



**港華智慧能源有限公司**  
**Towngas Smart Energy Company Limited**

*(Formerly known as Towngas China Company Limited)*  
*(Incorporated in the Cayman Island with limited liability)*  
(Stock Code: 1083)

# Innovation

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2021

**Environmental, Social & Governance Report**



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# 01 About This Report

Towngas Smart Energy Company Limited (“the Group”, “Towngas Smart Energy” or “We”) is committed to being Asia’s leading smart energy supplier and quality service provider. We have actively incorporated the philosophy of sustainable development into our strategic planning and business operations. The Group releases the Environmental, Social and Governance Report (“ESG Report”, previously known as “Sustainability Report”) every year to review the work philosophy, management strategy, performance and commitment in Environmental, Social and Governance (“ESG”) aspects, and to respond to stakeholders’ attention to the critical areas of ESG. This ESG Report (hereafter “this Report”), as the ninth ESG Report issued by the Group, focuses on the ESG progress and achievements in 2021.

## Scope of Report

This Report covers data from Towngas Smart Energy Company Limited and its project companies in the Chinese mainland, including natural gas and energy sales, gas connection and extended businesses. Due to the Group’s strategic planning and new projects development in 2021, the scope of the energy business has expanded compared to the previous year.

Unless otherwise specified, the reporting period is in line with that of the Annual Report 2021 of Towngas Smart Energy Company Limited, covering the period from 1 January 2021 to 31 December 2021 and any prior period where applicable because of the continuity and comparability of some data.

## Editorial References

This Report was prepared in accordance with Appendix 27: Environmental, Social and Governance Reporting Guide under Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited, Guidelines on Corporate Social Responsibility Reporting in China (CASS-CSR 4.0) by the Chinese Academy of Social Sciences and ISO 26000 Guidance on Social Responsibility by the International Organisation for Standardisation.

For more details, please refer to Appendix: Environmental, Social and Governance Reporting Guide by The Stock Exchange of Hong Kong Limited.

## Information Clarification

Information disclosed in this Report mainly comes from the Group’s official documents, final statistical information and public records. All monetary amounts mentioned in this Report are denominated in Renminbi (RMB) unless otherwise specified.

This Report is published in Simplified Chinese, Traditional Chinese and English. In case of any inconsistency between the Chinese and English versions, the Chinese version shall prevail.

## Reporting Principles

When preparing this Report, we adhered to the four reporting principles of “materiality”, “quantitative”, “balance” and “consistency” in the ESG Reporting Guide as the backbone, among which the application of the three principles of “materiality”, “quantitative” and “consistency” is explained as follows:

The principle of “materiality”: This Report focuses on the material topics identified and assessed by internal and external stakeholders. For details on the materiality assessment of ESG issues in 2021, please refer to the Stakeholder Communication section.

The principle of “quantitative”: This Report discloses measurable Key Performance Indicators (“KPIs”) where feasible and uses these as the basis for setting relevant goals in the future. This Report retains the performance data of previous years and discloses appropriate data calculation instructions, including calculation standards, methodologies, assumptions and conversion factors, to effectively evaluate and verify the effectiveness of ESG-related policies and management systems.

The principle of “consistency”: Unless otherwise specified, this Report uses the same statistical method of disclosure as that of previous years to ensure comparability.

## Report Commitment

The Board of Directors assumes all ESG strategy and reporting liabilities and promises that the Report does not contain any false representation, misleading statement or significant omission.

## Access to Report and Contact

This Report is available in three formats: print, electronic and mobile. To request a printed copy of this Report, please call (852) 2963 3298; or please visit the official website

<https://www.towngassmartenergy.com/en> for the digital version or scan the QR code for the mobile version.



If you have any comments or recommendations for this Report or our ESG performance, please contact us through:

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## 02 Chairman's Statement



We witnessed rare extreme weather events in many places across the globe in 2021 due to the continual increase in greenhouse gas emissions. Facing the crippling effects of climate change and the COVID-19 pandemic worldwide, Towngas Smart Energy remains steadfast in its commitment to ESG development and corporate social responsibility.

Protecting the environment is fundamental to the future of humankind. The Group pursues the coexistence between business and society and focuses on the coordinated development of business and the environment. In line with the dual carbon goal, the Group, as a leading enterprise in the country's energy industry, takes on the responsibility for boosting energy efficiency and reducing carbon emissions in a bid to speed up its evolution into an integrated smart energy investment operator. On 26 November 2021, the Group was renamed "Towngas Smart Energy Company Limited" ("Towngas Smart Energy"). Before the name change, Affinity Equity Partners, a well-known private equity firm,

announced an investment of HK\$2.80 billion into the Group, as it recognised the Group's tremendous development potential and integrated strengths in smart and clean energy. This strategic investment enables us to accelerate the adoption of clean and efficient energy systems in the industry.

Benefitting from our strategic transition, we have developed a business model with gas and integrated energy at its core in 2021. On the one hand, we continue to take city gas projects as our core business. Aligning our strategy with the energy policy in the Chinese mainland, we expedite the development of gas pipelines to promote a wider application of natural gas and stimulate the development of gas-related industries. In addition, we set up a centre dedicated for heating projects, focusing on regional centralised heating, industrial and commercial heating/cooling/warming, commercial hot water supply, residential space heating and other businesses, to provide customers with integrated energy services.

On the other hand, building upon our enormous market and customer base of city gas projects, as well as well-developed business and political connections, we have concentrated our efforts on developing the project of zero-carbon industrial parks. We built a smart energy ecology platform based on digital technology and built integrated smart energy systems such as multi-energy complementary systems, distributed photovoltaics, energy storage and battery charging and swapping to realise digitalisation and decarbonisation in the management of industrial parks through synergising source-grid-load-storage strategies, thereby pushing forward the development of zero-carbon smart cities. We also work with excellent partners in the same supply chain to carry out strategic cooperation with leading enterprises and top scientific research institutions to tap the smart energy market regarding resource sharing, technology R&D, and collaborative innovation.

As the Chinese saying goes, “when you drink water, think of the source”. Our success would not have been possible without stakeholders’ support and trust. With a grateful heart, we are committed to formulating overarching management directives rooted in the public interest while maximising value for stakeholders and the community. We have enhanced corporate governance, complied with laws and regulations and promoted employment in society. We have strengthened the monitoring over production safety, built an effective protection system and improved our safety management, thereby creating a safe living environment for the public. By offering digital and smart technologies, together with professional services, we have optimised customers’ experience and created greater value for them. Guiding by our people-oriented philosophy, we have attached great importance to our employees’ career development and attended to spiritual and cultural needs, and strived to create a positive and harmonious working culture. Together with our project companies, we have taken an active part in public welfare activities of educational support, poverty alleviation and environmental protection, increasing the public awareness of social welfare projects and volunteer services in society.

The “14<sup>th</sup> Five-Year Plan” is a critical period for reaching the dual carbon goal. The steady economic development in the Chinese mainland and the government’s continuous efforts in facilitating green energy industries will offer us a broad prospect for development. The Group has set the theme of 2022 as the “Year of Dual Carbon Goal Opportunity” and will seize the opportunities arising from environmental management and energy reform to provide green and low-carbon energy services. We will expand the scope of our business and improve its quality to speed up our evolution into an integrated smart energy service provider. These efforts will contribute to realising the dual carbon goal and to combating the global climate crisis, thus creating a better future for humankind.

Dr. Lee Ka-kit  
Chairman

Towngas Smart Energy Company Limited  
Hong Kong, 17 March 2022



# 03 CEO's Statement

The global pandemic situation and climate crisis remained severe in 2021. In this complex landscape, Towngas Smart Energy, following the national strategy of the dual carbon goal, has seized the opportunities arising from energy reform and environmental management and achieved steady growth in the sales of natural gas and energy, gas connection and extended businesses. The Group is committed to business and technological innovation to improve the quality of the services and to achieve sustainable development.

We have put the management of Environmental, Social and Governance (“ESG”) as a high priority and aligned the United Nations’ Sustainable Development Goals (“SDGs”) with our daily operations. Our ESG Committee is in charge of the development of the policies and assessments pertaining to climate change so as to offer guidance to the ESG work of the Group.

As a leading enterprise in the energy industry, we have taken the initiative to launch the transformation. This year, “Towngas China Company Limited” was renamed “Towngas Smart Energy Company Limited”. We will focus on the renewable business and step up the transformation with the aim to become a leader in the field of integrated smart energy.

For our gas business, we accelerated the operational planning for the gas source operation centre established during the year. The centre coordinates upstream LNG production, storage and other processes, and strengthens strategic collaboration with city gas project companies through national pipelines. It also serves as a centralised platform to manage gas source. For promoting a wider application of natural gas, in addition to tapping into the opportunities of coal-to-gas conversion, we developed heating business and promoted our residential heating business tailored to local needs, which helped drive our performance growth. At present, the Group has 176 city gas projects in 21 provinces, autonomous regions and municipalities in the Chinese mainland, serving more than 15 million customers.

In terms of the renewable business, the Group fully leverages the synergies with its parent company, The Hong Kong and China Gas Company Limited. With more than 400,000 industrial and commercial customers in the Chinese mainland, we implemented three core strategies, namely integration, digitalisation and decarbonisation to drive the development of zero-carbon smart industrial parks. As at the end of 2021, the Group and its parent company have carried out 110 renewable energy projects in 21 provinces, municipalities and autonomous regions across the country, including 32 zero-carbon smart industrial parks, fostering the development of “zero-carbon cities”.

Regarding the extended businesses, the Group highly values quality and innovation. While securing energy supply and quality services, we provide e-commerce services, home-delivery services, insurance services, kitchen cabinets, gas stove products and more, allowing household families to enjoy a smart, safe, comfortable and healthy living. In 2021, the Group launched the health brand Moment+. Through the integrated business model of the online service platform and the offline community lifestyle experience centres, we promote a healthy lifestyle to the public and thus contribute to building a “Healthy China”.

With regard to safety management, the Group strictly implements an accountability framework. We formulate different safety themes every year, and invest in the replacement of dated gas pipes to ensure customer safety. We also place great importance on the safety and health of all employees and continuously improve occupational safety and health management. Following the principle of respecting our workplace and gender equality, we offer our employees competitive salary and remuneration packages and provide them with a healthy, ideal and empowering environment to facilitate individual development.

Regarding public welfare, we have been shouldering corporate social responsibility and striving to create shared value for society. Upholding the ethos of “benefitting society”, we have devoted continuous efforts to promoting poverty alleviation, caring for the disabled, education, and environmental protection, thus contributing to social prosperity. We have been encouraging our employees to participate in charitable activities for the betterment of society.

Looking forward, Towngas Smart Energy will continue to serve the interest of stakeholders and pursue innovation-driven development. We also strive to improve our performance in the field of ESG, build a sustainable ecological environment, and to join hands with all parties to fulfil the country's dual carbon goal.

Mr. Peter Wong Wai-yee  
Executive Director and Chief Executive Officer  
Towngas Smart Energy Company Limited  
Hong Kong, 17 March 2022





# 04

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## About Towngas Smart Energy



Towngas Smart Energy Company Limited (Stock Code: 1083) is listed on the Main Board of The Stock Exchange of Hong Kong Limited (SEHK) and a subsidiary of The Hong Kong and China Gas Company Limited (Stock Code: 0003, “HKCG”, “parent company”). We are a public utility in the Chinese mainland, with businesses spanning gas, renewable energy and extended businesses such as home products and high-end kitchen cabinets.

## Gas Business

Gas is the core business of Towngas Smart Energy, which we primarily engage in the sales of piped gas, supporting gas fuel storage and gas appliance supply, installation, maintenance and related auxiliary businesses. The Group supplies safe and reliable natural gas to commercial and residential customers and seizes the opportunities arising from the national strategy of energy transformation and environmental protection to promote coal-to-gas conversion in industrial areas actively. The initiatives encourage industrial business to use natural gas as production fuel in place of highly polluting coal to reduce greenhouse gas emissions. The Group also expands the application of distributed energy systems through a sensible allocation of resources to spur project companies to invest in and develop heating, smart energy and other businesses.

Since the establishment of the first city gas project, the Group gas business has expanded from South China to East China, North China, Northeast China and Southwest China. As at the end of 2021, Towngas Smart Energy had five upstream and midstream projects and operated 176 city gas projects spanning 21 provinces, autonomous regions and municipalities in the Chinese mainland, including Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hebei, Henan, Heilongjiang, Hubei, Hunan, Jilin, Jiangsu, Jiangxi, Liaoning, Inner Mongolia, Shandong, Sichuan, Shanghai, Yunnan, Zhejiang and Chongqing. The Group totalled 63,727 kilometres in gas pipeline network length, and served more than 15 million customers. In 2021, the total gas sales volume and the revenue of the Group is 14,579 million cubic metres and HK\$17,125 million, respectively.



## Renewable Business

To support China’s “30.60” dual carbon goal, we leverage resources to explore new applications in energy to boost energy efficiency. Our efforts in renewable energy projects have added impetus to our “zero-carbon city” smart energy scheme.

