict tests, regulations and evaluations, safeguarding users' interests.

During FY2021/22, when bidding for PE pipes for centralised procurement and selecting suppliers in different regions, the Group gave priority to local suppliers with factories in the same region under the same circumstances, implementing local sourcing methods, so as to reduce carbon emissions during transportation as much as possible.

1. RESPONSIBLE GOVERNANCE

- Quantitative Indicators:



1. RESPONSIBLE GOVERNANCE



1.8.2 Information Security Management

Customer Privacy and Information Security

The Group attaches great importance to the protection of customer data privacy and personal information security. The Group strictly complies with national and regional laws and regulations, such as the *Customer Rights and Interests Protection Law*, *E-commerce Law*, *Cybersecurity Law* and *Guideline for Internet Personal Information Security Protection*. We have established a customer service information system and endeavour to protect customer data:

	Networking hardware The utilisation of Huawei's cloud service products to safeguard the security of back office through the use of firewalls, advanced anti-DDoS, vulnerability scanner, etc.	Communication security Adopted HTTPS security protocol to secure communication between customers and the server to prevent data being obtained and cracked by a third party.
	Data encryption The encryption of highly confidential information during background saving prevents criminals and hackers from stealing and cracking.	Management system We have established a stringent and comprehensive permission management system platform to ensure that each employee can only obtain access to the data and information which is within his/her responsibilities. Every employee has signed the confidentiality agreement with the company and is not allowed to disclose customer information.
	Customer lifecycle management We have built a new customer relationship management system that integrates the market, customer service, value-added services and request calling to enhance efficient customer management, and also provide a basis for scientific decision-making.	Customer Relationship Management ("CRM") system We comprehensively promoted CRM system for enhancing customer satisfaction and loyalty.

We have formulated documents such as the Privacy Policy and the Protection of Customer Data Privacy to regulate the information security management of the Group and define the Group's access to customer information and provide guidelines on customer data protection. If customers find there are data breaches, they can submit complaints and report to China Gas through various channels, including emails, hotlines, etc. To ensure that employees clearly understand the Group's requirements and expectations on information security management, we regularly provide information security promotion materials and training for employees in various regions and departments.

1. RESPONSIBLE GOVERNANCE

Measure 1: Customer Service Consulting System

The Group has made a comprehensive enhancement of the customer service advisory management system, integrating marketing, customer services, heating and urban heating, value-added services and call centres to enhance the management of customer services. This provides the basis for scientific management decisions and provides digital services to customers. The CRM System Phase II Project Team was established to improve and optimise the CRM system, carrying out 143 functional optimisations and enhancements, adding new functional modules for business environments, management for heating clients, micro-pipeline network customer management and key accounts management. Using high security firewalls against DDoS, vulnerability scanning and other technical means to protect the customer data security, the security management system is improved, the standardisation of information security work, and following ISO/IEC 27001:2013 Information Security Management Systems, ensures the data security of the customer service consulting system.

Measure 2: Established the Digital Development Department

The Group has established a Digital Development Department, which consists of a digital operation centre, a digital project management office, a Development Planning Department, a Smart Gas Business Department, and a Smart Energy Business Department. The Group's Digital Development Department is responsible for building a digital transformation platform, promoting digital and informatisation development, leading the Group's digital transformation, coordinating the Group's digital construction, undertaking information system construction, operation and business empowerment, improving enterprise operation efficiency, and introduction and application of digital technology, development and utilisation of data resources; undertaking the construction of smart gas, connecting with the industry ecosystem, exploring new business models, empowering internal operation, taking smart gas as the development direction, focusing on the deployment of smart Internet of Things and big data analysis applications, and achieve full coverage of the Group's core business.



Case 1: Wuhu Smart Gas

Wuhu Smart Gas takes "safe and efficient operation" and service as the core ideas, and applies the Internet of Things, multi-dimensional geographic information, big data, artificial intelligence and through AI cameras to identify key processes such as illegal intrusion into the area, and gas leakage in the process area, wear of work safety equipment, and LNG unloading, and automatically issue alarms for potential risks to form ring network management; the pipe network end is connected with the government system to discover potential pipes construction risks and conduct inspections through live video to avoid accidents; the user terminal aggregates the data of residential, industrial and commercial monitoring, and monitors the gas safety on the user side in real time. Through the digital improvement of key business processes, the intelligence and refinement of daily operation management and control are realized, and the stability and safety of gas operation are guaranteed.

1. RESPONSIBLE GOVERNANCE



Customer Privacy Protection

In order to ensure privacy, the database administrator of China Gas is required to sign a confidentiality agreement to protect technical information, know-how, business information and confidential documents. Meanwhile, in order to protect the information of cloud service products, we are committed to following the administrative measures for security protection, cloud security management. In 2018, the Company initiated the security certification, and the ERP and electricity sales systems obtained the second-level security evaluation. Furthermore, we also conducted third-party security audits, and the test results represent low risk.

Provision of Trainings on Information Security Management

Employees are provided with trainings on information security management. Trainings in relation to information security and confidentiality education conducted for all our employees enable them to gain a correct understanding of, and master the basic principles of confidentiality and information security, and get knowledge of the requirements of the Cybersecurity Law. These will further improve their awareness of protecting personal information security, recognise possible security risks, and develop good habits in respect of security.



Case 1: 2021 Information Security Training Plan of Shenzhen Zhongran Technology Company Limited

To strengthen the staff's information security awareness and skills, Shenzhen Zhongran Technology Company Limited invited Cai Daoming, an information security expert and T2 security engineer of Sangfor, to provide training on information security and confidentiality for all employees in July 2021. The training took place offline and lasted two hours for each session. Due to the COVID-19 pandemic, the number of participants in each session was limited to 30, and personal safety measures were adopted in line with the pandemic prevention requirements.

Initiative 2: Publish Customer Privacy Official Document



Case 1: Customer Privacy Approval, Customer Information Access

The Circular No. 363 on the regulation of the provision of user data information to the public was issued to re-emphasise and regulate the provision of the user information, clarifying applicable scenarios, the recipients of the provision and the requirements of approval, further strengthening user privacy and confidentiality.

1. RESPONSIBLE GOVERNANCE

1.8.3 Protection of Intellectual Property Rights and Innovation

The Group has formulated the Employees' Code of Conduct. All employees are required to respect copy right, prohibited from copyright infringement, and required to comply with all relevant laws and regulations regarding the protection of intellectual property rights, including the Patent Law of the PRC and the Trademark Law of the PRC. We also require suppliers and business partners to respect the intellectual properties of the Group.

In addition to strengthening the management of intellectual property rights, we also implement practices related to observing and protecting intellectual property rights. We strengthen employees' specialised training on intellectual property rights, raise their awareness on the protection of intellectual property rights and guide them to reasonably use litigation to protect their intellectual property rights as well as to handle proprietary innovations and legal imitations in compliance with laws.

In addition, as China Gas encourages innovative tasks and helps employees grow, an intellectual property management institution has been established to strengthen investment in research and development, so as to develop our independent intellectual property rights. An innovation-based reward system has been formed within the Company. During FY2021/22, we continued to invest in technology and project innovation. China Gas has established a modern digital energy service system in a quick response to market changes. The system adopts modern innovative technologies to empower business innovation and transformation, and supports the comprehensive development of the multi-business formats of the Group. Our efforts to vigorously promote digital transformation have been recognised by the society. In June 2021, China Gas won the "Most Competitive Solution to Digital Energy" award in the "2021 New Business Forces — Digital Transformation Pioneer List".

Digital Transformation

To facilitate the digital transformation of its internal business, the Group established the Digital Development Department in 2021. The principal functions of the department include implementing new systems, such as Alibaba Group's DingTalk software, to enhance security, encrypt files and improve production and operation safety; using online platforms to develop standards to improve digital standardisation; and establishing a data platform to optimise data analysis capabilities and facilitate data modeling. Looking ahead, the department will be able to strengthen the emergency response capability of gas companies and enhance the efficiency of the project delivery process with big data technologies.

Automising the gas stations is also one of the key tasks in digital transformation. The gas stations can monitor various process parameters of the stations and video information collection by relying on various digital means in the stations, including the SCADA station control system, gas leakage alarm system, video monitoring system, perimeter protection system, uninterruptible power supply system. Remote monitoring and gas scheduling are carried out through SCADA scheduling center system, video centralised monitoring and management system, etc. During normal operation, there is no on-duty personnel in the stations. Through the secure communication network, the mode of remote monitoring of the control center is adopted for regional management. Maintenance and emergency management are carried out in the ways of centralised standby and periodic inspection, so as to meet the requirements of automatic operation.

1. RESPONSIBLE GOVERNANCE



Another practice of digital transformation is the promotion and implementation of the OMP platform of the production and operation management system. Comprehensive application of new-generation information technologies, such as cloud computing, big data, geographic information systems and the Internet of Things, is exercised to build and promote the OMP platform. Through the promotion and deployment of the OMP platform in the Group, the digital transformation and reconstruction for the Group's production and operation will be gradually realised, so as to effectively guarantee the safe production and operation and refined management of the Group. The OMP platform has been steadily advanced under the general principle of step-by-step realisation featuring promotion after pilot. Currently, the pilot schemes launched in more than 40 project companies have been completed. We have summed up the experience and problems for optimisation. In the future, it will be fully promoted and launched in the Group's project companies.

Data Application in Cities

China Gas is making active strides toward the development of data-orienting city, and applies IoT and big data technology to collect, analyze and model data of energy and infrastructure. We promote the application of NB-IoT (Narrow Band Internet of Things) technology in the city gas industry. In combination of the characteristics of NB-IoT with the operation of the gas industry, remote meter reading, real-time monitoring and safety warning of gas meters can be achieved through technological transformation that enables the large-scale connection of gas equipment to the Internet of Things, which not only improves the operational efficiency and refined management of gas companies, but also enhances the overall business environment of the city. Furthermore, by embedding the active identification carrier into the gas equipment, we enable the gas equipment to proactively initiate a connection to the identity resolution node, so as to realise the identity management and ubiquitous connection of the gas equipment in the Industrial Internet, thus achieving the smooth flow of data and the exploration of data value.

Innovation and Market Opportunities

China Gas firmly believes that strategic cooperations with several peers and business partners in the principles of mutual trust, mutual benefit and mutual win, can tap the synergy, seize market opportunities, establish strategic partnerships for sustainable development, and jointly develop new businesses through innovation.

In June 2021, the Company entered into a strategic cooperation agreement with Beijing Beiran Enterprises Group Co., Ltd. By taking the Smart MicroGrid as the starting point, the cooperation between the two parties carries out operation and management innovation in the upstream gas source and distribution, which will inevitably play a leading role in the development of the domestic MicroGrid gas supply model, and explore a new path for the development of the industry. Both parties also agreed to establish a comprehensive strategic cooperation relationship, and to cooperate in the upstream LPG gas source and distribution, so as to jointly develop the Smart MicroGrid business for LPG in Beijing, Tianjin and Hebei, gradually replacing bottled LPG by the convenient, safe and economical piped LPG. At the same time, both parties will jointly develop key technologies in energy services and strengthen the heating business in the winter.

1. RESPONSIBLE GOVERNANCE

In February 2022, China Gas entered into a strategic cooperation framework agreement with State Power Investment Corporation Carbon Asset Management Company Limited* (國家電投集團碳資產管理有限公司). After the negotiations, both parties agreed to share resources and complementary advantages for mutual benefits by leveraging their respective advantages, and initiating deep cooperation in fields such as distributed photovoltaic, decentralised wind power, small-scale clean energy projects, county markets, integrated smart energy projects for large users, hydrogen energy and energy storage power stations, etc., so as to promote cooperation in fields including the utilisation of clean energy, counties and large users development, drive the cooperation in dual-carbon industries to contribute to the dual-carbon strategy of the country and achieve the emission peak as well as carbon neutrality.

At the same time, China Gas also makes contributions to the development of energy-saving technology that reduce environmental impact. The technical management department of the Group participated in the science and technology demonstration project of "Research and Demonstration of Clean Heating Technology Paths in Hot-summer and Cold-winter Areas" of the Ministry of Housing and Urban-Rural Development jointly led by China Construction Metal Structure Association and the Centre of Science and Technology Industrial Development of the Ministry of Housing and Urban-Rural Development for declaration. In addition, we also cooperated with Shandong Vicot Solar Technology Co., Ltd. to participate in the compilation of the China Building Energy Conservation Association's group standard of "Gas Absorption Heat Pump Clean Heating System" initiated by Shandong Energy Conservation Centre.



Case 2: Pipeline Digitisation

The Group, led by the digitisation business division, aims to record all high and medium pressure pipelines data into the GIS system in 2022. Currently, projects data recording in the GIS system is vigorously in progress, of which the geographic information data of some high and medium pressure pipelines has yet to be recorded into the GIS system after treatment, and a small amount of high and medium pressure pipelines have yet to be recorded into the GIS system after geophysical prospecting and positioning.

The expected effect of the project can be achieved by relying on the GIS data, taking the operation standard as the criterion, and conducting online management for the inspection, maintenance, repair and verification of equipment at the source network; subsequent connection of the pipeline network testing equipment, and building a pipeline network health evaluation system by leveraging on GIS data.

1. RESPONSIBLE GOVERNANCE



Quantitative Indicators



FY2021/22 Number of patents,
trademarks and copyright
applications
77



FY2021/22 Innovative
R&D funding
RMB208,675,321



Case 1: Shenzhen China Gas Technology Co Ltd

More than RMB30 million have been used for the research and development of information systems in the gas industry. A total of 18 R&D projects in 2021: China Gas Technology Value-Added & Material Management System, China Gas Group CRM Platform Project, Pipeline Inspection Data Comprehensive Analysis Digital System, Gas Pipeline Detection and Monitoring Device R&D Project, Gas Pipeline Network Anti-Sabotage Wireless Alarm System, Gas Transmission Constant Pressure Control system and Device Research and Development Project, Gas Pressure Regulator Intelligent Remote Cut-off Device Research and Development Project, China Gas Technology OMP Pipe Network Inspection System, China Gas Technology OMP Hidden Danger Disposal System, China Gas Technology OMP Emergency Response System, China Gas Technology GIS Cloud Platform Editing System, China Gas Technology GIS Cloud Platform Acquisition System, China Gas Group Gas GIS System, China Gas Group Gas Inspection System, China Gas Group Gas SCADA Dispatching Centre System, China Combustion Technology Safety Experience Feedback Scoring System, China Combustion Technology Engineering Quality Safety System, and China Gas Technology Legal Compliance Scoring System.

1. RESPONSIBLE GOVERNANCE



Case 2: Smart Living Technology Co Ltd

The R&D expenses of more than RMB10 million have been used for the development of the new retail 3.0 system and the maintenance costs of the new retail 2.0 system, including commissioned development expenses, staff wages, travel expenses, etc.

- *Initiative: Value-adding 3.0*



Case 1: Online purchase, online gas service, customer service reconstruction, customer service improvement

New retail system construction pilot: a total of 8 companies of Ningxia Shenzhong, Shenyang, Tianjin, Xinyang, Nanjing, Hangzhou, Yulin, and Yunfu were identified as the pilot companies for the business operation of value-added service 3.0. And the first batch of online company promotion training was completed by the end of December 2021. The promotion and launch of 58 key companies across the country had been completed in January 2022.

Since the launch of value-added service 3.0 system, there have been registered 55,000 employee KOCs. The community activity reaches 60%, much higher than the industry average of 15%. The value-added service 3.0 has currently been launched in 71 branch companies. In March 2022, the first phase of Smart Living "Elite KOC Training Camp" was organised specifically for advanced training of outstanding KOCs, and 31 elite KOCs graduated. The second phase of the elite training camp was completed in May 2022, and 94 elite KOCs graduated, with a completion rate of 67%. A total of 77 elites placed orders, representing the community activity of 55%, and the number of valid orders was 1,024, with the monthly Gross Merchandise Volume (the "GMV") of RMB63,000. The sales amount of each of 14 elites exceeded RMB1,000.

1. RESPONSIBLE GOVERNANCE



Case 2: Rebuilding an online selection mall to provide users with convenient one-stop shopping experience

By adjusting the online mall to a shopping guide-oriented mall, the mall was rebuilt from a platform with miscellaneous products to a 1+1+5 recommended selection mall. It takes the Smart Living brand image as the foundation, standardises UI color system for all levels of activities with unified UI visual specifications, and launches the platform IP image, Xiao Ran (小燃), providing users with a select and convenient one-stop shopping experience. The activity marketing calendar of the platform has been formulated, and special festival activities, such as Grain and Oil Stocking Day, Kitchen Goods Day, etc., have been arranged that are suitable for users of China Gas based on the kitchen scene to enhance the mentality of platform users; and the live streaming team jointly promotes with regions and communities. In fiscal year 2021, a total of 104 live streaming events were held, with 900,000 views, and a single live broadcast on the Chinese New Year Shopping Festival reached a new high of RMB720,000 GMV. A three-level streamer cultivation mechanism has been established to incubate more than 100 project company streamers.

- *Measures: Innovation Cases of China Gas Research Institute*



Case 1: Smart Gas Meter

The smart security IoT civil gas meter creatively adds the security function of the gas meter in view of various leakage conditions that may easily lead to accidents during the use of gas. It can improve the safety of use of the gas meter and effectively prevent the occurrence of indoor gas safety accidents.

The self-developed security diaphragm gas meter of China Gas adopts integrated design and has shut-off valve. Nine security functions are added to the original diaphragm gas meter, including micro-flow valve closure protection, constant current valve closure protection, and no-voltage valve closure alarm. Since May 2021, China Gas has carried out pilot gas-meter installation test in two project companies, being Gaocheng Zhongran (稿城中燃) and Jiamusi Zhongran (佳木斯中燃), and has completed the installation of security meters for 903 residential users. Through safety function monitoring, 44 safety accidents of indoor gas leakage were effectively prevented, representing good trial results. Smart security gas meter can reduce the cost of external valve. Real-time monitoring of gas usage enables remote monitoring of user terminal meters, visualisation of gas safety data, and intelligent interaction with users. The application of security diaphragm gas meter can effectively improve the level of safety and technology protection, and enhance the safety level and safety management level of the Company's gas system, so as to effectively promote the establishment of digital and smart gas system of China Gas.

1. RESPONSIBLE GOVERNANCE

- *Measures: Cases of Innovation of the Human Resources Department*



Case 1: Founded China Gas Group Corporate University

In face of changes in the industry and future trends, to further adapt to the strategic development requirements of “high-quality development” and “reshaping management”, the management of China Gas Group has always attached great importance to staff development and talent building work. China Gas Group Corporate University was founded in FY2021/22, to comprehensively adjust and upgrade the talent characteristics, talent structure and talent development of the company.

As an independent talent development department of the Group, the Corporate University is responsible for the overall co-ordination of training management at all levels of the organisation, including the business lines, divisions and regional management centres at the head office. In line with the established corporate university development plan, key initiatives are being implemented in an orderly and comprehensive manner: organisation/business oriented, thematic workshops on strategy decoding, new business incubation, cultural integration, etc. are planned and implemented in conjunction with various departments. For cadres, we have established a sound leadership development system and shaped brand programmes for talent training such as general manager training camps, reserve cadre training camps and service line manager training camps. For employees, based on the consideration of compliance and safety, we carry out certification of frontline employees’ ability to perform their duties and strengthen safety education and training in a comprehensive manner. China Gas Corporate University aims to become a first-class corporate university that matches the headship of China Gas Group and is trusted by the organisation, desired by employees and leads the industry.

62 2.1 Health and Safety
64 2.2 Safety Management Policy
65 2.3 Safety Quantitative Target — Safety Management Target
65 2.4 Plan and Work Related to Safety Training
66 2.5 Ensuring Stable Supply of Gas
72 2.6 Ensuring Operation Safety
76 2.7 Objectives for Improving Health and Safety
97 2.8 Product Quality Inspection



2. SAFETY AND QUALITY OPERATION



2. SAFETY AND QUALITY OPERATION

2.1 HEALTH AND SAFETY

The Group adheres to the policy of “Prevention Foremost, Combining Prevention with Governance” to protect the health and safety of employees, and is committed to creating a safe, comfortable and healthy working environment. We also strictly implement safety and risk management related measures in order to reduce the risk of occurrence of accidents.

The Group complies with the health and safety laws and regulations at the national level and at the place of operation. The Work Safety Law of the PRC aims to maintain labour safety and safe production and requires manufacturing organisations and employers to provide a safe working environment and protects employees from occupational hazards. The Regulation on the Administration of Urban Gas delineates that gas operators shall formulate emergency plans for gas safety accidents, assign emergency staff, provide necessary emergency facilities and equipment, establish sound gas safety evaluation and risk management systems, and organise regular drills. The Social Insurance Law of the PRC regulates insurances on sickness, occupational injury, maternity, medical care, retirement, and death, and also clarifies the legal responsibilities of employers.

As a socially responsible enterprise, the Group provides employees with a safe workplace and suitable insurance. The Group has established a sound Safety Management System to ensure the health and safety of employees. In order to ensure the execution and efficiency of the safety management system, the Group has prepared the Health, Safety and Environment (HSE) Management Manual of China Gas with reference to ISO18000, ISO9001 and other international standards, covering safety management guidelines in aspects such as transportation, capital and property, work-related injuries and personal safety. We also set up various special safety management systems, including the Occupational Health Management System of China Gas, the Emergency Drill Management System of China Gas, the Guidelines for the Preparation of Production and Operation Emergency Response Plan of Project Companies of China Gas, the Hazardous Source Management System of China Gas, the Safety Incident Management System of China Gas, the Guidelines for Classified Risk Management and Control of China Gas, the HSE Management Manual of China Gas, Seven High-risk Operations of China Gas with One Process for One Incident, the Implementation Plan of HSE Management Rating for Project Companies of China Gas, the Management System for Safety Supervision Center of China Gas, the Safety Supervision Regulations of China Gas, the Safety Supervision and Assessment System of China Gas, the Management System of Employees Safety Scorecard of China Gas, the Management System of Safety Performance Evaluation for Various Positions of China Gas, the Management System of Safety Experience Feedback of China Gas, the Safety Evaluation Management System for General Manager of China Gas, the Safety Supervision Training Measures of China Gas, the Safety Supervision and Inspection Management Measures of China Gas.

In addition, we have established five supervision centers, which are distributed in different regions to supervise the HSE safety system review and safety inspection and point out the hidden dangers and problems of safety supervision to make improvements. Meanwhile, the Group has required all project companies to refine safety policies in accordance with the Three-Year Action Plan for Special Remediation on Production Safety promulgated by the State Council in 2019, and improve the labour protection standards for employees, so as to further strengthen the safety management system of China Gas.

2. SAFETY AND QUALITY OPERATION



The Group holds production safety conferences on a regular basis, with an aim to continuously enhance the safety awareness of its employees. We require all employees to participate in monthly meetings to study policies on issues related to occupational health and safety, and conduct analysis of hidden safety hazards and cases to avoid occurrence of similar accidents. We also make great efforts to promote occupational health and safety to our employees. In FY2021/22, the Group held the "Safe Production Month". During the course of events, we held 873 safety lectures and 1,862 special safety trainings for employees, including traffic safety, hidden danger investigation and management, and emergency planning and response, with a total number of employees trained reaching 30,000. In order to enhance employees' safety awareness and ability to respond to emergencies, we worked alongside government departments to conduct up to 250 emergency drills. In addition, we have carried out external safety publicity activities, and distributed safety-related materials to employees through online media, WeChat official accounts and videos. We invest in the procurement of safety equipment to prevent employees from safety accidents at work, so as to create a healthy and safe working environment.

In FY2021/22, China Gas paid close attention to safety management, and the rate of work-related injury incidents per million working hours dropped to a historical low of 0.03, ensuring that the work-related accident rate per 10,000 working hours does not exceed 0.75 within the past 10 years, and the number of employee fatalities in production safety accidents and the number of serious customer injuries are zero, maintaining an industry-leading level.



"Safety Production Month"

2. SAFETY AND QUALITY OPERATION

2.2 SAFETY MANAGEMENT POLICY

- Highlights of work in 2021/22

 <p>Planning for the certification of Assessment of the Ability of Front-line Employees</p>	<p>In an effort to establish the certification standards for front-line staff at the group level, we promote the project companies to construct and improve a number of practices, so as to strengthen the training and assessment of the practical ability of front-line employees. Led by the Safety Production Committee (Safety Committee), and organised by the Human Resources Department, the Production Operation Department and the Value-Added Services Department jointly participated in the certification project for assessing the ability of front-line employees.</p> <p>We have held the project initiation meeting, at which the implementation path, work steps, division of responsibilities, examples and safeguard measures were clarified. In the first phase, it is planned to carry out compliance certification for 26 skill modules in five positions including indoor security inspection and pipeline network inspection. A task force has been established to carry out preparation of standards, development of learning resource, and research and construction of best practices.</p>
 <p>Response to the national rectification actions for piped gas industry</p>	<p>Since November 2021, China Gas has established a supervision organisation to conduct safety inspections on all project companies of the Group, so as to comprehensively inspect gas pipeline issues. The inspections have been completed with a rectification rate of 98.5%.</p>
 <p>Application of pre-coated steel pipes to improve construction safety</p>	<p>The Group promotes the use of pre-coated steel pipes. Pre-coated steel pipes can achieve industrialised production, reduce the painting work on the construction site, and reduce the emission of volatile organic compounds (VOCs) pollutants at the construction sites, thus ensuring the safety and environmental protection of operations.</p>
 <p>Compilation and unification of the technical standard system of the Group</p>	<p>The Technical Management Department has issued the Technical Guidelines for Anticorrosion Design, Construction, Operation and Maintenance of Overhead Gas Pipelines, which plays an important role in improving the quality, and reliability of pipelines, eliminating dangers of gas leakage and reducing methane emissions.</p>

2. SAFETY AND QUALITY OPERATION



2.3 SAFETY QUANTITATIVE TARGET — SAFETY MANAGEMENT TARGET



Number of work-related fatalities in the reporting year
0



Number of client fatalities due to our services in the reporting year
0



Maintain current lost-time injury rate
Ensure the rate of work-related injury does not exceed 0.75
(In FY2021/22, China Gas paid close attention to safety management, and the rate of work-related injury incidents per million working hours dropped to a historical low of 0.03)

2.4 SAFETY TRAINING PLAN

The Group is committed to providing customers with safe and high-quality services. The Group is currently building an integrated operation and management platform (OMP) to fully achieve a digitalised China Gas, take the lead in the industry in terms of the dynamic management of the production and operation of existing businesses such as city gas, township gas, gas refilling station, heating and LPG.

OMP makes full use of next-generation information technologies such as cloud computing, big data, Internet of Things, geographic information to develop information standards and safety assurance systems, thus reinforcing quality control. The OMP trial involves 12 pilot units, and then will be promoted to the gas companies of the Group. Big data is mainly focused within the Group, with a goal to gradually extend to other regions in the future, which will help the Group to provide comprehensive security for each business.

2. SAFETY AND QUALITY OPERATION

2.5 ENSURING STABLE SUPPLY OF GAS

It is the Group's core value to provide safe and reliable services. The Group strictly complies with the PRC's Regulation on the Administration of City Gas, which specifies city gas development planning and emergency protection, gas operation and services, use of gas, gas facilities protection, prevention and handling of gas safety accidents and relevant management activities. During the Reporting Period, there was no confirmed case of non-compliance in relation to product responsibility that would have a significant impact on the Group.

Quantitative indicators:

Number of connected gas users (residential)	43,095,245 households
Number of connected gas users (commercial)	297,664 units
Number of connected gas users (industrial)	19,808 units
Number of gas stations	533
Total volume of natural gas sold to residential users	7.354 billion m ³
Total volume of natural gas sold to industrial and commercial users	13.753 billion m ³
Total volume of natural gas sold to vehicle refilling stations	0.812 billion m ³
Length of gas pipelines	525,461 km
Total length of refurbished pipelines	1,091 km

Measure 1: Rectification and Management of Transmission Loss

China Gas is committed to supplying customers with stable gas, to reduce safety concerns, economic losses and environmental impacts caused by gas leakage. The Group implements a two-level transmission loss management mechanism, under which the Engineering Operations Management Department at the headquarters is responsible for leading rectification work at all levels and conducting target-based assessments on transmission loss under an accountability system. The Group has implemented the Rectification and Management Procedure for Transmission Loss in four aspects: transmission loss in gas pipeline network, transmission loss due to metering inaccuracies, transmission loss arising from data handling errors, and transmission loss due to gas theft, and issued Technical Regulations for Selection of Gas Flow Meters by China Gas to strengthen the selection management of gas meters for various users, and improve the effect of rectification of transmission losses. During the Reporting Period, the Group continued to combat gas theft and strengthen the management of data handling in order to further reduce the transmission loss rate.

2. SAFETY AND QUALITY OPERATION



	Rectification of transmission loss in gas pipeline network	Rectification of transmission loss arising from data handling errors
	<ul style="list-style-type: none"> • To establish robust scheduling and inspection systems to ensure tightness and safety of the gas transmission and distribution system • To establish a robust leakage detection and prevention mechanism to control the leakage rate at seal points of the gas transmission and distribution system • To establish a robust emergency repair and maintenance mechanism to control gas leakage and unexpected incidents in gas transmission and distribution system • To optimise pipe replacement scheme to strictly control the amount of gas that escapes during construction 	<ul style="list-style-type: none"> • To standardise the settlement of the sales volume of civil prepaid households and evaluate the remaining volume • To increase efforts in internal inspections to improve meter recording accuracy • To perform monthly meter reading for wall-mounted heater users during warm seasons • To standardise billing practices for domestic prepaid users • To conduct operational safety checks of gas facilities by customer management officers • To identify hidden safety hazards and promptly arrange maintenance staff to carry out repair and rectification work
	Rectification of transmission loss due to metering inaccuracies	Rectification of transmission loss due to gas theft
	<ul style="list-style-type: none"> • To establish a robust metering management system • To strengthen maintenance and weekly inspection of flowmeters • To strengthen management on flowmeter selection • To continue to carry out specific flowmeter rectification activities • To provide dedicated meters to village users • To promote ultrasonic flow meters for industry and commerce 	<ul style="list-style-type: none"> • To take practical measures to prevent gas theft • To increase inspection efforts to combat gas theft

2. SAFETY AND QUALITY OPERATION

Measure 2: Leakage Detection and Prevention Mechanism

The Group has set up Guidelines for Inspection of Gas Pipelines and Ancillary Facilities of China Gas, the Guidelines for Leak Detection and Pipeline Networks Inspection of China Gas, and the Guidelines for Third-Party Construction of China Gas, to enable employees to understand the contents and standards for inspections, leak detection and monitoring of gas pipeline networks. Each project company has also been equipped with a pipeline inspection system that enables it to obtain information of the gas transmission and distribution. These systems can help us instantly locate faults and ascertain the impacts on users when issues arise, such that immediate repairs can be made. In the event of emergency repairs, the system can assist the dispatch centre to make rapid decisions on valve closures of different segments. On-site emergency repairs staff can then effectively identify the valves to be shut off under work orders issued from the dispatch centre. In the case of valve failure or blockage, the dispatch centre can also conduct a secondary valve closure analysis in accordance with the site conditions. As a result, incidents in city gas pipeline networks can be promptly handled, minimising accidental losses to the greatest extent possible and shortening the repair time required.

Measure 3: Emergency Repair Mechanism

The Group has developed the Guidelines for Production and Operation Emergency Repair of Project Companies of China Gas and Guidelines for the Establishment of Production and Operation Emergency Repair System of China Gas. A three-tier operational emergency repairing management system for production has been established, including the Group's headquarters, regional management centres/operation management groups and project companies, which clearly defines the maintenance responsibility, structure and technical equipment requirements. The Operation and Maintenance Management Standards for Gas Facilities also specifies the management standards ranging from pipeline network maintenance, emergency repairs, natural gas spherical tanks maintenance and safety valves maintenance. The Emergency Drill Management System of China Gas, Guidelines for the Establishment of Emergency Maintenance System of China Gas, and Guidelines for the Preparation of Production and Operation Emergency Response Plans of Project Companies of China Gas include emergency response and drill preparation. To increase the efforts in preventing damages to pipeline networks caused by third-party construction activities, the Group implemented the Management and Assessment Measures for Third-Party Construction Damage Incidents (Accidents) for Gas Facilities to manage third-party damages to gas facilities in a standardised and institutionalised manner.

2. SAFETY AND QUALITY OPERATION



Case 1: Suzhou China Gas Residential Indoor Gas Leak Emergency Drill

In order to effectively prevent and respond to town gas emergencies throughout the region, minimising the degree of harm caused by emergencies, comprehensively enhance the emergency rescue and collaborative operation capabilities in response to sudden gas leaks, and enhancing the linkage between government and enterprises, on 27 May 2021, Suzhou China Gas joined forces with the Municipal Housing and Urban Development Bureau, the District Government Office, the District Housing and Urban Development Bureau, the District Emergency Management Bureau, the District Market Supervision Bureau, the District Fire Brigade and the District Public Security Bureau to carry out emergency drills for indoor and service lines leaks in Galaxy Green Court South while broadcasting live.

The exercise simulated a gas leak at the home of a resident of Galaxy Green Court South, affecting the normal use of gas and the lives and properties of the users. After receiving the notice of the dangerous situation, Suzhou China Gas quickly reported it to the general commander and immediately activated the emergency disposal plan. Emergency responders quickly rushed to the scene to set up a cordon, evacuating the crowds and carrying out gas leak detections. After the scene was effectively controlled, the rescue team then implemented pipeline rescue and repair measures, and resumed gas supply after a series of intense and orderly rescues to eliminate safety hazards in a timely manner.

The event was planned covering scenarios of alarm response, evacuation, emergency response, alerting, concentration detection and monitoring, spill disposal and site recovery. During the exercise, emergency rescue parties were well organised, executed the rescue in a timely manner, cooperated successfully, and the danger was properly disposed of.

The departments of Suzhou China Gas co-operated and identified their own responsibilities during the Emergency Drill. By joining forces with various Bureaux of the governments, Suzhou China Gas improved rapid response capabilities, emergency disposal capabilities and the ability to work together on responding to sudden gas safety incidents quickly. It also enhances communication and cooperation between government authorities and enterprises. The exercise received recognition from the supervisor and achieved the expected results.