Following the core strategy of integration, digitalisation and decarbonisation, we set up a “Towngas Smart Energy Ecology Platform” to integrate source-grid-load-storage and upgrade digital technology in energy management, building zero-carbon smart industrial parks. We took vigorous efforts to develop integrated energy management and services in regions by investing, building and operating distributed photovoltaics, energy storage, battery charging and swapping, multi-energy supply (cooling, heating and electricity) and other energy infrastructure, and provide energy value-added services such as carbon management and efficiency management.

As at 31 December 2021, the Group and the parent company had over 110 renewable energy projects spanning 21 provinces, autonomous regions and municipalities, and negotiated the building of 32 zero-carbon smart industrial parks. We have been setting up project companies and are committed to becoming a top brand in zero-carbon smart industrial parks, helping to realise the country’s dual carbon goal.

## Extended Business

Towngas Smart Energy, a leading enterprise in the energy industry with steady performance, has been innovative in exploring transformation pathways. Leveraging the existing business advantages, our project companies have coordinated with Towngas Lifestyle, a platform under the extended business of the parent company. With the ecological support given by the VCC (“Virtual Customer Centre”), the parent company’s internet service platform, we, focusing on enabling our customers to lead healthy and comfortable lifestyles, have continued to innovate our services based on different living scenarios to develop new forms of business, offering a diversified portfolio of quality products and services to 15 million families.

As at the end of 2021, over 90% of the Group's project companies used the VCC platform to reach users and the number of online users reached 6 million. Additionally, we set up more than 20 Moment+ community lifestyle experience centres in 2021, which served as an essential offline platform to realise the strategic business planning. Going forward, we will have more centres in the communities across the country to provide more quality, pleasant, comfortable and healthy services available online and offline, thus speeding up the building of "Healthy China" and "creating a better life for everyone at home".



## Vision and Mission

### Vision

To be Asia's leading smart energy supplier and quality service provider, with a focus on innovation and environmental friendliness.

### Mission

Whilst improving the environment, we are also providing our customers with reliable, efficient, safe and clean energy.

## Events in 2021



As a leading player in the industry, we have been making an efficient allocation of resources and raising the value of the core business with our sound financial management system, abundant gas supply and remarkable energy management ability. In 2021, guided by the dual carbon strategy, we tapped into our strengths in traditional energy to take the lead in launching the “smart transformation” in the industry to foster the development of green and smart energy with integration, digitalisation and decarbonisation as the core strategy.

- April 2021: Towngas Smart Energy and Shanghai Gas signed a gas source collaborative framework agreement to realise a thorough fusion of resources;
- July 2021: completed the acquisition of a 25% equity interest in Shanghai Gas;
- July 2021: unveiled the share incentive plan and bought shares from the market in November to reward the management personnel;
- October 2021: entered into a strategic partnership with Affinity Equity Partners to further expand smart energy business;
- November 2021: renamed “Towngas China Company Limited” to “Towngas Smart Energy Company Limited”;
- December 2021: entered into equity interest transfer agreements of acquiring the equity interests in 31 smart energy companies owned by the parent company.

## Operating Performance



### Revenue (Unit: HK\$ million)

2021	2020	2019
17,125	12,826	12,924

### Profit for the year attributable to shareholders (Unit: HK\$ million)

2021	2020	2019
1,253	1,447	1,308

### Gas sales volume (Unit: Million cubic metres)

2021	2020	2019
14,579	12,003	11,120

### Length of pipeline network (Unit: Kilometres)

2021	2020	2019
63,727	58,081	52,031



# Accolades and Awards



On 11 June 2021, with its long-term efforts and achievements in low carbon and energy efficiency, Towngas Smart Energy was awarded the title of “2021 Low-Carbon Role Model” by *China News Weekly* published by China News Service.



On 10 December 2021, Towngas Smart Energy was awarded the “2021 Sustainability Brand” by *Southern Weekly* by virtue of its development philosophy of green industry and joint development of business and society and diversified quality operations.



On 29 June 2021, Towngas Smart Energy was included in the list of “Top 60 China Corporate Citizen 520 Responsible Brand 2021” by virtue of its outstanding performance in fulfilling corporate social responsibility and facilitating the sustainable development of responsible brands.



On 26 December 2021, the 10<sup>th</sup> Walk for Charity was held in Shenzhen. Towngas Smart Energy was awarded the “Caring Enterprise”. It was the second year in a row that the Group won the prize.



On 3 December 2021, Towngas Smart Energy was awarded the title of “2021 Vibrant City Builder” by *China News Weekly*, published by China News Service, for its outstanding contribution to sustainable urban development.



On 28 December 2021, approved by China Economic Panel, Towngas Smart Energy was awarded as “Innovative Enterprise in China’s Economy in the New Era” at the 2021 China Economic Forum and the 19<sup>th</sup> Annual Meeting of Chinese Economic Figures.



# ESG Performance in 2021



Zero work-related fatality



23 project companies obtained ISO 45001 occupational health and safety management system certification;

36 project companies obtained work safety standardisation certification



3,541 safety inspections during the safe production month



31 planned safety audits

78 unplanned safety inspections



625,063 annual safety training hours



Negotiated the construction of 32 projects of zero-carbon smart industrial parks



Completed more than 100 projects of green integrated energy service



Nearly 18,000,000 kilowatt-hours of photovoltaic power generation



Planted about 9,600 saplings



# 05

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## Towngas Smart Energy's Steps towards Transformation



The globe has accelerated the transformation to a clean, distributed and low-carbon energy consumption structure with an increasing proportion of renewable energy and natural gas. By 2040, the world's energy supply mix will be divided into four parts: oil, natural gas, coal and non-fossil energy sources. Renewable energy and natural gas will gradually replace coal and oil to become the primary source of energy increment.

Driving the green transition is a primary task for the country to foster a new development paradigm during the "14<sup>th</sup> Five-Year Plan" period. After the Chinese mainland pledged to achieve the "30.60" goal of carbon emissions peak and carbon neutrality, the State Council released a document titled "Action Plan for Carbon Dioxide Peaking Before 2030" in which it proposed to base economic and social development upon the goal of carbon dioxide peaking and take action to facilitate green and low-carbon energy transition.

The energy transition is key to achieving carbon neutrality. Energy transition refers to the shift of energy mix from fossil-based to renewables. It means that energy production, transmission, conversion and storage undergo transformation and adjustment to form a new energy system, thus increasing the utilisation rate of renewable energy.

As a quality, efficient, green, clean and low-carbon energy, natural gas has taken an increasing share in the energy consumption structure. The Chinese mainland's proposal to "gradually make natural gas one of the main sources in the modern clean energy system" further illustrates the vital position of natural gas in the energy mix, instilling confidence in the development of the industry.

In responding to the "30.60" goal, Towngas Smart Energy has established a new pattern of a natural gas industrial chain based on the core business of gas. During the year, the Group completed the capital increase in Shanghai Gas and signed a gas source collaborative framework agreement to leverage resources such as Yangshan Port and Wuhaogou LNG facilities to provide gas source supply and coordinate the demand for the various regions where the Group operates. The Group set up a gas source operation centre to coordinate the work. Seizing the historic opportunity of the marketisation reform of natural gas industry in the country, we continuously adopted diversified strategies in gas source development and reinforced the planning of gas storage and peak-shaving facilities, LNG terminals and LNG trading to better cater for emergency situations, ensure gas supply in winter and stabilise the market, thus pushing forward the quality social and economic development.

In the downstream industrial market, to support coal-to-gas conversion, Towngas Smart Energy has carried out relevant projects to build up pipeline networks of natural gas to cover gas-fuelled boilers and furnaces and introduced practical measures to help steel, ceramics, glass, textile and other industries to save energy, cut carbon emissions, upgrade their equipment to enhance the utilisation efficiency of natural gas.

The Group has continued to explore the downstream commercial market, focusing on small and medium-sized catering to make natural gas and integrated energy more accessible. Our target groups are clients with integrated energy needs such as hotels, hospitals, schools, and commercial complexes. We also develop public textile laundry business under the brand of "C-Tech Laundry". The operations of green and smart laundry plants will further tap into the market of natural gas application and facilitate the low-carbon development of the laundry and local hotel industry.

For the downstream market, following the trend of urbanisation, the Group has carried out the natural gas replacement work for residential customers in an orderly manner and laid pipeline networks to "connect every town and every village" so that more people can be accessible to efficient and clean natural gas. Furthermore, we provide customers with safe and quality products and services. We promote residential heating services according to local conditions by offering one-stop services such as equipment selection, design and construction, whole-house heating and smart temperature control, enabling families to enjoy a comfortable and convenient experience.

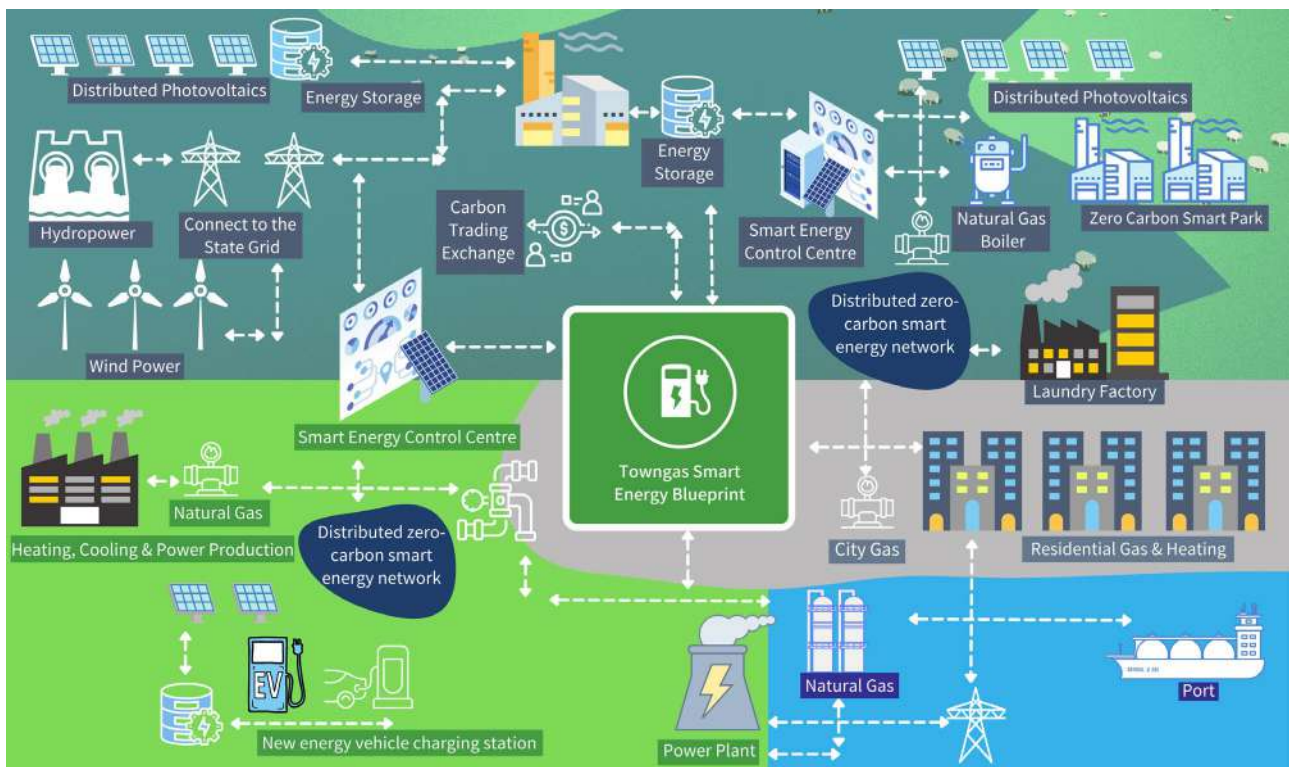
With the business philosophy of pursuing low-carbon and green development and adopting the efficient operating system and advanced management model, Towngas Smart Energy continues to inject positive momentum into the development of public utilities where the projects are located. In the next stage, the Group will endeavour to develop integrated energy projects such as industrial, commercial and residential heating while securing gas supply and developing markets for boilers, air conditioners, water heaters and wall-mounted stoves to reduce carbon emissions in industries and promote the transformation of the national energy mix.

## Significant benefits of coal-to-gas conversion

Air pollution	Natural gas-fuelled boilers discharge air pollutants in smaller size and at low concentrations.
Calorific value	Natural gas-fuelled boilers have higher calorific values and a more stable supply, which improves production quantity and quality in specific industries.
Water resources	No wastewater is produced in the desulphurisation and denitrification of natural gas.
Solid waste	Natural gas-fuelled boilers do not produce cinder.
Land	Natural gas-fuelled boilers occupy a small land area since natural gas is transported by pipelines and does not need to be stored.

A zero-carbon smart energy system is the key to future energy development and the core driving force for achieving global climate goals, maintaining energy security, and stimulating economic growth.