2. SAFETY AND QUALITY OPERATION

Measure 4: Pipeline Network Renovation Mechanism

The Group continued to strengthen the rectification of potential hazards in the pipeline network, and carried out comprehensive cleaning and renovation of aged cast iron pipelines that have undergone prolonged operation to improve the availability of pipelines and reduce potential safety risks. We have arranged 24-hour monitoring for aged pipelines, pipeline sections prone to leakage, and valve wells using remote leakage detection devices, so as to ensure the intrinsic safety of pipelines and ancillary equipment and reduce gas leakage. Any leakage can be handled promptly, so as to reduce the amount of methane leakage. We have completed systematic analysis on the current status of the Group's grey cast iron pipeline network and aged steel pipeline network, classified them in accordance with priorities, and implemented renovation plans in the Northeastern region, Northwestern region and North China region.



Case 1: Three-year renovation plan for aged pipeline replacement

The Group continued to implement the aged pipeline replacement plan to accelerate the renovation of the aged pipeline network. During the reporting period, it was planned to refurbish 776 km of pipelines. Thanks to the cooperation among employees, an actual length of refurbished pipeline network of 1,091 km was renovated, representing a completion rate of 140.59%.

Measure 5: Guaranteeing the gas operation in winter

In the event of an emergency where the upstream gas supply is limited or affected by the weather, thereby affecting gas supply, each of the project companies is required to finalise the corresponding emergency gas supply plan based on the upstream gas supply dynamics, and immediately report forecasts, early warning information and emergency gas supply plans to the people's governments at all levels and relevant departments. Upon a consensus reached with government departments, the local government would issue a document for commencing the implementation, and make it available for the public by making full use of various news media or other channels such as radio, television, the Internet, newspapers, etc. When implementing the order to limit supply or shut down, it is also required to distribute the natural gas sales to downstream users as practically as possible in the principle of safeguarding the use of natural gas for residents to the greatest extent, so as to ensure local residents and public welfare are not affected.

Each of the regional management centres are required by the Group to take the lead in the active coordination between the project companies that apply the pipeline gas supply method and their upstream, and fulfil gas sourcing targets, and conduct online bidding transactions when necessary to ensure the gas supply. Project companies with insufficient supply of pipeline gas need to have backup gas sources.

The project companies of CNG and LNG gas are required to find gas sources in advance, and repair and maintain dangerous vehicles such as skids and station equipment in a timely manner, with an aim to effectively ensure stable gas supply. Project companies that are responsible for pipeline distribution and gas supply and equipped with CNG parent stations and LNG filling facilities, are required to follow the principle of "external supply after internal needs", and give priority to guaranteeing the gas supply of internal project companies of China Gas. Accidents of gas outage and supply interruption are not allowed.

2. SAFETY AND QUALITY OPERATION



Each of the regional management centres shall supervise the supply guarantee and cost pass-through of gas of the project companies, and shall publicly criticise any project company that does not pay enough attention. The person and project company, accountable for the inversion of gas price and gas supply interruption resulted from inadequate work, will be seriously dealt with by the Group.

For the gas demand plan and the gas consumption adjustment plan issued by the project company within the Group, China Gas Hongda Energy Trading Co., Limited assumes the responsibility of securing LNG supply to provide guarantee.



Case 1: Creating a good environment for the Winter Olympics and ensuring that people stay warm during the winter

China Gas actively responded to the national and municipal government's call for a green Winter Olympics, helping to ensure supply for the Winter Olympics and ensuring that people stay warm during the winter. Zhangjiakou China Gas (張家口中燃) established the Winter Olympics gas supply steering group to prepare for Winter Olympics gas supply.

In order to ensure the safety and stability of gas supply during the Winter Olympics, Zhangjiakou China Gas made preparations early. 36.46 km of pressure pipelines, three "back-to-back" gate stations and four pressure regulating stations were built back-to-back with PipeChina's transmission stations. The gas source project covers the entire Beijing-Zhangjiakou Railway (京張走廊) and Huaizhuo Basins (懷涿盆地) to ensure sufficient natural gas supply.

At the same time, in order to allow local farmers to use clean natural gas energy for heating in winter, in less than three months, Zhangjiakou China Gas gradually carried out pipeline laying and service line engineering, ranging from overhead pipelines to the construction of pressure regulating stations, from purging and pressing to the replacement of pressure regulating cabinets, and eventually completed the installation of natural gas supply for 100,000 households. In October 2021, Wanquan District, Qiaoxi District, Xuanhua District, Huaian County, Zhulu County and other rural areas have achieved coal-to-gas replacement, allowing users to enjoy the "blue sky and warm winter", creating a good ecological environment for the Winter Olympics.

In order to precisely direct the natural gas supply work, China Gas integrated the resources of all parties, and established a general command office in accordance with the principle of "simplification and high efficiency" and with flatten management to improve decision-making and overall planning capabilities, and to centralize command of various tasks during the Winter Olympics.

By responding to the call of the state, Zhangjiakou China Gas has established a good corporate image. In the future, the company will continue to adhere to the "customer first" standard, focus on social needs and people's livelihood needs, develop the use of natural gas, and continuously improve the gasification rate of residents, so that more residents can enjoy the benefits of natural gas.

2. SAFETY AND QUALITY OPERATION

2.6 ENSURING OPERATIONAL SAFETY

China Gas has adopted the safety management approach of “Safety First, Prevention Foremost, and Integrated Management” to ensure gas safety and strengthen the operation safety in different dimensions, prioritizing safe production.

Production and Operation Management Policy

The Group has established a set of Production and Operation System, in order to standardise the operations of the Group’s employees in daily operations. To achieve high standards of work flow and performance, we have detailed operating procedures and working guidelines, including Regulations on Long-distance Pipeline Transmission and Distribution Management, Regulations on Township Gas Transmission and Distribution Management, Regulations on Facilities Management, Regulations on Scheduling System Construction and Management, Regulations on Production and Operation Management of CNG, LNG and L-CNG Gas Stations, Guidelines for the Construction of Production and Operation Emergency Repair Maintenance System, and Guidelines for Gas Facilities’ Operation and Maintenance, etc. In addition, we have issued the Guidelines for the Preparation of Production and Operation Emergency Response Plans to strengthen our response to emergency incidents. For handling different working environments such as specialised operations, hot work operations, confined space operations, high-altitude operations, as well as LPG operations, we have also established the Regulations on Pressure Tapping of Steel Pipeline and the Regulations on Dangerous Operations Management in Gas Transmission and Distribution System. The above series of operational management policy standards can ensure the safety of our operations.

Safety management structure

The group safety management organizational structure is composed of the group Safety Committee. The Safety Committee work under the guidance of the Board, while the group Safety Monitoring Department is the executive arm and bear the functions of the group Safety committee’s office. Under the Safety Monitoring Department, there are five management modules, five safety supervision centres and Shenzhen China Gas Pipeline Inspection Service Co Ltd. The five supervision centres are responsible for supervising the implementation of the group’s safety production policies and requirements and HSE inspections within their respective jurisdictions according to the overall arrangement and deployment of the group’s safety work throughout the fiscal year. Shenzhen China Gas Pipeline Inspection Service Co Ltd is responsible for the operation and management of the pipeline inspection, completes the inspection tasks and business indicators assigned by the group, and proposes preventive measures to eliminate the leakage risk according to the investigation of the leakage risk of the gas pipeline network.

The Group’s safety management organizational structure management and staff at all levels have clear job safety responsibilities. All project companies must also sign safety responsibility letters in each fiscal year according to the enterprise safety management goals to ensure that all departments, units and employees understand and strictly implement relevant goals, standards and measures. The operation team regularly submits feedback on safety issues to the Safety Monitoring Department to continuously revise and implement its occupational health and management system.



Case 1: Tangyin China Gas Conducted Safety Promotion and Consultation Activities in the Countryside

In order to raise residents' awareness of gas safety and further popularise general knowledge on the safe use of gas, on 16 April 2021, Tangyin China Gas carried out safety promotion and consultation activities in the countryside.

The activities were respectively carried out in Baiying Guxian Grid — Guxian Village, Caiyuan Grid — Guangpingchang Village, Rengu Grid — Suhu Village, Wuling Grid — Dongxiao Zhang Village and Wagang Grid — Wagang Village. At the event, our staff distributed gas safety manuals, explained general knowledge on safe use of gas, answered gas safety questions encountered by users in their daily lives, and promoted knowledge on emergency response to gas leakage, warnings on accident cases and ways to identify illegal sales and false security checks, while actively introducing Gasbo (中燃寶) products such as gas stoves to residents and promoting value-added services.

The activities have effectively popularised gas safety knowledge for local residents, guided them to use gas in a safe and standard way, and raised the awareness of safety responsibility of all staff at Tangyin China Gas, bringing about new advances in safe operation of Tangyin China Gas. Tangyin China Gas will continue to conduct more safety promotion activities so that customers can understand China Gas and use gas safely.



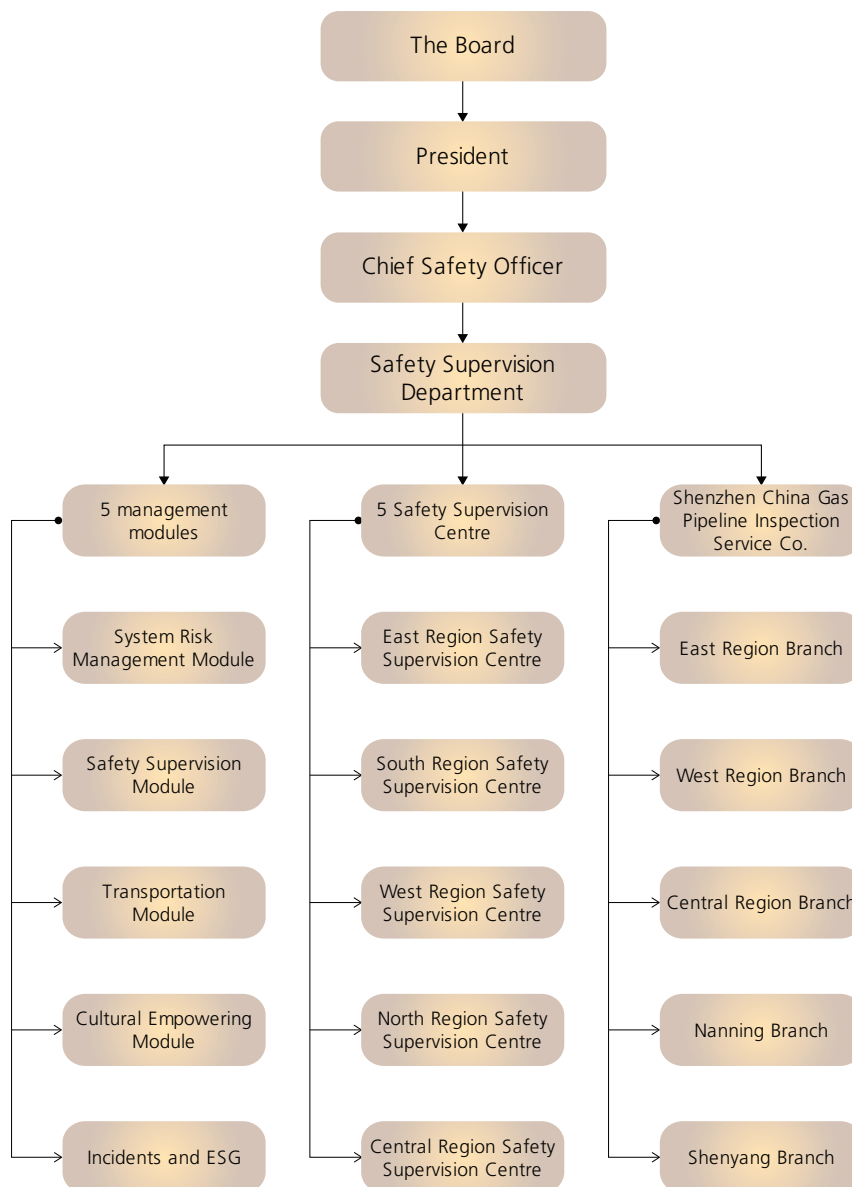
Case 2: Gas Safety Promotion Event

China Gas carried out a number of gas safety publicity activities during the fiscal year to provide gas safety education for gas users and group employees. The Group conducted a total of 11,529 times of publicity and promotion on public media and outdoor media on gas safety. Among them were a total of 1,705 news reports on TV/Radio, official newspapers, official websites and new media, 252 advertisements on TV program interviews, newspaper and magazine patches; A total of 490 rural wall advertisements and banners were placed, 6,499 electronic displays on taxis and buses were placed, 2,473 outdoor displays and panels were placed in public squares, national highways, expressways and commercial places, and 110 elevators and building advertisements were placed. In addition, China Gas Group has organized and carried out a total of 1,686 gas safety publicity activities, including gas safety education in campus/community, gas safety training, and cooperating with the local government to hold gas safety drills.

2. SAFETY AND QUALITY OPERATION

The Group also attaches great importance to the personal health and safety of employees and is committed to providing a safe and comfortable working environment for employees. We require our employees to be equipped with protective equipment that meets our requirements during operation. According to the Group's safety monitoring mechanism, any person who does not wear or use protective equipment as required is not allowed to work. Employees are required to receive occupational health examinations before, during and after employment, and establish personal occupational health monitoring portfolio. In order to enhance employees' awareness of occupational health and safety, we set up warning signs at the workplace, work positions, equipment and facilities. In addition, we identify and assess occupational safety hazard factors annually and establish a list of preventive measures that can be taken.

Safety Supervision Organization Structure



2. SAFETY AND QUALITY OPERATION



Basic duties of safety supervision department

The Safety Supervision Department of the Group's headquarters acts according to the Group's overall requirement on "supervision, inspection, assessment, training, guidance and service", and is responsible for the Group's safety production and supervision management. Through establishing "the Group — Regional Operational and Management Centres (business departments and specialised companies) — Project Companies", a three-tier supervision system, safety inspection and comprehensive safety evaluation works have been launched. It supervises each unit to adhere to the principle of "management of safety is essential when managing industries, businesses and productions, and supervisors hold accountability" to implement accountability, enhance the Group's safety management standards, and curtail the occurrence of significant incidents.

Safety emergency plan

Each project company has prepared an emergency plan to provide clear guidelines for employees on handling gas pipeline networks or gas station system incidents, covering from the composition, responsibilities and division of work of the emergency command and rescue team to a summary of emergency equipment and safety apparatus and facilities.

Safety assurance facility

All project companies are equipped with necessary protection facilities including warning signs, fire services equipment, explosion-proof equipment, lightning protection equipment, and protective equipment in hazardous locations such as gas stations, construction sites and warehouses.

Safety incident management

Each project company shall report safety incidents to leading business units within 24 hours, regardless of the amount of loss and responsibility. For major accidents such as explosions and casualties, they must be reported to the headquarters and regional operation and management centre within one hour.

Safety education and training

The Group conducts safety education and training for all staff and customers to regulate employees' safety behaviours and improve customers' emergency response capabilities. Topics covered by our safety training includes safety management trainings on construction, case studies on toxic gas leakage incidents, explosive and fire hazard incidents, and standards on safety production for urban gas companies.

2. SAFETY AND QUALITY OPERATION

2.7 OBJECTIVES FOR IMPROVING HEALTH AND SAFETY

The Group will work together to achieve the strategic goal of reaching “industry leading standards” in terms of safety management. The Safety Supervision Department has also set out measures and actions in relation to the safety management objective so that China Gas could achieve good health and safety performance.

Measure 1: Promoting HSE management systems

In October 2019, the Group’s Safety Committee approved the establishment of HSE Management System with China Gas characteristics. Steering group has been established and SINOPEC Qingdao Safety Construction Institution (中石化青島安工院) has been appointed to assist the Group to arrange consultation for HSE Management System development. After four months of work, including research and testing on 11 pilot units, China Gas HSE Management System has been officially established.

A pool of internal auditors for the system was respectively created at headquarters, regional management centres, operation and management groups and project companies, under which 1,200 safety professionals and internal auditors were trained, in order to ensure that HSE management systems could be put in place in all project companies.

Measure 2: Enterprise Safety Portrait System

Establish an Enterprise Safety Portrait System, centering on business applications such as safety production licensing, standardized management, and hidden danger investigation, to form a safety production database with a unified data view of the enterprise, and realize self-service combination of data and multi-dimensional visual display of data, defining graphical component standards, which displays the analysis of reliable operation index data through portal websites, large screens, desktop terminals, portable terminals and mobile communication devices, etc. to optimize the safety inspection plan, resolve the hidden dangers and other related measures, further improve the safety management level, and provide a reference for the management team to supervise the progress of first-line staff and make decisions in real time. The “Enterprise Safety Portrait System 1.0” is already in place and the “Enterprise Safety Portrait System 2.0”, comprising Enterprise Fundamental Information Module, Safety Incidents Management Module, Education and Training Module, Hazard Sources Management Module and Resources Sharing Module, will go live by the end of March 2023.



2. SAFETY AND QUALITY OPERATION



Measure 3: Building a safety performance system

A list of safety responsibilities in relation to 115 positions was released and will go live by the end of June 2022, creating a “one network” for visualising the fulfilment of production safety responsibilities, thus building a safe working environment.

Measure 4: Zero hidden hazards

By the end of December 2022, all the unrectified hazards and safety management special items in the “13 June” special operation will be cleared and a summary report of the three-year special operation will be submitted. A comprehensive investigation and review of major accidents that have occurred will be conducted to reduce the chance of occurrence of similar accidents in the future.

Measure 5: Preventing the problem before it happens by conducting accreditation tests

With the five safety supervision centres, we achieved full coverage of the HSE system rating review for all project companies within the Group; and 31 PPM-grade and six PPB-grade laser inspection vehicles from pipeline inspection companies were organised to inspect 470,478 kilometres of municipal pipelines and yard pipelines of the Group, for which inspection reports were issued.

Measure 6: Increasing Safe Operation Expenses

China Gas has always attached great importance to the safety of production and operation, and related expenses have increased over the past years. In the past three years, the investments in safety production were HKD1.06 billion, HKD1.18 billion and HKD1.49 billion. In FY2021/22, the investment was HKD2.2 billion, accounting for a proportion of the total revenue, exceeding the requirements of the Ministry of Finance and the State Administration of Safety Supervision “Administrative Measures for the Extraction and Use of Enterprise Safety Production Expenses” (《企業安全生產費用提取和使用管理辦法》).

We will continue to increase investment in safety operation in the future to comprehensively improve the safety management level, and achieve multi-dimensional, full coverage and no dead ends in safe operation. For China Gas, we will, as always, put safety production in the first place, which will help the company to achieve sound and sustainable development.

Regular Safety Production Investment

FY2021/22	HKD2.20 billion (47.4% more than previous FY)
FY2020/21	HKD1.49 billion (26.3% more than previous FY)
FY2019/20	HKD1.18 billion (11.3% more than previous FY)
FY2018/19	HKD1.06 billion (10.6% more than previous FY)

2. SAFETY AND QUALITY OPERATION

Case Study: City Gas Pipeline Accident on 13 June 2021



Case Study: City Gas Pipeline Accident on 13 June 2021

On 13 June 2021, a major gas explosion occurred at a marketplace in the Yanhu community of Zhangwan District, Shiyan City, Hubei Province. According to the accident investigation report, the direct cause of the accident was a serious rupture of a natural gas medium pressure steel pipe, which caused a gas leak in a confined space in the river below the building and explode in the presence of a spark from a restaurant's grease pipe. Following the accident, the central government and China Gas attached great importance to the need to effectively strengthen safety supervision and investigation of hidden dangers in key areas, and to resolutely curb the occurrence of major accidents. In response to the problems revealed by the accident, China Gas has summarised and analysed the main lessons learned from the accident and put forward the following comprehensive improvement plan for prevention and rectification, as well as the expected results.

1. Carrying out the reengineering of the operation management system

The Group adopted a six-pronged approach to define the role of production and operation, better manage employees, and ensure policy implementation. First, it enhanced first-line employee management with the production and operation information and the emergency repair systems. Second, it strengthened policy implementation through better training programs. Third, it implemented the production and operational system restructuring plan. The plan centers around the six-pronged approach to employee management, including imposing card-based policies, requiring accreditations for employment, standardizing work procedures, adopting IT management tools, checking work performance objectively, and introducing refined assessment schemes. The Group has conducted training programs and meetings to communicate these management policies to the production and operation staff.

In order to improve the Group and each project company's ability to deal with various types of emergency rescue, emergency repair and daily maintenance, and the ability of risk management and control, and achieve rapid and effective control of dangerous situations, the "Guidelines for the Construction of China Gas Group's Emergency Maintenance System" was revised, released, and communicated to all staff. The Group also comprehensively promoted the construction of an information-based system to improve the basic management of production and operation. 110 sets of SCADA systems have been launched, 126 sets of line inspection systems have been launched, and 32 sets of GIS systems have been launched. On the basis of increasing inspection, constructing GIS and SCADA production and operation information systems, the Group has strengthened the on-line application and system maintenance of production and operation information systems to ensure that the system application rate and maintenance rate of the project company meet the standards.

In addition, the Group also issued the "Notice on Strengthening Inspection of Gas Pipeline Networks", revised and improved the inspection system and assessment methods for gas pipelines, equipped personnel and equipment, and purchased 2,600 PPM-grade LEL combustible gas detectors, 300 handheld laser methane telemeter, to strengthen the inspection of the pipeline network, prevent the construction damage of the third-party manufacturers, and strengthen the supervision and assessment.

2. SAFETY AND QUALITY OPERATION



2. Reconstructing customer service management system

After the “613” accident in Shiyuan, a total of eight customer service management regulations, 21 work guidelines and 12 technical guidelines have been revised. In response to the problem that the service quality needs to be improved, the Group adjusted the service target standards and issued the “Service Target Management Regulations of China Gas Group Project Company” (《中燃集團專案公司服務目標管理規定》). The Group has increased investment in gas security inspections and increased the number of gas security inspection personnel. The Group also organized a three-month special campaign to improve call quality and a special supervision campaign for service efficiency. In order to strengthen the front-line service supervision, the Group set up a service supervision hotline and identified the person in charge of service supervision of the project company. Service problems can directly be addressed to the person in charge of the project company, shortening the rectification process.

3. Carry out the reconstruction of the engineering management system

To ensure the compliance management of the projects, carry out the reconstruction of the engineering system, and consolidate the basic management work, the “Project Compliance Management Measures” (《工程合規性管理辦法》) were issued, which focused on initiating compliance, management information, policy lists, regular inspections, and assessment refinement are re-engineered to improve the Group’s construction management level.

The Group conducted investigation of hidden dangers in all project companies, formulated rectification plans for hidden dangers, signed rectification commitments for hidden dangers, requiring all project companies to complete the rectification of hidden dangers within the specified time limit, and calculated and ranked the completion of rectification of hidden dangers every day, and announced the results. The person in charge of the responsible unit were required to rectify the issue within a time limit and give feedback on the rectification results.

2. SAFETY AND QUALITY OPERATION



4. Improving on-site emergency response capabilities

The accident showed that the emergency plan of an enterprise must be closely related to the actual situation, and it is necessary to conduct drills on a regular basis, that emergency personnel must be well-trained and emergency behaviour must be standardised, so that emergency response can be incorporated into daily operations. China Gas will take into account the on-site emergency response problems revealed by the accident and adopt specific enhancement measures.

1. Establish a sound production and operation rescue and maintenance management system and a professional rescue and maintenance team to improve the three-level production and operation rescue and maintenance management system of the Group, regional operation and management centres and project companies, and enhance the rescue and maintenance strength of project companies.
2. Establish emergency rescue drill mechanisms at company level, department level and team level and carry out drills regularly. Emergency rescue drills are included in the assessment of project companies, departments and teams, with the main focus on realistic drills and on-site emergency response to improve awareness and skills of staff through realistic drills.
3. In addition to strengthening the internal emergency drills throughout the Group, we will also actively participate in relevant government emergency drills to enhance the joint emergency response capability of government and enterprises. While comprehensively enhancing the Group's internal emergency response technology and rapid response capability, the Group is at the disposal of the housing and construction authorities at all levels to take part in all kinds of urban and rural emergency response actions at any cost, aiming to be a good guardian of people's lives and property safety.

2. SAFETY AND QUALITY OPERATION



4. Strengthen trainings to improve the emergency repair capacity and enhance the project company's emergency rescue plan, with a focus on clarifying emergency rescue management standards and requirements such as handling by emergency rescue personnel, presence of leaders on the site, and promptly reporting to the government. At the same time, we will, through the nine training centres, provide emergency rescue and maintenance professional trainings for emergency rescue and maintenance personnel in order to strengthen emergency rescue and technical capacity of the emergency rescue and maintenance personnel. Rescue and maintenance personnel are required to work with permits.

5. **Strengthening safety education to create an atmosphere of “everyone being a safety officer”**

We will strengthen safety education in two aspects: strengthening professional skills training to ensure that the main person in charge of the enterprise, safety management personnel and practitioners work with permits, and organising internal production safety trainings of the Company, in which we will carry out mass production safety drill based on the principle of “what to do, what to learn, what to practice, and what to test”, with the combination of online and offline learning of knowledge + online theoretical exam + offline practice. Through strengthening staff safety education, we improve staff quality in safety, and strengthen staff safety responsibility awareness, thus turning every source of danger into a safety officer.

6. **Increasing safety publicity to improve the public's ability to avoid hazards**

At the site of the explosion that occurred on 13 June, there was still a period of time from the cordon pulling by the police to the gas explosion, during which the police clearly informed that it was a gas leak, but some onlookers refused to evacuate from the site, resulting in unnecessary casualties. This showed that the emergency evacuation measures were inadequate and that unlike traffic and fire accidents, the danger of gas leaks was not fully understood. At present, the proportion of gas used in cities has reached 97% and urban residents must have some knowledge of gas safety and the ability to avoid danger. This requires us, under the co-ordination and guidance of the government and the industry, to further strengthen the knowledge of public education, publicity and suggestions on gas safety and include gas safety education in primary school education like safety education for fire, electric shock and traffic safety to instill knowledge about safety gas use at an early age.

2. SAFETY AND QUALITY OPERATION



7. Accelerating the construction and transformation of digital, network-based and intelligent infrastructure

We will accelerate the construction of smart gas and strive to be the industry leader.

1. Accelerate the upgrade and transformation of the existing operation systems, and carry out comprehensive upgrade and transformation of the existing SCADA dispatch centre system, inspection system and GIS pipeline network geographic information system, while adopting cloud deployment mode to meet the application needs of companies in which no online operation systems go live.
2. Through the construction of the OMP platform, data links are opened up to bring about data integration and convergence, and synergy of applications. This will meet the business needs of one diagram for gas operation, one diagram for KPI, one diagram for inspection, one diagram for equipment management and one diagram for video monitoring. It also provides favourable support conditions for the subsequent development of artificial intelligence and deep learning applications.
3. Accelerate the construction of the Wuhu Intelligent Gas Demonstration Project and Shiyan Intelligent Gas Project launched by Ministry of Housing and Construction, which focus on 14 intelligent scenarios such as intelligent gas sources, intelligent engineering, intelligent field stations and intelligent pipeline networks based on the main gas business chain. We will gradually enrich scalable and replicable intelligent applications around production and operation, while providing sufficient ICT (information and communication technology) facilities to realise the interconnectivity between enterprise's safety monitoring system and urban systems, which will improve production and operation efficiency, enhance safety assurance, and bring about innovative business models.
4. Speed up the construction of CRM. The Group will launch CRM system (customer relationship management system). Up to now, the system has gone live in more than 400 companies, and the second phase of the CRM project is currently under preparation. The construction process will further strengthen the user security management and data analysis functions.

In 2022, China Gas promoted EHS management system certification in 40 project companies within the Group and planned a full-coverage certification within the coming months. Sufficient funds have been reserved for this purpose.

In addition to the targeted preventive and corrective measures proposed in response to the urban gas pipeline accident occurred on 13 June 2021, China Gas has also implemented a series of measures within the Group to address the root causes of potential safety issues, with the objective of improving the quality of safety management and HSE management systems.

2. SAFETY AND QUALITY OPERATION



Measure 1: Revising and updating internal policy



Case 1: Major updates to the new revision of the improved labour protection standards for employees

1. All units of China Gas Group shall strengthen the prevention and control of occupational hazards in workplaces, and establish corporate standards for employees of China Gas Holdings Limited. Under the occupational health management system of China Gas Group, workers are provided with a working environment and conditions that comply with laws, regulations, rules and national standards and industry standards. For toxic and hazardous workplaces where acute occupational injuries may occur, the employer shall set up alarm devices, provide on-site first aid supplies, and flushing equipment, and mark emergency evacuation routes and necessary risk relief areas.
2. In order to ensure the effective implementation of occupational health management, each unit of China Gas Group shall establish and improve systems and operating procedures related to the prevention, control and management of occupational hazards, and ensure the appropriateness, adequacy and effectiveness of these systems and operating procedures.
3. The assessment of occupational hazards shall be carried out on a regular basis to identify positions that may be exposed to hazards, and monitoring plans shall be developed so that qualified occupational health technical service agency can be engaged to carry out testing and assessment of the concentration or intensity of workplace hazards.
4. Measures and plans for the control of occupational hazards shall be formulated on the basis of the results of monitoring and assessment of occupational hazards, and the health and safety of employees should be ensured through transformation, adoption of new materials or processes, and provision of personal protective equipment.
5. If it is found that the occupational hazards in the workplace do not meet the national occupational health standards and health requirements, each unit should immediately take appropriate treatment measures, and if the occupational hazards still fail to meet the national occupational health standards and health requirements, any operation involving occupational hazards operations mu be suspended. After treatment of occupational hazards, they should be resumed only if they are in line with national occupational health standards and health requirements. Occupational hazards control measures mainly include engineering control technology measures, organisational management measures and personal protection measures:

2. SAFETY AND QUALITY OPERATION



- Engineering control technology measures. Engineering measures and means (such as confinement, ventilation, cooling, and isolation) are applied to control the concentration or intensity of the occupational hazards generated or present in the production process, so that the concentration or intensity of hazards in the operating environment is reduced to be within the permissible range set forth in the national occupational health standards.
 - Organisational management measures. Ensure the good and effective operation of the relevant elements of occupational hazard prevention and control in the production and labour process by establishing sound rules and regulations for the prevention and control of occupational hazards, so as to safeguard the occupational health and safety of workers.
 - Personal protective measures. For occupational hazards that cannot be restricted after engineering and organisational management measures, workers need to be equipped with effective personal protective equipment in order to prevent those hazards from damaging health of the workers. For different types of occupational hazards, appropriate personal protective equipment should be used to protect the workers against dust, drugs or explosions.
6. The Company shall provide employees who are working at a post posing occupational hazards with occupational hazards protection equipment in line with national standards, industry standards, and shall supervise, educate, and guide those employees to wear and use the equipment in accordance with the rules of use.
 7. Female workers shall not be arranged to undertake work at height, operation at low temperatures, operation involving cold water or operation of the third level of physical work intensity as stipulated by the state during their menstrual period; no minor worker shall be arranged to work in contact with occupational disease hazards; no female worker during pregnancy or breastfeeding shall be arranged to engage in operation that is hazardous to herself, her foetus or baby.
 8. Multi-level and multi-modal inspections of occupational hazards should be carried out, and the responsible person for, and contents, method and frequency of the inspections shall be clarified in order that problems and hidden dangers found in the inspection process could be addressed promptly.
 9. The management of occupational hazard protection facilities should be strengthened, and patrolling, maintenance, repair and overhaul should be carried out to ensure that the facilities are in normal condition.
 10. All units of China Gas Group should formulate emergency rescue plans for occupational hazards in light of the current situation of occupational hazards management in their units and possible potential consequences, in order to provide guidance for handling of occupational hazards accidents.

2. SAFETY AND QUALITY OPERATION



Case 2: Internal development of classification and definitions of accident severity

The Group classifies and defines the severity of accidents internally and classifies safety accidents into five levels: particularly serious accident, major accident, large accident ordinary accident and safety incident.

Particularly serious accident	A particularly serious accident is an accident that results in death of more than three persons, or serious injury of more than 10 persons (including acute industrial poisoning, the same as below), or direct economic losses of more than RMB10 million, that results in unplanned gas outages involving more than 20,000 households for more than 24 consecutive hours, or that results in unplanned gas outages involving more than 10 industrial users for more than 24 consecutive hours.
Major accident	A major incident is an accident that results in death of less than three persons, or serious injury of more than five or less than 10 persons, or direct economic losses of more than RMB5 million or less than RMB10 million, that results in unplanned gas outages involving more than 10,000 but less than 20,000 households for 24 consecutive hours for, or that results in unplanned gas outages involving five or less than 10 industrial customers for more than 24 consecutive hours.
Large accident	A large accident is an accident that results in serious injury of more than two or less than five persons, or direct economic loss of more than RMB2 million or less than RMB5 million, that results in unplanned gas outages involving more than 5,000 households or less than 10,000 residential households for more than 24 consecutive hours, or that results in unplanned gas outages involving more than three or less than five industrial users for more than 24 consecutive hours.
Ordinary accident	An ordinary accident is an accident that results in serious injury of one person, or minor injury of three or more persons, or direct economic loss of more than RMB50,000 or less than RMB2 million, that results in an unplanned gas outage involving more than 2,000 or less than 5,000 residential households for more than 24 consecutive hours, or that results in an unplanned gas outage involving less than three industrial users for more than 24 consecutive hours.
Safety incident	A safety incident is an incident that results in minor injuries of less than three person(s), or direct economic loss of less than RMB50,000, or that results in unplanned gas outages involving less than 2,000 residents for more than 24 consecutive hours.

2. SAFETY AND QUALITY OPERATION

Measure 2: Five new regional safety supervision centres to oversee production safety policies and implementation

The Group has established five safety supervision centres in all major regions: China Gas Northern Safety Supervision Centre, China Gas Central Safety Supervision Centre, China Gas Eastern Safety Supervision Centre, China Gas Western Safety Supervision Centre and China Gas Southern Safety Supervision Centre. The functions of our Safety Supervision Centre are to supervise the implementation of the Group's production safety policies and requirements within their responsible area; to supervise the implementation of the systems and procedures of each unit; to supervise the implementation of the primary responsibility of region, business units, specialised companies, operation and management groups, and project companies for safety; to organise safety inspections for all formats, and to conduct full-coverage rating inspections for project companies every year and supervise the closed-loop rectification of problems; carry out special safety inspections around major hidden dangers, emergency rescue, surveying and inspection, household safety inspection, work with permit, compliance management and pipeline integrity, and supervise the closed-loop rectification of problems; supervise the quality of engineering construction and the quality of material and material procurement; organise the investigation and handling of safety accidents within the responsible area; supervise the project companies to carry out work in relation to risk, hidden danger, firefighting, emergency response, occupational health, public safety, safety standardisation and management of hazard sources. The Group adjusted the organizational structure, reorganized the production and operation system, split the three functions of operation, production and customer service, so that the operation and production function can be more focused on the safety operation, and the safety operation management can be enhanced. Each project company is equipped with safety supervisors at a ratio of no less than 2%, and all safety supervisors are changed to full-time personnel. According to the Group's current safety investment and personnel investment, which has exceeded the national standard, we believe that the group will become the number one in safety in the future.