## Towngas Smart Energy Blueprint



Towngas Smart Energy has leveraged resources to create a synergy between the energy efficiency of natural gas and renewable energy, integrate energy transformation with socioeconomic structure and investment and promote technological innovation, to set up zero-carbon smart industrial parks with smart energy as the core in which the following businesses are carried out:

1. **Investment and operation of energy facilities:** Based on different scenarios in the industrial parks, we optimised the energy supply structure in the parks by investing in and operating distributed photovoltaics, energy storage and battery charging and swapping stations, multi-energy complementary system and other facilities to assist customers in reducing carbon dioxide emission and costs of energy use.
2. **Smart energy management services:** We provided customers in the parks with integrated services, including energy efficiency management, carbon management, green power trading, and energy operation to help them cut costs, increase energy efficiency and achieve green and low-carbon development.
3. **Energy digitalisation:** We set up a smart energy ecology platform to offer solutions for energy consumption, energy supply and energy integration to industrial parks and enterprises in the parks. In this way, we can help customers monitor, analyse and trade energy and carbon to save energy and reduce carbon emissions, and adopt smart management of energy assets. Through energy digitalisation, we assist customers in comprehensively understanding their energy demand and energy use characteristics and difficulties so as to cut costs and maximise efficiency. We provided customers with tailor-made solutions to enable them to use green, affordable and safe energy.

4. **Energy Integration:** We built a virtual power plant in the region by integrating energy facilities and energy demand in the parks to achieve a dynamic response to the power grid, making the zero-carbon smart industrial parks a vital part of the new power system.

Based on the strategic positioning of regional smart energy investment operators, Towngas Smart Energy used cloud computing, big data, artificial intelligence, edge computing, Internet of Things and other digital technologies to achieve innovations in energy and carbon monitoring, energy operation and maintenance, energy and carbon trading and auxiliary services. In terms of data platform, a smart energy ecology platform and an integrated energy management platform were built to enable application development and system access, laying the foundation for the data operation and maintenance of smart energy. Regarding data application, we developed a wealth of digital application products through self-developed technologies and ecological cooperation to cover scenarios including energy supply, consumption and load aggregation to provide our customers with a comprehensive energy digitalisation solution.





# 06

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## Corporate and ESG Governance



## Board of Directors



The Board of Directors of Towngas Smart Energy (the Board), the most senior unit of the corporate governance structure, is ultimately responsible for the Group's business, strategies and financial performance. The Board comprises ten members, including two non-executive directors, five executive directors and three independent non-executive directors. The Board sets up the Remuneration Committee, the Board Audit and Risk Committee, the ESG Committee and the Nomination Committee, which carries out external performance evaluation of the Board. These Committees are committed to close monitoring of the operation and high transparency to ensure shareholders' rights and interests are well-protected. The Board, accountable to shareholders, supervises the Group's affairs to create value for shareholders. The Board establishes various committees to manage the overall strategic planning, set relevant principles and objectives, track progress, monitor financial performance and account preparation, formulate corporate governance practices and policies, and review internal control and the risk management system. The Group formulated the "Board Diversity Policy" and "Nomination Policy" to reinforce corporate governance and heighten the efficacy of the Board.

The Group believes that board diversity is beneficial for achieving high business performance. Selection of candidates to the Board is based on a range of perspectives, including but not limited to gender, age, cultural and educational background, ethnicity, professional experience, skills, knowledge and length of service. Regarding the composition of the Board, we uphold the principle of appointment by merit and take diversity policy into account. The Board sets the goal of having at least one female board member who has appropriate professional expertise and experience by 2022.

## Corporate Governance



Towngas Smart Energy has formulated a comprehensive management structure and continued its effort in improving the corporate governance mechanism. In 2021, in order to prevent anti-monopoly compliance risks and to elevate the anti-monopoly compliance management system, we revised the "Guidelines for Public Utilities Anti-Monopoly Compliance Management of Towngas

Smart Energy" and formulated the "Legal Environment Tracking List of Public Utilities" and "Antitrust Compliance Risk and Assessment List of Public Utilities" to help public utilities to stay abreast of the changes in the legal environment, and carry out anti-monopoly risk identification and assessment on this basis.

## Risk Management



In line with stakeholders' expectations, Towngas Smart Energy is committed to building a robust risk management system to improve risk prevention capabilities in a comprehensive manner. The Group has a multi-level risk management structure in place to establish relevant mechanisms for exercising authority, making decisions and implementing supervision. This enables effective identification, evaluation, mitigation, reporting and monitoring of various significant risks faced by the Group and the project companies. Thus, the Group is able to formulate strategies and execute projects prudently to achieve better business performance.

The Board Audit and Risk Committee regularly reviews the effectiveness of the risk management and internal control system of the Group and reports directly to the Board to assist the latter in overseeing the overall risk management system of the Group. The Group Executive Risk Management Committee is responsible for formulating the risk management system and ensuring its effective implementation so as to reduce risks to an acceptable level. The Corporate Risk Management Committee assists the Group Executive Risk Management Committee in reviewing significant risks and monitoring the implementation of risk mitigation measures.

The risk management process is embedded into the day-to-day operation and is an ongoing process carried out by everyone in the organisation across all business units. Each project company has its risk management process and system. Regular communication is made among project companies, regional offices and headquarters of the Group on the latest risk exposures and mitigation measures. A regular independent review would be performed to ensure effective management of different types of risks.

Towngas Smart Energy submits Safety and Risk Work Report as a stand-alone agenda item at the annual board meeting. The results of the Group's significant

risk self-assessment and related risk monitoring indicators are also included to guide the project companies to conduct risk analysis and management in order to eliminate potential issues and malpractices. At the same time, the Group strictly implements the safety and risk management audit system and conducts periodic comprehensive safety and risk management audit of project companies to raise their safety and risk management standard effectively.

In order to support the country's strategy to govern according to law comprehensively and to improve the Group's standard of corporate governance in accordance with the law, Towngas Smart Energy has established a legal risk prevention system that comprises prevention ahead of incidents, controls during incidents and assessment after incidents. Taking into account the characteristics and business processes of public utilities, the Group has established a sound legal risk assessment system and a significant risk reporting mechanism. It has also compiled a checklist for assessing legal risks and quantifiable evaluation standards. The Group deployed legal personnel in respective regions, hired professional compliance legal consultants, and organised compliance training sessions in order to effectively identify, control and resolve legal risks to ensure the Group's business operations meet the national legal requirements. Through "Towngas Smart Energy Law Lectures", the Group conducted internal sharing on typical legal cases, featured new laws and policies, analysed industry regulations, drew attention to legislative trends and implemented the philosophy of corporate governance in accordance with the law to ensure that the Group operates in a safe, orderly and efficient manner in the face of dynamic policies and market environment. In 2021, considering the situation of business operation, the Group added the section of enterprise legal risk management on the online management system so as to put the compliance management system in place. The Group used the technology to share information, conduct dynamic tracking and exercise control in the process. The increase of the followers of "Towngas Smart Energy Law Lectures" demonstrated a greater influence within the group and the effectiveness of compliance management and promotion.

## Business Ethics

The Group's values of accountability, open communication, respect and integrity represent how we behave - as colleagues work with each other, our customers, our shareholders, our business partners,

and others in the communities we serve. We firmly believe in the importance of law-based governing, integrity and fair competition in maintaining our comparative advantage in the market. Adhering to laws and regulations regarding anti-corruption, integrity and business ethics, including the "Company Law of the People's Republic of China", "Anti-Monopoly Law of the People's Republic of China", "Anti-unfair Competition Law of the People's Republic of China", "Interim Provisions on Banning Commercial Bribery" promulgated by the State Administration for Industry and Commerce and "Prevention of Bribery Ordinance" in Hong Kong, we formulated and published relevant policies, including the "Code of Conduct for Employees", "Anti-Fraud Policy" and "Policy and Measure for Disclosure of Inside Information".

We abide by national laws and regulations and the Group's regulatory frameworks and have zero tolerance for violations against business ethics. Therefore, we framed the "Whistleblowing Policy" and established effective channels for reports which can be found on the Group's official website. In our business ethic manual, we stipulated the whistleblower protection mechanism aimed for a higher degree of transparency of corporate governance, thereby enabling stakeholders to have trust and faith in our corporate governance.

## Management and Monitoring

The Board Audit and Risk Committee is responsible for the revision, publication and supervision of the "Code of Conduct" and the "Business Ethics Manual", and reports to the Board of Directors on the Group's business ethics condition at least once a year. The Internal Audit Division pays attention to the risks of bribery, fraud and other violations of business ethics in the implementation of regular audit procedures, and reports to the Board Audit and Risk Committee every six months. In 2021, the Group was not involved in lawsuits related to employee bribery, extortion, fraud and corruption.



### Annual Summary of Internal Audit

In 2021, Towngas Smart Energy launched 40 audits, followed up on the execution of recommendations in 22 audit reports, supported project companies in establishing and optimising 37 regulatory frameworks, and conducted annual reporting to audit committees or boards of directors of 6 project companies.

## Whistleblowing Procedures

We abide by national laws and regulations and the Group’s regulatory frameworks and show zero-tolerance for violations of business ethics. We framed and followed the “Whistleblowing Policy”<sup>1</sup> to encourage people in businesses to report violations against business ethics in the following ways:

### In written reports

The whistleblowers should make their reports to the Corporate Audit & Risk Management Department (“CARD”) of the HKCG Group<sup>2</sup> in writing by post in a sealed envelope clearly marked “To be opened by addressee only”.

Hong Kong Office

Head of Corporate Audit & Risk Management of the HKCG Group

The Hong Kong and China Gas Company Limited  
14/F, 363 Java Road,  
North Point, Hong Kong

or

PRC Office

Head of Corporate Audit & Risk Management of the HKCG Group

Towngas Smart Energy Company Limited  
18/F, Office Building, Block B, China Merchants  
Central,

No. 333 Liyuan Road,

Luohu District, Shenzhen

### In emails

The whistleblowers may download and fill in Whistleblowing Report Template from the official website. Email address for matters relating to the business of Towngas Smart Energy:

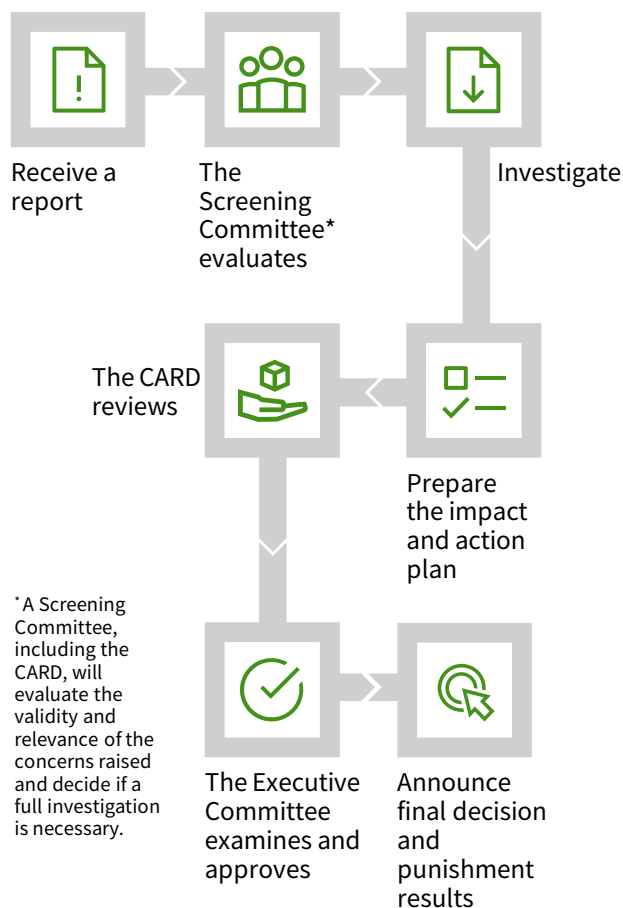
[GangHua.whistleblower@towngas.com](mailto:GangHua.whistleblower@towngas.com)

<sup>1</sup> It can be found on the following website:  
<https://www.towngassmartenergy.com/en/About-Us/Corporate-Governance>

<sup>2</sup> The “Whistleblowing Policy” stipulates that reports of Towngas Smart Energy (except those involving the Group’s Directors or Executive Committee members) are all collected and handled by the parent company.

If the concerns raised involve a Director or an Executive Committee member of Towngas Smart Energy, the Whistleblowers may choose to report directly to the Chairman of the Board Audit and Risk Committee of the Group by post at the same addresses above, or via the email addresses: [BAC.Chairman.TCCL@towngas.com](mailto:BAC.Chairman.TCCL@towngas.com).

## Whistleblowing Investigation Procedures



## Training for Business Ethics

All employees adhere to business ethics and codes of conduct. Their work is reviewed by Human Resources and Administration departments and they are required to sign a “Staff Declaration” and “Declaration of Next of Kin Employed by the company and Conflict of Interests” to ensure no conflict with the interests of the Group. Besides, they need to get ethics training and tests on a regular basis and receive information from the Audit and Risk Management Department, the Legal Department and external counsels.