Measure 3: Project companies required to apply for safety certification

In order to comprehensively improve environmental, health and safety management of the Group and to meet the corporate goals and requirements for sustainable development, China Gas has a robust occupational health and safety policy for its employees to manage occupational health and safety risks and improve performance. As at FY2021/22, of the 927 project companies over which the Group has operational control, a total of three project companies have obtained certification of their health and safety systems, including one project company obtaining ISO45001 (OHSAS18001) and two project companies obtaining ISO14001. The Group has also taken the initiative to comprehensively plan the health, safety and environment (HSE) management system for the Group's project companies. The Group has commissioned Sinopec Qingdao Safety Engineering Research Institute, a reputable health, safety and environmental system consultant in China, and Qingdao Sinochem Sunshine Management System Certification Centre Limited to carry out the certification of HSE management system. Based on ISO 9001, ISO 14001, ISO 45001 and other systems as well as national laws and regulations, we have built a HSE management system adapted to China Gas, which has been released in September 2020 and adopted throughout the Group, in preparation for certification. Starting from June 2021, the system certification will be carried out by Qingdao Sinochem Sunshine Management System Certification Centre Limited for the Group's headquarters and 11 pilot project companies. According to the sustainable development objectives and requirements, the ISO45001 (OHSAS18001) system certification implementation plan is promoted in China Gas project companies to achieve a year by year upgrading of policies. In 2022, China Gas plans to promote the certification of occupational health and safety management systems in 40 project companies of the Group, and plans to fully complete the certification within the coming months, and has set aside expenses to gradually achieve full certification of the Group's health and safety systems.

2. SAFETY AND QUALITY OPERATION



Measure 4: Development of an OHS policy covering contractor management requirements (HSE system)

In order to regulate the OHS of contractors and pursue contractor safety management, China Gas has prepared an OHS policy covering contractor management requirements, which allows project companies of China Gas to manage contractors in four aspects: contractor qualification review, contractor safety training, contractor safety supervision, and contractor safety assessment and evaluation.

Contractor qualification review	<ul style="list-style-type: none"> The project company should check and review the safety and professional qualifications of contractors (including carriers and technical service providers) before they are admitted. The contractor's subcontractors should be managed as if they were contractors.
Contractor safety training	<ul style="list-style-type: none"> The project company should provide safety trainings for personnel of all admitted contractors and those personnel should apply for an entry permit only after they pass the exam.
Contractor safety supervision	<ul style="list-style-type: none"> Subcontracting of main works by general contractors, subcontracting of subcontracted projects and illegal subcontracting are prohibited. The project company must sign a safety agreement with the contractor or specify in the contract the safety responsibilities and terms and conditions of each party. The project company shall organise verification of the validity of the qualifications of the contractor's special operators and special equipment operators. The project company shall inspect and supervise the contractor's work on site, and record and feedback the results of the inspection and supervision. Contractors must purchase personal accident insurance and other insurance for all employees, and the project company shall supervise the contractors to purchase such insurances.
Contractor safety assessment and evaluation	<ul style="list-style-type: none"> The project company conducts monthly safety performance evaluations of contractors, establishes a "blacklist" of contractors and prohibits the engagement of contractors who are on the "blacklist".



ISO45001 (OHSAS18001) and ISO14001 certificates of project companies

2. SAFETY AND QUALITY OPERATION

Measure 5: Identification of hidden hazard

Types of the identification mainly include comprehensive identification, professional identification, seasonal identification, daily identification, identification for holidays, accident analogy identification, identification through diagnosis by experts and inspection of the performance of duties by the responsible person at all levels of the enterprise. Details of the types of hidden danger identification are as follows:

1. The comprehensive identifications are comprehensive inspections that focus on the implementation of the safety responsibility system, various professional management systems and the production safety management system, and are attended by all relevant professions and departments.
2. Professional identifications are mainly specialist inspections respectively conducted for process, equipment, electric system, instrumentation, storage and transport, fire protection and engineering.
3. Seasonal identifications are the special identifications of hidden dangers carried out according to the characteristics of each season, mainly including: (1) focusing on protection against lightning, static electricity, thawing leakage, and thawing collapse in spring; (2) focusing on protection against thunderstorm, high temperature and overpressure of equipment and containers, typhoon, flood and heat in summer; (3) focusing on protection against thunderstorm, fire, static electricity and condensation and thermal insulation in autumn; (4) focusing on protection against fire, explosion, snow, freezing and condensation, slipping, and static electricity in winter.
4. Daily identifications are the handover inspections and mid-shift tour inspections of shift and employees, as well as the daily inspection by the leaders of the grassroots units and professional and technical personnel for process, equipment, electric system, instrumentation and safety. The daily identification should be conducted in such way that inspections and patrolling of key devices, key parts, key links and major sources of danger are highlighted.
5. Identifications for holidays are to check whether there are abnormal conditions and hidden dangers in plant production, the status of standby equipment, spare parts, production and emergency supplies reserves, arrangements for transportation forces, enterprise security and emergency work before major events and holidays, especially the check should be focused on the cadres on duty during the holidays, arrangements for maintenance, transportation and emergency repair forces for M&E instrument, reserve of spare parts and various supplies reserves and emergency response.
6. The accident analogy identifications are safety inspections to be conducted following occurrence of an accident within an enterprise and similar enterprises.

The process of self-inspection by the project company and the process of management of hidden hazards in production and operation include circulation of information regarding hidden hazard, issuance of notice of rectification of hidden hazard, implementation of handling of hidden hazard, feedback on the handling and acceptance.

2. SAFETY AND QUALITY OPERATION



At the end of the identification of hidden hazards, information such as the name, location, nonconformity, level, handling period and countermeasures of hazards shall be communicated to the employees. The organising department for identification of hidden hazard shall issue a notice of rectification of the hidden hazard, which shall set out the requirements for the unit responsible for rectifying the hidden hazard, the proposed measures and the deadline for completion. The unit in which the hidden hazard exists should analyse the reasons for the existence of the hidden hazard and formulate reliable measures for its remediation before implementing the remediation of the hidden hazard. The department issuing the notice of rectification shall organise the acceptance of the effect of the rectification of the hidden hazard.

Measure 6: 37 new machines to detect the risk of gas leakage

We have actively implemented the Group's measures to set up Shenzhen China Gas Pipeline Inspection Service Co., Ltd. and five branches to fully undertake leak detection tasks for gas pipelines across the Group. At present, there are 31 PPM-grade vehicle-mounted laser methane inspection vehicles and six Beidou high-precision leak detection vehicles, 37 machines to detect the risk of gas leaks, a professional inspection team of 48 members as well as supporting operation and management systems. Since the trial run over 30 days, 9,842.19 km of gas pipelines have been tested and 183 leaks have been identified. In the next financial year, the Company will carry out a comprehensive leak detection service for 520,000 km of gas pipelines as a part of its efforts to pursue its mission of "identifying leaks, eliminating hidden hazards, preventing risks and curbing accidents".

Occupational safety assurance measures

In order to conscientiously implement the important discourse of China on production safety, the Group, in accordance with the requirements of the "Notice on the Issuance of National Three-Year Action Plan for Special Rectification of Work Safety" of the Safety Production Committee of the State Council (An Wei [2020] No. 3), and in line with the actual situation of the Group, developed the "Three-Year Action Plan for Special Rectification of Work Safety of China Gas Group", comprising two topics and four special implementation plans. The two topics are (1) study, propaganda and implementation of the important discourse on work safety by General Secretary Xi Jinping, and (2) implementation of the primary responsibility of project companies in work safety. The four special implementation plans are (1) special rectification for safety of dangerous chemicals, (2) special rectification for safety of gas pipeline network, (3) special rectification for fire safety, and (4) special rectification for traffic safety.

- **Measure 1: Safety emergency plan**

All units should continue to carry out emergency response capacity assessment, revise emergency response plans in a timely manner, and enhance the effectiveness of the "one case, one card" for the departments at the basic level. They should focus on special emergency response drills such as user-end leakage, third-party construction damage, leakage of major sources of hazards, and transportation, loading and leakage of hazardous chemical, etc. to improve the emergency response system and put emergency response resources in place according to the results of assessment and drill. In accordance with the Group's requirements for emergency repair system, 417 project companies preliminarily become able to respond to emergencies, and in FY2022/23, the capabilities of emergency repair will be strengthened on this basis to enhance the repair capabilities after handling of emergency. We will continue to optimise and improve the emergency repair system, and strengthen the capacity of the emergency repair team to effectively enhance the emergency response and repair capabilities.

2. SAFETY AND QUALITY OPERATION

- **Measure 2: Safety assurance measures**

In order to consolidate the primary responsibility of enterprises, comprehensively improve the management of production safety, and promote the investigation and rectification of hidden dangers, the Group issued the “Urgent Notice on the Special Supervision of Safety Management in China Gas Group” (Zhong Guo Ran Qi Tong Zi [2021] No. 347), under which the Group established 10 special supervision teams led by the leader of the President Office of the Group, organised 307 employees from the Group’s Safety Supervision Department, Production and Operation Department, Customer Service and Value-added Business Department, Technology Management Department, Engineering Management Department, Digital Development Business Department, Procurement Management Department, Industrial Construction Group and China Gas Energy Group, etc to form 44 inspection teams to carry out comprehensive supervision in the nine regions and China Gas Fuel Energy Group. China Gas Hongda formed an inspection team according to the Group’s requirements to carry out special supervision and inspection of transportation vehicles for hazardous goods. During the period from 10 November 2021 to 31 December 2021, 502 project companies received the first phase of special supervision and inspection on safety management.

In order to test the effectiveness of the first phase of special supervision on safety management and the implementation of rectification, the Group carried out the second phase of cross-inspection and issued the Notice on the Cross-inspection of Work Safety in China Gas Group (Zhong Guo Ran Qi Zi [2021] No. 394), under which the leader of the President Office led 114 employees from headquarters departments, regions and China Gas Group to establish 10 inspection teams to conduct cross-inspection in nine regions and China Gas Energy Group to carry out cross-inspections. Those teams randomly inspected a total of 44 project companies during the period from 6 January 2022 to 17 January 2022, problems and hidden dangers of various types were identified and rectified promptly, with a 100% rectification rate of hidden dangers in production and operation.

- **Measure 3: Management on safety accident**

To strengthen prevention in two aspects to curb occurrence of accidents at the sources:

1. Strengthen users management with users safety inspection conducted on a practical and well-done basis. During the financial year 2022/23, we recorded a high rate of 70% in successful indoor safety inspection. At least one publicity on gas safety has been held each quarter, especially for particular users like elderly living alone, those resettled and tenants. We endeavour to continuously improve the inherent safety standards of our terminal users’ gas facilities by vigorously promoting the appliances such as stainless steel corrugated pipes, self-closing valves and gas alarms, targeting to prevent accident with technology improvement.

2. SAFETY AND QUALITY OPERATION



2. Duly prevent damage of pipelines and networks by any third party through optimised emergency response mechanism with competent authorities of the local government. Make good use of the SCADA system to timely alarm or handle any abnormal indicators in terms of flow, pressure and temperature. Additional grid patrol shall be conducted to timely detect that whether or not our grid is occupied or being constructed upon. Any material construction site must be of no neglect to secure safety operation of grids.

- **Measure 4: Training on safety education**

The safety supervision center of the Group conducted a total of 253 safety training for project companies during the procedure of inspection, mainly focusing on the relevant laws and regulation on safety production, HSE system and hazardous operation procedure, related operation practices and typical accident cases. In particular, people taking key positions were arranged with book-closed exams, covering more than 2,750 people. Besides, 176 double-blind drills were carried out to test the emergency response level, especially to test the comprehensive emergency response capability of the relevant project companies in terms of effective time of limit for emergency handling, capability of individuals and equipment for emergency response.

Quantitative indicators:

Name of indicator	Unit	FY2021/22	FY2020/21
Number of people received safety training (general manager level and safety management personnel)	People	1,021	399
Number of people received safety training (employees)	People	12,840	6,362
Number of safety emergency drills	Times	4,573	1,054

2. SAFETY AND QUALITY OPERATION



Case 1: The HSE system development—“the First Session of HSE System Training Oriented for the Cadres of China Gas Group* (中燃集團第一期HSE管理體系骨幹培訓)”

In order to further promote the implementation of the HSE management system of the Group and enhance the skills of safety management personnel, the safety supervision department organized 7 sessions of HSE System centralized training in FY2021/22.

April 2021, HSE System training for South and South-west regions was held in Yunfu.

May 2021, HSE System training for 50 members of North region coal-to-gas HSE rating inspection team was held in Shijiazhuang.

May 2021, HSE System training for China Gas Energy Group was held in Changsha; Specialized training for Hohhot China Gas was held in Hohhot.

September 2021, HSE System training for North-east region was held in Shenyang.

November 2021, HSE System training for South-east and East regions was held in Zhangzhou.

February 2022, HSE System training for North-west region was held in Zhongwei.

February 2022, 20 sets of training material have been refined and 19 sets of video training material have been recorded to provide HSE System training to North and Central region. Training materials are also posted on eqixue online platform (E企學), attracting more than 252,000 attendance.

Within the Group, a total of 1,021 trainees have passed their training examination and obtained HSE System Internal Auditor certification, which promote the implementation of the Group’s HSE System.

HSE system development is one of the major safety management initiatives of the Group. It has released a series of documents, such as the system manuals, case-by-case procedure for operation of high danger and safety cards for specific posts, which resulted in the initial effect through operation. The core safety supervision work for the fiscal year 2021/22 is to propel the effective implementation of the HSE management system. A series of training was arranged to offer deep understanding on the system and practice the same in the actual works to lay firm foundation for safety management, thus to secure safety development of the Group in a high degree of quality.

2. SAFETY AND QUALITY OPERATION



Quantitative data: information on career health and safety

	FY2021/22
Rate of work-related injuries	0.0055
Rate of high-consequence work-related injuries	0.0018
Rate of work-related fatalities	0.0018
Lost days due to work-related injury	285
Total rate of work-related injuries on record (per million hours)	0.03
Number of injuries or fatalities (people)	0

Safety Production Month

Safety Production Month for FY2021/22

Category	Unit	FY2021/22	FY2020/21
Emergency drill	times	1,224	1,054
Safety knowledge competitions and speech contests	times	388	343
Skills competition	times	256	217
External gas safety promotion	times	5,236	4,350
Safety training	times	6,216	6,362
Distribution of safety promotional materials	Ten thousand pieces	100	86
Safety inspection activities	times	2,454	2,356

2. SAFETY AND QUALITY OPERATION



Safety Culture System Building

In May 2021, the headquarter of the Group issued the Notice on the Safety Production Month's Activities in 2021 (ZGRQTZi [2021] No.144), and organised the kick-off for the Safety Production Month for 2021 at the headquarter of the Group on 28 May 2021. During the Safety Production Month organised in 2021, a total of 523 units covering the various regions, business lines, professional companies and project companies held the kick-off ceremony for the Safety Production Month respectively. A total of 523 speeches were made for their staff by the principals of the project companies in relation to safety production, an aggregate of 5,236 external safety promotion activities were carried out, 1,000,000 pieces of safety promotion materials were distributed, 4,896 pieces of safety promotion related articles or videos were provided via social media or our official account on WeChat, and 6,216 sessions of safety training were conducted cumulatively covering 36,412 trained people in total. Our safety supervision department has organised certain special safety training on traffic safety, investigation and governance of hidden danger and emergency response, etc. 1,280 full-time drivers passed the special traffic safety exam on the e-learning platform; the project companies cumulatively carried out 366 sessions of offline traffic safety training with a total of 4,124 full-time or part-time drivers trained; 2,454 safety inspections were conducted; accumulation of 3,146 points were recorded by the various safety supervision stations or project companies during the Safe Production Month; the project companies offered in-door safety inspection for a total of 3,460,000 users, arranged 388 safety knowledge competitions or speech contests with more than 10,000 staff participating, carried out 256 skill competitions and cumulatively organised 1,224 emergency drills including 251 drills organised in cooperation with the relevant government authorities.

2. SAFETY AND QUALITY OPERATION



Contractor Safety Management

In addition to safeguarding the health and safety of our employees and customers, we attach great importance to the health and safety policy requirements and health and safety system for our contractors, and build a comprehensive occupational health and safety management system to ensure the stability of the supply chain. In respect of working level, Industrial Construction Group, a project company of the Group, carries out complete supervision over the contractors' safety and quality throughout the whole process, i.e. from the eligibility audit, process management control, deliver and examination for acceptance under the "management regime comprising three parties of Industrial Construction Group, contractors and construction team". The day-to-day management is carried out by the project department assigned by Industrial Construction Group case by case.

At the same time, China Gas has set a number of safety incident control targets for contractors including the achievement of production safety management targets and assessment indicators and the need for safety training prior to commencing work, to improve OHS and safety management performance in line with the OHS policy to ensure the health and safety of all stakeholders in the value chain.

Objectives and Assessment Indicators for Engineering Contractor Safety Management	Objectives for Pre-employment safety training for engineering contractors
1. No serious injury or fatal production safety accidents occurring.	1. 100% rate of tertiary safety education and transfer safety education for new employees.
2. No accidents due to production safety responsibility resulting in an economic loss of more than RMB50,000.	2. The rate of project leaders, full-time safety management personnel and special operators holding certificates to be 100%.
3. No accidents caused by quality problems, no quality incidents with greater impact caused by falsification and irregular operations.	3. The signing rate of the production safety responsibility letters should reach 100%.
4. No incidents of external administrative punishment for safety production.	4. 100% arrival rate of safety management personnel according to plan and to meet the needs of construction safety management.
5. 100% usage rate of safety protection equipment (safety helmets, safety belts, etc.).	
6. 100% of electrical machinery and equipment to be in good condition and with safety protection devices installed.	
7. 100% rate of technical safety briefings.	
8. 100% rate of handling work injury insurance.	

2. SAFETY AND QUALITY OPERATION

In FY2021/22, the engineering contractor conducted safety training work and pre-service training work as required under the guidance of China Gas. In terms of safety training, various types of safety training are conducted during daily management activities according to seasonal, holiday and daily management regulations, with a total of 2,138 daily safety training sessions and 28,513 training attendances; Pre-job training is conducted for all construction crews before they enter the workplace (three-level safety education management implementation method) to ensure that they pass the examination before entering the workplace, and the same for subsequent new employees; A total of 3,981 sessions were conducted, with 15,071 participants; pre-shift safety education and training was provided to construction teams before they entered the site each day, with a total of 116,195 sessions conducted and 798,229 participants trained.

Safety training for contractors

Category	FY2021/22
People participating the safety training for contractors	841,813
Total number of hours of safety training for contractors	1,831,177
Number of contractors accepting safety training	1,643
Coverage rate of safety training	100%

Management Policies and System

In terms of engineering construction, the Engineering Operation Department of the Group, under the requirements of the Construction Law of the People's Republic of China, redefined the management boundary of Party A and the scope of performance of Party B in this financial year, and issued the "Management Responsibilities of Party A of China Gas Group* (《中燃集團甲方管理職責》)" (2022 version) and "Management Responsibilities of Party B of Industrial Construction Group of China Gas* (《中燃工建集團乙方管理職責》)" (issued by Industrial Construction Group) to ensure that "safety briefing, safety inspection, safety equipment and safety education" are in place before commencement of construction, making sure safety management covers everywhere.

In respect of operation management, the Group has in place a set of documents for safety production and operation system to regulate our employees' practice during the ordinary course of business. In order to achieve higher standards of targets for our working procedure and performance, we have developed detailed operating procedures and working guidelines, including Long-distance Pipeline Transmission and Distribution Management System, Urban Gas Transmission and Distribution Management System, Facilities Management System, Scheduling System Construction and Management System, Production and Operation Guidelines for CNG, LNG and L-CNG Gas Stations, Guidelines on Construction of Production and Operation Emergency Repair Maintenance System as well as Guidelines on Operation and Maintenance of Gas Equipment and Facilities, etc. In addition, we have established the Guidelines on Preparation of Emergency Response Plan for Emergent Accidents during Production and Operation to strengthen our response to emergent accidents. For operations against different working environments such as specialised operations, hot work operations, confined space operations, high-altitude operations, as well as LPG operations, we also established the Regulations on Pressure Tapping of Steel Pipeline and the Regulations on Dangerous Operations Management in Gas Transmission and Distribution System. The aforesaid series of operational management policies standards were sufficient to ensure our operation safety.

2. SAFETY AND QUALITY OPERATION



2.8 PRODUCT QUALITY INSPECTION

The Group has set up strict quality inspections for its brand “GASBO” and its products. Adequate quality inspection procedure would be adopted based on various production features such as product types, production locations, methods and process.

Shenzhen GASBO	Hebei GASBO
<p>The products of GASBO Technology Centre are produced on a OEM basis, for which the quality inspection is set out as below:</p> <ol style="list-style-type: none">1. Upon receiving the production request from the OEM manufacturers on our ERP system for the QR codes of products to be produced, the Quality Management Department would review the accuracy of the QR codes of the relevant products. If no mistake is found, the Department will pass such request for products’ QR codes. Then, suppliers shall print the approved QR codes for preparation of production. A denial would be made for any mistake found in such review, for which OEM manufacturers would be not able to arrange for production.2. Upon completion of production, the OEM manufacturers will upload information relating to QR codes and random inspection qualification report for finished products to our ERP system, and inform our Quality Management Department for further inspection and in-storage handling.3. The corresponding quality control engineers of the Quality Management Department will make the preliminary judgment on whether the products are qualified after verifying the QR codes and random inspection qualification report for finished products uploaded by the OEM manufacturers, and then make the comprehensive determination on whether to arrange an on-site random inspection towards the manufacturers depending on the suppliers’ management features, working load, type of products, random inspection report of finished products and the market performance of products. In case of no on-site inspection arranged, the Department will directly review and approve the in-storage application under the ERP system, until which, the whole process of in-storage of products is completed.	<p>Hebei GASBO Electrics Co., Ltd.* (河北中燃寶電氣有限公司) has set complete quality management system comprising quality manual, procedure documents, operation instructions (process documents), various rules and regulations and related record forms. We also conduct internal audits and management reviews according to the system requirements to ensure the effective operation of the system.</p> <p>The products produced by Hebei GASBO are gas-based hot water furnace, for which, the quality inspection mainly includes incoming material inspection, manufacturing process inspection, finished product inspection.</p> <ol style="list-style-type: none">1. Upon receiving the production request from the OEM manufacturers on our ERP system for the QR codes of products to be produced, the Quality Management Department would review the accuracy of the QR codes of the relevant products. If no mistake is found, the Department will pass such request for products’ QR codes. Then, suppliers shall print the approved QR codes for preparation of production. A denial would be made for any mistake found in such review, for which OEM manufacturers would be not able to arrange for production.2. When the materials necessary for production are available, the staff responsible for procurement shall report for inspection, and the incoming material inspectors would inspect the quality of the materials reported on a random basis pursuant to the requirements under the Guidelines on Components Inspection Practice, Technical Drawings, sample sealing and the Random Inspection Method of Incoming Materials. In-storage procedure shall be arranged if the materials inspected are deemed qualified, while if unqualified, a Procedure List of Processing Unqualified Materials shall be issued and signed by the procurement department. Whether to return, continue to use on a selected basis or accept on a concession basis, it is subject to the results of the aforesaid signature.

2. SAFETY AND QUALITY OPERATION

Shenzhen GASBO	Hebei GASBO
<p>4. If it is determined that it is necessary to have an on-site inspection, the Department shall randomly take the samples to be inspected according to the S-3 sampling plan under GB2828.1-2012 for inspection after arriving the OEM manufacturers.</p> <p>5. The quality engineer will inspect the samples in accordance with the "Inspection Operation Guidelines" applicable for the corresponding products, and record the inspection results in the finished product sampling record sheet.</p> <p>6. The quality engineer then compares the finished products inspection results with the inspection standards under the "Inspection Operation Guidelines" and makes a decision on whether the batch of products is qualified. If qualified, the in-storage application for this batch of products would be approved in the ERP system, which represents completion of in-storage procedure; if not qualified, then a denial would be made for the relevant in-storage application in the ERP system. Meanwhile, the suppliers and our order handling staff would be informed with the particulars, quantity and severity of the batch of unqualified products which would be returned to the suppliers for further processing.</p> <p>7. The order handling staff may inspect the relevant in-storage information of products via the ERP system.</p>	<p>3. Inspectors will examine, in accordance with the Production Inspection System and the Inspection Operation Guidelines on Production Procedure, the various elements involved in the entire production process, from manufacturing to the storage of finished products, including workers, machines, materials, methods, and environment, and if the results of inspection are deemed unqualified, the inspectors will fill in the "Unqualified Processing Order" or "Correction and Prevention Order for Unqualified Inspection" according to the category of the disqualification and continuously follow up the rectification to form a closed-loop management.</p> <p>4. Finished products will be inspected on a random basis by the relevant inspectors according to the Finished Products Inspection System with a sampling size as required by the Guidance on Finished Products Inspection Work for Wallmounted Boilers. Products will only be accepted to the finished products warehouse after they are deemed qualified. For unqualified inspection, the finished goods inspectors issue the "Unqualified Processing Order" which will be processed with a return plan subject to review by the Departments of Manufacturing, Development and Quality Management. Once the return is completed, stricter inspection shall be re-conducted, and finished goods will only be accepted to the warehouse after they are deemed qualified in the inspection. The Quality Management Department will constantly follow up the rectification to form a closed-loop management.</p>



Case 1: Recall Process for Quality Issues: repair and replacement measures for free

1 Establishment of products recall system

1.1 Establish a contingent team to handle products recall

- The Quality Management Department shall take the lead to establish the contingent team to handle products recall with members from the various departments, such as the sales department, the after-sales service department, the production department and the procurement department.
- The products recall contingent team shall be defined with definite duties and obligations. It shall take immediate action according to the duties thereof in respect of occurrence of any product recall issue.

2 Information Feedback and Analysis

2.1 Information Feedback

- The sales department/after-sales service department will fill in the “Information Contact Sheet” in a timely manner with the product quality and safety related feedback from the customers, and send it to the Quality Management Department together with other complaint information.
- When a product safety incident or serious quality problem is found within the company, the person who finds it should report it to the Quality Management Department in a timely manner in the form of “Information Contact Sheet”.
- Discoverers or receivers of information such as national sampling inspections in which our products are deemed to be unqualified, recalls mandated by the state, or negative media coverage of our products should promptly report such information to the Quality Management Department.

2.2 Information Analysis

- The Quality Management Department will analyse the information received to determine whether a product recall is needed.
- When a product recall is determined to be necessary, the type, specification, batch of products and the regions they flow to shall be clearly specified.

2. SAFETY AND QUALITY OPERATION

Measure 1: Product Quality Management



3 Implementation of products recall

- 3.1 The Quality Management Department shall prepare a "Product Recall Notice", which shall state the name, specification, batch, defects and severity of the recalled products. The "Product Recall Notice" shall be sent to the sales department and other relevant departments in a timely manner, requesting the distributors/project companies to stop selling the products to be recalled, take them off the shelves, seal, and ship back to the Company as soon as practicable. For products shipped back to the Company, the warehouse should segregate, seal and label them properly. If the products have been sold and flow to consumers, the Company should announce the information about the recalled products (e.g. date of production, product name, reason for recall, etc.), as well as the points and channels available for product recall through media coverage or the Company's internal network. At the same time, consumers should be warned of further use of the products. If necessary, suppliers of raw materials should also be notified.
- 3.2 Our warehouse will stop selling the same batch of inventory as the recalled products, and segregate, seal and label these products pending further disposal.

4 Disposal of recalled products

- 4.1 After the product recall, the Quality Management Department will evaluate the recalled products and related inventories and propose handling opinions, and report the same to the supervisor for approval in the form of "Non-conforming Products Evaluation Sheet".
- 4.2 The relevant departments will process the recalled products and related inventories according to the processing decision setting out on the "Non-conforming Products Evaluation Sheet".

5 Correction and Improvement

- 5.1 Upon completion of the products recall, the Quality Management Department shall organize the recall contingent team and the relevant departments to summarize the situation of the recall. In the summary, the reasons for the recalls shall be identified, the sales areas and types of products involved in the recalls, the processing results of the recalled products, the impact of the recalls on the Company's reputation, the economic losses caused by the recalls shall be clearly stated, and the suggestions for handling and preventive measures shall be made as well. The conclusion of summary for the recalls will be included in the "Product Recall Summary Report" which shall be submitted to the General Manager as input to the management review.
- 5.2 The Quality Management Department will issue a "Corrective and Preventive Measures Order" to the relevant departments based on the "Product Recall Summary Report" and will monitor and verify the effectiveness of the implementation of the corrective and preventive measures under the requirements of the "Corrective and Preventive Measures Management Standards".

2. SAFETY AND QUALITY OPERATION



Measure 2: Response to Product Complaint

Upon receiving a complaint from customers about products or service, the Group's customer service department will make immediate response and take the initiative to handle the complaint in a timely manner according to the standardized service process. First, the department will follow the standardized handling process of "complaint acceptance (create the complaint case) — preliminary analysis (distinguish the complaint as serious, major or minor one) — complete the Customer Complaint Handling Record Form" to record for the customers the detailed complaint data and collect the relevant instruments and submit the same to the relevant principal for prompt and effective handling. After receiving the "Customer Complaint Handling Record Form", the person in charge will call the persons in charge of the relevant units based on the complaint project to convene a meeting to review and analyze the causes of the complaint, and set at the same time a "Effectiveness Report on Improvement Measures for Customer Complaint " for traceability. Finally, feedback improvement and handling actions must be made to facilitate communication with customers, so as to reduce customers' complaints and make them satisfied with the handling results. The responsible departments will set up case-based improvement measures, make conclusion for each case and keep tracing until improvement is achieved.

Quantitative Data

Category	FY2021/22	FY2020/21
Number of products and services related complaints received (Number of complaints related to value-added products/services received is included in the data set in FY2021/22)	970	264
Number of products returned/recalled for safety and health reasons	36	137
Percentage of total products sold or shipped subject to returns/recalls for safety and health reasons	0.00%	0.04%

103 3.1 Corporate Environmental Governance
106 3.2 Environmental Risk Identification and Control
111 3.3 Environmental Target and Management System

3. GREEN ENVIRONMENT



3. GREEN ENVIRONMENT



3.1 CORPORATE ENVIRONMENTAL GOVERNANCE

China Gas always adheres to the philosophy that “clean waters and green mountains are as valuable as mountains of gold and silver” with the responsibility of actively protecting the environment.

The Group strictly follows the relevant environmental laws and regulations including the Environmental Protection Law of the PRC, Environmental Impact Assessment Law of the PRC, Air Pollution Prevention and Control Law of the PRC, Water Pollution Prevention and Control Law of the PRC, Soil Pollution Prevention and Control Law of the PRC, and Solid Waste Pollution Prevention and Control Law of the PRC, and continuously strengthens energy and resources management, climate change resilience and environmental protection practices through establishing and improving various energy conservation and environmental protection systems, in order to reduce the potential impacts brought by production and operations on biodiversity and the ecological environment. The Group also strives to prevent and mitigate the environmental impacts associated with its operations and business activities. During the Reporting Period, there was no administrative penalty imposed on China Gas in regards to violation of the aforementioned environmental laws and regulations which materially affects the Group.

The Group established the Sustainable Development Committee, and four sub-working groups on various items. Among them, the Dual Carbon Goals Working Group and the Methane Emission Control Group are responsible for the Group’s climate and environmental governance. See Chapter 1 “Responsible Governance” for the detailed structure. The dual-carbon goals working group is mainly responsible for supervising the emission reduction of various departments to assist the Group to achieve the dual-carbon goals; the methane emission control group is responsible for various methane emission reduction work related to the Group.

In order to integrate environmental protection, health and safety factors into various business areas, the Group has formulated the China Gas EHS Management System Work Guidelines and China Gas Environmental and Social Management System with reference to the ISO 14001 standard. All business units and subsidiaries are required to implement relevant policies. In addition, with increasing influence from the climate change, the Group formulated the Climate Change Policy accordingly, hoping to make use of advanced methods to mitigate climate change by identifying and dealing with climate related risks and opportunities.

In addition, the Group has developed its *Environmental and Social Management System* in accordance with the *Safeguard Policy Statement* of the Asian Development Bank and the relevant applicable laws and regulations, which includes the following key elements:

1. Biodiversity Conservation

- To avoid, minimise, or mitigate potentially adverse impacts and risks on natural habitats, critical habitats, protected areas and biodiversity. If these actions fail, as a last resort, China Gas will propose compensatory measures, such as biodiversity offset, to achieve a net gain or no net loss of the affected biodiversity.

3. GREEN ENVIRONMENT

2. Tangible and Intangible Cultural Resources Protection

- To avoid significant damage to tangible and intangible cultural resources during the project site selection and design processes.

3. Pollution Prevention

- To apply pollution prevention and control technologies and practices consistent with internationally recognised standards throughout the design, construction, and operation of the project, including:
 - Minimise or control the concentration and load of pollutants, and adopt resource-conserving and energy-efficient measures in accordance with clean production principles during project implementation
 - Minimise or control the generation of hazardous and non-hazardous wastes and the release of hazardous materials resulting from project activities
 - Avoid the manufacture, trade, and use of hazardous substances and materials subject to international bans or phaseouts
 - Promote the reduction of project-related anthropogenic greenhouse gas emissions in a manner appropriate to the nature and scale of impacts of projects

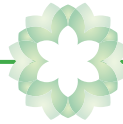
4. Implementing Green Construction Practice

- **Measure 1: Minimise environmental impact during construction — installed leak alarms, remote shut-offs, enhanced material application standards, on-site painting and fire protection**
 - We have added the requirement to install the leak alarm system for all users, additionally requiring users at high floors to use automatic solenoid valves linkage leakage alarms and remote cut-offs at the outlet pipes to reduce leakage and increase safety.
 - Starting from March 2022, all steel pipes of the whole Group used factory pre-coated anti-corrosion layer steel pipes. Pre-coated steel pipes can be mass-produced in factories, reducing painting work on the construction site and decreasing the emission of volatile organic compounds (VOCs) pollutants on the construction site, thus ensuring the environmental standard during the construction site operations.

3. GREEN ENVIRONMENT



- **Measure 2: Switch to new materials or processes to reduce environmental impact**



Case 1: Application of thin-wall stainless steel pipes

China Gas extensively adopted thin-wall stainless steel pipes in rural coal-to-gas and some city gas project companies low-pressure pipe construction. Compared with the traditional galvanized pipe, the wall thickness of this pipe is reduced by an average of 53%, about 1 mm to 1.5 mm, and the weight is reduced by an average of 55%. At the same time, the welding procedure is no longer needed and the use of welding consumables is reduced. We only need to use special clamps for pipe connection on site, thus reducing the amount of steel used and improving the environmental friendliness. By the end of fiscal 2021/22, we have installed the thin-wall stainless steel pipes in 379,400 households in Hebei and 34,000 in Shandong Province.

5. Advocating Green Office Operations

- To promote a paperless office: Enhance the electronic working platform, promote double-sided printing to reduce paper wastage
- To adjust and control air conditioning: Reduce office electricity usage
- To switch to regular use of video conferencing: Reduce business travel

3. GREEN ENVIRONMENT

6. Strengthening the Promotion of Environmental Protection

- To actively carry out environmental protection promotional activities within the Group to increase employees' green and environmental protection awareness, and encourage them to adopt a low-carbon lifestyle
- To actively build a communication platform with stakeholders such as government entities, media and the public to disseminate environmental protection concepts

3.2 ENVIRONMENTAL RISK IDENTIFICATION AND CONTROL

We realise that climate change will bring challenges to our business operations, and therefore we are determined to implement various measures to mitigate and adapt to the impacts of climate change. We actively make contributions to the sustainable development of the environment, hoping to make use of advanced methods to mitigate climate change by identifying and dealing with climate related risks and opportunities. In May 2021, the Group issued and implemented the *Climate Change Policy*, pursuant to which, under the major premise of compliance with the requirements of all applicable laws and regulations, the Group undertakes to evaluate the risks and opportunities of climate change with reference to international and local certified standards, incorporate various policies and measures of the industry in response to climate change into the Group's operations and services to the extent possible, strengthen the ability to respond to the impact of climate change and natural disasters, identify, evaluate and mitigate social crisis caused by climate-related entities and transition risks. The Group will evaluate this policy on a yearly basis and update it in due course. The evaluation results will be submitted to the Safety Management Committee and the Sustainable Development Committee for timely response.

In June 2021, in response to disasters such as extreme heat, heavy rain, lightning and typhoon, China Gas issued the *Notice on Strengthening Safety Control of Production and Operation in Summer. "Five prevention works"*, including "prevention of extreme heat, heat stroke, lightning, flooding and typhoon", are highly valued in each of the regions, economic management groups and project companies. We strived to implement various rules and regulations such as the accountable safety production, actively carried out self-examination, self-correction and hidden danger investigation, focusing on eliminating hidden dangers in high temperature prevention, heat stroke prevention, lightning prevention, flooding prevention and typhoon prevention. Each of the companies would take preemptive measures to prevent heatstroke and cool down in hot weather, adjust work and rest time based on temperature changes, prevent employees from heatstroke and prevent employees from being injured during work (especially for outdoor workers). We have enhanced the monitoring of lightning, typhoons and rainstorms, taken anti-static measures in flammable and explosive premises, equipment and facilities. During typhoons and rainstorms, staff should be arranged to work indoor, if possible, to prevent safety accidents such as collapse, cave-in and electric shocks.

3. GREEN ENVIRONMENT



In addition, in October 2021, in response to the cold weather in winter, China Gas issued the *Notice on Strengthening the Management of Winter Production and Operation*, and require to strengthen the investigation of four types of users and hidden dangers of indoor management. We will improve the success rate of home safety checks and fully realise data handling and the use of the safety checks APP. At the same time, we will commit to gas pipeline network pressure preservation and odourant-adding and leak detection. The Company strengthened the management of hotline reception and increased the training of hotline reception. The Company will strengthen emergency rescue management and improve emergency response capabilities, as well as organise winter safety publicity activities for users, and strengthen the rectification of hidden dangers.

3.2.1 Identification of climate-related risks and opportunities

China Gas has commenced climate risk identification this year, starting with a review of the business model the Company and gathering information on existing policies and the latest market trends. Transition and physical risks are identified and analysed with reference to the recommendations of classification of climate-related risks under the Task Force on Climate-related Financial Disclosures (TCFD). Among which, transition risks include policy and legal risk and market risk, while physical risks include extreme precipitation, river flooding, extreme heat, etc. The possibility and severity of physical risks faced by the places of business of China Gas are analysed through climate assessment tools, while the degree of risk is determined based on the risk matrix.

We assess the level of climate risk based on the probability of a hazard event occurring and the extent to which it will be affected by such an event. This risk identification assessment is analysed at a national level. In order to comply with national policy and to provide sufficient time for China Gas to prepare a response, we have used the 'pessimistic' scenario RCP 8.5 in our assessment tool to project the climate in the medium term future (2050 or 2041–2060). This represents a relatively conservative analysis representing a steady rise in global carbon emissions in a segmented society with uneven economic development. The risks analysed include physical risks such as acute climatic events like typhoons, heavy rains and river flooding, as well as chronic climatic events such as extreme heat. The level of risks are as follows:

Physical Risk	East China Region	Northeast China Region	North China Region	Northwest Region	Central China Region	Southwest Region	South China Region
River Flooding	Very High	Very High	Very High	Very High	Very High	Very High	Very High
Coastal Flooding	Very High	Very High	Very High	Very Low	Very Low	Very Low	Very High
Extreme Rainfall	High	Average	Average	Low	Average	High	High
Strong Wind/ Typhoon	Very High	Average	Low	Low	Average	Low	Very High
Extreme Heat	Average	Low	High	High	Average	Low	Average
Landslides and Mudslides	Average	Very Low	Low	Low	High	Very High	High
Drought	Very Low	Very Low	Very Low	Low	Very Low	Low	Very Low
Sea Level Rise	At Risk	At Risk	At Risk	No Risk	No Risk	No Risk	At Risk
Temperature rise	Very High	Low	Average	Average	Very High	Very Low	High

3. GREEN ENVIRONMENT

We have also identified a number of transition risks and have rated each risk:

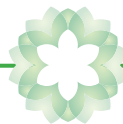
Transition Risk	Description of Impact	Risk Rating
Policy and Legal Risk	<p>The country will restrict the use of fossil fuels in its operations, requiring further restructuring of the energy mix for production, the development of renewable energy sources and the opportunity to match more aggressive carbon intensity targets with announcements of higher carbon pricing, tightening of carbon market quotas or carbon taxes, increasing operating costs and strategic risks.</p> <p>The tightening of various laws and regulations will increase China Gas' data monitoring and disclosure costs, creating compliance risks for the Group in relation to information disclosure.</p> <p>The Group needs to effectively manage the performance of its business environment and ensure relevant compliance, otherwise there may be litigation risk.</p>	High
Market Risk	<p>With the central government setting the "dual carbon" targets, strengthening and improving regulations on emissions reduction and providing substantial subsidies for the use of renewable energy, the market and customers are increasingly looking for green economy and electrification products.</p>	Average
Reputational Risk	<p>The potential damage to a company's reputation could have a knock-on effect through customer brand perception, affecting retention of existing customers and sales to new customers as green preferences quickly emerge.</p>	Average

China Gas will take into account the results of the sub-analysis and incorporate climate precautionary measures in its daily business operations, incorporating elements to address climate risks in each of its operating locations. For example, incorporating flood and wind protection measures into buildings and considering the climate risk rating of the site prior to any future land acquisition. As climate change is a relatively new and evolving issue, China Gas will also build internal capacity to address climate risks and adopt a top-down approach to enhance the understanding and awareness of climate change among employees at all levels. The approach includes climate risks and the appointment of risk bearers for climate risks, with an alert system and a climate risk management and emergency response programme. Building on this climate risk identification exercise, China Gas will continue to work with third party experts in climate change management to manage climate-related risks and establish a more comprehensive management strategy. China Gas aims to undergo descriptive scenario analysis in the near future, with results of which can provide potential impacts and descriptive information on major climate risks in the short, medium and long term to help business units incorporate climate change impacts in their review of business development strategies.



3.2.2 Climate Risk Management

In terms of climate risk management, China Gas utilises risk control and risk transfer. Specific measures include: using meteorological information to identify the climate risks, and taking effective measures to reduce economic losses, shifting the cost of climate risk to insurance companies. Climate derivatives are also used to hedge climate risks by making flexible arrangement in relation to weather changes and payment conditions in contracts.



Case 1: Measures to prevent climate risks in production operations

In July 2021, the *Notice on Flooding Prevention and Control by Project Companies in Henan and Surrounding Areas* was issued by China Gas in response to floods in Henan. The situation of flood control and supply security is very severe, requiring Central China and North China Regional Management Centers to quickly deploy flooding prevention and control work. We adjusted the emergency response to flooding prevention, control and established a flooding prevention working group. We united the scheduling and carried out rapid deployment of emergency rescue. We carried out comprehensive inspection, key monitoring and especially comprehensive inspection of key areas of gas facilities. We carried out key inspections on pipeline routes, overhead pipelines across rivers, pressure regulating facilities in areas prone to water accumulation and control valves on both sides of pipelines crossing river embankments in their respective areas, and then rectified the problems in time and take precautions based on the details. We have carried out careful deployment and tight coordination within the Company to fully implement various flooding prevention work. We strictly implemented on-duty shift and insisted on building a strong security line. In strict accordance with the deployment and requirements of flooding prevention and control, we implemented flooding prevention responsibilities at all levels, ensured emergency communication, strengthened 24-hour emergency duty and refined various flooding prevention and control measures to each job position.

3. GREEN ENVIRONMENT



Case 2: Formulate “North China Region Emergency Supply Plan”

1. In response to the severe supply guarantee in North China region, we have specifically formulated the North China Region Emergency Supply Guarantee Plan to guide each management group to formulate its own emergency supply guarantee plan based on its own needs and characteristics.
2. The North China regional gas source dispatching team has been established, and the members are on shift 24 hours a day to keep abreast of the gas source supply condition in the whole region. The team maintains close contact with Sinopec Tianfen Dispatching Center, PetroChina Beijing Dispatching Center and National Pipeline Network Dispatching Center, and make overall arrangements for the dispatching centers of economic and management groups in Cangzhou, Hengshui, Xingtai, Baoding, Tianjin, etc.
3. The Group’s Natural Gas Dispatching Center has established a dispatching team to open the upwards and downwards channels through Hongda Trading and Beijing Fuhua*, to ensure supply to the replacement of coal with gas in Cangzhou, Hengshui, Xingtai, Baoding, Tianjin and other regions in North China.
4. We strengthened the safety management during the “dual festival” period, formulated the “dual festival” safety supply guarantee plan in advance, and performed emergency drills. We focused on the investigation of potential safety hazards in Zhangjiakou in winter, and focused on eliminating problems such as “ice blockage”, “three drains” potential hazards of the surge tank, and third-party construction hazards. We dispatched almost 100 core business staff from various project companies in the North China region to provide targeted support to Zhangjiakou. During the period of Chinese New Year, almost 300 employees from the North China region were arranged on duty to ensure the smooth and stable gas supply in Zhangjiakou during the Winter Olympics.



3.3 ENVIRONMENTAL TARGET AND MANAGEMENT SYSTEM

3.3.1 Environmental Goals



Carbon emission goal

Greenhouse gas emissions intensity to fall by over 50% in 2030 compared to 2021. Reaching carbon peak by 2030 carbon neutrality by 2050.



Energy efficiency goal

Continued decline in energy use intensity.



Water efficiency goal

Reduction of water consumption by 16%, with 2020 as the baseline year and 2025 as the target year.



Waste reduction goal

Improve the process of waste data collection and integration by the following financial year.

3.3.2 China Gas Carbon Neutrality Roadmap

The carbon peak and carbon neutrality strategy has brought new opportunities for the long-term development of the gas industry. The Group will seize the opportunities of business development brought by the dual carbon targets and rapidly promote the Group's dual carbon related business in green low carbon technology, energy saving and carbon efficiency reduction, and transformation to green and low carbon energy. To cope with the national targets of carbon peaking by 2030 and carbon neutrality by 2060, the Group commissioned a third-party consultant to meet the Group's carbon neutrality target and has started the deployment and planning of carbon emission reduction. A detailed mapping of its carbon emissions against reputable international and domestic standards was carried out, and quantifiable and implementable carbon reduction plans and targets were set. After adopting the "financial control" method to define the organisational boundaries of China Gas' carbon accounting, the consultant team worked with China Gas' internal carbon neutral working group, and proposed the targets for each phase of the carbon neutrality roadmap and carbon emission reduction roadmap of China Gas. This establishes the development path and space for the Group in respect of the national dual carbon targets, conducts carbon emission accounting and other related works for the business it operates, strengthens the carbon reduction efforts of each business, and aims to achieve carbon neutrality by 2050 ahead of the national target, achieving carbon neutrality and meeting national targets ahead of schedule.

3. GREEN ENVIRONMENT

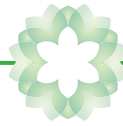
Seven major actions to reduce carbon emission

Green Energy	Energy Saving Innovations	Low Carbon Logistics	Smart Operations
We will actively promote the integration and application of green energy sources such as photovoltaic, wind power, hydrogen and biomass in business scenarios, gradually building a clean, low-carbon, safe and efficient energy structure to support our business development in a high quality and green manner.	The introduction of innovative technologies and the promotion of energy efficiency and consumption reduction are important steps towards achieving the goal of achieving peak carbon neutrality. We take a comprehensive look at our business operations, exploring the potential for energy saving and carbon reduction in all aspects, and promote energy efficiency through energy stepping and multi-energy coupling, replacement of high energy-consuming facilities and equipment, and energy recycling to reduce carbon emissions at source.	We build a smart logistics system to optimize supply chain and vehicle dispatch as well as reduce carbon emissions caused by empty load of vehicles. At the same time, we take safety as the premise and maximize the application of clean energy vehicles such as electric vehicles and hydrogen fuel vehicles to create low-carbon logistics.	We use modern information technologies such as GIS, IoT, cloud computing, big data and AI as the basis for IoT sensing to sense the whole energy network, drive intelligent decisions and dispatch with data, improve operational efficiency and reduce carbon emissions during operation.

Methane Emission Control	Net Zero Pathway	Green Ecosystem
Methane emission control is an important direction for reducing emissions from city gas operations. We promote the renovation of old pipeline networks, optimise engineering techniques and production operations, strengthen the monitoring of methane control and emissions from gas pipelines, storage and transportation facilities, and explore the creation of a smart city gas network operation system to reduce the greenhouse effect caused by methane emissions.	We explore the development of CCUS demonstration projects and promote the research and application of microalgae carbon sequestration technology. We focus on the layout of CCER development projects for renewable energy, biomass and forestry carbon sinks to achieve carbon offsets. We will build a carbon asset management system, monitor the implementation of emission reduction strategies and continuously improve carbon management.	We extend our carbon reduction initiatives up and down the industrial chain and actively create a green development ecosystem. We promote the Coal-to-Gas project and exploring the blending of natural gas with hydrogen in an effort to provide cleaner energy for our customers. We integrate green and low-carbon into procurement requirements, driving upstream suppliers to enhance their green development capabilities; We rely on digital technology to create low (zero) carbon parks and empower low-carbon industrial development.



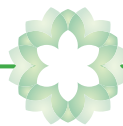
Deployment and Planning of the Group's Dual Carbon Goals



Case 1: Commit to Dual Carbon Goals and formulate the China Gas Carbon Neutrality Roadmap

As a multi-regional integrated energy supply and service company, China Gas is aware of its social responsibility to achieve the national goal of “Carbon Peak” and “Carbon Neutrality” as well as to promote low-carbon development in society. Therefore, we are determined to leverage our advantages in technology and resources, to set measurable and feasible carbon reduction plans and targets. We are committed to achieving “Carbon Peak” by 2030 and “Carbon Neutrality” in our operations by 2050.

To this end, this year we have established the “Dual Carbon” goals project team full of experienced technical talents, so that our carbon emissions will be managed systematically. We have studied and scrutinized our carbon emissions in accordance with authoritative international and domestic standards and formulated the China Gas Carbon Neutrality Roadmap within our system in line with the business development. We are committed to gradually implementing carbon reduction measures and minimising carbon emissions from our own operations.



Case 2: Join the Oil and Gas Methane Partnership (“OGMP”)

China Gas Group joined the Oil and Gas Methane Partnership (“OGMP”) operated by the United Nations Environment Programme in June 2021. The OGMP is the only methane-dedicated global initiative raised by multiple stakeholders, and the proposed “OGMP 2.0 Framework” is considered the best existing reporting industry framework. China Gas is the first Chinese member company of the OGMP.

China Gas has conducted a series of methane emission reduction studies, and has conducted technical exchanges with the OGMP Technical Committee, EDF, the Ministry of Ecology and Environment, PetroChina, and Harbin Institute of Technology, undergoing a series of methane reduction research. We joined the OGMP Steering Committee and OGMP Member Mirror Group, and regularly review and improve relevant data with the OGMP Technical Committee. By participating in technical exchanges of domestic and international real measurement studies, we master the cutting-edge technology of methane emission real measurement.

3. GREEN ENVIRONMENT



Based on the OGMP 2.0 framework report, and taking the emission factors of European and American gas facilities into consideration, China Gas has initially calculated China Gas' methane emissions and identified the key methane emission sources of its operating assets, deploying a number of facility measurement studies on main lines, service lines, pressure regulating and metering stations, LNG re-gasification stations, customer meters, long-distance pipelines and sub-transmission stations. China Gas aims to achieve the standards for a Gold of OGMP by completing the actual measurement studies for its own operating assets within three years. We are actively working on the research and promotion of methane emission control standards, and are gradually building a database of emission factors for domestic City gas systems, and continuously improving the transparency of the greenhouse gas methane emission reporting mechanisms of our Group and the industry as well. At the same time, we have incorporated methane emission control into our production and operation management system, established the regulatory body, developed a series of systems and measures, and carried out a number of methane emission reduction initiatives to gradually reduce the intensity of methane emissions and ensure the achievement of emission reduction targets.

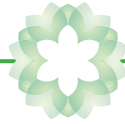


Case 3: Join the Methane Emission Control Alliance of Chinese Oil and Gas Enterprises

On 30 December 2021, China Gas became a member of the Methane Emission Control Alliance of Chinese Oil and Gas Enterprises, dedicated to promoting the exchange of technology and experience in the field of methane emission control among members of the Alliance and between the Alliance and other enterprises at home and abroad, actively carrying out research and promotion of methane emission control-related standards, promoting the standardization and transparency of emission data in the industry, sharing the excellent practices of methane control of Chinese oil and gas enterprises, and driving the industry to jointly reduce methane emissions.

China Gas actively participates in the member meetings of the Alliance, strengthens technical exchanges with peers on methane emission calculation, testing and optimization in all segments of the oil and gas industry chain, participates in the applicability assessment and field application of methane emission reduction technologies, promotes the establishment of methane accounting methods based on field measurements, and actively participates in the preparation of annual work reports on methane emission control for Chinese oil and gas enterprises.

In the future, China Gas will strengthen strategic cooperation and technical exchanges with different organisations to propel with others the methane emission control of the oil and gas industry of the country to a new height, making our contribution to China's active participation in global environment governance and a harmonious balance between man and nature.



Case 4: Establish the Carbon Neutrality Research Institute and City Carbon Services Center

In order to implement General Secretary Xi Jinping's vision on the carbon peak and carbon neutrality of the country, China Gas and Shanghai Environment and Energy Exchange established the Carbon Neutrality Research Institute to build a carbon neutral ecosystem and consulting service platform for the gas industry. The Institute explores innovative service models with respect to carbon emission database of gas industry, construction and certification of carbon management system of gas enterprises, construction of carbon emission life-cycle database, carbon pricing transmission mechanism and carbon market capacity building. Externally, we carry out various forms of cooperation (such as verification, consulting and research services) and provide data support services such as carbon inventory, carbon footprint and carbon labelling for downstream gas users. We also provide carbon management system construction and certification services, carbon neutral capacity building services, white paper information services and carbon emission reduction technology and project development services for governments and enterprises, and explore carbon finance business innovation in cooperation with financial institutions. It aims to promote the low-carbon development of the gas industry under the Dual-Carbon Targets and improve the industry's ability to cope with global carbon trade barriers.



Case 5: Cooperate with universities and enterprises on methane emission reduction studies

China Gas Group signed agreements with Harbin Institute of Technology, Hebei Normal University and CCCC Gas & Heat Research and Design Institute Co., Ltd on cooperation in terms of industry, academia and research. China Gas Group has cooperated with universities and enterprises in methane emission reduction of city gas first, comprehensively reviewed the current development of methane emission factors databases of city gas at home and abroad, analyzed international methane emission reduction technology standards, summarized both domestic and foreign research technology solutions for methane emission field measurement, discussed the research equipment and devices for methane field measurement, and obtained a series of technical results. The parties intend to continue to cooperate in the research of methane emission field measurement and establishment of technical standards in the field of city gas in China to promote the development of methane emission reduction in the gas industry.

3. GREEN ENVIRONMENT



Case 6: Ongoing research and development of carbon capture, utilization and storage (CCUS) projects

Carbon capture, utilization and storage (CCUS) is one of the key technologies to combat global climate change and is highly valued by countries around the world. China Gas will combine the carbon emission characteristics of the main energy-consuming scenarios, explore the compatibility and integration and optimisation of technology units in the whole chain of capture, transportation, storage and utilisation, break through the technical bottleneck related to the whole process engineering of CCUS, and open up the whole industrial chain from carbon capture to carbon utilisation. We are committed to actively exploring CCUS projects, focusing on the development of microalgae carbon sequestration technology and its downstream microalgae biomass utilisation technology, with the aim of achieving carbon removal using CCUS technology in the coming years.



Case 7: Establishing a carbon management center in the future

1. The purpose for establishing a carbon management center in the future

In order to help China achieve the “dual carbon” goal as soon as possible, and at the same time accelerate the upgrading and transformation of our own business, China Gas is currently actively exploring various business scenarios related to energy conservation and carbon reduction. It is also planning to cooperate with local government investment platforms in key domestic regions to establish a carbon management service centre, in order to provide carbon asset management and comprehensive energy management services for key industries and corporate customers in energy conservation and carbon reduction. The carbon management service centre is gradually deployed and promoted on a national scale.

3. GREEN ENVIRONMENT



Specifically, there are five key goals regarding the establishment of a carbon management service centre by China Gas as follows:

- 1) China Gas has established a strategic partnership with Shanghai Environment Energy Exchange. It can provide carbon management system certification services for key industry customers (mainly targeting high-emission enterprises and foreign trade enterprises) through the carbon management service center, engage in carbon footprint verification business and provide regular on-the-job training for the employees of the Company.
- 2) We can undertake carbon neutrality route planning and carbon neutrality service projects through the carbon management service centre, assist customers in building zero (low) carbon parks, introduce green electricity trading and digital energy system of source network load storage and other multi-integrated services, and help customers achieve energy efficiency improvement and carbon neutrality.
- 3) We can provide customers with digital and modular technical solutions through the carbon management service centre, including providing carbon accounting data management system, carbon footprint calculation system, green product certification, low-carbon roadmap scheme design and green supply chain services, and scientific, systematic and intelligent management of carbon emissions and carbon footprint throughout the life cycle.
- 4) We can explore carbon services in the green finance segment through the carbon management service centre. The service centre is responsible for undertaking green carbon management projects, and connecting financial services according to the corresponding situation, and from the perspective of green finance and supply chain finance, helping enterprises apply for green financing loans, reducing the financing costs of enterprises and assisting enterprises in energy conservation and emission reduction.
- 5) We can carry out in-depth research on cutting-edge technologies and topics through the carbon management service centre (e.g. carry out application research in the fields of hydrogen production from renewable energy, efficient utilization of industrial by-product hydrogen, hydrogen storage and transportation, hydrogen mixing with natural gas, distributed cogeneration, hydrogen energy vehicles and ships, and research on key technologies of distributed new energy generation, microgrid and energy storage), promote and support the implementation of China Gas projects in photovoltaic, energy storage, power system energy efficiency improvement, dual-carbon digital platform, zero (low) carbon parks, comprehensive energy center, green finance etc.

3. GREEN ENVIRONMENT



2. The roadmap of the carbon management centre

Currently, the roadmap of the carbon management service centre is divided into the following three phases:

Phase 1: Establish a carbon management service centre in cooperation with local government investment platforms in the Greater Bay Area and the Yangtze River Delta, explore feasible business models and carry out iterative innovations, to seize the policy high ground and promote the development and construction of low-carbon and zero-carbon projects.

Phase 2: Build demonstration projects and cases in the region, form mature digital dual-carbon and energy-saving and carbon reduction technology solutions, and gradually complete the iterative upgrade of the carbon management service centre. At the same time, actively carry out research on strategic consulting, standard formulation, technology research and development, scientific and technological research, industrialisation demonstration and other themes, to promote technology transfer and commercial application of scientific and technological achievements, and realise the rapid industrialisation of innovation results.

Phase 3: Build a dual-carbon digital platform, achieve market expansion and profitable growth of digital dual carbon services, digital twin cities, smart transportation, smart buildings, energy-saving and carbon-reduction technology services and green financial services, complete the expansion from carbon asset development and management to green power trading, carbon trading and carbon finance, create a comprehensive carbon management solution covering the entire industry chain and life cycle, and contribute to the realisation of the national carbon peak and carbon neutrality goals.

3. GREEN ENVIRONMENT



3.3.3 Climate Change and Greenhouse Gas Emissions Management

Greenhouse Gas Monitoring and Control

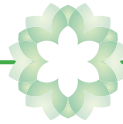
In order to strengthen the monitoring and control of greenhouse gases, the Group estimated the greenhouse gas emissions of its projects with reference to HKEX's Appendix 2: Reporting Guidance on Environmental KPIs. Greenhouse gas emissions generated during the operation of the Group included consumption of fossil fuels for operations, fugitive emissions released during transmission and transportation of natural gas and LPG and non-renewable electricity consumption. The Group will continue to monitor greenhouse gas emission data and review it annually. At the same time, the Group will establish a robust management plan in the future to reduce greenhouse gas emissions, strengthen the management of fossil fuel and energy consumption and enhance the effectiveness of emissions reduction.

Name of indicator	Unit	Sources	FY2021/22	FY2020/21
Scope 1: Direct emissions of greenhouse gas ("GHG") (internal use)	tCO ₂ e	Consumption of fossil fuels for operations, fugitive emissions released during transmission and transportation of natural gas and LPG	73,153.11	72,176.26
Scope 1: Direct emissions of GHG (integrated energy business)	tCO ₂ e	Consumption of energy from project companies on distributed energy resources business for external heating	139,664.05	140,628.47
Scope 2: Indirect emissions of GHG	tCO ₂ e	Consumption of non-renewable electricity for operations	90,430.27	75,513.15
Scope 3: Other indirect emissions of GHG	tCO ₂ e	Employee air travel	23.76	535.54
Total GHG emissions	tCO ₂ e		303,271.18	288,853.42
Total GHG emissions (excluding integrated energy business)	tCO ₂ e		163,607.13	148,224.95
GHG intensity	tCO ₂ e/GJ of energy consumed		0.20	0.22
GHG intensity (excluding integrated energy business)	tCO ₂ e/GJ of energy consumed		0.11	0.11

3. GREEN ENVIRONMENT

Greenhouse gas emission control measures implemented by China Gas are as follows:

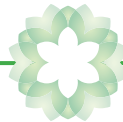
- *Measure 1: "Replacement of Coal with Gas" Projects in rural villages*



Case 1: Participate in Air Pollution Prevention and Control Action Plan assist in reducing emissions in China through replacement of coal with gas

In recent years, China Gas has actively responded to the national call for air pollution control, helped to win the "Battle to Defend the Blue Sky", and spared no efforts to carry out the "replacement of coal with gas" project. We have effectively improved the air quality in various regions and accelerated the construction of ancillary rural infrastructure. By the end of March 2022, The rural replacement of coal with gas reconstruction project has been carried out on a large scale in Tianjin Municipality, Hebei Province, Shanxi Province, Shandong Province, Henan Province and Shaanxi Province, including the operation for 4.55 million households and an addition of 520,000 households in 2021. It results in an annual reduction of 9.03 million tons of carbon dioxide, 19,300 tons of sulfur dioxide, monoxide 716,600 tons of carbon and 28,400 tons of particulate matter.

- *Measure 2: "Replacement of Coal with Gas" Projects for High Energy Consumption Industries*



Case 1: Industrial Coal-to-Gas Projects

In recent years, local governments have proposed clean energy alternatives for industrial coal-fired boilers. China Gas has also been actively exploring the energy transition market for high energy consumption industries. In FY2021/22, China Gas carried out the following replacement of coal with gas projects:

Project	Estimated gas consumption	Progress in FY2021/22
Qingyuan Guanxing Ceramic	Gas consumption of 21.23 million m ³ in FY2021	Completed and in operation
Zhaoqing Jinshunlong Ceramic "replacement of coal with gas"	Estimated gas consumption of 45 million m ³ /year	Completed and in operation
Zhaoqing Donghui Ceramic "replacement of coal with gas"	Estimated gas consumption of 45 million m ³ /year	Completed and in operation
Guangdong Qiangqiang Ceramic Industry "replacement of coal with gas"	Estimated gas consumption of 60 million m ³ /year	Station certificate in process

3. GREEN ENVIRONMENT



Case 2: Replacement of coal with gas for industrial boilers

In recent years, in order to improve air quality and ensure the healthy lives of the people, China Gas has vigorously promoted industrial replacement of coal with gas projects. Regarding the technological transformation of the gas industry, China Gas has carried out technical research, development and discussion on replacement of coal with gas and replacement of oil with gas in ceramic, glass, non-ferrous metals, paper, cast iron, textile and other industries. It has also prepared the *China Gas Industrial User Classification Technical Guidelines for Replacement of Coal with Gas*, *Technical Guidelines for Selection of Natural Gas Heating Equipment for Industry and Animal Husbandry*, *Technical Guidelines for Market Research of Natural Gas Melting Furnace*, *Technical Transformation Manual for Replacement of Oil with Gas in Asphalt Mixing Plant*, *Technical Guidelines for Natural Gas Direct Combustion Drying in the Setting Process of Printing and Dyeing Enterprises*, *Technical Guidelines for Replacement of Coal with Gas in Synthetic Leather Production and Drying Section*, and *Technical Guidelines for the Application of Natural Gas Direct Combustion in the Washing Industry*, in order to guide the market development of China Gas replacement of coal with gas and replacement of oil with gas projects.

We carried out the replacement of oil with gas project in the asphalt mixing plant of a company in Sanya. Through investigation and research of the reasons for the high energy consumption, we changed the oil burner to burning natural gas, and adopted technical reform measures such as replacing the burner air duct components, adding new gas nozzle components, replacing the swirl plate and adjusting the combustion air volume. The energy-saving efficiency increased by 45.8%, resulting in good economic benefits.

Moreover, on the basis of replacement of coal with gas, we cooperated with third parties to carry out energy conservation and emission reduction work to reduce emissions and save energy for users. In 2021, we piloted direct-fired technology in Zhangzhou, and transformed the four tonnes gas-fired steam boiler of Puma Food* (浦美食品) in Zhangzhou City into a gas-fired direct-fired model. The energy saving rate reached 17% after the transformation.

3. GREEN ENVIRONMENT

- *Measure 3: Promoting the transformation of the gas pipeline network to reduce methane emissions during operation*

China Gas has established a high standard methane emissions regulatory framework to regulate and control methane emissions in scenarios such as pipeline maintenance releases, pipeline venting and blowing, and third party damage to pipeline releases. We have gradually established a methane monitoring, reporting and verification system during our operations to achieve methane emission control through various measures. Through the mentioned means, China Gas expects to achieve up to 16% methane emission reductions per year.

Protection of gas pipeline network measures include:

- Strengthen the inspection of pipelines and ancillary facilities to prevent the facilities from being damaged by third parties and resultant leakage;
- Strengthen planned maintenance of stations and pipeline network equipment and facilities to reduce leakage;
- Strengthen the effective management of the cathodic protection system of steel pipelines, supervise enterprises to carry out anti-corrosion coating inspection, and reduce pipeline leakage due to corrosion;
- Strengthen the periodic leak detection of the project companies, and use the laser leak inspection vehicle to proactively discover and handle leaks in pipelines and related facilities to reduce leakage;
- Require indirect replacement in the process of pipeline connection and maintenance to reduce methane emissions;
- Strengthen the renovation of old pipelines to ensure the intrinsic safety of pipelines and ancillary equipment and reduce gas leakage;
- Install remote leak detection devices on old pipelines, pipeline sections that are prone to leakage and valves for 24-hour monitoring, and handle the leakage once it happens to reduce methane leakage.
- By promoting anti-corrosion layer detection, cathodic protection renovation and vigorously promoting the renovation of old cast iron pipe network, gas leakage were effectively reduced.

- *Measure 4: Developing Clean Energy*



Case 1: Gas-fired boiler project of Qingdao China Gas

The 40 tonnes gas-fired boiler project of Qingdao China Gas Mingyue* (青島中燃明月) successfully launched in FY2021/22, marking that Qingdao China Gas Mingyue* officially entered a new era of clean energy heating. This project implemented China Gas and China Gas Energy's business ideas of "revolutionising the old and making new ones with real hard effort", to comprehensively build a new pattern of high-quality development of the Company. This project is an important path towards achieving the new goal of the strategic development of "Extraordinary Leap in China Gas Mingyue", adhering to China Gas's concept of "One Family, One Heart, with One Goal, as One Team!" and "China Gas's Urban Heating, Let Love Be Warmer!", adding a more stable and cleaner heat source to the new areas in the West Coast, providing better services for residents, striving to carry out the "Three Hearts Project" to minimise the burden of the government, let the people feel warm, let customers rest assured, providing a green new engine for the conversion of old and new green kinetic energy, and contributing warm and new power to the development of the four new districts.



3. GREEN ENVIRONMENT



Case 2: LNG vehicles diesel-to-gas project

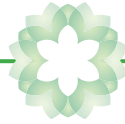
Since the State Council released the *Three-Year Action Plan on Defending the Blue Sky* in 2018 and the early implementation of the China VI Emission Standard for gas vehicles on 1 July 2019, domestic provinces and municipalities have accelerated the elimination of old diesel trucks and the automotive LNG market has experienced rapid development. Driven by policy and economic benefits, LNG vehicle ownership continues to increase, with an estimated CAGR of over 20% from 2017–2021.