To safeguard integrity and self-discipline and hinder abuses, all employees completed the signing of the Business Ethics Commitment concerning commercial bribery, conflict of interests, intellectual property and information security at the beginning of 2021, which demonstrates that they are committed to the highest standard of ethical conduct, integrity, self-discipline and self-examination.

We have made great efforts to build integrity and prevent bribery and corruption. We organised training in anti-bribery and anti-corruption for the Board of Directors, management and employees in key posts who would deliver the message of upholding integrity and fighting against corruption to the rest of the employees. This year, the Group conducted a total of 523 hours of anti-corruption training. We also asked suppliers to sign integrity statements to ensure compliance with business ethics, signalling our determination to promote anti-corruption and uphold integrity.

In addition, we have scaled up our efforts in building integrity by making videos and other materials for training received by the Board of Directors, employees and suppliers in business ethics, anti-bribery and anti-corruption.

## ESG Policies and Commitments

Upholding the philosophy of “Benefitting society through active participation in public welfare services; contributing to the community through dedicated efforts in environmental protection.” Towngas Smart Energy has put more effort into ESG and fulfilled its responsibility as a good corporate citizen.

The Group’s ESG management model, based on the principle of “management enhancement, responsible communication, accountability promotion, and responsible governance”, focuses on “customers, shareholders, employees, environment and society” to pursue sustainable development.

## Management and Monitoring

With the intention of developing and implementing the long-term strategy of sustainable development, the Towngas Smart Energy Board of Directors has authorised the establishment of an ESG Committee comprising a group of senior management executives.

The Committee is in charge of convening annual ESG management meetings, identifying material issues, setting middle-term goals, corresponding strategies and action plans, regularly reviewing the ESG performance and tracking the progress, and approving ESG reports.

ESG working group was set up under the ESG Committee to formulate sub-tasks, collect data and prepare ESG reports based on the overall ESG plan and goal, so as to ensure that risks related to all aspects of ESG are properly managed and implemented.

In 2021, the Group’s Board of Directors held regular meetings to evaluate and review the progress of the ESG work.

### The Board

- Reviews the Group’s ESG performance
- Evaluates ESG-related risks
- Approves disclosures in the Group’s ESG Report

### ESG Committee

- Assists the Board in its work, and reports ESG-related matters
- Reports ESG work to the Board
- Reviews the Group’s ESG management approach, strategy, priorities and objectives
- Approves disclosures in the Group’s ESG Report

### Working Group

- Develops and oversees the Group’s ESG strategy, approach, policy, objectives, etc.
- Assesses and identifies major ESG risks related to the Group’s business
- Sets annual sub-targets based on the Group’s ESG goal
- Draws up annual work schedule and action plan
- Prepares the ESG Report



## ESG Committee

Executive Director and Chief Executive Officer, Towngas Smart Energy	Mr. Peter Wong Wai-yee (Chairman)
Executive Director and Company Secretary, Towngas Smart Energy	Mr. John Ho Hon-ming
Executive Director and Chief Operating Officer (Gas Business), Towngas Smart Energy	Mr. Martin Kee Wai-ngai
Executive Director and Chief Operating Officer (Renewable Business), Towngas Smart Energy	Dr. John Qiu Jian-hang
Head of Corporate Affairs, The Hong Kong and China Gas	Mr. Isaac Yeung Chung-kwan
General Manager - Corporate Sustainability, The Hong Kong and China Gas	Mr. Victor Kwong Chiu-ling
Senior Vice President - Safety and Risk, Towngas Smart Energy	Mr. Lam Ming-wing
Company Secretarial Manager, Towngas Smart Energy	Ms. Esther Leung Pak-ling (Secretary)

## ESG Strategic Planning

We identified the SDGs most relevant to the gas and energy industries by referring to the guidance document published by the United Nations Global

Compact. Considering Towngas Smart Energy's situation, we identified the relevance of each SDG and its specific goals to the Group based on two considerations and two principles.

### Two Considerations


<b>The Group's Business Development Strategy</b>	Based on the actual situation of the Group, the business categories include natural gas and energy sales, gas connection and extended business. We analyse the positive and negative impacts of business operations on the environment, society and economy based on the business reality and the development strategy of energy transformation.
<b>Key Sustainable Development Issues</b>	We analyse the key sustainable development issues of Towngas Smart Energy in 2021 and the past years to identify the corresponding sustainable development goals.

### Two Principles

<b>Balance</b>	We see the positive contribution and negative shock of Towngas Smart Energy operation to SDGs as equally important. We review the whole picture without bias and fully analyse the positive and negative aspects of the performance.
<b>Materiality</b>	We focus on the relevance of Towngas Smart Energy's operations to the SDGs and take stakeholders' concerns into consideration rather than simply making choices according to the level of difficulty.

Aligning the Group’s operational goals with three UN SDGs to draw up nine action plans in 2021.


**7** AFFORDABLE AND CLEAN ENERGY



## Goal 7: Affordable and Clean Energy

<b>Relevant Issues</b>	Management of greenhouse gas and air pollutants, energy utilisation and efficiency, response to climate change.
<b>Potential Impacts</b>	<p><b>Positive impacts:</b></p> <ul style="list-style-type: none"> <li>• China promised to become carbon neutral on or before 2060 and encouraged the use of clean energy with low-carbon economic development becoming mainstream.</li> <li>• Renewable energy technology has become mature, making its large-scale commercialisation possible.</li> <li>• The demand for clean energy services and solutions is on the rise.</li> </ul>
<b>Action Plans</b>	<ul style="list-style-type: none"> <li>• Increase the share of renewable energy in the business.</li> <li>• Invest in the R&amp;D of clean energy services and launch new technologies in market.</li> <li>• Increase energy efficiency in operations by using tools such as internal carbon pricing and science-based target setting to reduce overall demand for energy.</li> </ul>

**11** SUSTAINABLE CITIES AND COMMUNITIES



## Goal 11: Sustainable Cities and Communities

<b>Relevant Issues</b>	After-sales service management and community demand.
<b>Potential Impacts</b>	<p><b>Positive impacts:</b></p> <ul style="list-style-type: none"> <li>• Providing smart systems and facilities for the community has become a new trend in the future development of the energy industry.</li> </ul> <p><b>Negative impacts:</b></p> <ul style="list-style-type: none"> <li>• The construction and daily operation of energy companies exert negative impacts on the environment, such as dust, noise and waste.</li> </ul>
<b>Action Plans</b>	<ul style="list-style-type: none"> <li>• Review financing and investment strategies to support low-carbon infrastructure development and more.</li> <li>• Partner with stakeholders from different sectors to jointly analyse, discuss, develop and participate in the building of sustainable communities by establishing a common and neutral platform.</li> </ul>



## Goal 13: Climate Action

### Relevant Issues

Management of greenhouse gas and air pollutants, management of the environment and natural resources, energy utilisation and efficiency, response to climate change.

### Potential Impacts

#### Positive impacts:

- A low-carbon economy entails the replacement of fossil fuels with clean energy.

#### Negative impacts:

- The production of greenhouse gas aggravate climate change.
- Physical risks (for example, extreme weather events) and transition risks (such as low-carbon regulatory risks, litigation risks and market changes) caused by climate change will affect the Group's operations.

### Action Plans

- Assess climate risks to the company.
- Set a long-term goal of carbon emission (for instance, achieving net-zero emissions by 2050).
- Provide employees with more training concerning sustainable development, especially climate change.
- Frame policies on climate change.



# 07

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## Material Issues



# Stakeholder Communication



Towngas Smart Energy believes stakeholders' involvement in developing strategies lays the foundation for the long-term development of enterprises and is an essential prerequisite for the Group's strategic development goals. Therefore, we adopt an open attitude and establish effective

communication channels through which stakeholders are encouraged to put forward their recommendations and comments.

The table below lists the key stakeholders we identified, communication channels, topics of concern and our responses.

Stakeholders	Communication channels	Topics of concern	Responses
<b>Shareholders and investors</b>	<ul style="list-style-type: none"> <li>• General Meeting</li> <li>• Annual and interim reports</li> <li>• Regular meetings and information</li> <li>• Response to the media</li> <li>• Press conferences</li> </ul>	<ul style="list-style-type: none"> <li>• The company's development plan</li> <li>• Operation in compliance with laws and regulations</li> <li>• Return on investment</li> </ul>	<ul style="list-style-type: none"> <li>• Regular disclosure of business information</li> <li>• Maintenance of good profitability</li> <li>• Continuous improvement in the company's governance</li> </ul>
<b>Customers</b>	<ul style="list-style-type: none"> <li>• Centres</li> <li>• Exhibitions</li> <li>• Customer service hotline and emails</li> </ul>	<ul style="list-style-type: none"> <li>• Product quality and reliability</li> <li>• Customer support</li> <li>• After-sales service</li> <li>• Operation in compliance with laws and regulations</li> </ul>	<ul style="list-style-type: none"> <li>• Effective and quick response to customers' requests</li> <li>• Quality customer services</li> <li>• Customer satisfaction surveys</li> </ul>
<b>Employees</b>	<ul style="list-style-type: none"> <li>• Job performance assessment</li> <li>• Training in occupational health and safety</li> <li>• Training in career and products</li> <li>• Regular meetings attended by management and employees</li> <li>• Suggestion boxes, emails and bulletin boards</li> <li>• Calls</li> </ul>	<ul style="list-style-type: none"> <li>• Equal job opportunities</li> <li>• Smooth career development paths</li> <li>• A safe and healthy working environment</li> <li>• Sound education and training systems</li> </ul>	<ul style="list-style-type: none"> <li>• Activities for employees</li> <li>• Care for employees' health</li> <li>• Training opportunities</li> <li>• Safe working environment</li> </ul>
<b>Suppliers</b>	<ul style="list-style-type: none"> <li>• Annual business review meetings</li> <li>• Supplier assessment</li> <li>• Procurement arrangement</li> </ul>	<ul style="list-style-type: none"> <li>• Supplier quality performance</li> <li>• Quality of raw materials</li> <li>• Operation in compliance with laws and regulations</li> <li>• Customer support and after-sales service</li> </ul>	<ul style="list-style-type: none"> <li>• Public tenders</li> <li>• Supplier management system</li> <li>• Constant improvement in policies</li> <li>• Increase in management efficiency</li> </ul>



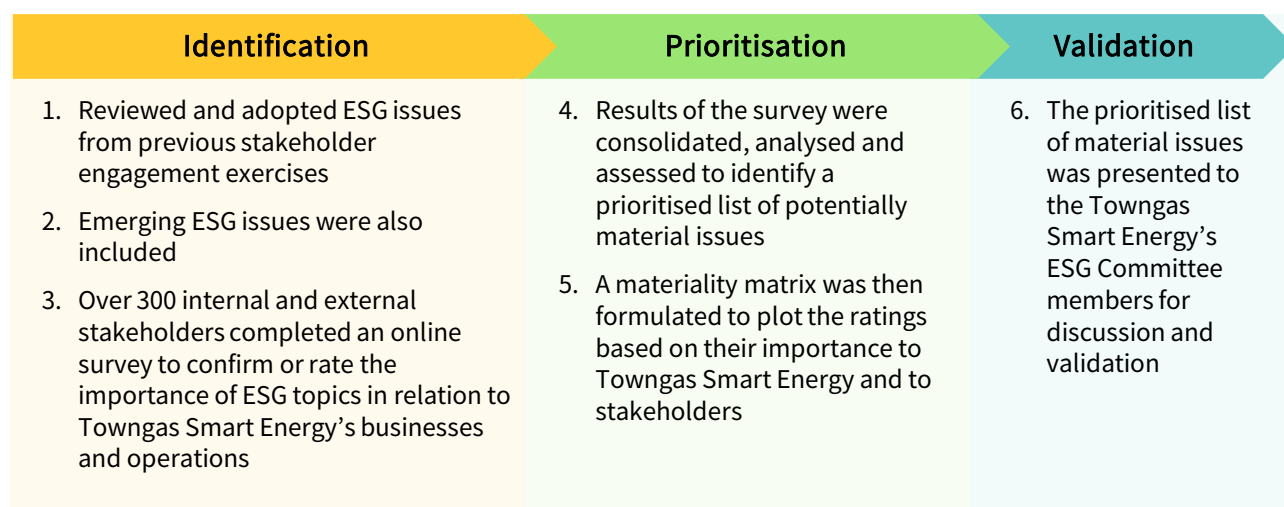
Stakeholders	Communication channels	Topics of concern	Responses
<b>Community</b>	<ul style="list-style-type: none"> <li>Information dissemination</li> <li>Community announcement</li> </ul>	<ul style="list-style-type: none"> <li>Environmental protection</li> <li>Participation in the activities of local communities</li> <li>Operation in compliance with laws and regulations</li> <li>Prevention and control of COVID-19</li> </ul>	<ul style="list-style-type: none"> <li>Event sponsorship</li> <li>Participation in local activities and volunteer services</li> </ul>
<b>Government and regulators</b>	<ul style="list-style-type: none"> <li>Official documents</li> <li>Meetings</li> </ul>	<ul style="list-style-type: none"> <li>Energy transformation</li> <li>Potential for future growth</li> <li>Ability to supply gas</li> <li>Industrial competitive advantages</li> <li>Safe production</li> </ul>	<ul style="list-style-type: none"> <li>Attendance at government meetings from time to time</li> <li>Participation in the formulation of the standards of gas and renewable energy industries</li> <li>Release of environmental emissions data</li> <li>Release of safe production data</li> <li>Attendance at meetings about policy announcement and symposia from time to time</li> </ul>
<b>Business partners</b>	<ul style="list-style-type: none"> <li>Meetings</li> <li>Interviews</li> </ul>	<ul style="list-style-type: none"> <li>Company strategy</li> <li>Project progress</li> <li>Service quality</li> <li>Market development</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of company policies and standards</li> <li>Corporate governance</li> <li>Audits</li> <li>Work checks</li> </ul>