China Gas continues to promote the use of natural gas for all types of heavy-duty trucks in the road transport sector. On one hand, we actively cooperate with partners in the automotive LNG industry chain, such as Shaanxi Automobile Group and CNOOC, to jointly promote the conversion of diesel heavy-duty trucks to gas. Furthermore, we will accelerate the investment and construction of LNG refuelling stations on national highways, provincial roads, important transport corridors in highway service areas and key industrial parks through various flexible modes of self-built, cooperation, mergers and acquisitions and franchising to promote the rapid development of domestic automotive LNG. From 2018–2021, China Gas accelerated the development of LNG refuelling station projects and invested in the construction of 24 LNG refuelling station projects for vehicles.

China Gas implemented the national green industry development strategy and took the lead in completing the first shore-based marine LNG refuelling station on the domestic river — Chongqing Fujiang Maliu Marine LNG Refuelling Station — and completed the construction of the Ezhou Sanjiang Port Marine LNG Refuelling Station in 2021 under the guidance of the Ministry of Transport and the Hubei Provincial Government, helping to improve the Yangtze River LNG vessel refuelling system and promoting the implementation of the “Yangtze River Protection” strategy. China Gas has actively promoted the policy of “priority crossing” for LNG-powered vessels and the advantages of LNG energy for ships to shipping enterprises such as China Yangtze Shipping Group and Chongqing Gangsheng Shipping. Furthermore, we have joined hands with shipowners, financial enterprises and upstream enterprises to explore business models for ship conversion, and promoted the introduction of subsidies by provincial and municipal governments for the ships’ conversion of ‘oil to gas’, and vigorously promoted the marine power plants’ conversion of ‘oil and gas’. In 2021, China Gas, together with CNOOC and China Yangtze Shipping Group, achieved the historic breakthrough of the first LNG-powered cargo ship in the domestic Yangtze River basin to carry gas across the dam from the Sichuan River section. As of December 2021, China Gas has invested in and operated over 100 automotive LNG refuelling station projects and two marine LNG refuelling terminals across China.

FY2021/22, China Gas achieved a gas sales volume of nearly 300 million cubic metres of LNG for vehicles and vessels, effectively controlling vehicle emissions in carbon dioxide, sulphur dioxide and nitrogen oxides by switching to clean energy for diesel trucks and vessels, and achieving greenhouse gas emission reductions of over 200,000 tonnes.

In addition, in line with the national policy of promoting new energy vehicles, China Gas is actively promoting the transformation of its existing automotive CNG refilling stations into charging stations, and as of December 2021, 28 CNG refilling stations have been added to the automotive charging business.



Case 3: Rebuilding gas refilling stations

The charging stations of Baoji GASBO Shilu refilling station and East Gate Chencang refilling station are rebuilt, constructing charging piles respectively, to be capable of charging 100 electric vehicles. In FY2021/22, the charging capacity was 465,000 kWh and 359,000 kWh respectively, amounting to 824,000 kWh in total. Therefore one kWh of electric vehicle charging reduces carbon emissions by 0.75 KG, and 824,000 kWh reduces carbon emissions by a total of 618 tonnes.

GHG Emissions Management

Climate change and extreme weather have far-reaching impacts on the homes we all depend on and on the existing socio-economic order. In order to actively combat climate change, General Secretary Xi Jinping proposed the goal of “reaching carbon peak by 2030 and carbon neutrality by 2060” in 2020. As climate change intensifies, the regulatory authorities will further increase the environmental information disclosure requirements of enterprises. Especially on risk management, enterprises are expected to disclose more management information and approaches on climate change risks. Enterprises are required to publicly disclose historical data such as energy consumption and carbon emissions in accordance with the listing rules and reporting guidelines formulated by the HKEX on an annual basis.

As a trans-regional, integrated energy supplier and service provider with a sense of social responsibility, China Gas is well aware of its responsibility to promote low-carbon transformation of the society. Therefore, being closely aligned with the *United Nations Framework Convention on Climate Change*, the *Paris Agreement* and other international conventions, as well as China’s 14th Five-Year Plan and *the Long-Range Objectives Through the Year 2035*, the *Measures for the Administration of Carbon Emissions Trading (for Trial Implementation)* and other policies and systems, China Gas has established a “dual carbon” goals project team to build a talent team with technical experience to systematically manage its own carbon emissions. During the first half of 2022, China Gas conducted a detailed survey of its own carbon emissions based on international and domestic authoritative standards, and formulated quantifiable and implementable carbon reduction plans and goals. China Gas undertakes to achieve carbon peak no later than 2030, and to achieve carbon neutrality in its own operations no later than 2050.

3. GREEN ENVIRONMENT

The Group has realised that the issue of global warming has become more severe, and thus actively responds to national environmental policies such as *Air Pollution Prevention and Control Action Plan*, *Three-Year Action Plan on Defending the Blue Sky* and *Promoting the Use of Clean Energy in Winter Heating in North China (2017–2021)*. China Gas has also formulated the *Climate Change Policy*, hoping to make use of advanced methods to mitigate climate change by identifying climate related risks and opportunities. For example, China Gas undertakes to evaluate the risks and opportunities of climate change with reference to international and local certified standards, identify, evaluate and mitigate social crises caused by climate-related entities and transition risks. The Group will evaluate this policy on a yearly basis. The evaluation results will be submitted to the Safety Management Committee and the Sustainable Development Committee for timely response. The Group is committed to becoming a quality provider of clean energy, gearing its efforts towards building a new ecosystem for China Gas's 4G (piped natural gas, CNG, LNG and LPG) energy network development. The Group strives to provide clean natural gas for town residents in northern China, while also engaging in development and application of technologies related to natural gas and LPG.

China Gas strictly controls air emissions of all operating projects and strictly implements emissions standards as stipulated in the *Integrated Emission Standard of Air Pollutants (GB 16297-1996)*, *Emission Standard of Air Pollutants for Boiler (GB 13271-2014)*, and *The Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution*.

Direct GHG emissions

	Unit	Direct air emissions in FY2021/22	Direct air emissions in FY2020/21
Nitrogen oxides (NO _x)	tonne	188.80	96.98
Sulphur dioxide (SO ₂)	tonne	20.67	11.84
Particulate matter (PM)	tonne	54.40	8.60

3.3.4 Use of Resources and Waste Management

In addition to complying with the *Solid Waste Pollution Prevention and Control Law of the PRC*, the Group aims to reduce waste and adopt materials that are in line with the principle of sustainability. The Group adopts a range of waste management measure to make good use of limited and precious resources, and minimise the environmental impacts in all aspects of value chain. We strictly manage the generation and disposal of waste in various projects, while closely monitoring the use of machinery oils and chemicals to minimise wastage and the generation of hazardous waste. Also, we continue to promote the *7S Office Environmental Management System* to advocate the principle of frugality and conservation, and build a resource-saving enterprise with employees. The Group has cooperated with Fuji-Xerox to implement the *Office Printing Improvement Programme* to actively promote printing improvement measures and encourage employees to change their printing habits, thereby reducing resource consumption and improving printing efficiency.



Material Consumption

Material	Unit	Consumption in FY2021/22	Consumption in FY2020/21
LPG cylinder	no.	400,397	331,185
Lubricant	tonne	44.23	35.40
Antifreeze oil	barrel	0	0
Paper product/cardboard	tonne	933.48	2,135.91
Plastic	tonne	23.66	537.77
Wood board	tonne	10.35	6.20
Styrofoam	tonne	340.98	393.13
Odourant	tonne	236.10	103.67

Waste Generation and Disposal

Material	Sources of waste	Disposal method	Unit	Consumption in FY2021/22	Consumption in FY2020/21
Non-hazardous waste	Mainly includes domestic waste from offices, non-hazardous parts produced during the manufacturing and maintenance of gas appliances, as well as a small amount of waste generated from cleaning of the gas transmission pipelines	Regular transportation and disposal by the environmental hygiene department after collection	tonne	22,820.10	21,555.99
Hazardous waste	Mainly includes waste machinery oil, hazardous and expired chemicals and hazardous metals from the waste circuit boards of gas appliances	Entrusting recycling units with relevant qualifications for compliant disposal	tonne	78.69	74.33

3. GREEN ENVIRONMENT



Case 1: Waste Management

All third party vehicles are required to have road transportation permits and construction waste disposal permits, and should follow the relevant national regulations when handling waste. Construction waste shall be transported to the landfills designated by government authorities, and the excess earthworks shall be transported to the sites designated by government or sold directly to third parties in need.

3.3.5 Water Usage

China Gas understands the importance of water resources to our business and the sustainable development of society. Facing the challenges of water shortage, we are committed to the operation policy of green development and natural environment protection by conducting ecological conservation actions in our operation. In addition, we adhere to the protection of water resources by reducing water consumption, enhancing water recycling, boosting water-use efficiency, as well as adopting water conservation measures in projects and office, including:

- Utilise recirculating water for water-consuming equipment such as natural gas compressors, ice machines and sprinkler systems to improve water efficiency;
- Install rainwater harvesting facilities to recycle water;
- Install water taps with automatic sensor in offices to reduce water consumption;
- Save water by recycling everyday non-potable water for use in lavatories.

For FY2022, the Group targets to control the water consumption quantity as follows while maintaining the quality and safety of water from various sources:

- For administrative office buildings: 70 litre per person per day;
- For office purpose of dispatch centre, station office buildings and customer service centre: 110 litre per person per day;
- Water refill standards for gas-fueled boilers: less than 3 tonnes per month;
- Water refill standards for firefighting pool: less than 5 tonnes per month.

During the Reporting Period, the Group's total amount of water consumption was 2,451,087.55 tonnes; the water consumption intensity was 1.63 kg/GJ of energy sold.

Water Consumption by Source	Unit	FY2021/22	FY2020/21
City and township water supply or other waterworks	tonne	2,206,849.20	2,013,625.06
Groundwater	tonne	110,882.96	74,738.12
Surface water	tonne	132,314.39	107,522.00
Seawater	tonne	1,041.00	0
Total	tonne	2,451,087.55	2,195,885.18

3. GREEN ENVIRONMENT



3.3.6 Water Pollution Prevention Measures

China Gas strictly abides by the *Law of the People's Republic of China on the Prevention and Control of Water Pollution*, the national guidelines and policies on the prevention and control of water pollution and the pollutant discharge permit management system, adheres to the principle of “focusing on source control, strengthening monitoring methods, adopting centralised wastewater treatment, and improving emergency response system”, and adopts active control to avoid potential water pollution caused by projects. Wastewater generated by the Group mainly includes wastewater produced from operations, cleaning of equipment and domestic sewage from employees. During the Reporting Period, the Group’s total wastewater discharge amount was 1,399,728.91 tonnes.

Wastewater Discharge by Destination	Unit	FY2021/22	FY2020/21
Municipal wastewater treatment plants or other wastewater treatment facilities	tonne	1,303,394.54	1,042,289.27
Groundwater	tonne	25,964.78	70,332.94
Surface water	tonne	70,279.59	160,027.14
Ocean	tonne	90.00	61,148.00
Total	tonne	1,399,728.91	1,333,797.35

- **Measure 1: Water pollution prevention measures**

- Strengthen the works on collection and treatment of wastewater, conduct regular inspections of wastewater treatment facilities and sewage tanks to prevent leakage of processed and domestic wastewater and prevent the pollution of surrounding water bodies.
- Install seepage control measures at the wastewater treatment facilities, sewage tanks and waste storage areas at gas stations. The rain and sewage diversion project is also implemented in gas stations.
- Set up emergency response plans for water sources to clarify the responsibilities of each department during emergencies. Once a water pollution accident occurs, emergency response plans should be initiated immediately to identify and terminate the sources of pollution, and investigate the scale and severity of the pollution.

3. GREEN ENVIRONMENT

3.3.7 Energy Usage Management

China Gas strictly abides by the Environmental Protection Law of the People's Republic of China and is committed to improving energy efficiency, saving energy and reducing emissions through technological innovation. Energy consumed in our daily operations and transportation mainly includes natural gas, LPG, petrol, diesel and purchased electricity.

In order to reduce the energy consumption of vehicles and support sustainable transportation, the Group formulated the *China Gas Vehicle Management System* to regulate the equipment, replacement and procurement management of various types of vehicles used by the subsidiaries of China Gas. When the Group purchases vehicles, economic vehicles with low emissions are prioritised.

During the Reporting Period, the Group's total direct energy consumption was 3,540,441.42 GJ, the energy intensity was 0.002 GJ/GJ of energy sold. During the Reporting Period, China Gas also actively carried out photovoltaic power generation projects, and provided photovoltaic power generation service to companies such as Hangzhou Hangfang Technology Co., Ltd., Liaoning Ever Foundry Co., Ltd. and Voestalpine Automotive Components Shenyang Co., Ltd., which generated a total of 337,440.80 kWh of electricity.

Direct Energy Consumption for FY2021/22

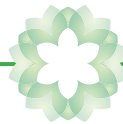
Fuel	Unit	Consumption in FY2021/22	Consumption in FY2020/21
Petrol	tonne	5,108.74	5,232.87
Natural gas for internal use	m ³	15,357,872.35	15,066,913.84
Natural gas for integrated energy business	m ³	69,049,694.42	69,526,500.00
Diesel	tonne	3,966.38	3,857.03
LPG	tonne	150.53	90.44
Heavy oil	tonne	1,334.15	1,614.39
Kerosene	tonne	0.30	5.59
Energy	Unit		
Non-renewable electricity consumption	kWh	148,222,038.31	123,771,764.33
Renewable electricity consumption	kWh	337,440.80	274,408.80

3. GREEN ENVIRONMENT



- **Measure 1: Development of photovoltaic power generation projects**

The Group consumed 363,300 kWh of electricity generated by its photovoltaic power projects within its own buildings in FY2021/22. For FY2022/23, the Group plans to commence overall installation of photovoltaic power facilities for the office buildings, outlets and gas stations owned by China Gas with predicted total installed capacity of 10MW, providing 10,000,000 kWh electricity generated by the Group annually for internal use. It is expected that, on an average basis, 3,372 tonnes of coal will be saved annually, and emission of CO₂, SO₂ and NO_x would be reduced by 9,338 tonnes, 281 tonnes and 140 tonnes respectively. The use of photovoltaic electricity is green and environmentally friendly with less environment pollution. Photovoltaic power generation can also save high tariff cost for enterprises while available for green electricity and carbon trading in later stage, to complete the market-oriented operation.



Case 1: Effectiveness of renewable energy development under regional grid and investment

The Group plans to develop the project of integrating power production, distribution, load management and power storage in the Science City, Hengyang, Hunan province in FY2022/23. For the power distribution grid capacity incremental project in the Science City, Hengyang, Hunan province, it is planned to construct a photovoltaic project with capacity of 10 MW and a power storage project with capacity of 2 MW. The annual power generated by photovoltaic facilities is approximately 8,097,300 kWh, and it is expected, on an average basis annually, 2,655.91 standard tonnes of coal will be saved, and emission of CO₂, SO₂ and NO_x would be reduced by 8,073 tonnes, 242.92 tonnes and 121.46 tonnes respectively. In respect of energy storage performance, we have participated in the grid dispatch system to dispatch energy to those in shortage thereof, thus securing stable power provision and reaching energy consumption control effectively. In addition, we made active cooperation with the state grid, which made them excellent model projects.

- **Measure 2: Establishing smart parks with integrated energy sources**



Case 1: Guangzhou Conghua Pearl Industry Park Project

The “Zero-Carbon Park” project at Guangzhou Conghua Pearl Industry Park* (明珠工業園) is promoted by China Gas with cooperation from Unilever Conghua Industry Park under the “dual-carbon” related policies, targeting to deliver a superior model project in terms of “zero carbon emission” based on integrated energy development of the Group. The investment size of the project is estimated to be RMB60 million which involves ice storage and cooling plant, renewable energy system construction, “carbon” certification, electricity sales, and green transportation.

3. GREEN ENVIRONMENT

- **Measure 3: Constructing Low-carbon Building**



Case 1: Urban informatisation, 3D modelling as well as building energy conservation and carbon reduction

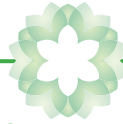
In 2022, we will build up an effective “joint force” among all sectors of the integrated energy business, and adopt the efficient cooling and heating supply system as the underlying framework to drive the growth of single line businesses such as renewable energy, power sales and distribution, and green transportation. At the same time, the Group will accelerate its implementation of quality practice of “digital microgrid” to establish a model that can be swiftly “promoted” and “replicated”. In addition, the Group will also generate quality “carbon” data with visual modelling and digital mirroring projects, which will in turn enable it to expand vertically to the “carbon service” sector. At the request of the Development and Reform Bureau of Luohu District, Shenzhen, we will carry out a comprehensive business with respect to the urban “green” and “digital” development of the Luohu district. In particular, we will first develop the BIM model for commercial complex projects located on the land of the China Merchants Central Project, including China Gas Headquarters Building, PICC Building and China Merchants Central Plaza, and implement energy system monitoring and management for the such projects, which is expected to be completed in August 2022. Furthermore, we will explore “low carbon” and “digital” cooperation opportunities with respect to the related real estate projects in Sungang area. Companies with cooperation intention include Citymark Real Estate and Baoneng Real Estate. We will integrate project resources in Sungang area to create quality CIM interactive highlights of building energy consumption, thereby becoming a valuable and benchmarking project in Luohu district.

- **Measure 4: Water and electricity saving measures for production and operation**



Case 1: Construction of BOG recovery unit

In order to save operating costs, Mudanjiang China Gas conducted an in-depth study, starting from the technical procedure aspects and making full use of the existing equipment conditions. Jiangnan Field Station has four storage tanks, and by reducing the pressure of the storage tanks and then using the BOG system to flatten the high pressure gas in the liquid trucks into the storage tanks, the problem of unloading residual liquid was solved, while effectively reduce electricity and maintenance costs.



Case 2: Reduction of compressor running time at the old airport refilling station of Liuzhou China Gas

The largest energy consumed at the old airport refilling station Liuzhou China Gas is electricity, which is mainly generated by the operation of the compressor. Under normal compressor operation, the larger the discharge volume, the shorter the running time and the less power will be consumed year-on-year.

A comparison between the two compressors of the old airport refilling station, No. 1 and No. 2, shows that when operating in the same condition, the No. 2 compressor has a 10% higher discharge capacity than the No. 1 compressor. If we reduce the running time of the compressor, while maintaining reasonable control of refilling time periods, staggered refilling peak can reduce electricity consumption, reduce costs and increase efficiency.

3.3.8 Biodiversity Conservation

China Gas strictly abides by the Environmental Protection Law of the People's Republic of China, Environmental Impact Assessment Law of the People's Republic of China, Forest Law of the People's Republic of China, Grassland Law of the People's Republic of China, Wildlife Protection Law of the People's Republic of China, National laws and regulations such as the Law of the People's Republic of China on the Protection of Cultural Relics and the Regulations of the People's Republic of China on the Protection of Wild Plants. Comply with the "Opinions on Comprehensively Strengthening Ecological Environmental Protection and Resolutely Fighting the Tough Battle of Pollution Prevention", "List of National Key Protected Wild Plants", "National Key Protected Wildlife List" and other departmental regulations and normative documents. Biodiversity conservation work will be carried out in combination with the requirements of local biodiversity laws and regulations and the white paper "Biodiversity Conservation in China", "General Outline of Technical Guidelines for Environmental Impact Assessment of Construction Projects", "National Ecological Function Zoning" and other technical guidelines.

3. GREEN ENVIRONMENT

China Gas has formulated the “Biodiversity Conservation Policy” and “Environmental and Social Management System”, and carried out a series of biodiversity conservation practices around the whole process of project planning, design, construction and operation. At the same time, we use various channels and methods to improve the awareness and protection of biodiversity among all members of the Group and stakeholders, and strive to achieve the harmonious coexistence of human beings and the natural environment.

- Analysis on the impact factors of biodiversity**

Biodiversity is related to human survival and development, and we are well aware of the importance of biodiversity conservation. We focus on sorting out environmental and biodiversity risks during the construction and operation of engineering projects that may cause ecological damage. During the construction period, the cleaning of the construction zone and the excavation of the pipe trench will have certain impacts on soil erosion and surface vegetation. During other construction periods, pipeline crossings, station construction, vehicle transportation, and various maintenance operations during operation periods will have little or no significant impact on the ecological environment.

Actions Environmental Factors	Construction phase							Operation phase				
	Construction belt cleaning	Pipe trench excavation	Pipe crossing	Station construction	Pipeline pressure test	Construction access road	Vehicle transport	Pipeline overhaul	Equipment operation	Pipeline operations	System overpressure venting	abnormal operation accident
Soil erosion	●	■	▲	▲		▲						
Surface vegetation	■	■		●		●						●
Air quality	▲	▲	▲	▲	▲	●	▲	●	▲	●	●	■
Acoustic environment		●	▲	●	●	●	●	●	▲	●	●	■
Surface water			●									●
Groundwater			▲		▲							▲
Wildlife	●	▲				▲	▲					■
Soil quality		▲				▲						
Natural landscape	▲	▲	▲	▲		▲						▲

Notes: ■ Major impact ▲ Minor impact ● No obvious impact

3. GREEN ENVIRONMENT



Biodiversity Protection Measures

(1) Carrying out afforestation activities

On March 12, 2022, on the occasion of the National Arbor Day, various project companies of China Gas carried out extensive afforestation activities. A total of 5,000 people from the whole group participated in this event, and about 3,000 trees were planted. At the same time, we strengthen the education on biodiversity conservation for our employees, implant the concept of ecological protection and low-carbon development into the daily life of our employees, and strive to be the practitioners, promoters and supervisors of green ecological environment.



(2) Biodiversity Conservation Activities of Engineering Projects

We are deeply aware of the disturbance caused by engineering projects to land or wildlife habitats. Therefore, our environmental management policy also focuses on mitigating the impact on biodiversity. We are committed to the promotion of biodiversity protection, carefully treat natural habitats and ecologically sensitive areas along the pipeline, and strive to fully protect the ecological environment near the project.



Project planning to achieve 100% environmental assessment of gas high-pressure pipelines and gas stations

At the beginning of project planning, the Group (first review the compliance of construction projects, environmental protection compliance, project site selection, layout, and impacts caused during the construction period (including waste water, waste gas, noise, solid waste, etc.) fully considers the impact of project construction on the environment and biodiversity, and minimizes damage to the ecological environment. At present, the Group has achieved full coverage of environmental assessment for gas high-pressure pipelines and gas stations.

3. GREEN ENVIRONMENT



Case 1: Conducting environmental impact assessment, safety assessment and occupational health assessment

Our Group's EIA reports concluded that we are currently using advanced production processes and equipment to meet the requirements for clean production. The pollution prevention and control measures adopted are feasible technologies to ensure that wastewater, gas, and noise are discharged according to standards and properly disposed of. At the same time, after the project enters the production phase, it can bring economic and social benefits. In the construction stage of the project, strict implementation of the construction project is ensured to be in line with the environmental protection standards of the "three simultaneous" system. It ensures the implementation of various environmental protection measures, in the process of project operation to strengthen production safety management, from the perspective of environmental protection is feasible.

Biodiversity Protection Measures in Projects Design Processes

Most of the gas projects of China Gas are non-polluting ecological infrastructure construction projects. During the project design process, route routing and site selection avoid residential areas, water sources, cultural relics protection areas, natural forests and other environmental protection areas as much as possible and also considered setting up reasonable water-saving measures to prevent the loss of soil and water resources.



Case 1: Water and soil protection design for high-pressure pipeline project

In fiscal year 2021/2022, the Group carried out the gas transmission pipeline project of Chifeng Northeast Ring Line, Chaoyang Jianping-Chifeng Gas Transmission Pipeline Project, and the extension line of G324 National Road from Silaumen Station to Yaogu. Gas pipeline project, Guangxi Zhongran Hechi Daren Industrial Park Gate Station and High-Pressure Gas Pipeline Project, Wutang Interchange Gas Pipeline Reconstruction Project, Huanggang Yingshan Branch Pipeline Project, Pubin Road Secondary High-Pressure Gas Pipeline Relocation in Pukou District. There are a total of 7 high-pressure pipeline level protection projects. In the design process of the project, facilities such as cutoff walls, side slopes, retaining walls and cages are used to effectively prevent soil erosion, maintain the living environment of local animals, plants and microorganisms, and protect the ecological balance.

3. GREEN ENVIRONMENT



GREEN DESIGN PRINCIPLES

Planting Principles

- Under the principle of “suitable trees and grasses in suitable locations”, the selection of tree species and grass species should be based on the terrain, soil and climatic conditions of each region. After detailed investigations, the native tree species and grasses will be introduced. species, to ensure the survival of green planting.
- Carry out greening and planting along the pipeline network and stations, clean up the river when crossing and construction along the river, stabilize the river slope, plant turf, trees and other greening protection, restore and protect the ecology when crossing the wetland, and protect the wasteland, After the construction site is occupied, greening and remediation will also be carried out, and the affected animal habitat will be restored and emergency rescued, etc., to minimize the impact of construction and operation on the ecological environment.

Office Greening

- Focus on greening in the office and living area, plant ornamental evergreen trees around the office building, set up flower beds, and plan small gardens.

Vegetation Restoration Construction

- In the process of vegetation restoration and construction, according to the environmental characteristics along the project, in addition to considering the selection of species suitable for the local environment, the staggered distribution of multiple species should also be considered in the layout to enhance the stability of green planting.

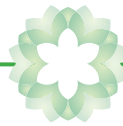
3. GREEN ENVIRONMENT



Biodiversity Protection Measures in Projects Construction Processes

The key measures taken by China Gas Group during the project construction process include: carrying out biodiversity protection publicity for construction personnel and construction units, specifying the scope of operation zones and temporary work sites forbidding driving and operating outside the site, reducing the interference of noise to wild animals, and reducing damage to vegetation, after the project is completed, restoring the original land use pattern, and take greening measures by planting trees and grasses according to climatic conditions, etc. At the same time, there are corresponding measures for scenarios involving agricultural restoration and soil and water protection. Others include covering, sprinkling water, spraying covering agent or other dust-proof measures for the stacking of materials generated during construction to reduce the impact of dust.

In fiscal year 2021/2022, the total length of newly built buried pipelines of China Gas Group is about 10,633km, and the length of environment-friendly trenchless pipelines traversed by directional drilling is 7,152km, accounting for 67% of the total length of new buried pipelines. In this fiscal year, the first-class project of China Gas Group has completed vegetation restoration with an area of 158 hectares.



Case 1: Chaoyang Jianping-Chifeng Gas Pipeline Project

The gas pipeline in Chifeng, Inner Mongolia is an energy infrastructure construction project and an environmental protection project, which can effectively improve the natural gas supply, storage and distribution systems in cities along the route, and reduce the amount of coal and fuel oil and pollutants. It is beneficial to the improvement of the energy structure of the cities along the route and the realization of the energy saving and emission reduction targets. The project line passes through the three secondary protected areas of "Pingzhuang Town Urban Water Source", "Meilihe Town Groundwater Type Water Source" and "Jianping County Second Water Source". Multi-directional measures have been taken to protect the ecological environment. Examples are to prevent construction workers from indiscriminately cutting down wild plants, and to increase publicity on the protection of wild animals and to prohibit construction workers from hunting of wild animals. Using low-noise construction equipment to minimize the width of the construction work belt where the pipeline passes through the natural reserves, ecological public welfare forests and dense forest areas. After the construction is completed, the roads shall be restored, and local suitable plants shall be selected to restore green in time to maintain local biodiversity as much as possible and protect the ecological environment.



Biodiversity Protection Measures after Projects Construction

China Gas responds to the government's requirements for biodiversity protection and environmental protection at any time, and implements rectification on existing projects to achieve the purpose of improving environmental pollution and protecting species.



Case 1: Baiyangdian Wetland River Gas Pipeline Demolition Project

In recent years, Hebei Baiyangdian Nature Reserve has faced the dilemma of water depletion. In order to ensure the normal amount of water resources in Baiyangdian, China Gas cooperated with the government to complete the widening of the water source channel of Baiyangdian, and carried out the demolition and reconstruction project of the Nanjuma River flood control gas pipeline. The design length of the project is 20.4612 kilometers, involving relocation of 482 households. After the construction of the project is completed, it will provide an important guarantee for the stability of the total amount of water resources in Baiyangdian Lake, and contribute to the adjustment of the inter-regional microclimate and the maintenance of biodiversity.



Case 2: Rectification Project of Coal-fired Boiler in Graphite Park, Luobei County, Hegang City, Heilongjiang Province

Luobei County, Hegang City, Heilongjiang Province is an important graphite resource area and graphite powder production area in China. The proven ore reserves are about 2.8 billion tons. There are a total of 30 graphite processing enterprises, mainly concentrated in Heilongjiang Luobei Economic Development Zone and Yanjun Farm Industrial Park, collectively called Graphite Park. In December 2021, the inspector of Ecological Environmental Protection Inspection Team found that the illegal development and construction of the graphite park in Luobei County is widespread, and the environmental pollution problem is prominent. The graphite park is the franchise scope of Luobei China Gas. Our company has been actively promoting the healthy development of the local gas industry, cooperating with the local government to rectify the coal-fired boilers in the park, effectively improving environmental pollution problems, maintaining biodiversity, and protecting the ecological environment. Promote sustainable development.

In the future, China Gas Group will continue to respect nature and adhere to the ecological civilization concept of "harmonious coexistence between man and nature". While realizing the development of the enterprise itself, it will help the society to develop green and sustainable, and build a beautiful home.

141 4.1 Customer Care
146 4.2 Resettlement of Indigenous Peoples
148 4.3 Social Responsibility



4. CARING FOR OUR SOCIETY



4. CARING FOR OUR SOCIETY



China Gas cares for our society. The Group continuously improves product and service quality, as well as customer experience to ensure that customers receive the best services. The Group's *Environmental and Social Management System* complies with the relevant requirements of Asian Development Bank and incorporates social considerations into various stages of project development, so that the operation of China Gas can co-exist in harmony with the surrounding communities and promote social harmony and inclusion. Adhering to the corporate mission of "Converging in Harmony and Benefiting the Society", China Gas is committed to understanding and actively responding to the needs of communities for years, to fulfil its social responsibilities and promote the sustainable development of communities.

4.1 CUSTOMER CARE

"Customer Satisfaction, Social Recognition and Employee Pride" is the core strategic goal of China Gas. Guided by the cultural concept of "Everyone Serves", the Group is committed to providing customers with proactive, considerate and efficient services. Having followed the service principle of "Customer-oriented, Adapting to Local Conditions, Highlighting key Points and Continuous Improvements", China Gas revises and improves the service indicators every year to improve service performance and quality as well as to meet the needs of customers from different categories, regions and time zones.

China Gas strictly abides by various laws and regulations, including the *Company Law of the PRC*, *Foreign Investment Law of the PRC*, *Trademark Law of the PRC*, and *Regulations on the Administration of Urban and Township Gas*, to ensure that the Group's operations are in compliance with laws and regulations and provide reliable and high-quality services to customers.

Meanwhile, the Group has also formulated relevant policy documents for service management. To provide quality service to our customers, The *Customer Service Management System* details the organisational management structure, work procedures, daily management system, training system and assessment criteria of the Group's customer service centre. For the headquarters, we have formulated eight guidelines on customer service operations management and seven technical guidelines on customer services to clarify the responsibilities of each level. At the project company level, each project company has also set up customer service centres and customer service hotlines to properly manage customer services and improve customer service quality through a well-established mechanism.

In addition, The *China Gas Employee Service Specification* sets out the Group's requirements for service positions. All customer service personnel are required to respond to customer needs in accordance with the specification in a timely manner and continuously improve customer service quality to enhance the Group's brand image. The Group has also set up a team of professional part-time lecturers to train employees and improve their service capabilities, so that employees' work can meet the service targets and standards.

- **Measure 1: Complaint Handling Procedures and System**

China Gas values the opinions of customers, listens to and understands the opinions of customers through different communication channels to improve products and service quality. The Group manages customer services by establishing *Customer Complaint Handling Principles*. The customer service team will follow up with complaint cases according to the nature of complaints and suggestions within a reasonable time, to honour our service commitments and uphold the service attitude of "Sincere, Proactive, Enthusiastic and Long-lasting".

4. CARING FOR OUR SOCIETY

Integrity



- Undertake commitments, contracts and promises
- Deal with problems and arising issues in an open, impartial and transparent manner

Timely



- Timely and effective problem-solving
- Communicate effectively, give feedback and resolve problems in a timely, professional and coherent manner

Professionalism



- Professional personnel and image
- Equip ourselves with professional standards, be considerate to customers, handle problems comprehensively and maintain the corporate image

For complaints about products and services, China Gas has standardised services and established handling procedures.

1

1. Receiving complaint

Complaint acceptance (complaint cases established)
— preliminary analysis (classify the severity and priority)
— lodge a complaint (record the detailed data and collect related documents about the complaint) — allocate the case to specialised taskforces for timely and effective handling.



2

2. Complaint handling

After receiving the complaints, the person in charge shall convene relevant units to analyse the cause, record and file case documents after handling the complaint for future reference.



3

3. Improvement and feedback handling

Actively communicate and coordinate with customers to resolve issues, to avoid customer's complaints and enhance their satisfaction in the future. The responsible department formulates individual improvement measures to close the case and ultimately track the progress of improvement.



4. CARING FOR OUR SOCIETY



During the Reporting Period, China Gas received a total of 970 complaints in relation to installation, operation, maintenance and gas outage. All complaints were properly handled. The complaint resolution rate reached 100% during the Reporting Period.

- **Measure 2: Customer Satisfaction Survey**

To understand customers' opinions on products and services of China Gas, 78 project companies of the Group conducted customer satisfaction surveys during the Reporting Period and received a total of 1,450 feedback surveys, with a score of 92.36. We carried out a great number of follow-up actions on the investigation results, and launched improvement measures for the problems identified. We have therefore formulated the *China Gas Customer Service Renovation and Implementation Plan* to enhance service performance in all aspects.

- **Measure 3: Promoting Smart IoT to Improve Customer Experience**

In line with the local government's active promotion of smart cities development, the Group also promotes the use of smart IoT meters and leverages Internet of Thing ("IoT") technology to realise the digitisation and refinement of business management, to provide users with more convenient and better services. During the Reporting Period, the Group launched an online self-service top-up service for IoT gas meters that supports top-up service on mobile phone, which facilitates remote gas purchases for a large number of gas users and enables users to pay and top up through mobile online payment at home. The use of smart IoT has greatly enhanced the customer experience and enabled customers to top up anytime and anywhere.

As at 31 March 2022, the Group (excluding non-controlling companies) had 3,711,332 existing customers with IoT meters installed, representing 15% of all customers, while 16,080,000 units of IC meters with automatic charging function have also been installed, with a coverage rate of 65%, which greatly enhanced the customer experience.

4. CARING FOR OUR SOCIETY



Case Study 1: Receiving a recognition pennant from customers

On 8 July 2021, residents of Longquan Community in Wuhan Donghu New Technology Development Zone expressed their gratitude to Wuhan Jiangdong Zhongran for their quality, sincere and dedicated service. The residents sent a banner with “Wuhan Jiangdong Zhongran solves all problems for customers” printed to China Gas Longquan Community customer service centre in Jiangdong Wuhan. The residents commented on the services provided by the employees at Wuhan Jiangdong Zhongran, that they always respond professionally and arrange an in-home inspection as soon as possible. Inspections and household checks are always carried out very carefully and professionally and the staff of China Gas will keep reaching out to households until all safety checks are deemed complete and settled. This explains the sincere and spontaneous gratitude the residents have for Wuhan Jiangdong Zhongran.

The banner with “solves all problems for customers” is a representation of the unshakable trust between China Gas and its customers as well as a validation of China Gas’s hard work. We will keep working on its business practice and service to provide the very convenience for all citizens.

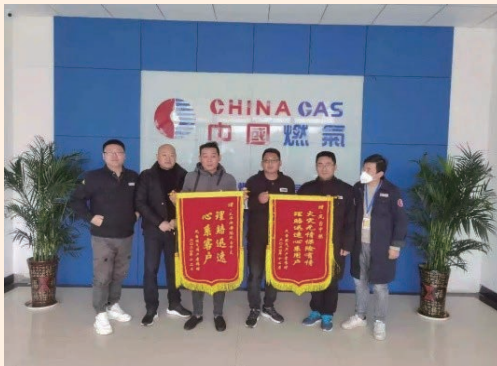


4. CARING FOR OUR SOCIETY



Case Study 2: "HOME INSURANCE" SAVES TROUBLE

On 28 June 2021, Mr. Li, who was covered by "home insurance", sent a pennant to the China Gas Business Centre in Fengtai for their quality service and the timely settled claims. For the past two years, Fengtai Zhongran has been putting their best efforts to increase the coverage of gas insurance for old households as well as providing highly responsive services to customers and therefore have been receiving many sincere thanks from them. This drives Fengtai Zhongran to work even harder and we will always adhere to the business philosophy of "customers' safety before anything else" as well as the three basic principles of attaining customer satisfaction "high insurance coverage, presentable service and speedy claims". Fengtai Zhongran will keep on safeguarding thousands of millions of families as we always have.

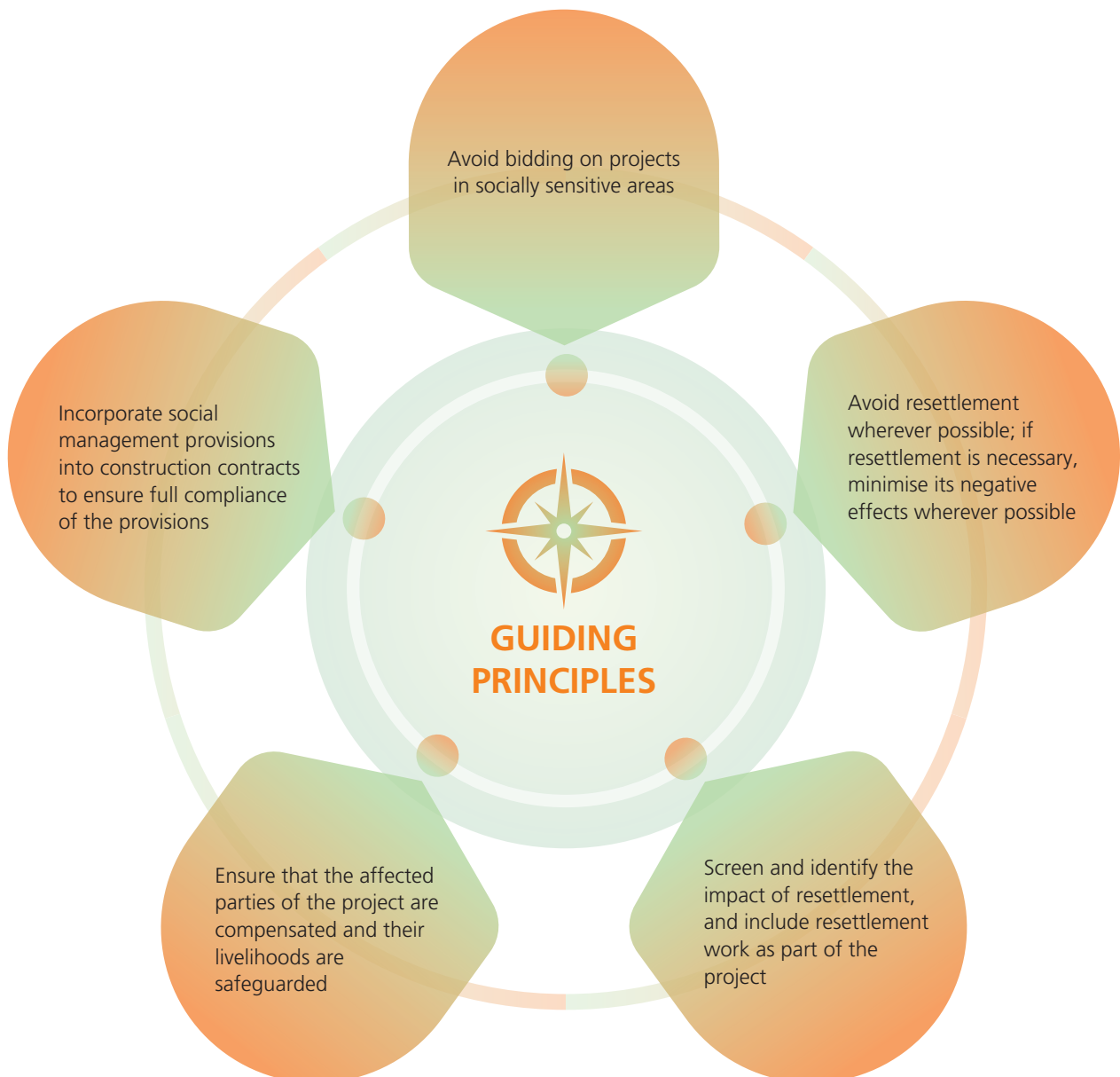


4. CARING FOR OUR SOCIETY

4.2 RESETTLEMENT OF INDIGENOUS PEOPLES

- **Measure 1: Incorporating Community Development into Project Investment and Development**

China Gas adheres to the guiding principles in the *Environmental and Social Management System* to avoid or minimise the disturbance to the lives and livelihood of community members during project construction and operation to a large extent, and strives to achieve harmonious coexistence with surrounding communities to contribute to sustainable development.



4. CARING FOR OUR SOCIETY



- **Measure 2: Policy on the Resettlement of Indigenous Peoples**

In order to protect and identify groups affected by the project, the Group will conduct preliminary social impact assessments on development projects in the early stage of the project cycle to assess the needs of the groups such as affected households, indigenous peoples and vulnerable groups. We strictly comply with resettlement protection and indigenous peoples safeguard requirements in the *Safeguard Policy Statement* of the Asian Development Bank, and implement corresponding procedures to manage relevant risks and impacts.

To protect the livelihoods and rights of indigenous peoples, the Group will avoid resettlement as much as possible. When inevitable, we will study and explore all possible opinions of enhancement proposals and alternatives to minimise the number of people affected by the actual resettlement and loss of land or loss of income sources and the extent of the impact. In designing and implementing our projects, we pay full respect to the identity characteristics, dignity, human rights, lifestyle and cultural characteristics of indigenous peoples, and their rights to obtain social and economic benefits that are consistent with their cultural traditions. If we are certain at an early stage that the projects will have an inevitable impact on the community, we will strictly comply with Asian Development Bank's requirements on compensation, assistance, benefits sharing, assessment of social impact, resettlement planning, information disclosure, consultation, grievance mechanism, monitoring and reporting, and strive to maintain and protect the rights and interests of affected communities, so that they can maintain their living standards.

We are doing our very best to minimise any possible impact our projects might bring to the local community. For gas projects, construction units are required to strictly follow the *Interim Regulations on Civilised Construction and Environmental Management of Construction Sites* no matter how small or how big the projects are. The regulations outline the importance of regular maintenance of machines and equipment, selecting low-noise equipment, adding anti-vibration mats to fixed equipment such as slitting and welding machines, surrounding construction sites with soundproofing walls, no construction between 12 p.m. and 2 p.m., paving unpainted, incomplete roads with red bricks to prevent work-related injuries, not transferring construction materials during peak hours and carrying out relevant procedures before excavating the road as well as informing the residents, etc.

During the Reporting Period, the Group did not engage in any projects that involved resettlement of residents, nor any incidents involving the infringement of rights of indigenous peoples.

- **Measure 3: Effective Consultation and Participation**

With reference to the requirements of Asian Development Bank, the Group will carefully consider the demands of affected groups, minimise and mitigate the possible negative impact of the project, and compensate affected groups according to legal requirements. China Gas has also established a sound grievance mechanism for each project to collect and respond to the needs of the affected population, and jointly seek solutions. In addition, the Group proactively communicates with the community. When the project is likely to result in resettlement or cause negative impacts on indigenous peoples, we will contact the affected group at the earliest stage of the project and carry out effective communication and negotiation.

4. CARING FOR OUR SOCIETY

Continual consultation

Effective consultation begins in the early project cycle and is carried out on a continual basis throughout the project cycle, and often conducted in local dialects. The affected persons are adequately informed about the project's potential adverse impacts and mitigation measures are proposed.

Timely disclosure of relevant and adequate information

Affected persons should have access to relevant project information such as the nature of the project, the scope of and reason for land acquisition, the resettlement objectives and entitlement matrix, available choices regarding future life, rights of the displaced people to participate in resettlement planning and implementation, and the grievance mechanisms.

No intimidation or coercion

Negotiation shall be conducted in a transparent and open manner where the affected persons can freely express their views without any external manipulation, interference or threat of retribution.

Gender-inclusive and considering the needs of vulnerable groups

Ensure the participation and consultation of women and vulnerable groups, and take their concerns into account.

4.3 SOCIAL RESPONSIBILITY

With the mission of "Converging in Harmony and Benefiting the Society", China Gas and its shareholders have always been enthusiastic about public welfare, caring for and serving the society. In 2014, the Group set up China Gas Charity Foundation and has been combining its products and services with social welfare. Through the overall principle of "Loving Communities, Caring for Colleagues", we adhere to the concept of "charity work shall involve everyone" and actively explore to embed China Gas Characteristics in the public welfare operation mechanism. The characteristics of our business are closely merged to serve the development strategies of China Gas, we focus on promoting education in rural communities, rural revitalisation, flood prevention and recovery as well as medical relief. Over the years, China Gas Charity Foundation has initiated and participated in more than 1,000 public welfare and charity projects, and has played an active role in caring for women and children, helping poor students, flood prevention and anti-epidemic activities. During the Reporting Period, China Gas Charity Foundation kept on adhering to the principle of "Loving Communities, Caring for Colleagues", actively helped vulnerable groups in society, and carried out charitable activities in areas such as education and medical sponsorship, disaster relief and poverty alleviation. At the same time, China Gas Charity Foundation established a volunteer service team, which helps the disadvantaged groups and promotes the quality development of China Gas's social welfare initiatives in various places, as well as its charitable causes with practical actions.

The key results of our community investment during the Reporting Period are as follows:

Total amount of donation for charitable activities in FY2021/22	HK\$14.17 million
Total time spent on charitable activities in FY2021/22	2,491.5 hours
Total number of participants in charitable activities in FY2021/22	15,120

4. CARING FOR OUR SOCIETY



Fighting the pandemic together



Case Study 1: Anti-epidemic measures to support the Fushan Community in Shenzhen

As the pandemic persists and remains serious, the anti-epidemic work and personnel in local communities in Shenzhen needed to stay tight and alert especially with the increased number of tourists during the Labour Day holiday.

In order to effectively manage and control the vehicles and people that were entering the neighbourhoods, the Fushan Community of Futian Street in Shenzhen formed a service team with senior and youth volunteers. They were fully committed to guarding the safety of the district and implementing the prevention and control measures as well as safeguarding the health and safety of the residents.

With the help of China Gas, the China Gas Committee donated an electric police car to the Fushan Community to help reduce the pressure of the frontline staff and improve the efficiency of anti-epidemic work in the community and the deployment of supplies as well as to thank them for their selfless contributions. This represents our moral principle of “doing practical deeds for the public” and also the spirit of “dedication, care, mutual help and progress”.

Proudly, this is not the first time China Gas had supported the anti-epidemic work in Fushan. Previously, the Group had organised the activity “Combating the Epidemic altogether, Our Condolence to Fushan”, sending 160 neck massagers to the frontline staff of the Fushan Community in Futian District for all their hard work.

While the China Gas Committee was celebrating the 20th anniversary of the Group’s establishment, they wished to set good examples for all employees, promoting the culture of “doing practical deeds for the public” and proactively taking on social responsibility. In the future, the Group will keep working closely with the government and community parties to achieve a victory in the fight against the virus.



4. CARING FOR OUR SOCIETY



Case Study 2: Donating anti-epidemic supplies to Luohu Sungang Sub-district Office

Recently, the pandemic in Shenzhen has been fluctuating and is becoming increasingly serious and complicated with the mutated virus Omicron. The local government of Shenzhen had announced to implement the general strategy of “external prevention of importation and internal prevention of rebound” and “dynamic zero-Covid”. The government aims to win the combat against the virus with more scientific, precise, decisive, rapid and effective measures.

China Gas never stops taking initiatives to support the anti-epidemic work in the local community. On 14 March 2022, Guo Juan, the vice president of China Gas, and Zhu Rui Long, the general manager of the administration department of China Gas sent 100 boxes of supplies including medical masks, protective clothing, alcohol gel, mineral water and self-heating hotpots to Luohu Sungang Sub-district Office. The Group took practical action to support the anti-epidemic work in Shenzhen, showing its social responsibility and commitment.



4. CARING FOR OUR SOCIETY



Case Study 3: Donation of anti-epidemic supplies to healthcare workers and vulnerable groups in Hong Kong

In 2021, Hong Kong is currently experiencing the 5th wave of the pandemic and it is only becoming more serious. With the spirit of “Fight the virus together, Support Hong Kong together”, China Gas Charity Foundation has taken on the social responsibility to support the local community. On 3 March 2021, China Gas Charity Foundation donated HK\$1 million each to the Hong Kong Community Anti-Coronavirus Link and Agency for Volunteer Service to help with the implementation of universal testing and support the community in need, with the hope that Hong Kong will recover from the impacts of the epidemic.

Li Jing, Executive Director of China Gas and Chairman of China Gas Charity Foundation, said that the current situation of Covid-19 in Hong Kong is critical with the increasing number of confirmed cases which is causing an unprecedented impact on the Hong Kong community. China Gas Charity Foundation has taken the initiative to contact the Hong Kong Community Anti-Coronavirus Link and Agency for Volunteer Service to make an immediate donation that is going to be used to support the universal testing, and to contribute efforts to help Hong Kong fight the virus.

According to the current situation of COVID-19, the elderly are the most vulnerable group and need the most help. The donation that was made to the Agency for Volunteer Service will mainly be spent on the “Universal Mandatory Testing” for the elderly living alone or aged 65 or above at Western Garden Social Centre for the Elderly as well as the members of Hong Kong Housing Authority and Hong Kong Housing Society.

Apart from providing services to the elderly, a portion of the donation will also be used to support the Hong Kong Universal Testing Volunteer Service. All volunteer groups are required to receive at least two doses of the COVID-19 vaccine, wear appropriate protective gear on the day of service and have a rapid antigen test with a negative result one hour before reporting for duty.

The donation will support volunteers to assist in the provision of services and crowd control at the district testing points, help with the flow of vaccination services, distribute supplies and provide up-to-date information on the epidemic. It is also used to provide rapid antigen testing kits and basic hygiene items such as medical masks, face shields, gloves, protective clothing and hand sanitisers as well as meal and transport allowances for volunteers.

The two organisations expressed their gratitude to China Gas Charity Foundation for the donations made and pledged to use all the resources on fighting the epidemic as well as delivering supplies to those in need.



4. CARING FOR OUR SOCIETY

Together for Charity

China Gas has always believed in the concept of “charity work shall involve everyone”, which is why over the years, it has been keen to serve the community by incorporating social concerns into project investments and development. In addition, the Group has established a volunteer service team to foster a culture of volunteer activities within the Company, encouraging employees to participate in serving their local communities, strengthening employees’ sense of belonging to the community. At the same time, the Group strives to raise the awareness of our staff through training. The Group has also formulated the *Policy on the Management of Public Welfare Activities* to regulate and monitor the various charitable activities undertaken by the Group.



Case 1: Dragon Boat Festival Greetings for Non-Local Students

On 8 June 2021, on the cusp of the traditional Chinese Dragon Boat Festival, Baotou Zhongran made use of the Company’s trade union and sent holiday wishes to the company’s 24 foreign university students. To let those who are from other cities feel the warm wishes of the Company during the festival, the Company’s trade union specially prepared a beautiful Zongzi gift box to express our sincere wishes. It is hoped that the staff can continue to be optimistic towards life, confident in themselves and have firm belief in the development of the Company, further bringing the Company and staff closer. In addition, the company actively advocates for the idea of “one family with one heart, one goal to work together”, so that employees feel the warmth of “home” from the bottom of their hearts, while working for the Company in a steadfast manner and a peace of mind. This activity further enhanced the sense of belonging and work motivation of the staff. While the staff, being cared for, expressed the urge to contribute to the steady development of the company, and embody the spirit of “China Gas”.



4. CARING FOR OUR SOCIETY



Giving love to the world and contributing to the common good



Case 1: Supporting flood relief in Henan

According to the timely early warning information issued by the Henan Provincial Government, China Gas issued an Emergency Notice on Strengthening Safety in Production Work during Flood Season, putting forward clear requirements for a comprehensive deployment of flood safety works during flood season. China Gas Executive Director and CEO made special requests to Henan project companies: First, to immediately enter a state of emergency, cancelling all holidays and reporting the safety statuses of operations daily; Second, to strengthen the inspection of field stations and pipelines, increasing the frequency of patrols, and focusing on monitoring soil erosion in the vicinity of gas facilities; Thirdly, closely monitor key hidden hazards and implement rectifying measures as soon as possible, so as to prevent accidents from occurring; Fourth, immediately reinforce the emergency rescue team of each company, improving planning, strengthening drills, forming of a joint prevention mechanism among companies in the region; Fifth, immediately clear up the stockpiling situation of each company and store the necessary emergency supplies and materials.

After the flood, to ensure that the Department's flood control work is in place, the China Gas Central China Regional Operation and Management Centre quickly set up a special team, adjusted its office location, went to the front lines and was on duty in separate shifts, working with the project companies in the affected areas to fight against flooding, facilitating rescue and ensuring supply. To secure gas supply during flooding season, China Gas' 50 platforms and project companies in the Henan region, launched the emergency plan for extreme weather at first notice. 1,560 cadres and staff were on duty, while emergency rescue and relief forces were mobilised to areas with serious disaster conditions, and 24-hour shifts were implemented, with a 2-hour reporting system in place within the region for mobilising first response actions. According to the requirements of the emergency plan, companies such as Gongyi Zhongran, Xinxiang Zhongran, Anyang Zhongran and Kaifeng Zhongran increased the frequency of line inspections, prepared flood prevention materials in advance, initiated urgent repairs for affected pipe networks, eliminated safety hazards, contacted residents door-to-door for relevant safety relocations, and actively cooperated with the government to carry out flood prevention and supply assurance work.

To ensure the safety of gas facilities and the safety of gas users, China Gas's project companies in Henan, all set up flood maintenance and quick-response rescue squads. For several days, they braved the rain and waded through water, day and night, staying on duty and being the first to respond. While ensuring the safety of their business operations, local China Gas project companies actively cooperated with local governments and participated in local emergency rescues and assisted disaster victims.

On 22 July 2021, after learning of the serious disaster that occurred in Gongyi City and the large area of water and power outage in some areas, as well as some residents who were in urgent need of essential supplies, Luoning China Gas organised Luoyang Zhongran, Luoning Zhongran Company and its individual employees to make donations to purchase mineral water, instant noodles and other supplies, and coordinated logistics trucks to transport them to the disaster area in Gongyi. On 24 July, China Gas decided to make a donation of HK\$7 million to the government of the affected areas in Henan Province in the name of China Gas Charity Foundation to contribute to the relief of victims in the affected areas as soon as possible.



155	5.1 Employee Management Policy
157	5.2 Talent Acquisition and Retention
158	5.3 Training and Development
168	5.4 Well-being of Employees
170	5.5 Staff Caring

5. CARING FOR EMPLOYEES



5. CARING FOR EMPLOYEES



As a business that is driven only by excellence and is people-oriented, we focus on creating a friendly, non-discriminatory and diverse working environment. Through providing sufficient development opportunities and resources for our employees, we have built an effective working environment that we believe will contribute to a long-term growth hence an unshakable leading position in the industry.

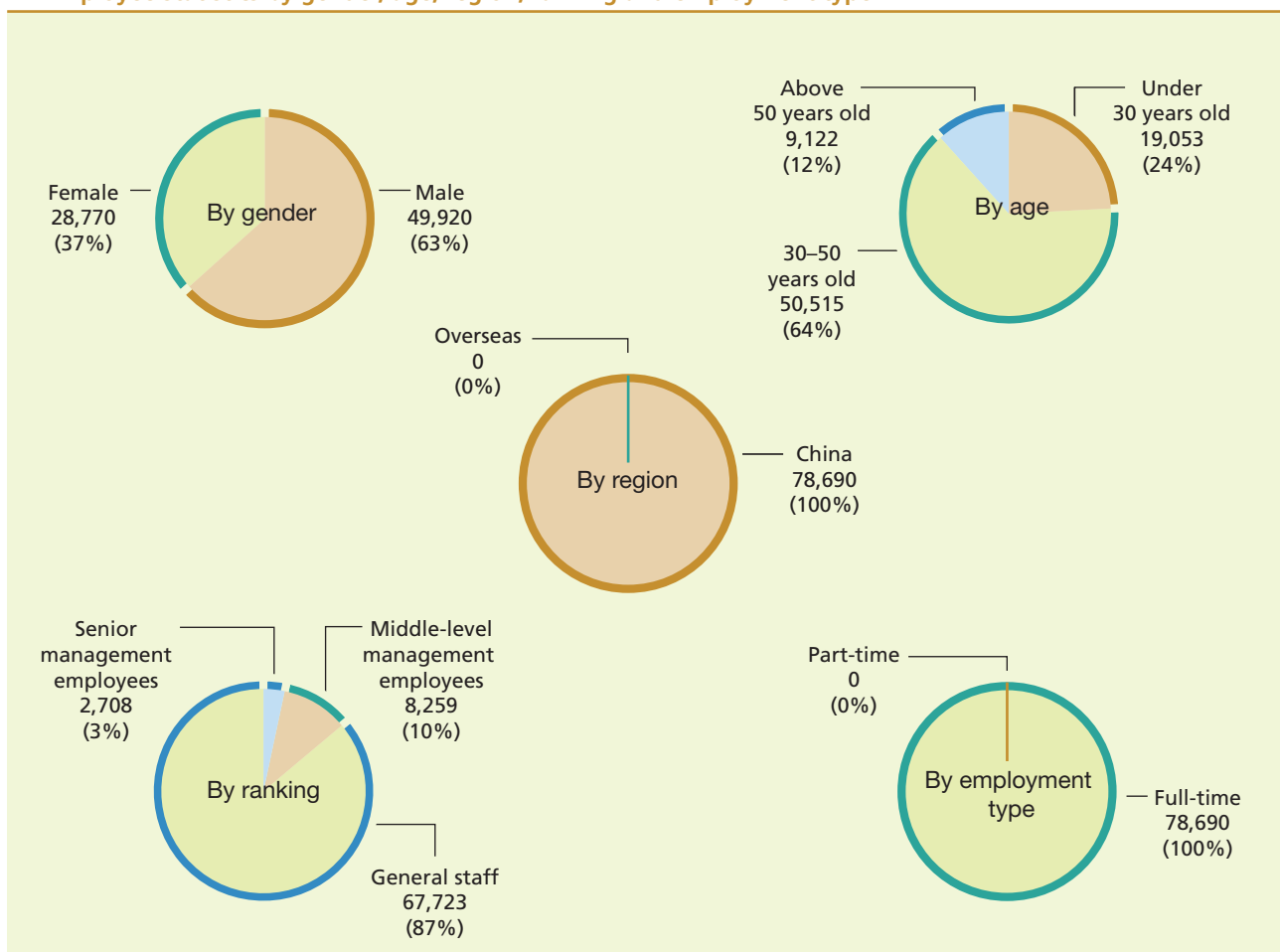
5.1 EMPLOYEE MANAGEMENT POLICY

The group has always seen equal rights as the core aspect in staff management. We adhere to all employment-related laws and regulations, and strictly abide by the *Equal Rights Policy* formulated by the Group. To attract talents and motivate existing employees the Group has a clear recruiting strategy and provides a competitive remuneration package, striving to be an equal and responsible business.

Equal Employment

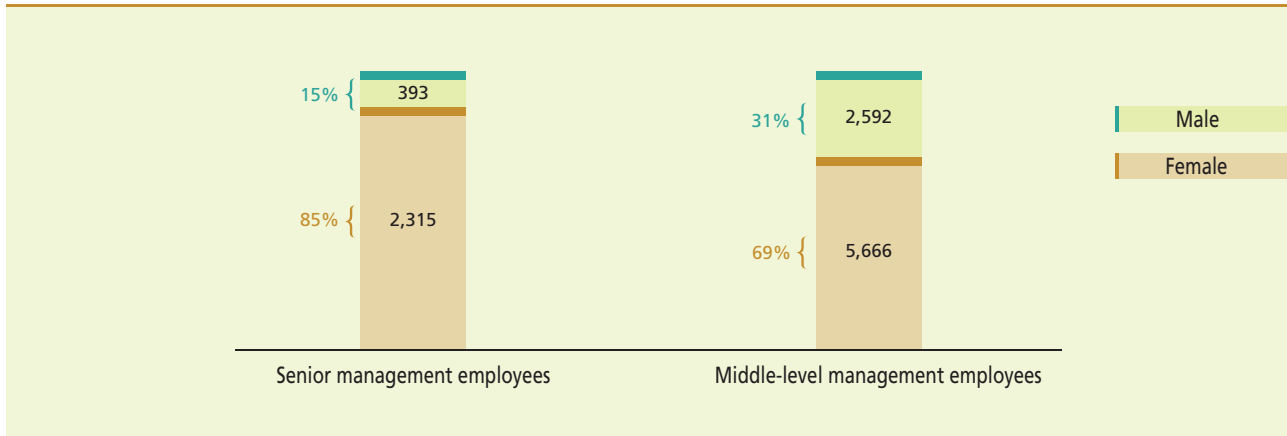
Adhering to the philosophy of being a people oriented business, we actively recruit outstanding talents to add momentum to the long-term development of the Group. As at 31 March 2022, China Gas had a total of 78,690 employees, of which 10,361 were new employees and 5,096 were ethnic minorities. The distribution of employees by gender, age, region, ranking and employment type is as follows:

Employee statistics by gender, age, region, ranking and employment type



5. CARING FOR EMPLOYEES

Male to female ratios by ranking



Employment Compliance

The group protects the legal rights of its employees at all costs while adhering to the principle of equal and inclusive employment. We strictly comply with all applicable laws and regulations, this includes the *Labour Law of the PRC*, the *Labour Contract Law of the PRC*, *Employment Promotion Law of the PRC* and the *Provisions of the State Council on Working Hours of Employees*. We also abide by the *Social Insurance Law of the PRC*, which sets out the Group's legal responsibilities for illness, work-related injury, maternity medical care, retirement and death insurance.

During the recruitment process, we do not tolerate any form of discrimination in relation to gender, race, age, health, marital status, family status, etc. We have also established rules and regulations to govern and monitor the use of labour. The Group prohibits the employment of child labour, forced labour and people with forged identity documents. We will take strict action against any non-compliance and audit penalties will be given to those responsible as well as corrective actions will be taken immediately to prevent recurrence. During the Reporting Period, no administrative penalties were imposed on China Gas in regards to labour security, child or forced labour.

Having always adopted openness, fairness and righteousness as the three key principles of our human resources management, we compiled the *Human Resources Management Manual and Recruitment Management System*. These set out thorough guidelines on compensation and dismissal, recruitment and promotion, working hours, holidays and leaves, equal opportunity and diversity, training and other benefits and welfare to further protect employees' rights.

Remuneration System

To make sure the contribution of each employee is being recognised, the group offers competitive remuneration packages by their performance and experience. The packages include various types of paid leave, pension contributions, social insurance and housing provident funds, etc. We intend to create an attractive and motivating remuneration management system, by regularly reviewing and adjusting our remuneration standards based on the position, performance and capability of our employees. Salary scales are also set to align with the standards in different regions, this is to ensure a fair and reasonable remuneration management system that can motivate all our workers.

5. CARING FOR EMPLOYEES



Democratic Protection

The group respects the rights of employees to freely organise or participate in labour unions to ensure that they enjoy the freedom of association and provide good democratic protection for employees. As at 31 March 2022, the total number of employees of the Group participating in the labour union was 78,664.

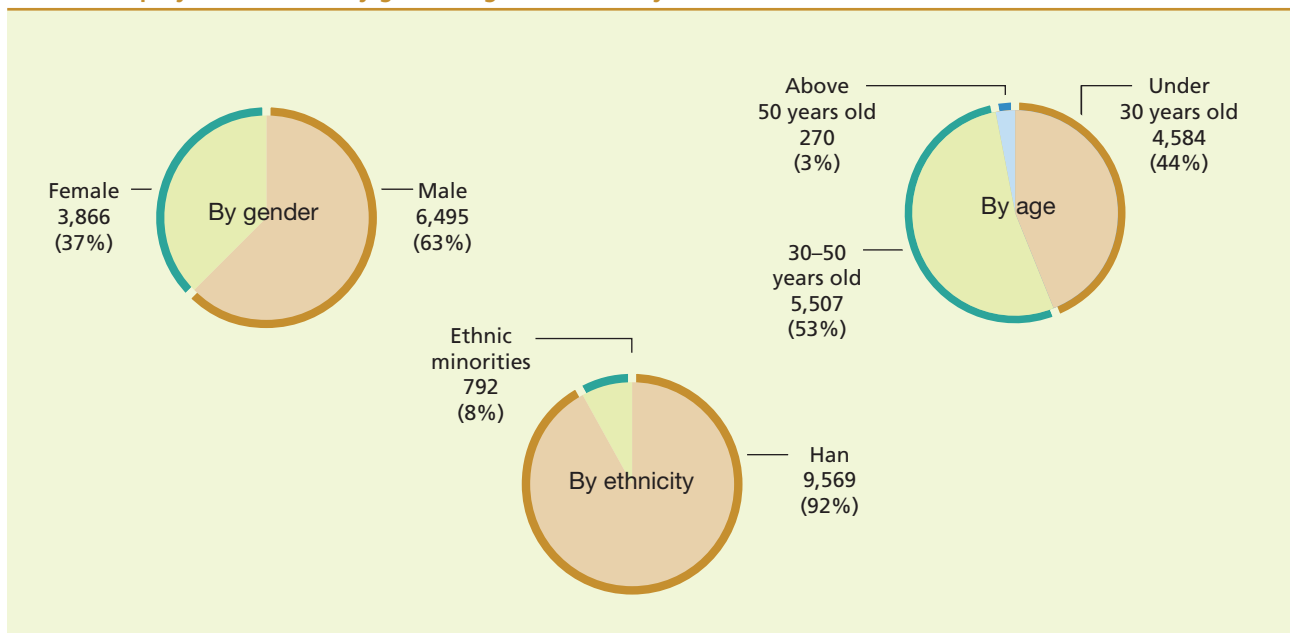
5.2 TALENT ACQUISITION AND RETENTION

Adhering to the three principles of openness, fairness and righteousness in the *Recruitment Management System and Human Resources Management Manual*, we have built an outstanding workforce by conducting effective job-matching. To attract the most capable talents and maintain our competitiveness in the market, we keep expanding our recruitment channels, including campus recruitment, social recruitment, the Group's website recruitment platform, WeChat public account recruitment and other channels, etc., to build a skilful and experienced team. In FY2021/22, amendments have been made in regards to the scope of recruitment and positions. We have recruited professionals in chemical engineering, engineering, construction and environment for emerging businesses such as digitalisation, power and new energy, as well as experienced marketing talents to engage in value-added businesses. Apart from the mentioned recruitment channels, the Group also works in partnership with research institutes and the government to recruit talents, interns or retired professionals.

Meanwhile, we strive to create an environment that can motivate employees. To do so, we offer employees a competitive remuneration package, including various benefits and insurance, training and career development opportunities and referral incentive schemes. The Group has a holistic promotion mechanism in place, as for the long-term development of China Gas, we understand that sufficient opportunities must first be created. According to the *Management Method for Cadre Allocation*, we will, at all times, promote internal employees before considering externally hired employees. Apart from that, the Group always promotes the importance of work-life balance and strives to form a healthy and positive work atmosphere, increasing employee morale and sense of belonging.

In FY2021/22, the total number of new employees was 10,361.

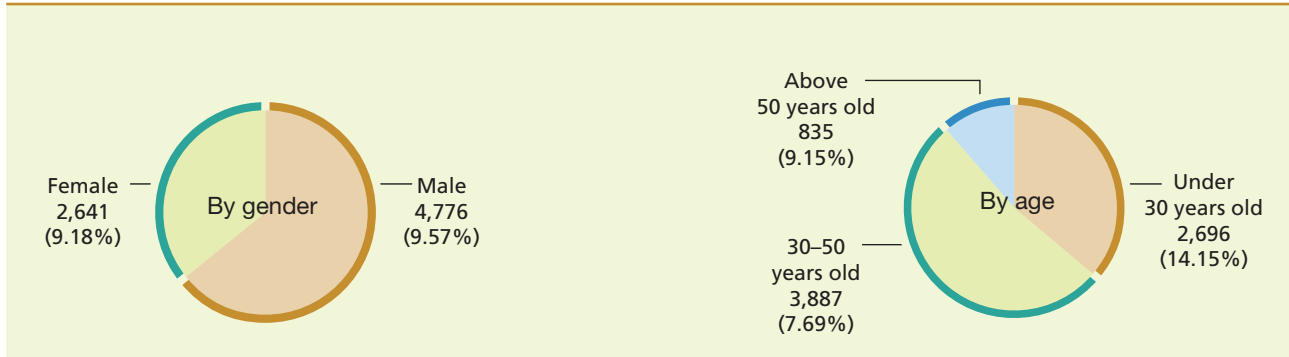
New employees' statistics by gender, age and ethnicity



5. CARING FOR EMPLOYEES

In FY2021/22, the total number of employee turnover was 7,417, and the employee turnover rate was 9.43%.