## Materiality Assessment

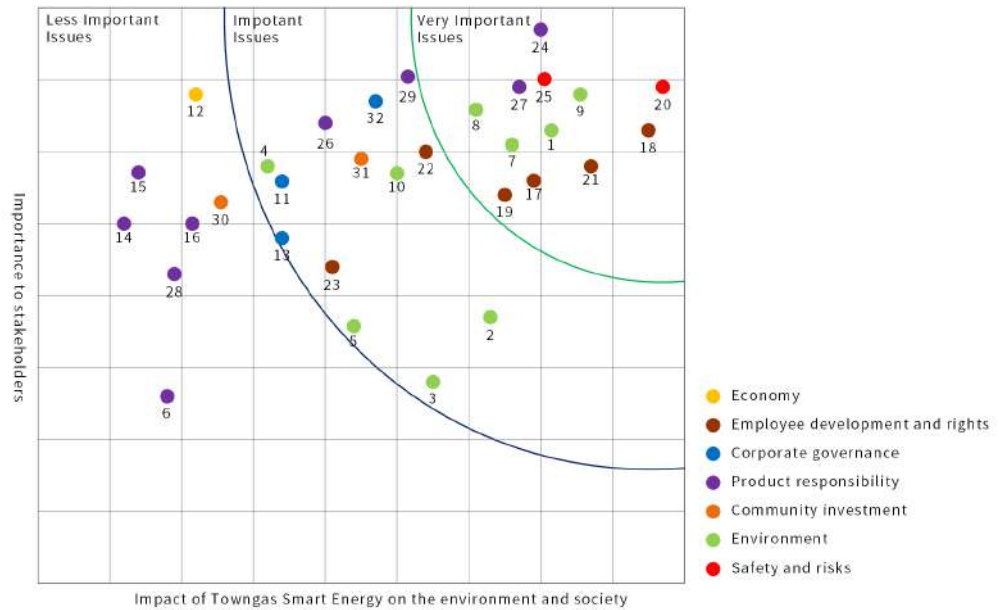


In an effort to determine the most material ESG topics and make a corresponding response in this Report, the Group engaged an external consultant to

undertake this year's materiality assessment through the three-step process of identification, prioritisation and validation.



We want to use this materiality assessment to facilitate communication with internal and external stakeholders on ESG, so as to ensure that our strategies, activities and information disclosure for sustainable development live up to and even exceed their expectations. A total of 316 questionnaires were received in 2021, and the results are as follows, listing 32 material issues of stakeholders' concern according to the level of importance.



No. Issues	Importance	No. Issues	Importance	No. Issues	Importance	
20	Very important	29	Important	30	Less important	
A safe and healthy work environment		Confidentiality responsibility and information security		Community engagement		
18		22		Opportunities for sustainable development		
Standardisation of the employment system		Prevention of child labour or forced labour		12		Sustainable development
9		32		16		Sustainable procurement
Response to climate change		Whistleblowing mechanism		Enhancement of supply chain management		
25		10		15		Protection of intellectual property rights
Protection of customer health and safety		Increase in the use of renewable energy		28		Product recall system
1		31		6		Raw materials
Greenhouse gas and exhaust gas emission		Charity				
24	26					
Product/service quality	Accurate product and service information					
21	11					
Training and development	Improvement in corporate risk management and internal monitoring system					
27	4					
Customer complaints management	Improvement in energy efficiency					
7	23					
Impact of production and operation management on the environment and natural resources	Rights of free association and collective negotiation					
8	2					
Protection of the environment	Wastewater treatment and discharge					
17	5					
Respect for human rights	Use of water resources					
19	3					
Diversity, equal opportunity and non-discrimination	Waste management					
	13					
	Anti-corruption					

The table below lists, by impact, 32 material issues that the Group addressed and reported in 2021 and their corresponding boundaries, where the impacts occur.

No.	Material Issues	Employees	Suppliers	Customers	Community	Impact
1	Greenhouse gas and exhaust gas emissions	●	●			Environment
2	Wastewater treatment and discharge	●	●			Environment
3	Waste management	●	●			Environment
4	Improvement in energy efficiency	●	●	●		Environment
5	Use of water resources	●	●			Environment
6	Raw materials	●	●			Environment
7	Impact of production and operation management on the environment and natural resources	●	●			Environment
8	Protection of the environment	●	●	●	●	Environment
9	Response to climate change	●	●	●	●	Environment
10	Increase in the use of renewable energy	●	●			Environment
11	Improvement in corporate risk management and internal monitoring system	●	●			Corporate governance
12	Opportunities for sustainable development	●	●	●	●	Economy
13	Anti-corruption	●	●			Corporate governance
14	Protection of intellectual property rights	●	●			Product responsibility
15	Enhancement of supply chain management	●	●	●		Product responsibility
16	Sustainable procurement	●	●	●		Product responsibility

No.	Material Issues	Employees	Suppliers	Customers	Community	Impact
17	Respect for human rights	●	●	●	●	Employee development and rights
18	Standardisation of the employment system	●	●			Employee development and rights
19	Diversity, equal opportunity and non-discrimination	●	●			Employee development and rights
20	A safe and healthy work environment	●	●			Safety and risks
21	Training and development	●	●			Employee development and rights
22	Prevention of child labour or forced labour	●	●	●	●	Employee development and rights
23	Rights of free association and collective negotiation	●	●			Employee development and rights
24	Product/service quality	●	●	●		Product responsibility
25	Protection of customer health and safety	●	●	●		Safety and risks
26	Accurate product and service information	●	●	●	●	Product responsibility
27	Customer complaints management	●	●	●		Product responsibility
28	Product recall system	●	●	●		Product responsibility
29	Confidentiality responsibility and information security	●	●	●		Product responsibility
30	Community engagement	●	●	●	●	Community investment
31	Charity	●	●	●	●	Community investment
32	Whistleblowing mechanism	●	●	●	●	Corporate governance

# 08

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## Strengthening Responsibility to Ensure Safe Production





Safety is the cornerstone of business development. Giving priority to production safety, the Group has adopted the approach of “Safety First, Prevention First, Comprehensive Management” to strengthen the management of safety production. In the spirit of professionalism, exploration and innovation, we have been making a collective effort to build and improve our Health, Safety and Environment (“HSE”) management system, safeguarding the safety of life and property of our employees, related parties<sup>3</sup> and the public.

## Health and Safety Management Approach and Targets



With the philosophy of protecting the health and safety of stakeholders and the public, the Group strives to ensure operation safety, and low-carbon and green development, creating an ideal living environment for the next generation.

The Group elaborates on occupational health and safety (H&S) targets in the “HSE Policy”:

- Ensure work safety and mitigate operational risks;
- Provide employees with a clean and comfortable working environment;
- Continuously improve HSE performance to achieve the target of “zero accidents”;
- Eliminate potential hazards in energy supply and application and related services;
- Raise the HSE awareness, vigilance, and law-abiding obedience of employees and stakeholders, as well as through education and training.

## Health and Safety Management Framework



The Safety and Environment Committee, the most senior unit in our safety management, is chaired by the Chief Executive Officer. It is mainly responsible for solving significant problems in the safety production of the Group and arranging the safety risk management work. We and our project companies, under the theme of “TQM-Taking on Responsibility and Forging a Line of Defence” set by the Committee this year, carried out safety management work as well as promotional and training activities to strengthen and improve our safety management.

The signing of the “Work Safety Responsibility Letter” across the Group reflects that safety responsibilities are clearly segregated and effectively monitored, and safety control and prevention measures are implemented in an all-around way. Project companies within the Group disclosed their safety and risk-related work in annual reports of the Board of Directors as a particular topic, where safety performance and measures of the prior year were analysed, and risks were evaluated to set the KPI target on safety management for the next year. In this way, the PDCA<sup>4</sup> cycle was repeated to improve the safety performance of project companies, thereby strengthening our safety and risk management.

<sup>3</sup> Related parties include investors or partners, contractors, suppliers and their employees, and customers.

<sup>4</sup> PDCA refers to the four steps of management, namely “Plan, Do, Check and Act”.



# HSE Management System



The Group strictly abides by national laws and regulations and industry standards, including the “Law of the People’s Republic of China on Work Safety”, “Fire Protection Law of the People’s Republic of China”, “Law of the People’s Republic of China on Prevention and Control of Occupational Diseases” and “Specification of the Provision of Personal Protective Equipment”. We strive to ensure a safe working environment for all employees and stakeholders in daily work and remove or reduce possible occupational health and safety risks arising from the Group’s production and operational activities. Therefore, we take the characteristics of the Group’s industry and business into account and set up a HSE management system that meets the requirements of the “Occupational Health and Safety Management Systems - Requirements with Guidance for Use” and “Guideline of China Occupational Safety and Health Management System” to manage production safety and occupational health of our operational activities, and continuously improve, systemise and standardise our safety and risk management.

**The “HSE policy” is applicable to employees, contractors and suppliers. Our employees and contractors take on the following responsibilities:**

1. Ensure health and safety of themselves and any person that would be affected by their work;
2. Proactively engage in HSE management work and shoulder respective HSE responsibilities;
3. Strictly comply with the requirements of HSE management manuals, procedures and regulations;
4. Become more vigilant and sharpen their professional judgement to prevent accidents;
5. Identify and reduce potential hazards during work.

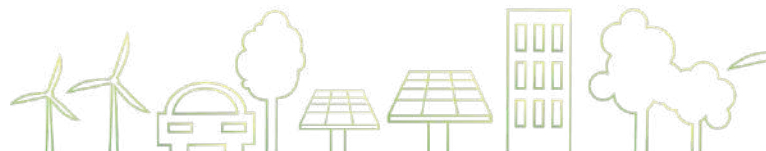
We encourage project companies to carry out occupational health management system certification and obtain work safety standardisation certificates. In 2021, 23 project companies obtained ISO 45001 occupational health and safety management system certification, and 36 project companies received the work safety standardisation certificates.

## Accelerating the building of the dual prevention mechanism to strengthen safety and risk management

The “Law of the People’s Republic of China on Work Safety” was revised in 2021 and it represented a more stringent requirement for safety management. The Group carried out publicity activities and stepped up the building of a dual prevention mechanism to comply with applicable laws and regulations.

We have attached great importance to gas safety management and conducted group-wide hazards investigation to ensure that risks are controlled, and hazards are eliminated in a timely manner. We convened an expanded thematic meeting of the Safety and Environment Committee this year to analyse the causes of accidents by drawing on the experience of other gas accidents in the industry. We also required the project companies to conduct self-inspection to cope with potential safety hazards.

The Group further implemented the accountability framework of safety production to ensure the whole production process are under control. We promoted the dual prevention mechanism to classify risk control and conduct hidden danger investigation, and promoted work safety standardisation. We, with risk management and control as the core, prevented and controlled risks in advance to ensure the effectiveness of our safety production mechanism for the long run, thus improving our performance on production safety.



# Health and Safety Management



## Health and Safety Management of Employees and Contractors



This year, with the theme of “TQM - Taking on Responsibility and Forging a Line of Defence”, we paid attention to the health and safety of employees and related parties and ensured that our safety management measures did cover the whole life cycle of project construction and operation. At the same time, we focused on the talent pool, including certified safety engineers, to ensure that front-line employees maintain high vigilance and have high-level expertise.

In 2021, we had 100% of certified gas operation technicians in strict compliance with national laws and regulations and encouraged relevant practitioners in renewable energy to become certified safety engineers in response to the national call. As of the end of 2021, no employees died from work-related causes and we were not punished by the authorities for violating occupational health and safety laws and regulations.