Employee turnover statistics by gender and age



5.3 TRAINING AND DEVELOPMENT

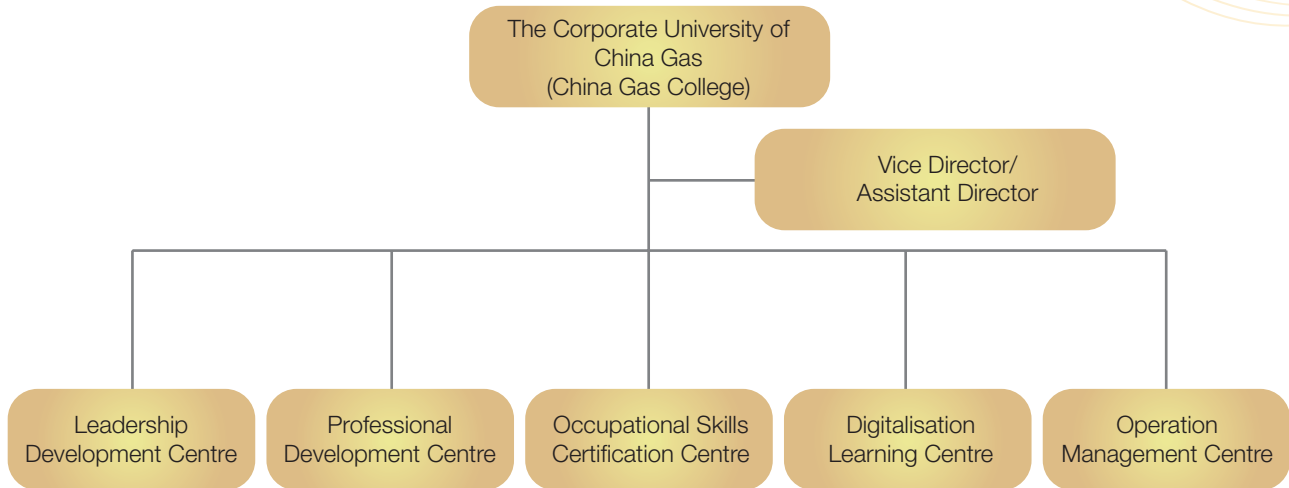
China Gas understands the importance of providing employees with professional training while ensuring that their abilities are kept up with industry standards are the keys to maintaining our competitiveness in the market as well as being able to cope with operational challenges, therefore we have established The Corporate University of China Gas (China Gas College). Our employees can participate in training according to their job ranking, positions, career development requirements and interests. The Group's *Training and Management System* and *Regulations on Frontline Staff Training* cover the headquarters, regional operational and management centres and project companies in our three-tier management system, setting out the operational guidelines for employee training, covering training organisation and distribution of duties, training classification and content, planning and budget, performance assessment and remedial action plans, etc.

The training management of the Group is mainly divided into five categories, intensive training, safety education training, qualification training, regular training and management advancement training. Firstly, we focus on providing intensive training for low-ranking staff with enhanced job skills, including new employees, employees who have just changed their positions and employees whose performance is to be improved, to ensure that all these employees can meet the job requirements. We comply with the national safety regulations and therefore provide safety education and training for key personnel in charge of production and operation units, safety production management staff as well as frontline low-ranking staff. We also provide external qualification training for personnel who are in special operations or positions that require certain qualifications to be obtained, such as safety supervision, customer service, operations, to ensure a legal and compliant operation of our business. For our regular staff, we provide both general and specialist training depending on their positions and job requirements to enhance their overall competence. Finally, we provide tailored training for our cadre team in accordance with their rank while the execution of promotions and performance evaluations will also be adjusted according to the completion of the training course and the passing rate of the assessment. In addition to offline training, we have taken the health and safety of our staff into consideration and therefore conducted some online training. During the reporting year, we have organised a total of 7,311 training sessions to cultivate outstanding talents and for our employees to grow and succeed together with China Gas.

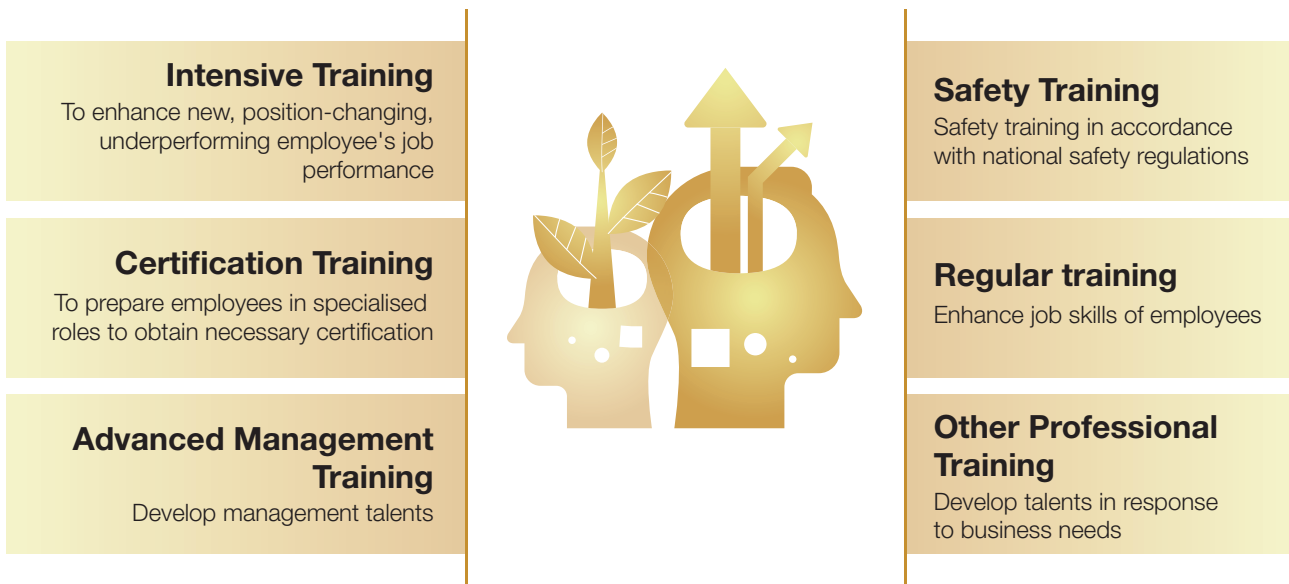
5. CARING FOR EMPLOYEES



Functions and Structure of The Corporate University of China Gas (China Gas College):



China Gas Training Category: By Type of Training which Employees have participated



5. CARING FOR EMPLOYEES

Total number of employees trained and training hours:

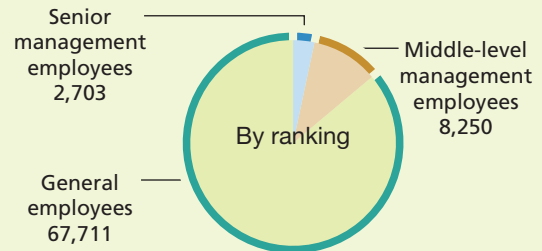
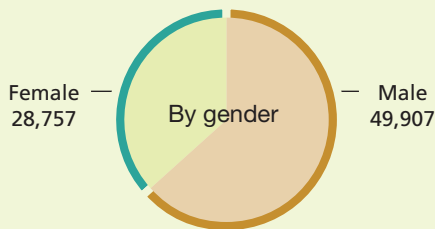


Total number of employees trained
78,664

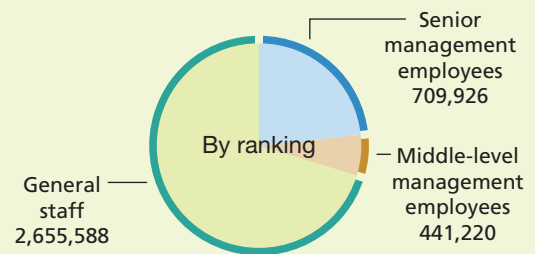
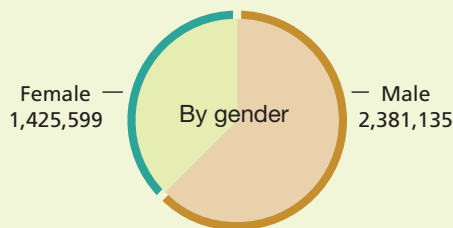


Total training hours
3,806,734 hours

Total number of trained employees by gender and rank

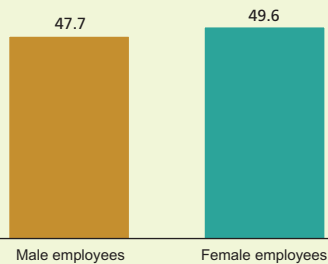


Total training hours by gender and rank (hours)

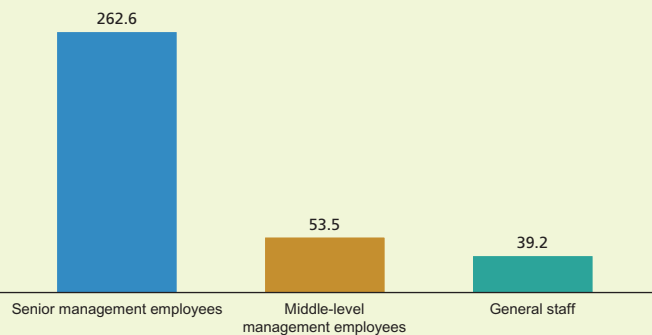


Average training hours by gender and rank (hours)

By gender



By rank



5. CARING FOR EMPLOYEES



Career Development for Employees

To facilitate the implementation of business strategy and organisational reform as well as to equip our staff with a wide range of professional knowledge, skills, working attitudes and experience, every year, we assign The Corporate University of China Gas to provide professional coaching for the development and implementation of training plans for various business segments at our headquarters and regional operational and management centres. This includes the formation of annual training plans, design of key training programmes, follow-up and implementation of training plans and evaluation of training effectiveness for employees to learn in a flexible and systematic manner. We constantly refine our training system and improve the overall quality and capability of our employees. At the same time, we organise interdisciplinary workshops for our staff on problem-solving skills, innovative thinking and career planning. This aims to enhance their strengths outside of work and promote the long-term development of the Group and its employees.



Case Study 1: Market Development Training

The two-day “Urban Heating Project Series Kick-off Meeting and Market Development Training (Phase I) for Q1 FY2021” was held successfully in Wuhan. Through group discussions, different interactive and innovative learning methods, a total of 180 participants learned about the development trend of Urban Heating, its business model, cross-regional management and the three strategies of market development. Participants had lively discussions and engaged in group activities as well as shared their ideas on how to communicate with government departments, real estate developers, property companies and residents during the market development process of Urban Heating. In addition, through the combined training on the situational model, participatory experience, exploring, interacting and precepting, our participants had learned the importance of unity in building an executive team and goal management as well as how it can strengthen the team spirit.



5. CARING FOR EMPLOYEES



Case Study 2: Training on Organisational Skills Building

In order to adapt to market changes and maintain its leading role in the industry, China Gas has actively been seeking advice regarding organisational reform from world-class consulting companies like McKinsey & Company. To make sure that we effectively undertake the reform strategies, The Corporate University of China Gas took the initiative and implemented “Building Organisational Skills” workshop and cultivated a group of certified instructors for each business segment with experiences in implementing organisational diagnosis.

The workshop focused on “how to build organisational capability”, covering the focal management reform strategies of China Gas such as strategies selection, talent planning, training, retention, mental capacity, organisational design and incentives. A simulation activity on “organisational capability diagnosis” was also carried out with theories taught by the certified instructors. It provides a series of operational processes and tools from project planning, kick-off meeting, information collection, analysis and consolidation, exporting diagnostic reports. This forms a double reserve of experts and skills for the building of organizational capacity and overcoming the technical barriers in terms of the implementation of organisational reform strategies for all levels in the business.



5. CARING FOR EMPLOYEES



Case Study 3: Training on Building Organisational Skills

The Corporate University of China Gas and the North China Regional Management Centre had worked together to organize a three-day General Manager Training Camp, involving over 150 managers from the North China Region both online and offline. The programme focused on cadre development and cadre management (echelon — standard — evaluation — appointment), to close the loop and connect through the talent chain. The teaching curriculum revolved around leadership skills, covering key topics such as Reform Strategy Presentation, Leadership Development, Practising Integrity, Structuring of the HSE Safety System and Sure Win Battles — Active Learning Workshop. These are a solid, crucial step towards establishing a cadre training system for China Gas.



5. CARING FOR EMPLOYEES



Case Study 4: Operational Consciousness and Management Training

The Group organised an operational consciousness and management training with the aim of raising the operational consciousness and management level of Henan Rural Gas' cadre and promoting the quality development of Henan Rural Gas' projects and had a total of 70 participants. Through the implementation of case studies and role-play as well as business scenario simulations, the weaknesses of participants in business management were exposed. From there, participants were able to improve their management and integrated operational capabilities as well as grasp the importance of accurately managing the balance between business development and risks. Regional manager Cai De-Shan also gave a lesson using the work conducted in the project of Henan Rural Gas as teaching materials. In which, he mentioned the attributes of a good manager, including the abilities to manage the overall situation, operate, organise, promote, learn as well as select and employ the right people.



5. CARING FOR EMPLOYEES



Case Study 5: Warden's Safety Training

The Group conducted a training session on “How to use gas safely” for the wardens of Nanzhu village in the municipal district. Having more than 860 households in the village, the domestic gas service currently covers more than 93% of the population. Through actively communicating with the village committee and the gas company, the satisfaction rate of the customers with the services provided by China Gas (including safety management) in Nanzhu village is significantly higher compared to other areas. During this training, the Group discussed and exchanged ideas with some 100 warden representatives in terms of how to strengthen cooperation, enhance safety management and raise the safety awareness of customers.



Case Study 6: Training on Sustainable Development

The Group actively promotes the development of various training programmes. During the year, we continued to work with local authorities to give them a better understanding of the operations of the business as well as worked with them to provide annual training on safety awareness and fire prevention. We have set up a labour training centre to enhance the labour skills of frontline employees in our project companies. The Group also provides financial support for employees to attend external courses on anti-corruption, legal and business environment trainings. In addition, we established an e-learning platform that provides monthly learning materials with regular assessments, to allow our employees to learn more flexibly.

5. CARING FOR EMPLOYEES

Cooperation with Universities

In the Reporting Year, the Group cooperated with the Renmin University of China, School of Business (“RMBS”) to design quality courses and provide a practical learning platform for invited outstanding enterprises to participate in. During which, exchange activities were held, including seminars on the business model of China Gas and supply chain innovation and finance. China Gas was awarded the “Excellent School-Enterprise Partner” by the RMBS, in recognition of the Group’s contribution to promoting project cooperation. Through our partnership with RMBS, we aim to strengthen school-enterprise collaboration and leverage our abundant teaching resources so that more outstanding business talents will be nurtured in the near future.



Case Study 1: China Gas Research Institute works with the Wuhan Gas Reli School — training for frontline employees

The Group continues to work with the Wuhan Gas Reli School (WGRS) to provide training for frontline employees and equip them with a variety of skills. During the year, a total of 46 new students enrolled in the China Gas trainee programme while 114 graduates became the official employees of China Gas. At the same time, 15 students started their internships at the design institute, where they were involved in gas household surveys. To develop the professional knowledge and primary skills of our students, during the year, WGRS organised a vocational skills festival where competitions such as “Clamping Competition”, “Filter Operation Skills Competition”, “CNG Tanker Filling Skills Competition” and “Building Pressure Tank Disassembling Skills Competition” were held. We aim to promote the comprehensive development of our students through working with different institutions.



Case Study 2: China Gas Research Institute works with the China Gas Engineering School of Hebei Normal University to cultivate talents

To nurture outstanding energy engineers and management talents, the Group worked on expanding and improving the teaching personnel of the China Gas Engineering School at Hebei Normal University. 13 highly qualified teachers have joined the faculty to provide training lessons for our students. During the year, the school organised two technical lectures on gas engineering standards and regulations as well as a competition on gas engineering knowledge. Students from China Gas Engineering School have also won 54 awards in national, provincial and municipal competitions, Apart from that, we actively arranged internships for our students at headquarters, regional and project companies in order to cultivate talents with holistic experience.

5. CARING FOR EMPLOYEES



Case study 3: Collaborative Research on Methane Emission Reduction with Harbin Institute of Technology and Hebei Normal University

China Gas signed an agreement with Harbin Institute of Technology and Hebei Normal University to work on an Industry University Joint Research. The Group has been cooperating with higher education institutions in the country in regards to methane emission reduction. A wealth of technical results were obtained through reviewing the current development of the methane emission factor database domestically and internationally, studying the international methane emission reduction technology standards as well as summarising existing methane emission measurement research. We intend to keep working with these institutions on the development of methane emission measurement research and technical standards in China's gas industry to promote methane emission reduction.

Employee Assessment and Evaluation

We conduct annual staff suitability assessments. By doing so, we are able to assess the capabilities of all staff, including the Group's management employees, so that the hard work of top performers will be validated and the efficiency of human resources allocation can be optimised. In terms of cadre management, we continue to implement dynamic management, with region-oriented recruitment, management and use of reserved cadres, while also strengthening the organisation and discipline in cadre deployment to form a stronger team.



Case Study: Indicator updates for performance appraisals

To enhance the performance of our staff and teams, we have established different appraisal indicators while assessments are carried out quarterly and annually. These indicators include performance indicators, business development and management indicators, financial control indicators and negative screening. And to ensure the comprehensiveness of the appraisal, the scope of assessments covers the head office, business units, professional companies, regional management centres and the management employees of our project companies. Indicators can vary depending on the rank and the percentage of remuneration, ranging from 30%–50%. If one fails in the appraisal, there will be consequences such as deduction of performance pay, demotion and salary reduction. This year, China gas made adjustments to the existing indicators to lower the threshold and plans to introduce new indicators concerning sustainable and economic development such as government relations, business environment enhancement and employee engagement, etc. All employees including executives are required to participate in reflective appraisals, which cover sustainability, economic, social and environmental topics. More indicators will be introduced after the adjustments are made, such as staff competence enhancement, personal qualifications and harmony with colleagues as the Group aspires to build a harmonious and friendly working environment.

5. CARING FOR EMPLOYEES

5.4. WELL-BEING OF EMPLOYEES

China Gas cares for the physical and mental health of our employees and is committed to creating a working environment that values the well-being of our employees. Our Staff Care Committee regularly organises a variety of leisure activities and provides all-rounded welfare to our staff, aiming to create a harmonious working atmosphere.

Welfare and Protection

We strive to provide employees with many benefits as possible and have established a competitive welfare system to maintain employees' satisfaction. This includes the distribution of welfare packs as well as providing subsidies and packages that correspond with local circumstances and standards of the country and company.

Employee maternity/paternity leave statistics in FY2021/22



Female employees
592



Male employees
600

Percentage of employees who returned to work after maternity/paternity leave ended in FY2021/22



Female employees
96.00%



Male employees
75.68%

Percentage of employees who returned to work after maternity/paternity leave ended in FY2020/21 and remained employed by the end of FY2021/22



Female employees
91.67%



Male employees
81.08%

5. CARING FOR EMPLOYEES



Welfare and Subsidies

We provide a variety of welfare and subsidies, including service subsidy, festival allowance, physical examination allowance, supplementary commercial insurance premium, medical insurance, meal allowance, etc. Eligible employees also receive discretionary bonuses, rewards and stock options based on the Group's financial performance and their individual performance. This year, we focused on staff care and motivation. By increasing the remuneration scale for mid-level staff and adjusting and lowering the threshold of bonus distribution, we aim to create an encouraging and rewarding workplace.

Family-friendly Employment

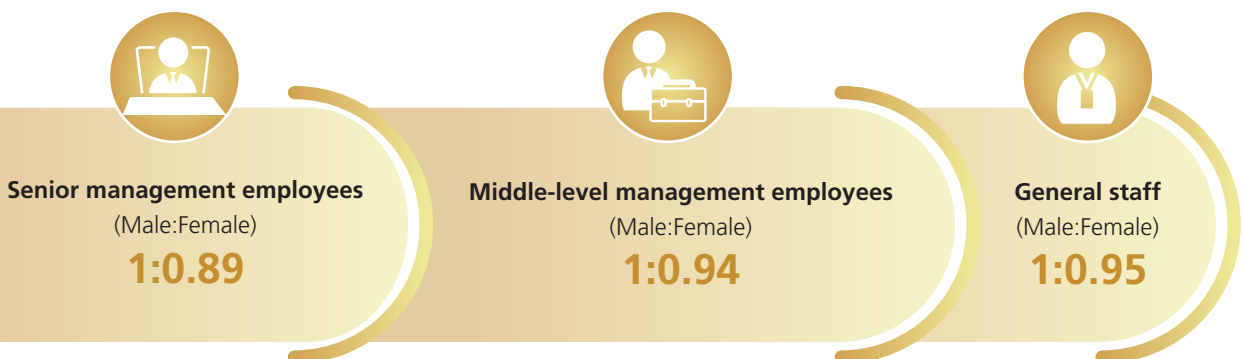
The Group respects the family responsibilities of employees, therefore has implemented local policies for staff and cadres to improve team stability and resource complementarity, and to create a family-friendly working environment for employees.

Protection of Rights and Interests of Female Employees

China Gas strives to create a positive and friendly environment and conditions for our female employees. We strictly comply with laws and regulations such as the *Law on the Protection of Women's Rights and Interests and Special Rules on the Labour Protection of Female Employees*. We provide female employees with equal opportunities for career development and ensure that they are fully protected by the maternity and lactation leave regulations. China Gas reserves positions for employees on parental leave, and encourages them to re-join the Company, by ensuring that their career development and remuneration are unaffected.

China Gas adheres to the principle of gender equality in staff promotion and development, ensuring that some management roles are served by female employees. Meanwhile, regular activities were held by Wuhan Zhongran City Gas Development Co., Ltd.* for female employees before the outbreak of the pandemic to help enhance their cohesion and sense of belonging to the Group. In addition to strictly complying with labour laws and relevant national policies to protect the rights and interests of female employees, we held activities such as sports games, dance classes and female-lead forums and lectures. China Gas has always believed in gender equality, and it plays an important role in the promotion and development of employees. We never place boundaries between genders and will make sure that female employees are present in management positions. These policies were consistently implemented during the pandemic.

Ratio of remuneration of male to female by rank in FY2021/22



5. CARING FOR EMPLOYEES

5.5. STAFF CARING

The Group attaches great importance to the physical and mental health of employees and is committed to helping employees and their families who are facing difficulties. The Group also encourages employees to convey love and care to those in need. We have formulated the *Interim Provisions on Employee's Wedding, Burial, Work-related Injuries and Visits to Major Diseases, Headquarters Staff Care Program and Staff Care Committee Assistance Application Guide* in order to understand and attend to the actual needs of employees. We also provide assistance to sick employees and employees from low-income families in accordance with the *Measures for Caring Work of the China Gas Staff Care Committee* to support employees and overcome difficulties in life together.

Maintaining Two-way Communication

The Group has established a sound communication mechanism to better understand the needs of our employees through closely communicating and building trust with them. The Group has established a column for suggestions on the office automation (OA) platform, allowing our employees to express their suggestions and opinions on corporate management and sustainable development. It also allows employees to express their confusion or difficulties faced at work and in their daily lives. The Group's professional departments will answer and reply accordingly. Through the Group's internal media such as their WeChat account "CG Home", The China Gas WeChat Official Account, the broadcasted programme of China Gas "New Vision with a Blue Flame" and "Blue Flames You and Me", we release the latest news on operations and management, strategies and targets.

The Group has also established a platform for complaints and whistleblowing. According to the Group's system on internal audit, the Internal Audit Department would investigate each case and report to management and the complainant. This has allowed the protection of rights and has ensured cases are dealt with in a transparent, fair and impartial manner. In valuing the opinions of our employees, China Gas has a "Letter Box to the President" and WeChat groups where they can voice out their opinions. China Gas also strives to improve communications between management and our employees.

5. CARING FOR EMPLOYEES



Case Study: Selection Event for the “Elite Billboard”

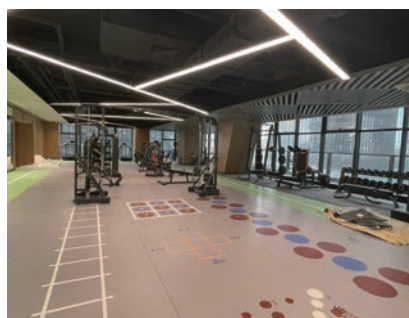
The annual “Elite Billboard” event appraises outstanding employees of China Gas to reward excellent employees and elite managers. Besides encouraging and rewarding employees, it strengthens team cohesion and employees’ devotion to the Group.



Promoting Employee Well-being

The Group strives to promote self-health and health awareness among our employees. Our Staff Care Committee regularly invites experts to provide employees with various lectures and activities on health and safety awareness related issues, as well as providing free body checks and insurance to employees in need. We are committed to taking care of employees and supporting the physical and mental health of employees and their families through continuous actions.

1. Organise multifarious cultural activities to enrich off-work life, promote communication between the company and the employees, boost employee’s sense of belonging and satisfaction;
2. Offer work benefits, including overtime meal, staff dorm, communication equipment and annual open day for employees’ relatives;
3. Provide festival and birthday gifts to employees during festivals and birthdays;
4. To safeguard the wellness of employees both physically and mentally, the Group have communicated with the National Health Commission and Luohu Hospital Group to officially commence the health centre project in the headquarters. Every week there will be a therapist stationed in the centre where employees can arrange medical appointments, purchase medicine, and other health services using standard pricing, which helps to safeguard employees’ health;
5. Set up gym room, activity room for dancing and yoga, for employees to exercise and release work stress. In addition, the Group will arrange seminar and training on health and exercise from time to time to enhance the physical condition of the employees.



CHINA GAS HOLDINGS LIMITED

5. CARING FOR EMPLOYEES



Case Study: An outdoor spring walk — Donghulv Avenue

In order to enhance staff cohesion and promote our Urban Heating project, Wuhan Zhongran Reli Company held an outdoor spring walk for all employees at Donghulv Avenue. During which, we had a quiz session on the knowledge related to our Urban Heating project to add some fun to the walk. Apart from consolidating the knowledge employees have for our business, it also increased staff cohesion in the team.



Enriching Employees' Life

We hope that the Group is not only a workplace to employees but also a place where they can enjoy life. Therefore, we actively organise and support various employee activities to enhance the sense of belonging of our employees. Our Staff Care Committee regularly organises a variety of leisure activities, such as summer camps, fun sports day, jogging competitions, outdoor development activities, drawing activities and public welfare classes, with an aim to promote employees' physical and mental health, while also enabling them to work energetically afterwards.



Case Study: Team Hiking Event

The employees of YuanShi County China Gas Energy Development Co., Ltd had a one-day team-building activity to relieve their pressure and enhance their sense of belonging to China Gas. Employees were put into groups randomly to increase communications between colleagues, strengthen mutual understanding, cooperation and improve team cohesion. In addition to getting to enjoy the magnificent views, they also had fun exercising together.



6. SUSTAINABILITY OVERVIEW



ECONOMIC PERFORMANCE

Unit:HK\$'000

	For the year ended 31 March		
	FY2021/22	FY2020/21	FY2019/20
Direct economic value generated			
Revenue	88,225,193	69,975,381	59,539,681
Other income	1,378,291	923,333	639,656
Share of results of associates	920,714	892,995	405,184
Share of results of joint ventures	514,583	715,006	570,798
Economic value distributed			
Staff costs	4,134,311	3,424,801	3,181,042
Other costs ⁽¹⁾	72,060,228	51,416,802	42,539,467
Finance costs	1,456,530	1,418,781	1,387,920
Dividends	3,062,449	2,608,662	2,400,637
Taxation ⁽²⁾	2,188,817	2,602,007	2,283,092
Profit attributable to non-controlling interests	1,120,834	1,193,600	1,072,192
Charitable donations	7,853	2,343	57,476
Economic value retained			
Retained for China gas sustainable operation and development	7,007,759	9,839,719	8,233,493

Notes:

1. Represents other costs and other gains and losses but excludes depreciation and amortisation for the year.
2. Represents current income tax but excludes deferred tax for the year.
3. Represents charitable donations but excludes donations from non-holding companies.

6. SUSTAINABILITY OVERVIEW

OPERATIONAL PERFORMANCE

	Unit	FY2021/22	FY2020/21	FY2019/20
Number of piped gas projects	No.	660	642	604
Total number of long distance natural gas transmission pipelines	No.	32	32	17
Total length of natural gas pipelines	km	525,461	480,159	402,381
Number of CNG/LNG refilling stations for vehicles and vessels	No.	533	557	556
Number of LPG distribution projects	No.	106	113	113
Total natural gas sales volume	m ³	36,703,200,000	31,210,700,000	25,372,400,000
Total LPG sales volume	tonne	4,267,829	4,248,000	3,826,764
Number of hybrid integrated energy supply projects	No.	364	364	102

SUPPLIER OVERVIEW

	Unit	FY2021/22	FY2020/21	FY2019/20
Cumulative number of city gas project suppliers that have completed registration on China Gas Bidding and Procurement Platform	No.	302	242	252

6. SUSTAINABILITY OVERVIEW



ENVIRONMENTAL PERFORMANCE

	Unit	FY2021/22	FY2020/21	FY2019/20
Greenhouse gas (GHG) emissions⁽¹⁾				
Scope 1 (direct emissions) — Internal use	tCO ₂ e	73,153.11	72,176.26	
Scope 1 (direct emissions) — Integrated energy business	tCO ₂ e	139,664.05	140,628.47	118,000.50
Scope 2 (energy related indirect emissions)	tCO ₂ e	90,430.27	75,513.15	91,166.40
Scope 3 (other indirect emissions)	tCO ₂ e	23.76	535.54	394.22
Total GHG emissions	tCO ₂ e	303,271.18	288,853.42	209,561.13
Total GHG emissions (excluding integrated energy business)	tCO ₂ e	163,607.13	148,224.95	Data not available
GHG intensity	kgCO ₂ e/GJ of energy sold	0.20	0.22	0.21
GHG intensity (excluding integrated energy business)	kgCO ₂ e/GJ of energy sold	0.11	0.11	Data not available
Direct gas emissions				
PM	tonne	54.40	8.60	13.18
SO ₂	tonne	20.67	11.84	27.15
NO _x	tonne	188.80	96.98	79.08
Energy consumption				
Petrol	tonne	5,108.74	5,232.87	2,682.60
Natural gas — Internal use ⁽²⁾	m ³	15,357,872.35	15,066,913.84	11,443,533.71
Natural gas — Integrated energy business ⁽²⁾	m ³	69,049,694.42	69,526,500.00	5,618,727.00
LPG	tonne	150.53	90.44	69.4
Diesel	tonne	3,966.38	3,857.03	3,605.80
Heavy Oil	tonne	1,334.15	1,614.39	2,575.16
Fuel oil	tonne	0	0	0
Kerosene	tonne	0.30	5.59	0.43
Electricity (non-renewable energy)	kWh	148,222,038.31	123,771,764.33	149,428,626.06
Electricity (renewable energy)	kWh	337,440.80	274,408.80	253,056.20
Total energy consumption ⁽²⁾	GJ	3,540,441.42	3,458,811.26	2,117,414.67
Total energy consumption (excluding integrated energy business) ⁽²⁾	GJ	1,081,685.38	983,076.89	946,341.51
Energy intensity	GJ/GJ of energy sold	0.002	0.003	0.002
Energy intensity (excluding integrated energy business)	GJ/GJ of energy sold	0.001	0.001	0.001

6. SUSTAINABILITY OVERVIEW

	Unit	FY2021/22	FY2020/21	FY2019/20
Material use				
LPG cylinder	No.	400,397	331,185	402,180
Antifreeze oil	barrel	0	0	256
Lubricant	tonne	44.23	35.40	95.25
Paper product/cardboard	tonne	933.48	2,135.91	1,978.98
Plastic	tonne	23.66	537.77	552.27 ⁽³⁾
Wood board	tonne	10.35	6.20	5.58
Styrofoam	tonne	340.98	393.13	296.56
Odorant	tonne	236.10	103.67	96.60
Water consumption				
Total water consumption	tonne	2,451,087.55	2,195,885.18	1,684,559.06
Water consumption intensity	kg/GJ of energy sold	1.63	1.66	1.67
Wastewater and waste				
Total wastewater discharged	tonne	1,399,728.91	1,333,797.35	1,071,995.76
Non-hazardous waste produced	tonne	22,820.10	21,555.99 ⁽⁴⁾	17,323.06
Non-hazardous waste production intensity	tonne/ employee	0.29	0.29	0.29
Hazardous waste produced	tonne	78.69	74.33 ⁽⁴⁾	69.79
Hazardous waste production intensity	tonne/ employee	0.001	0.001	0.001
Environmental compliance				
Environmental regulatory non-compliances	No.	0	0	0

Notes:

1. In 2020/21, the Group updated the calculation basis of GHG emissions. The data of this year was calculated according to the Environmental, Social and Governance Reporting Guide of the HKEX and other international reference. The calculation basis of previous years' data can be referred to the internationally-recognized Clean Development Mechanism (CDM) in the United Nations Framework Convention on Climate Change.
2. Energy consumption is calculated based on the conversion factors provided in China Energy Statistical Yearbook 2019.
3. To enhance the comparability of data, the Group restated the data of plastic and styrofoam for FY2019/20.
4. The non-hazardous and hazardous waste production data were obtained through estimation.