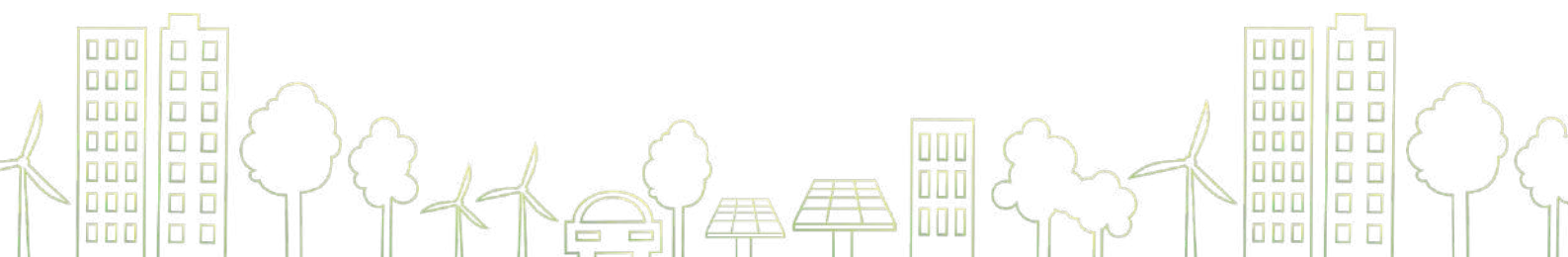
In order to better manage the health and safety issues of contractors, the Group has taken the factor of health and safety into account when choosing, assessing and weeding out contractors to ensure that they meet our occupational health and safety requirements. A total of 29 significant contractors of the Group obtained the certification of occupational health and safety (OH&S) management system (ISO 45001), environmental management system (ISO 14001) and quality management system (ISO 9001) in 2021. As of the end of 2021, only one employee of the Group’s contractors was injured due to work-related reasons, and no employee of contractors died from work-related causes.

Indicator	Unit	The Group
Safety enhancement costs	RMB million	539.39
Accident rate per 1,000 employees <sup>5</sup>	/	0.13
Number of work-related injuries	People	4
Employee injury rate per thousand people <sup>6</sup>	/	0.17
Work days lost due to work-related injuries	Days	115
Number of certified safety engineers	People	343

Year	Number of work-related fatalities	Ratio of work-related fatalities
2019	0	0
2020	0	0
2021	0	0

<sup>5</sup>Accident rate per 1,000 employees = number of injuries or accidents (absence from work for more than 3 days and death from work-related causes) \* 1000(people)/employment size

<sup>6</sup>Employee injury rate per thousand people = number of work-related injuries \* 1000(people)/employment size



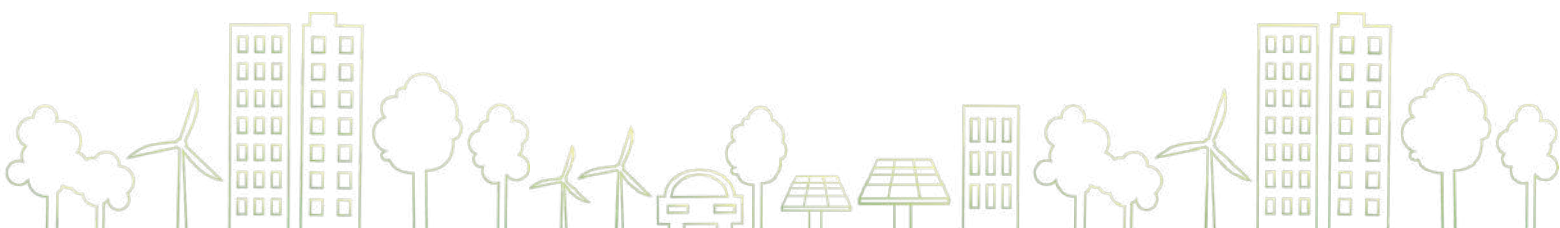
## Gas business: construction of gas pipeline network projects and safety management measures for pipeline network operation

<p>Conduct inspections on major plant stations to ensure the operation safety of the plant network</p>	<p>To ensure the operation safety of the plant network, in 2021, the Group inspected major plant stations to learn about their operations and included the dispatch centres in the scope of the inspection. Project companies operating LNG plant stations for more than ten years were selected. The dispatch centres and other major plant stations of these project companies were also inspected. In the year, the Group carried out on-site inspections on eight dispatch centres and 58 plant stations of gas project companies.</p>
<p>Use Towngas Management System (“TMS”) engineering mobile application to manage safety in construction</p>	<p>The Group published various safety construction requirements through the TMS-engineering mobile application and asked employees and contractors at the construction site to take and upload construction site photos while filling out HSE inspection forms, construction reports and records to put safety measures in place.</p>

## Renewable business: occupational safety measures of working at height in the construction of distributed photovoltaic projects

<p>Improve construction standards and set up additional safety fence on the roof</p>	<p>Most of the distributed photovoltaic projects are installed on the roof or floor. However, many factories have no parapets<sup>7</sup> along the roofs. Thus, when installing and maintaining photovoltaic panels near the edge of a roof, construction workers may fall off. In order to ensure the safety of employees or contractors in construction, the Group raised the standards by adding safety fences of not less than 1.2 metres around the roofs to avoid the risk of falling off.</p>
<p>Change a cat ladder to a Z-shaped ladder to reduce the risk of falling off</p>	<p>When ascending to a distributed photovoltaic power station on the roof or floor, workers usually use a cat ladder. However, the existing cat ladders of properties have many problems, e.g., the ladders are ageing and not secure after excessively long-time service. Therefore, the engineering team of renewable energy changed the cat ladder into a Z-shaped ladder, which can effectively eliminate the risk of falling from the photovoltaic plant at height, and the ladder will be used for daily operation and maintenance inspections and visits.</p>

<sup>7</sup> Parapet (a technical term in architectural engineering) is a dwarf wall around the edge of a roof to ensure safety. A parapet is not less than 1.1 m high and not more than 1.5 m above the finished floor level according to the National Building Code.



Riding on the trend of new infrastructure, we give great impetus to the smart construction site, and transform the way we construct and manage in the past with integrated application of IoT, big data, AI, mobile communication, cloud computing and other

advanced technologies, so as to carry out more digitalised, smart and integrated engineering projects, achieve sophisticated management of construction sites and ensure construction safety.



### Set up a “Cloud Platform for Intelligent Construction Sites” to achieve safe and digitalised construction

With “Cloud Platform for Intelligent Construction Sites” as the data integration hub, we leverage BIM, IoT, big data, AI, mobile communication, cloud computing and other technologies to implement automatic data collection, intelligent analysis and intelligent warning throughout the construction. We integrate all data collected from engineering construction and use information technology, AI technology and engineering construction technology to manage the construction sites in an informationalised, intelligent and standardised way.

The management system featuring “Cloud Platform for Intelligent Construction Sites” includes the integrated platform, panorama monitoring, safety quality management, real-name management, green construction, energy consumption management, and electrical safety.

- The integrated platform: it includes the cloud platform, APP and mini programme for intelligent construction sites. With BIM, IoT and related technologies, the system collects and demonstrates site data of each module, making mobile Internet of Intelligence services available to management personnel on site.
- Panorama monitoring: it includes video surveillance and AI-powered identification of hidden dangers. On-site surveillance videos are consolidated and shared to the cloud platform for panorama monitoring. Hidden dangers, e.g., not wearing safety helmets and reflective vests, making naked flame on the construction site and trespassing in dangerous zones, are detected, identified and recorded with the security system alerted.
- Safety quality management: through the mobile mini programme, safety issues identified in construction areas will be photographed, and the problems will be described and summarised for rectification. Photos should be uploaded to prove that the rectification is completed, after which the process of resolving the quality issues is recorded in electronic format.
- Real-name management: the system draws on facial recognition and body temperature measurement technologies to run statistics on attendance and conditions of service workers on the site, and manages the workers in combination with the access control system. During the COVID-19 pandemic, the system also reminds workers to wear masks.
- Green construction and energy consumption management: the system integrates and automatically collects and analyses on-site environmental data (wind speed and direction, temperature, humidity, PM10, PM2.5, PM100 and noise). The system will raise the alarm and send the information to project managers when the data exceeds the standards.
- Electrical safety monitoring: the system monitors the leakage current, the temperature of the environment and three-phase cables of electrical boxes in a real-time manner. Data is automatically uploaded to the platform and an alarm will be raised in case of irregularities or anomalies, so that administrators of project machinery are able to get a grip on the temperature of the electrical boxes on site in real time and remove hidden hazards of fire.





## Safety Training and Education

In 2021, in line with the theme of “TQM-Taking on Responsibility and Forging a Line of Defence”, we carried out publicity activities through multiple channels including the WeChat official account “Towngas Smart Energy”, E-learning, HSE Toolbox, HSE newsletter and Towngas Smart Energy Mobile Academy to facilitate safety promotion, enabling employees to acquire knowledge of safety more conveniently and effectively.

### Highlights of safety training

Indicator	Unit	The Group
Safety training	Hours	625,063



### Safety and Risk Management Video Workshop

In 2021, Towngas Smart Energy held the annual Video Workshop on Safety and Risk Management in the form of “Cloud Conference + Offline Session” (the April one was for Northern China, and the November one for Southern China), which was attended by about 800 management personnel from the Group, affiliates in Northeast China, Northern China and Shaanxi, Changchun Gas, affiliates in Southern China, Jiangsu and Zhejiang, Southwest China and Anhui and Jiangxi, Shandong Towngas Training College etc. We invited experts to deliver speeches on particular topics and analyse key and hot topics, and shared management experience and new management tools. The workshop served as a platform for safety management personnel and core business staff members from different companies and regions to exchange their ideas so as to provide people from project companies with a wider perspective on safety management, thereby improving our safety management.

### Training Courses for Working in Confined Spaces

In recent years, we have seen frequent incidents in confined spaces. In order to avoid such risks, the Group’s Safety and Risk Management Department proactively conducted research on related topics, developed a training course on confined spaces jointly with Shandong Towngas Training College, and urged project companies to strengthen the implementation of safety measures for operations in confined spaces.



### Activities of “Operation Safety Observation on Pipeline Network Facilities”

The Group organised the activity of “Operation Safety Observation on Pipeline Network Facilities” with Shandong Hong Kong and China Gas Training Institute this year, which included six topics:

1. Inspection of pressure regulating equipment;
2. Switch between primary and secondary pressure regulating lines;
3. Pressure regulating cut-off and resetting;
4. Leakage inspection on pipeline networks;
5. Inspection of valves;
6. Emergency responses on site.

Short videos were made to instruct the project companies to observe daily operation behaviour and review the operating procedures of pipeline network facilities, thereby further promoting safe operations on pipeline network facilities. A total of 124 project companies participated in this activity and 420 entries were received. The excellent short videos selected by the Engineering Department were available at “Mobile Academy” and “Learning and Examining Portal” for learning and sharing.



Every June marks the National Work Safety Month in the Chinese mainland. In June 2021, in line with the theme of “Implementing Safety Responsibility and Promoting Safety Development” in the 20<sup>th</sup> National Work Safety Month, the Group requested project companies to carry out safety promotion activities such as safety inspections, safety education, safety publicity, hidden hazard investigation and management, and emergency drills.



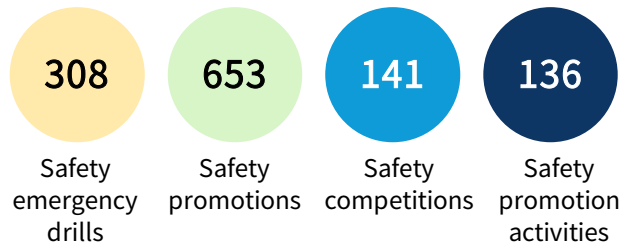
### Safety and Environmental Protection Knowledge Contests with the Theme of “TQM – Taking on Responsibility and Forging a Line of Defence”

The Group held the safety and environmental protection knowledge contest with the theme of “TQM – Taking on Responsibility and Forging a Line of Defence” in 2021. It has been widely supported by regions and project companies since its launch on 1 March. In that three months, more than 22,200 persons participated in the online learning, with the contest being taken for over 1.3 million times. In the knowledge contest of the current year, six topics were recognised with awards. We shared the topics in the Group for other projects companies to learn from.

In line with the theme of “Implementing Safety Responsibility and Promoting Safety Development” in this year’s National Work Safety Month, this contest promoted our safety culture and the knowledge of safe operation among employees, thus creating a good atmosphere where “everyone learns, understands and values safety”.



### Activities during Work Safety Month:



### Employee Health Management during the COVID-19 Pandemic

The ongoing COVID-19 pandemic poses more pressure on the prevention and control work of the Chinese mainland and beyond. With the development of the pandemic, we set up a reporting system to regularly collect, monitor and follow up on the pandemic information, and adjust our prevention measures based on the information to protect the health and safety of employees. Since 2020, we have incorporated public health into our regular safety management. Under the coordination of the Safety and Environment Committee, we sent memorandums about pandemic prevention and control to project companies to guide their work and took strong measures to carry out disinfection and sterilisation regularly and maintain adequate stocks of anti-pandemic supplies, putting up a solid and reliable prevention and control measures against the pandemic. We distributed anti-pandemic supplies to employees, circulated relevant information, encouraged vaccination and issued manuals on protection tips to ensure that pandemic prevention and control were in place. In order to prevent and control the pandemic as a daily routine, we created a WeChat group at headquarters and deployed coordinators in various departments of headquarters and project areas. The coordinators sent pandemic updates and timely anti-pandemic reminders to the pandemic prevention team of project companies and headquarters.



## Health and Safety Inspections



Under our Safety and Risk Management audit regime, we regularly conduct comprehensive safety and risk management audits on project companies, and objectively assess the safety status and performance of project companies from various dimensions. For any potential risk identified during the assessment, we report to the Safety and Environment Committee, supervise and follow up on the rectification conducted by project companies, and implement preventive and corrective measures in an effective manner.

With the increasing number of project companies, the diversification of the Group's businesses and the application of new technologies, we optimised our audit mechanism and improved the risk and management safety standard during the year by adopting a rating system that additionally considers the results of unplanned safety inspections and the hardware and software installations to evaluate the safety and risk management standard of project companies more objectively. The combination of planned and unplanned inspections strengthened the daily management of safety risks, thereby creating a more comprehensive and reasonable safety risk audit regime and realising full cycle management. The safety and risk audit results are incorporated into the target assessment of project companies.

For project companies, we strictly implement the system of General Manager Monthly Safety Inspections. The general manager, performing the safety management duties, is required by the Safety and Environment Committee to carry out safety inspections every month to inspect the safety and risk management of project companies.



### Annual Inspections by the Safety and Environment Committee

Affected by the pandemic, Martin Kee Wai-ngai, Executive Director and Chief Operating Officer (Gas Business) of Towngas Smart Energy, on behalf of the Committee, led a team to visit the project companies in Nanjing, Dayi and other regions to carry out safety inspections in November and December in 2021. During the inspections, they focused on the safe operation of plant stations, production processes, operation and maintenance of pipeline network facilities, emergency repair work in gas accidents and material allocation, and emphasised that companies should stick to their responsibilities and put safety management in place because gas safety underpins an enterprise.





### Safety and Risk Audit

The Group continues to carry out safety and risk management audits with the view of improving safety and risk management and inspiring project companies to manage safety proactively. We enhanced the safety and risk audit mechanism in this round by introducing unplanned safety inspection results into the audit findings. We grouped the planned and unplanned inspections, to strengthen the daily management of safety risks. We then divided the evaluation results into different levels based on the on-site audit results and the safety performance (including safety KPI, etc.) of each project company so as to stimulate continuous improvement in their performance. Our comprehensive and periodic safety and risk audits further boost our safety and risk management.

In June 2021, the Group summarised the 7<sup>th</sup> round of planned audits of the gas business in 2019-2021. In the seventh round, 77 project companies were audited, among which 42 achieved “exceptional” performance. The results suggest that the average performance shows a steady upward trend and the Group’s overall safety performance continues to improve.

#### Gas Business

#### Renewable Business



2021

The number of safety and risk audits on project companies/projects	31
The number of unplanned safety inspections on project companies/projects	78



### General Manager Monthly Safety Inspections

The general manager of each project company is the primary person in charge of the production safety and is required by the Safety and Environment Committee to strictly implement the corresponding duties as specified in the “Production Safety Law”. The Safety and Environmental Protection Committee has requested the general manager to inspect the risk management of its project company on site at least twice a month (one planned inspection and one unplanned inspection) since 2020. In addition to the monthly safety inspections designated by the Group, the general manager needs to conduct one unplanned safety inspection every month. The Group summarises and analyses the inspection results of all project companies and requires them to carry out safety rectification within a time limit, and regularly (yearly) track the progress of key rectification projects.

### Overview of the Monthly Safety Inspections by General Managers of Gas Business in 2021

2021	General Manager Inspection items
January	Operation and maintenance of pipeline network facilities
February	Emergency Management
March	Regular customer safety inspections
April	Security management
May	Customer gas safety
June	Office buildings and warehouses
July	Inspection of pipeline networks and testing for gas leakage
August	Corporate risk assessment
September	Safety management at production facilities
October	Safety management at production facilities
November	Fire safety management
December	Transport safety management





Regarding renewable business, we made safety inspections on nine items including construction management, energy station safety, pipeline network operation and maintenance, environmental management, security and safety protection, and transport safety. The general manager of renewable business organised 24 general manager monthly safety inspections in 2021.



## Gas Safety of Customers and Society

In order to ensure gas safety for customers, we have launched the “regular safety inspection” program in project companies, involving regular visits of gas professionals to customers’ homes to inspect gas appliances and pipelines, so as to increase the safety factor of gas facilities in customers’ homes, and convey the “customer-oriented” service concept of Towngas Smart Energy. We have been disseminating health and safety information through various communication channels, such as our official website, e-mail and intranet database. Common knowledge and videos of gas use safety are available on our official website.

Statistical analysis of gas accidents in the Chinese mainland indicates that a significant proportion of gas accidents are caused by improper use of gas. Therefore, it is our duty to continue our effort to effectively spread the knowledge of natural gas safety. We encourage project companies to carry out extensive gas safety promotion in communities to ensure “everyone uses gas safely”.

## Customer Gas Safety

### Customer Gas Safety Improvement Program

In accordance with the relevant requirements of the “Fire Safety Management Rules for Large Commercial Complex (Trial Version)” and the Group’s “Guidelines on Industrial and Commercial Potential Risks”, we formulated the “Special Safety Checklist for Densely-populated Sites such as Large Commercial Complexes”, requiring project companies to issue Safety Management Instructions” on densely-populated sites such as Large Commercial Complexes based on the Checklists and conduct hidden hazard investigation.

During the seasons when gas accidents are frequent, we remind project companies to develop specific gas safety promotion plans and preventive measures based on customers’ gas consumption habits and the characteristics of accident causes.



### Project company

- Arrange targeted self-inspection for gas safety
- Formulate and implement the rectification plan of safety hazards
- Develop specific gas safety promotion plans and preventive measures

### Large commercial complex

- The project company should conduct comprehensive inspections at the gas site
- Prepare instructions on gas safety management at densely-populated sites and investigate hidden hazards
- Conduct regular commercial complex gas safety promotion in an effective manner



#### Promoting Installation of Gas Leakage Alarming Devices for Non-resident Users

Complying with the requirements of the “Work Safety Law of the People’s Republic of China”, the Safety and Environment Committee requires gas project companies to install gas leakage alarming devices for new non-resident users. Existing non-resident users without gas leakage alarming devices are also required to install such devices, and the gas project companies involved should guarantee that the devices can function properly.



#### Popularisation of Gas Safety Knowledge for Citizens

In 2021, Bauhinia spread the knowledge of gas safety to consumers through WeChat and other mobile Internet channels, thereby popularising gas safety knowledge in daily life. Besides, the QR code of the Official Account is printed on products and user manuals. Users therefore have direct access to the brand information, product maintenance knowledge and the portal to request for repairs by scanning the QR code.



**Our Safety Management Performance being well recognised by CGA**

We are one of the members of the China Gas Association (“CGA”), which recognises our gas safety management performance. The personnel of gas safety management and project management, recommended by CGA, engaged in the government’s gas safety inspection as a member of the expert group. We drew on our safety management knowledge and experience to give advice on safety rectification which gained recognition from our peers.

**Multiple Innovation Achievements in Safety and Awards for Gas Safety Papers**

We participated in the activity of Call for Papers on Gas Safety 2021 to celebrate innovation achievements in gas safety and achieved fruitful outcomes. We earned seven innovation achievements in gas safety, including five technical achievements and two management achievements. A total of 83 papers received awards, accounting for over half of the total award-winning papers.

**City Gas Business: Safe Operation of Gas Pipeline Networks**

Upgrading old gas pipeline networks to guarantee gas safety

After replacing the grey cast-iron pipes primarily, the Group continues to conduct risk assessment and transformation of old pipes including ductile cast-iron pipes and buried galvanised steel pipes, to elevate the operational reliability of pipeline networks. In addition, we carry out the hidden danger investigation and rectification, refine the registry of information systems, and urge project companies to prepare rectification plans and record rectification results in the information systems.

**City Gas Business: Safe Operation of Gas Pipeline Networks**

“Vehicle-Canine Partnership” technology to ensure the safety of pipeline networks

“Rapid leak detection (through “Vehicle-Canine Partnership”), utilises the most advanced laser gas leak detection vehicles to conduct rapid initial checks in target areas, and gas sniffer dogs to locate the leak in the area previously identified by the vehicles. In 2021, we carried out leak detection on the pipeline networks of approximately 2,196 kilometres of 40 project companies in five regions. “Vehicle-Canine Partnership” leak detection technology is widely applied in scenarios including daily pipeline leak detection, investigation of old pipeline networks, emergency repair, leak detection before commencement and resumption of gas supply, replacement guarantee to natural gas and leak investigation, and plays a significant role in the post-disaster reconstruction inspection in Zhengzhou and World Internet Conference in Tongxiang.



### **City Gas Business: Safe Operation of Gas Pipeline Networks**

Digital management on pipeline networks to increase gas-pipeline network inspection efficiency

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The Group and China Special Equipment Inspections & Research Institute (“CSEI”) concluded a framework cooperation agreement to carry out pipeline network inspection. The cooperation aims to assist the Group’s city gas project companies in fine management on pipeline network operation and inspection. Digitalisation of pipeline network management help project companies to better manage the detection of gas pipeline network inspection, helping enterprises create more value in terms of compliance and pipeline network operational safety. Currently, the project is implemented by the project companies in Guilin and Gongzhuling.

# 09

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Empowering  
Employees to  
Develop in an All-  
round Way



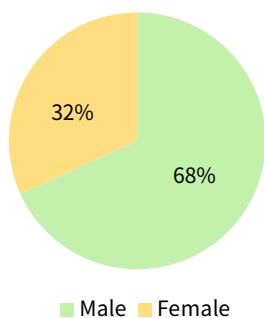
Towngas Smart Energy is convinced that employees are the resource that comes first for the Group’s development, and team building is the top priority for enterprise management. Adhering to the people-oriented principle, the Group has adopted the talent development strategy to motivate employees and encourage them to explore their potential, thus accumulating the human capital of the Group. We have been committed to creating a fair working environment for our employees, caring for their physical and mental health, and guaranteeing their legitimate interests and rights, so as to share our business outcomes.

## Employment

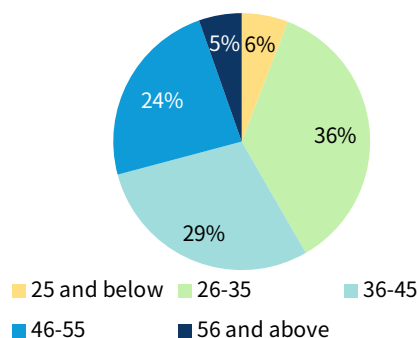
Strictly complying with the employment-related laws and regulations such as the “Labour Law of the People’s Republic of China” and “Labour Contract Law of the People’s Republic of China”, the Group develops the “Towngas Smart Energy Handbook” as guidance for a better human resources management including employment, remuneration, benefits, training and development, business ethics, and so on. It ensures that the legitimate interests and rights of our employees are guaranteed. Based on the need to expand our business, we recruit outstanding talents to support our future development. We carried out recruitment in an orderly manner through various

online channels and implemented contactless interviews. By combining online and offline interviews during the pandemic, we can ensure the recruiting process continues effectively. Candidates’ health status are filed in a timely manner upon hiring, ensuring the safety of employees. Due to the rapid growth of our renewable business, the number of employees in 2021 increased dramatically compared with 2020. As of the end of 2021, Towngas Smart Energy had a total of 23,287 employees, among which the proportion of new hires was 5.20% and the staff turnover rate was 3.05%.