6. SUSTAINABILITY OVERVIEW



EMPLOYMENT

	Unit	For the year ended 31 March		
		FY2021/22	FY2020/21	FY2019/20
Total number of employees	people	78,690	74,331	59,462
By employment type				
Full-time	people	78,690	74,331	59,462
Part-time	people	0	0	0
By gender				
Male	people	49,920	47,319	38,243
Female	people	28,770	27,012	21,219
By age				
Under 30 years old	people	19,053	18,446	16,412
30–50 years old	people	50,515	48,023	36,997
Above 50 years old	people	9,122	7,862	6,053
By rank				
Senior management	people	2,708	2,541	2,028
Middle-level management	people	8,259	7,526	6,039
General staff	people	67,723	64,264	51,395
By ethnicity				
Han	people	73,594	69,567	55,299
Ethnic minorities	people	5,096	4,764	4,163
Male to female ratios by rank				
Senior management				
Male	%	85	86	80
Female	%	15	14	20
Middle-level management				
Male	%	69	69	68
Female	%	31	31	32
General staff				
Male	%	62	62	63
Female	%	38	38	37

6. SUSTAINABILITY OVERVIEW

HEALTH AND SAFETY, TRAINING AND DEVELOPMENT, AND LABOUR PRACTICES

	Unit	FY2021/22	FY2020/21	FY2019/20
Health and safety				
Number of work-related injuries ⁽¹⁾	No.	3	17	126
High-consequence work-related injuries (excluding fatalities) ⁽²⁾	No.	1	1	1
Number of work-related fatalities	No.	1	2	1
Number of occupational disease cases	No.	0	0	0
Number of disability injuries	No.	0	9	0
Work-related injury rate ⁽³⁾	/	0	0.02	0.21
High consequence work-related injury rate (excluding fatalities) ⁽⁴⁾	/	0	0.001	0.002
Work-related fatality rate ⁽⁵⁾	/	0	0.004	0.002
Lost working days due to work-related injury	day	285	605	621
Total working hours	hour	109,100,088	146,869,920	118,448,304
Training and development				
Employee training rate	%	100	100	100
Total training hours	hour	3,806,734	3,156,622	2,598,104
Average training hours per employee	hour	48.39	42.48	43.71
Labour practices				
Number of violation cases related to employment or labour regulations	No.	0	0	0
Number of violation cases related to child labour or forced labour	No.	0	0	0
Number of discrimination cases related to gender, ethnicity, age and health during recruitment	No.	0	0	0

Notes:

1. Work-related injuries include work-related fatalities and high-consequence work-related injuries.
2. High-consequence work-related injuries (excluding fatalities) refer to those work-related injuries which caused the workers to fail or have difficulty recovering to their pre-injury state within six months.
3. Rate of work-related injuries = (total number of work-related injuries/total working hours) × 200,000.
4. Rate of high-consequence work-related injuries (excluding fatalities) = (total number of high-consequence work-related injuries (excluding fatalities)/total working hours) × 200,000.
5. Rate of work-related fatalities = (total number of fatalities as a result of work-related injury/total working hours) × 200,000

6. SUSTAINABILITY OVERVIEW



COMMUNITY INVESTMENT

	Unit	FY2021/22	FY2020/21	FY2019/20 ⁽¹⁾
Number of participated volunteers	people	15,146	2,052	3,392,583
Hour of voluntary service	hour	2,652	320	1,682,647
Number of beneficiaries	people	300 ⁽³⁾	Data not available ⁽²⁾	424,390
Charitable donation	HK\$	14,170,203	2,343,000	57,476,000

Notes:

1. The community investment in FY2019/20 was mainly from the charity action of “Battle the Pandemic, Safeguard People’s Livelihood”.
2. In FY2020/21, the major charitable donations were donated to relevant government departments, thus the number of beneficiaries cannot be counted.
3. The 300 beneficiaries in FY2021/22 mainly benefited from community donations.

7. CONTENT INDICES

HKEX ESG REPORTING GUIDE CONTENT INDEX

Subject Areas, Aspects, General Disclosures and KPIs	Description	Relevant Chapter(s) or Other References/Explanation	Page Number
A. ENVIRONMENT			
Aspect A1: Emissions			
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste	Environmental Target and Management System The Group follows the requirements of the China's Policies and Actions for Addressing Climate Change 2020 published by the Ministry of Ecology and Environment of the PRC, and the Working Guidance for Carbon Dioxide Peaking and Carbon Neutrality in Full and Faithful Implementation of the New Development Philosophy, Action Plan for Carbon Dioxide Peaking Before 2030, A Circular on Further Promoting the Nationwide Battle to Prevent and Control Pollution, Five-year Plan on Energy Conservation and Emission Reduction published by the State Council of the PRC. China Gas strives to implement energy-saving measures and increase its energy efficiency during operations, continue to monitor and manage its greenhouse gas emissions, in order to minimise the carbon footprints and pollutant emissions of its projects.	111–133
KPI A1.1	The types of emissions and respective emissions data.	Environmental Target and Management System	111–133
KPI A1.2	Direct (Scope 1) and energy indirect (Scope 2) greenhouse gas emissions (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Environmental Target and Management System; Sustainability Overview Environmental Target and Management System; Sustainability Overview	119–175
KPI A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Environmental Target and Management System; Sustainability Overview	127, 176
KPI A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Environmental Target and Management System; Sustainability Overview	127, 176

7. CONTENT INDICES



Subject Areas, Aspects, General Disclosures and KPIs	Description	Relevant Chapter(s) or Other References/Explanation	Page Number
KPI A1.5	Description of emission target(s) set and steps taken to achieve them.	Environmental Target and Management System	111–126
KPI A1.6	Description of how hazardous and non-hazardous wastes are handled, and a description of reduction target(s) set and steps taken to achieve them.	Environmental Target and Management System We will continue to conduct detailed recording on hazardous and non-hazardous waste, in order to carry out meaningful comparisons in the future. We also strive to improve our environmental performance continuously.	126–128
Aspect A2: Use of Resources			
General Disclosures	Policies on the efficient use of resources, including energy, water and other raw materials.	Environmental Target and Management System	128–133
KPI A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility).	Environmental Target and Management System; Sustainability Overview	130, 175
KPI A2.2	Water consumption in total and intensity (e.g. per unit of production volume, per facility).	Environmental Target and Management System; Sustainability Overview	128, 176
KPI A2.3	Description of energy use efficiency target(s) set and steps taken to achieve them.	Environmental Target and Management System	130–133
KPI A2.4	Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency target(s) set and steps taken to achieve them.	Environmental Target and Management System All water used by the Group were obtained with respective permits. There were no issues related to sourcing water that was fit for purpose. We will continue to conduct detailed recording on water resources consumption, in order to carry out meaningful comparisons in the future. We also strive to improve our environmental performance continuously.	128–129
KPI A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced.	The Group's main product does not involve packaging material usage.	—

7. CONTENT INDICES

Subject Areas, Aspects, General Disclosures and KPIs	Description	Relevant Chapter(s) or Other References/Explanation	Page Number
Aspect A3: The Environment and Natural Resources			
General Disclosure	Policies on minimising the issuer’s significant impacts on the environment and natural resources.	Environmental Target and Management System	126–133
KPI A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them.	Environmental Target and Management System	126–133
Aspect A4: Climate Change			
General Disclosure	Policies on identification and mitigation of significant climate-related issues which have impacted, and those which may impact, the issuer.	Environmental Risks Identification and Control	106–110
KPI A4.1	Description of the significant climate-related issues which have impacted, and those which may impact, the issuer, and the actions taken to manage them.	Environmental Risks Identification and Control	106–110

7. CONTENT INDICES



Subject Areas, Aspects, General Disclosures and KPIs	Description	Relevant Chapter(s) or Other References/Explanation	Page Number
B. SOCIAL			
Employment and Labour Practices			
Aspect B1: Employment			
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare.	Employee Management Policy; Talent Acquisition and Retention	155–158
KPI B1.1	Total workforce by gender, employment type (for example, full- or part-time), age group and geographical region.	Employee Management Policy; Sustainability Overview	155–156, 177
KPI B1.2	Employee turnover rate by gender, age group and geographical region.	Employee Management Policy	158
Aspect B2: Health and Safety			
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to providing a safe working environment and protecting employees from occupational hazards.	Safety and Quality Operation	62–101
KPI B2.1	Number and rate of work-related fatalities occurred in each of the past three years including the reporting year.	Safety and Quality Operation; Sustainability Overview	93, 178
KPI B2.2	Lost days due to work injury.	Safety and Quality Operation; Sustainability Overview	93, 178
KPI B2.3	Description of occupational health and safety measures adopted, and how they are implemented and monitored.	Safety and Quality Operation	62–101

7. CONTENT INDICES

Subject Areas, Aspects, General Disclosures and KPIs	Description	Relevant Chapter(s) or Other References/Explanation	Page Number
Aspect B3: Development and Training			
General Disclosure	Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities.	Training and Development	158–167
KPI B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management).	Training and Development; Sustainability Overview	160, 178
KPI B3.2	The average training hours completed per employee by gender and employee category.	Training and Development; Sustainability Overview	160, 178
Aspect B4: Labour Standards			
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child and forced labour.	Employee Management Policy	156
KPI B4.1	Description of measures to review employment practices to avoid child and forced labour.	Employee Management Policy The Group regularly reviews its employment practice to ensure compliance with applicable laws and regulations in preventing child and forced labour.	156
KPI B4.2	Description of steps taken to eliminate such practices when discovered.	Employee Management Policy The Group has zero tolerance towards such practice. Violations are subject to internal disciplinary actions or handled by relevant authorities.	156

7. CONTENT INDICES



Subject Areas, Aspects, General Disclosures and KPIs	Description	Relevant Chapter(s) or Other References/Explanation	Page Number
Operating Practices			
Aspect B5: Supply Chain Management			
General Disclosure	Policies on managing environmental and social risks of the supply chain.	Business Standards and Supply Chain Management	41–50
KPI B5.1	Number of suppliers by geographical region.	Business Standards and Supply Chain Management; Sustainability Overview	50
KPI B5.2	Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, and how they are implemented and monitored.	Business Standards and Supply Chain Management	41–50
KPI B5.3	Description of practices used to identify environmental and social risks along the supply chain, and how they are implemented and monitored.	Business Standards and Supply Chain Management	41–50
KPI B5.4	Description of practices used to promote environmentally preferable products and services when selecting suppliers, and how they are implemented and monitored.	Business Standards and Supply Chain Management	41–50
Aspect B6: Product Responsibility			
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress.	Customer Care The Group has not identified material concerns in its operations regarding advertising and labelling matters, thus dedicated policies are not in place. There are no laws and regulations that have a significant impact on the Group regarding health and safety, advertising, labelling and privacy matters relating to products and services provided by the Group.	141–145

7. CONTENT INDICES

Subject Areas, Aspects, General Disclosures and KPIs	Description	Relevant Chapter(s) or Other References/Explanation	Page Number
KPI B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons.	Product Quality Inspection The percentage of total Gasbo products sold or shipped subject to recalls for safety and health reasons in 2021/22 was 0.0001%.	101
KPI B6.2	Number of products and service-related complaints received and how they are dealt with.	Product Quality Inspection	101
KPI B6.3	Description of practices relating to observing and protecting intellectual property rights.	Corporate Code of Conduct	54
KPI B6.4	Description of quality assurance process and recall procedures.	Product Quality Inspection; Custome Care	101, 141–145
KPI B6.5	Description of consumer data protection and privacy policies, and how they are implemented and monitored.	Corporate Code of Conduct	51–53

Aspect B7: Anti-corruption

General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to bribery, extortion, fraud and money laundering.	Corporate Code of Conduct	41–45
KPI B7.1	Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases.	Corporate Code of Conduct	41–45
KPI B7.2	Description of preventive measures and whistle-blowing procedures, and how they are implemented and monitored.	Corporate Code of Conduct	41–45
KPI B7.3	Description of anti-corruption training provided to directors and staff.	Corporate Code of Conduct	41–45

7. CONTENT INDICES



Subject Areas, Aspects, General Disclosures and KPIs	Description	Relevant Chapter(s) or Other References/Explanation	Page Number
Community			
Aspect B8: Community Investment			
General Disclosure	Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests.	Social Responsibility	148–153
KPI B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport).	Social Responsibility	48–153
KPI B8.2	Resources contributed (e.g. money or time) to the focus area.	Social Responsibility; Sustainability Overview	148–153, 179

7. CONTENT INDICES

GRI STANDARD AND CASS-CSR4.0

Disclosure Number	Description	Relevant Chapter(s) or Other References/Explanation	CASS-CSR4.0	Page Number
GRI 101: FOUNDATION 2016				
GRI 101 does not include any disclosures				
GRI 102: GENERAL DISCLOSURES 2016				
Organisational Profile				
102-1	Name of the organisation	About this Report	P4.1	2
102-2	Activities, brands, products, and services	About China Gas	P4.2	8–18
102-3	Location of headquarters	About this Report The Group's headquarters are located in Hong Kong and Shenzhen.	P4.1	2
102-4	Location of operations	About China Gas	P4.4	8–18
102-5	Ownership and legal form	About this Report	P4.1	2
102-6	Markets served	About China Gas; 2021/22 Annual Report	P4.4	8–18
102-7	Scale of the organisation	About China Gas; Sustainability Overview; 2021/22 Annual Report	P4.3	8–18, 173–174
102-8	Information on employees and other workers	Caring for employees; Sustainability Overview	S2.1	155–156, 177
102-9	Supply chain	Business Standards and Supply Chain Management Products provided by the Group's suppliers include equipment for CNG/LNG gas station, gas-fired boiler, steel pipelines, photovoltaic components and other equipment.	M3.1, M3.10	45–50
102-10	Significant changes to the organisation and its supply chain	About China Gas; Business Standards and Supply Chain Management; 2021/22 Annual Report	P4.4	8–18, 45–50
102-11	Precautionary Principle or approach	Corporate risk management; Safety and Quality Operation	G2.2, G2.3	40–41, 62–101
102-12	External initiatives	Sustainable Development Goals	G6.3	29–31
102-13	Membership of associations	The Group is a member of China Gas Association.	G6.3	—

7. CONTENT INDICES



Disclosure Number	Description	Relevant Chapter(s) or Other References/Explanation	CASS-CSR4.0	Page Number
Strategy				
102-14	Statement from senior decisionmaker	Message from the Chairman	P2.2, P3.1	4–5
102-15	Key impacts, risks, and opportunities	Message from the Chairman; 2021/22 Annual Report	P2.1, P3.2	4–5
Ethics and integrity				
102-16	Values, principles, standards, and norms of behaviour	About China Gas; Business Standards and Supply Chain Management	G1.1, G1.2	8–18, 41–50
102-17	Mechanisms for advice and concerns about ethics	Corporate Code of Conduct	M1.1	41–50
Governance				
102-18	Governance Structure	Sustainable Corporate Governance	G3.1, G3.2	32–39
102-19	Delegating authority	Sustainable Corporate Governance	G3.3	32–39
102-20	Executive-level responsibility for economic, environmental and social topics	Sustainable Corporate Governance; Corporate Code of Conduct	G3.1, G3.2	32–39, 41–50
102-21	Consulting stakeholders on economic, environmental and social topics	Stakeholder Engagement	G6.2	22–24
102-22	Composition of the highest governance body and its committees	2021/22 Annual Report	P4.1	—
102-23	Chair of the highest governance body	2021/22 Annual Report	P4.1	—
102-24	Nominating and selecting the highest governance body	2021/22 Annual Report	M1.2	—
102-25	Conflict of interest	2021/22 Annual Report	M1.1, M3.1	—
102-26	Role of highest governance body in setting purpose, values and strategy	Corporate Code of Conduct; 2021/22 Annual Report	G3.1, G3.2	41–50
102-27	Collective knowledge of highest governance body	2021/22 Annual Report		—
102-28	Evaluating the highest governance body's performance	2021/22 Annual Report		—
102-29	Identifying and managing economic, environmental, and social impacts	Stakeholder Engagement	G2.1	22–24

7. CONTENT INDICES

Disclosure Number	Description	Relevant Chapter(s) or Other References/Explanation	CASS-CSR4.0	Page Number
102-30	Effectiveness of risk management processes	Corporate Risk Management	G4.1	40–41
102-31	Review of economic, environmental and social topics	Stakeholder Engagement; Materiality Assessment	G2.1	22–27
102-32	Highest governing body's role in sustainability reporting	Sustainable Corporate Governance	G3.1	32–39
102-33	Communicating critical concerns	Stakeholder Engagement	G6.1, G6.2	22–24
102-34	Nature and total number of critical concerns	2021/22 Annual Report	G6.1	—
102-35	Remuneration policies	2021/22 Annual Report	S2.10	—
102-36	Process for determining remuneration	2021/22 Annual Report	S2.10	—
102-37	Stakeholders' involvement in remuneration	2021/22 Annual Report	G6.1, G6.2	—
102-38	Annual total compensation ratio	Ratio of the total remuneration of the highest-paid individual to the median total remuneration of all employees (excluding the highest-paid individual): 38.22: 1	—	—
102-39	Percentage increase in annual total compensation ratio	Ratio of the annual percentage increase in total remuneration of the highest-paid individual to the median percentage increase in annual total remuneration of all employees (excluding the highest-paid individual): 35.42%: 8.85%	—	—

Stakeholder Engagement

102-40	List of stakeholder groups	Stakeholder Engagement	G5.1	22–24
102-41	Collective bargaining agreements	None of the Group's employees are covered by collective bargaining agreements.	—	—
102-42	Identifying and selecting stakeholders	Stakeholder Engagement	G6.1	22–24

7. CONTENT INDICES



Disclosure Number	Description	Relevant Chapter(s) or Other References/Explanation	CASS-CSR4.0	Page Number
102-43	Approach to stakeholder engagement	Stakeholder Engagement	G6.2	22–24
102-44	Key topics and concerns raised	Stakeholder Engagement	G2.1	22–24
Reporting Principle				
102-45	Entities included in the consolidated financial statements	2021/22 Annual Report	P1.2	—
102-46	Defining report content and topic Boundaries	About this Report	P1.2	2
102-47	List of material topics	Materiality Assessment	P2.1	25–27
102-48	Restatements of information	Sustainability Overview The restated data are marked in the Notes	P1.2	173–179
102-49	Changes in reporting	About this Report; Stakeholder Engagement	P1.2	2, 22–24
102-50	Reporting period	About this Report	P1.2	2
102-51	Date of most recent report	The report in last year was published through online disclosure on 30 August 2021	P1.2	—
102-52	Reporting cycle	About this Report	P1.2	2
102-53	Contact point for questions regarding the report	About this Report	P1.2	2
102-54	Claims of reporting in accordance with the GRI Standards	About this Report	P1.3	2
102-55	GRI content index	Content Indices	P1.3	180–181
102-56	External assurance	We will explore the possibility of seeking external assurance in our future reports.	P1.1	—

7. CONTENT INDICES

TOPIC-SPECIFIC DISCLOSURE

Disclosure Number	Description	Relevant Chapters(s) or Other References/Explanation	CASS-CSR4.0	Page Number
GRI 200: ECONOMIC				
Economic Performance				
GRI 103: Management Approach 2016				
103-1	Explanation of the material topic and its Boundary	Materiality Assessment; 2021/22 Annual Report	G2.1	25–27
103-2	The management approach and its components	2021/22 Annual Report	G2.1, M1.5	—
103-3	Evaluation of the management approach	2021/22 Annual Report	G2.1, M1.5	—
GRI 201: Economic Performance 2016				
201-1	Direct economic value generated and distributed	Sustainability Overview; 2021/22 Annual Report	M1.5, M1.6, M1.7, S1.3	173
201-2	Financial implications and other risks and opportunities due to climate change	Sustainability Overview	E1.9	173
201-3	Defined benefit plan obligations and other retirement plans	Employee Management Policy; 2021/22 Annual Report	S2.10	156
201-4	Financial assistance received from government	2021/22 Annual Report	—	—
GRI 300: ENVIRONMENT				
Energy				
GRI 103: Management Approach 2016				
103-1	Explanation of the material topic and its Boundary	Materiality Assessment	G2.1	25–27
103-2	The management approach and its components	Environmental Target and Management System	G2.1, E1.1, E2.3, E3.1	111–139
103-3	Evaluation of the management approach	Environmental Target and Management System	G2.1, E1.1, E2.3	111–139

7. CONTENT INDICES



Disclosure Number	Description	Relevant Chapters(s) or Other References/Explanation	CASS-CSR4.0	Page Number
GRI 302: Energy 2016				
302-1	Energy consumption within the organisation	<p>Environmental Target and Management System</p> <p>During the Reporting Period, the net energy consumption of the Group was 1,081,685 GJ.</p>	E2.5	130
302-2	Energy consumption outside the organisation	<p>Environmental Target and Management System</p> <p>The energy products sold by China Gas includes natural gas and LPG, which is the most significant indirect energy consumption of the Group.</p> <p>During the Reporting Period, the total sales of energy was 2,458,756 GJ.</p>	E2.5	130
302-3	Energy intensity	<p>Sustainability Overview</p> <p>All energy intensities calculated reflect energy consumption within organisation only.</p>	E2.5	175
302-4	Reduction of energy consumption	<p>Environmental Target and Management System; Sustainability Overview</p>	E2.5	130, 175
302-5	Reductions in energy requirements of products and services	<p>We will continue to explore solutions on upgrading our energy efficiency.</p>	E2.3, E2.4	—

7. CONTENT INDICES

Disclosure Number	Description	Relevant Chapters(s) or Other References/Explanation	CASS-CSR4.0	Page Number
Oil and Gas Sector Disclosures				
OG2	Total amount invested in renewable energy	In FY2021/22, the Group's total investment in renewable energy was approximately RMB64,300,400.	E1.8	—
OG3	Total amount of renewable energy generated by source	In FY2021/22, the Group's photovoltaic power generation projects generated a total of 6,772,500 kWh of electricity.	E1.7, E2.8	—
Environmental compliance				
GRI 103: Management Approach 2016				
103-1	Explanation of the material topic and its boundary	Materiality Assessment	G2.1, E1.1	25–27
103-2	The management approach and its components	Corporate Environmental Governance	G2.1, E1.1	103–106
103-3	Evaluation of the management approach	Corporate Environmental Governance	G2.1, E1.1	103–106
GRI 307: Environmental Compliance 2016				
307-1	Non-compliance with environmental laws and regulations	Corporate Environmental Governance	M1.4	103–106
GRI 400: SOCIAL				
Employment				
GRI 103: Management Approach 2016				
103-1	Explanation of the material topic and its boundary	Materiality Assessment	G2.1, S2.2	25–27
103-2	The management approach and its components	Employee Management Policy	G2.1, S2.2, S2.12	155–157
103-3	Evaluation of the management approach	Employee Management Policy	G2.1, S2.2, S2.12	155–157
GRI 401: Employment 2016				
401-1	New employee hires and employee turnover	Talent Acquisition and Retention	S2.1, S2.20	157–158
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	Well-being of Employees	S2.10	168–169
401-3	Parental Leave	Well-being of Employees		169

7. CONTENT INDICES



Disclosure Number	Description	Relevant Chapters(s) or Other References/Explanation	CASS-CSR4.0	Page Number
Occupational Health and Safety				
GRI 103: Management Approach 2016				
103-1	Explanation of the material topic and its boundary	Materiality Assessment	G2.1	25–27
103-2	The management approach and its components	Safety and Quality Operation	G2.1, S3.1, S3.2	62–101
103-3	Evaluation of the management approach	Safety and Quality Operation	G2.1, S3.1, S3.2	62–101
GRI 403: Occupational Health and Safety 2018				
403-1	Occupational health and safety management system	Safety and Quality Operation	S3.1, S2.11	76–77
403-2	Hazard identification, risk assessment, and incident investigation	Safety and Quality Operation	S2.11, S3.1, S3.2	78–82
403-3	Occupational health services	Safety and Quality Operation	S2.11, S3.1, S3.2	89–91
403-4	Worker participation, consultation, and communication on occupational health and safety	Safety and Quality Operation	S2.11, S3.1, S3.2	74–75
403-5	Worker training on occupational health and safety	Safety and Quality Operation	S3.3	65, 91–94
403-6	Promotion of worker health		S2.11, S3.1, S3.2	89–91
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Safety and Quality Operation	S2.11, S2.17	89–91
403-8	Workers covered by an occupational health and safety management system	Safety and Quality Operation The Group's occupational health and safety management system cover 100% of employees and all contracted third-party workers onsite.	S3.1	87, 95–96

7. CONTENT INDICES

Disclosure Number	Description	Relevant Chapters(s) or Other References/Explanation	CASS-CSR4.0	Page Number
403-9	Work-related injuries	Safety and Quality Operation; Sustainability Overview	S3, 6, S3.7	93, 178
403-10	Work-related ill health	Sustainability Overview We will discuss the possibility of disclosing the occupational health and safety data of the contractors in the report in future.	S2.11	178

Training and Education

GRI 103: Management Approach 2016

103-1	Explanation of the material topic and its boundary	Materiality Assessment	G2.1	25–27
103-2	The management approach and its components	Training and Development	G2.1, S2.14, S2.16	158–167
103-3	Evaluation of the management approach	Training and Development	G2.1, S2.14, S2.16	158–167

GRI 404: Training and Education 2016

404-1	Average hours of training per year per employee	Sustainability Overview	S2.15	178
404-2	Programs for upgrading employee skills and transition assistance programs	Training and Development The Group provides supportive services such as advisory and counselling supports regarding career prospect to its employees.	S2.16	158–167
404-3	Percentage of employees receiving regular performance and career development reviews	Training and Development During the Reporting Period, all of the employees gained constructive feedbacks and suggestion on their career planning through performance appraisal.	S2.15, S2.16	167

7. CONTENT INDICES



Disclosure Number	Description	Relevant Chapters(s) or Other References/Explanation	CASS-CSR4.0	Page Number
Local Communities				
GRI 103: Management Approach 2016				
103-1	Explanation of the material topic and its boundary	Materiality Assessment	G2.1	25–27
103-2	The management approach and its components	Social Responsibility	G2.1, S4.1, S4.5, S4.6, S4.10	148–153
103-3	Evaluation of the management approach	Social Responsibility	G2.1, S4.1, S4.5, S4.6, S4.10	148–153
GRI 413: Local Communities 2016				
413-1	Operations with local community engagement, impact assessments, and development programs	Social Responsibility; Resettlement of Indigenous Peoples	S4.1, S4.5	146–153
413-2	Operations with significant actual and potential negative impacts of local communities	There were no significant environmental and social impacts to the local community identified or considered at risk during the Reporting Period.	—	—
Oil and Gas Sector Disclosures				
OG10	Number and description of significant disputes with local communities and indigenous peoples	No such incident occurred in FY2021/22.	S4.1, S4.5	—
OG11	Number of sites that have been decommissioned and sites that are in process of being decommissioned	During the Reporting Period, there were 4 sites that have been decommissioned.	—	—
Marketing and Labelling				
GRI 103: Management Approach 2016				
103-1	Explanation of the material topic and its boundary	Materiality Assessment	G2.1	25–27
103-2	The management approach and its components	Customer Care	G2.1, M2.8	141–145
103-3	Evaluation of the management approach	Customer Care	G2.1, M2.8	141–145

7. CONTENT INDICES

Disclosure Number	Description	Relevant Chapters(s) or Other References/Explanation	CASS-CSR4.0	Page Number
GRI 417: Marketing and Labelling 2016				
417-1	Requirements for product and service information and labelling	Products' information such as product specifications, parameters, sources of raw materials, guide on installation, and guide on safety use and disposal of products etc. are available in all of the Group's products under the brand of "Gasbo".	M2.8	—
417-2	Incidents of non-compliance concerning product and service information and labelling	No such incident occurred in FY2021/22.	M1.4, M2.8	—
417-3	Incidents of non-compliance concerning marketing communications	No such incident occurred in FY2021/22.	M1.4, M2.8	—
Socioeconomic Compliance				
GRI 103: Management Approach 2016				
103-1	Explanation of the material topic and its boundary	Materiality Assessment	G2.1	25–27
103-2	The management approach and its components	Social Responsibility	G2.1, M3.1	148–153
103-3	Evaluation of the management approach	Social Responsibility	G2.1, M3.1	148–153
GRI 419: Socioeconomic Compliance 2016				
419-1	Non-compliance with laws and regulations in the social and economic area	No such incident occurred in FY2021/22.	M1.4	—
Disaster/Emergency Planning and Response				
GRI 103: Management Approach 2016				
103-1	Explanation of the material topic and its boundary	Materiality Assessment; Ensuring Operation Safety	G2.1	25–27
103-2	The management approach and its components	Ensuring Operation Safety	S3.1, S3.2	89–90
103-3	Evaluation of the management approach	Ensuring Operation Safety	S3.1, S3.2	89–90

7. CONTENT INDICES



CHINA GAS ESG POLICY LIST

Policy Name	Corresponding HKEX ESG Guidelines
Rectification and Management Procedure for Transmission Loss	A1 Emissions
Scheduling and Inspection System	A1 Emissions
Leakage Detection and Prevention Mechanism	A1 Emissions
Emergency Repair Mechanism	A1 Emissions
Vehicle Management System	A1 Emissions, A2 Use of Resources
7S Office Environmental Management System	A2 Use of Resources
Office Printing Improvement Programme	A2 Use of Resources
Environmental and Social Management System	A3 The Environment and Natural Resources, B8 Community Investment
Biodiversity Conservation Policy	A3 The Environment and Natural Resources
HSE Management System Work Guidelines	A3 The Environment and Natural Resources
Environmental Impact Assessment Report Outlines	A3 The Environment and Natural Resources
Engineering Construction Risk Management and Control Guidelines	A3 The Environment and Natural Resources
Regulations of Construction Quality Management	A3 The Environment and Natural Resources
Conventional Specifications of Gas Projects Under Construction	A3 The Environment and Natural Resources
Interim Regulations for Civilised Construction and Environmental Management of Construction Sites	A3 The Environment and Natural Resources
Climate Change Policy	A4 Climate Change
Equal Rights and Interests Policy	B1 Employment
Human Resources Management Manual	B1 Employment, B4 Labour Standards
Recruitment Management System	B1 Employment, B4 Labour Standards
Management Method for Cadre Allocation	B1 Employment
Responsibilities and Annual Targets of Headquarter Departments, Business Departments and Specialised Companies	B1 Employment
Responsibilities and Annual Targets of Regional Management Centres	B1 Employment
Responsibilities and Annual Targets of Project Companies	B1 Employment
Quarterly Performance Appraisal Programme for Management Level at Regional and Project Companies	B1 Employment
Safety Management System	B2 Health and Safety
Occupational Health Management System	B2 Health and Safety
Management System for Safety Drill	B2 Health and Safety
Dangerous Source Management System	B2 Health and Safety
Management System for Safety Accident	B2 Health and Safety
Safety Monitoring Centre Management System	B2 Health and Safety
Management System of Employees Safety Scorecard	B2 Health and Safety

7. CONTENT INDICES

Policy Name	Corresponding HKEX ESG Guidelines
Management System of Safety Experience Feedback	B2 Health and Safety
Management System of General Manager Pre-employment Safety Appraisal of Project Company	B2 Health and Safety
Management System of Safety Performance Evaluation for Various Positions	B2 Health and Safety
Regulation of Safety Supervision	B2 Health and Safety
Interim Provisions on Employee's Wedding, Burial, Work-related Injuries and Visits to Major Diseases	B2 Health and Safety
Headquarters Staff Care Program	B2 Health and Safety
Staff Care Committee Assistance Application Guide	B2 Health and Safety
Risk Classification and Control Guidelines	B2 Health and Safety
Production and Operation Emergency Response and Preparation Guidelines for Project Companies	B2 Health and Safety
HSE Management Manual of China Gas	B2 Health and Safety
Construction Safety Guidelines	B2 Health and Safety
Regulations of Safety Supervision	B2 Health and Safety
Implementation Plan of HSE Management Rating for Project Companies	B2 Health and Safety
Implementation Plan of Safety Supervision and Training	B2 Health and Safety, B3 Development and Training
Implementation and Management of Safety Supervision and Inspection	B2 Health and Safety
Training and Management System	B3 Development and Training
Employees' Code of Conduct	B4 Labour Standards, B6.3 Description of practices relating to observing and protecting intellectual property rights.
Engineering Materials Supplier Management System	B5 Supply Chain Management
Tendering Management System	B5 Supply Chain Management
Contractors' Management Policy	B5 Supply Chain Management
Suppliers' Code of Conduct	B5 Supply Chain Management
China Gas Suppliers' Rewards and Punishments Regulations	B5 Supply Chain Management
Operational Management System	B6 Product Responsibility
Production and Operation Emergency Repair Maintenance Management System	B6 Product Responsibility
Incoming Inspection System	B6 Product Responsibility
On-site Inspection System	B6 Product Responsibility
Finished Products Inspection System	B6 Product Responsibility
Rectification and Management Procedure for Transmission Loss	B6 Product Responsibility
Regulations on Long-distance Pipeline and Township Gas Transmission and Distribution Management	B6 Product Responsibility
Regulations on Facilities Management	B6 Product Responsibility

7. CONTENT INDICES



Policy Name	Corresponding HKEX ESG Guidelines
Regulations on Township Gas Scheduling Management	B6 Product Responsibility
Regulations on Pressure Tapping of Steel Pipeline at High and Medium Pressure	B6 Product Responsibility
Regulations on Dangerous Operations Management in Gas Transmission and Distribution System	B6 Product Responsibility
Operation and Maintenance Management Standards for Gas Facilities	B6 Product Responsibility
CNG Gas Stations' Production and Operation Management Standards	B6 Product Responsibility
Gas Facilities' Operation and Maintenance Standards	B6 Product Responsibility
Guidelines for Home Safety Inspection Management for Gas Users	B6 Product Responsibility
Management Guidelines for Gas Pipeline Network Inspection	B6 Product Responsibility
Against Corrosion Design, Construction, Operation and Maintenance Guidelines for Overhead Gas Pipelines	B6 Product Responsibility
Emergency Response Plan	B6 Product Responsibility
Customer Service Management System	B6.2 Number of products and service related complaints received and how they are dealt with.
Customer Complaint Handling Principles	B6.2 Number of products and service related complaints received and how they are dealt with.
Employee Service Specification	B6.2 Number of products and service related complaints received and how they are dealt with.
Call Centre Management Regulations	B6.2 Number of products and service related complaints received and how they are dealt with.
Hotline Personnel Service Manual	B6.2 Number of products and service related complaints received and how they are dealt with.
Privacy Policy	B6.5 Description of consumer data protection and privacy policies, and how they are implemented and monitored.
Protection of Customer Data Privacy	B6.5 Description of consumer data protection and privacy policies, and how they are implemented and monitored.
Anti-bribery and Anti-corruption Policy	B7 Anti-corruption
Anti-corruption Work Regulations of China Gas (trial)	B7 Anti-corruption
Supervision and Punishment for Employees' Misconduct	B7 Anti-corruption
Employees' Rewards and Punishments Regulations	B7 Anti-corruption
Internal Audit Supervision and Management System	B7 Anti-corruption
Internal Supervision and Reporting Management System	B7 Anti-corruption
Engineering Materials Supplier Management System	B7 Anti-corruption
Red and Yellow Lines Management Regulations	B7 Anti-corruption
Integrity and Diligence Handbook	B7 Anti-corruption
Charitable and Community Activities Management Policy	B8 Community Investment



CHINA GAS HOLDINGS LIMITED
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