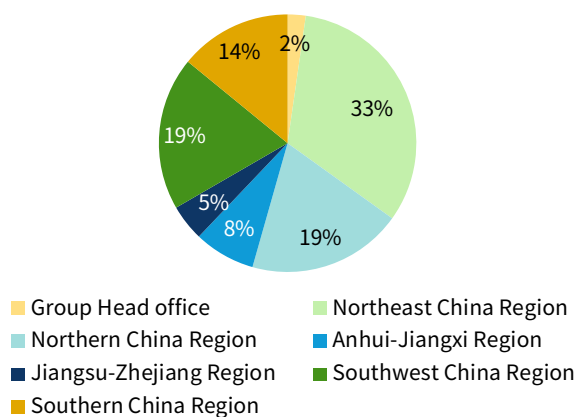
Staff Ratio by Gender



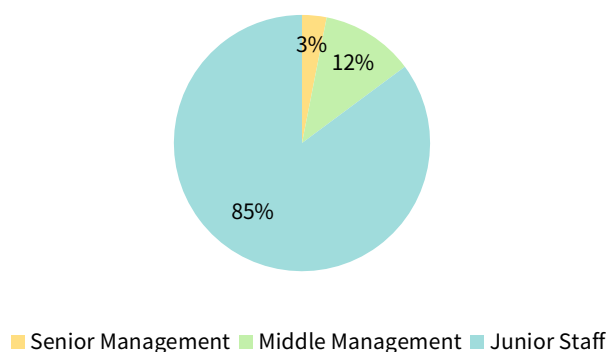
Staff Ratio by Age Group



Staff Ratio by Region

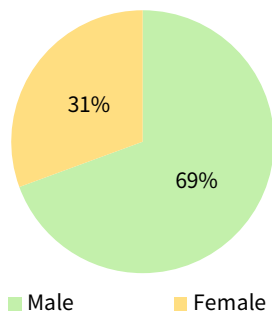


Staff Ratio by Rank

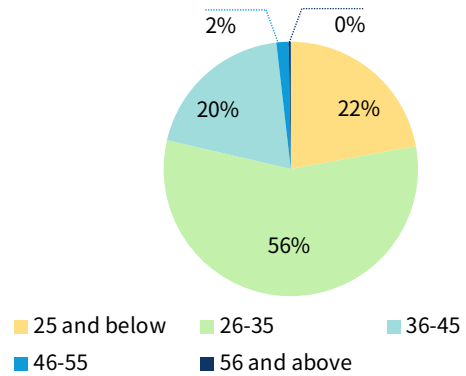




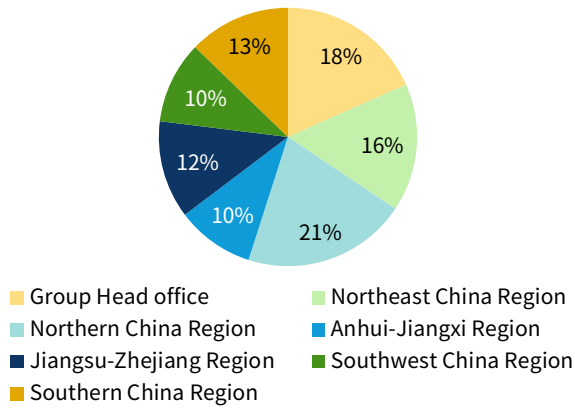
Staff Ratio of New Employees by Gender



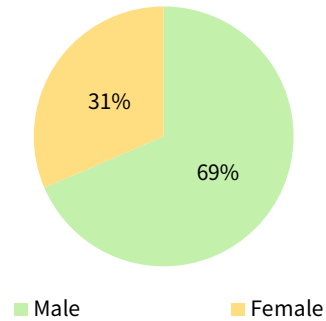
Staff Ratio of New Employees by Age Group



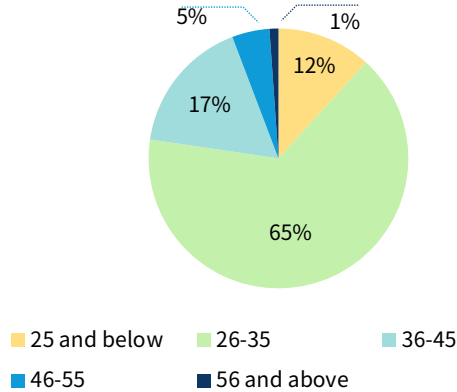
Staff Ratio of New Employees by Region



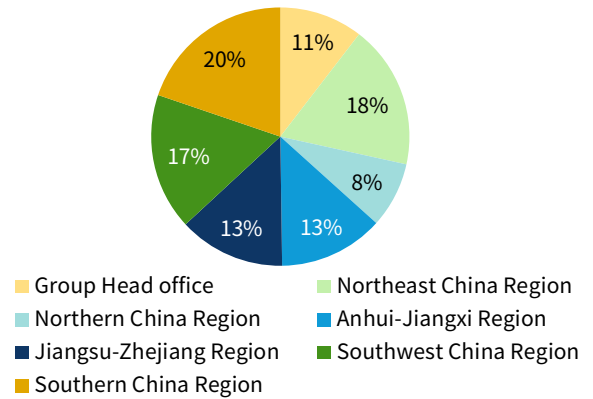
Employee Turnover Ratio by Gender



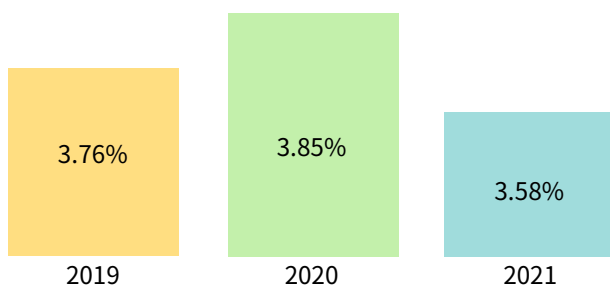
Employee Turnover Ratio by Age Group



Employee Turnover Ratio by Region



The ratio of female management



**100%**  
for three consecutive years

- Coverage of labour contract
- Coverage of social insurance
- The proportion of employees receiving regular performance and career development review

# Remuneration and Benefits

We comply with national laws and regulations and focus our efforts on building systems for employee performance and compensation and welfare. In terms of performance management, we have formulated the manual of “Towngas Smart Energy Operation Guidelines on Corporate Performance Management” which requires project companies to establish performance management standards and standardise processes according to their situation. This manual also assists project companies in setting specific objectives and breaking down strategic objectives scientifically. It enables managers to give more guidance to employees on improving their performance competence so as to reach strategic goals and support their development.

Regarding remuneration management, we insist on the principle of equal pay for equal work. We have developed and implemented internal systems such as the “Towngas Smart Energy Employee Handbook” and the “Measures for the Administration of Salary and Welfare for Expatriates” to optimise our remuneration mechanism. We conduct a salary review at the end of each year, and determine the salary level for the coming year based on the work performance of employees, the operating efficiency of the Group, and the market situation to make sure that the wages and benefits of employees are commensurate with their job grades to build a fair remuneration system.

In terms of employee benefits, on top of providing basic employee benefits in accordance with national laws, we provide employees with multi-level insurance and security systems suitable to their needs, establish and improve working hour and leave

systems, organise festival and team building activities, encourage them to achieve work-life balance and enjoy a growing sense of happiness and belonging.

## Employee Welfare and Benefits



### Social Security

Pensions, medical, unemployment, maternity, work injury insurance and housing provident fund



### Commercial Insurance

Accidental death/disability, accidental medical treatment, hospitalisation allowance, critical illness, outpatient/inpatient medical treatment, death due to illness, gynecological diseases, maternity insurance



### Leave and Holidays

Statutory public holidays, paid annual leave, fully paid sick leave, work injury leave, medical leave, fully paid examination leave, special leave (marriage leave, maternity leave, paternity leave, compassionate leave)



### Other Benefits

Subsidies for telecommunication expenses, festive benefits, recreational activities and company training

### Scholarship Scheme for Employees' Children

To advocate a positive and harmonious lifestyle and corporate culture, we encourage employees to care for their family and their children's education to enhance their sense of happiness and belonging. The Group has continued to carry out the “Towngas Smart Energy Scholarship Scheme for Employees' Children” since 2013. In 2021, 21 applicants received awards after a comprehensive assessment.



# Training and Development

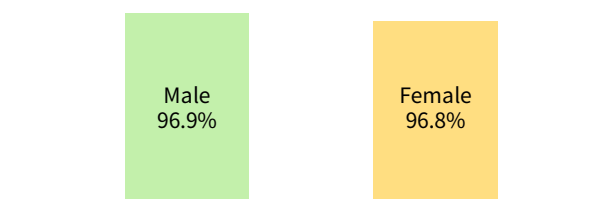
Employees' proactive self-growth is essential for our business development. We have always been committed to promoting corporate culture and nurturing talents. Through organising "online and offline" hybrid-programmes, we offer our employees a wide range of internal and external training courses on corporate culture, professional skills, management, personal development, etc.

## Training

Per Capita Training Hours by Staff Gender (Unit: Hours)

Male	Female
52.3	54.2

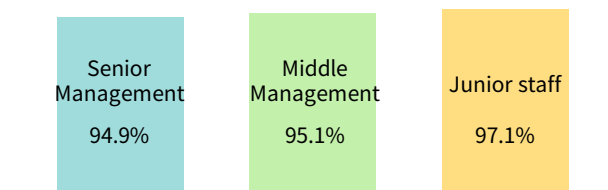
Training Ratio by Staff Gender



Per Capita Training Hours by Staff Type (Unit: Hours)

Senior Management	Middle Management	Junior staff
44.2	52.5	53.2

Training Ratio by Staff Type



For senior management, we have launched the "Corporate Executive Talent Training Programme" since 2020 to cultivate future outstanding management talents. Based on the corporate executive's role, positioning and responsibilities, the training sessions enhance their learning abilities and accustom them to position changes through rotation exercises, management courses, executive's thematic sharing and company visits and exchanges. The general managers of each region led the course in person and set tailor-made training plans for each employee by using management evaluations to achieve training goals effectively. At present, trainees in the first session have received training for 18 months and 28 out of 38 students have become general managers. The second session was launched in 2021, with a total of 41 trainees.



For middle management, the Group has provided various forms of training through the "Towngas Management Programme" ("TMP") to help improve their management capabilities and empower talents with high potential in the Group, regions and project companies.



For junior staff, the Group has carried out Superior Quality Service Programme (“SQS”) training in various forms, allowing employees to deploy scientific processes and tools to solve problems and help project companies improve practical work problems while systematically developing employees’ problem-solving skills and creative thinking.



### For New Employees- “Huangpu” Training Program for New Recruits

“Huangpu” training program is designed to help new employees familiarise with corporate culture and get used to the new environment. They are divided into different groups based on their departments, job grades, age, gender, etc., and are encouraged to work in team and coordinate with one another to foster cross-departmental interaction and collaboration. In the training, we have designed card tower building games, nail intelligence games, team communication games and others to guide them to put themselves into others’ shoes and enhance teamwork in a relaxed and funny way, making the most of the interaction training through debriefing and sharing. In 2021, we organised five training sessions with a total of 140 participants.





## Career Development

In order to lead the development of employees and improve their ability to perform, the Group coordinates all resources and uses multi-dimensional measures to build a career development and performance management system for employees to improve themselves. We provide employees with multiple career development platforms through vertical rank promotion and horizontal core position conversion, fully stimulate employees' potential, promote the quality of professional talents comprehensively, and facilitate the long-term development of talents in the enterprise.

### Talent Ladder Scheme

We develop the talent ladder scheme ahead of time to recruit excellent talents in our talent pool. We provide them with plenty of learning opportunities by appointing them to different posts with different level of challenges. At the same time, experienced job coaches give them professional guidance to help them become senior managers, thus contributing to the sustainable development of our business. In 2021, more than 80 talents were appointed to different posts in different companies through this talent pipeline plan.

## Professional Skills Training

We provide examination leaves for employees who have self-study training related to work to encourage them to take professional qualification examinations and pursue further studies, benefitting their personal development. We offer educational subsidies and other resources to each department and set assessment targets training for regions and project companies to ensure the smooth implementation of training activities.

### Online Learning Platform - "Towngas Mobile Academy"

In 2021, we continued to develop the online learning platform - "Towngas Mobile Academy" and provided more courses on engineering, customer service, safety risk, human resources and so on. It allows employees to take online courses efficiently and conveniently via mobile phones during the pandemic, enriching their professional knowledge and improving their business capabilities.



### Shandong Hong Kong and China Gas Training Institute - Vocational Skills Training

We conduct vocational skills training for future technical personnel at the Shandong Hong Kong and China Gas Training Institute. The training is carried out in small groups teaching that combines practical operation with theory explanations. Based on traditional training modes, we will develop a more scientific model for trainees to take courses in advance at online platforms (TMS, Towngas Smart Energy Academy, WeChat Group, etc.). After completing practical exercises under the guidance of internal trainers or experienced employees, they take theoretical tests online. Those who pass the tests will obtain practical verification certificates and engage in face-to-face assessments.

### Self-learning Materials



We put emphasis on nurturing the self-learning ability of employees and thus provide resources for them. In 2021, Shandong Hong Kong and China Gas Training Institute worked with departments of the Group's headquarters to revise the "Technical Learning Manual for Towngas Employees". In addition to the printed version of the manual, we upload the digital version to TMS and Towngas Smart Energy Mobile Academy where employees can download and study by themselves.

## Preventing Child Labour and Forced Labour



The Group strictly implements the requirements of the “Provisions on the Prohibition of Using Child Labour” and “Law on the Protection of Minors of the People’s Republic of China”. During the recruitment process, applicants have to fill in the “Job Application Form” issued by the Group as required and ensure that the information provided is true. To prevent recruiting child labour, we conduct strict review and information verification on the certificates and related information provided by the candidates, and the hiring process can only be completed after the relevant information is confirmed. We are determined to prevent child labour and forced labour. If we identify such employment, we will conduct an appropriate investigation and implement internal rectification. In 2021, no incident of child labour or forced labour took place in the Group.

1. Through the performance management systems, we promptly give employees feedback on their performance and help them improve. With these efforts, a good working communication environment is created.
2. We hold departmental meetings and carried out collective activities to collect employees’ opinions and suggestions and offer our feedback. In this way, we can effectively communicate with our employees.
3. We keep employees informed of the Group’s policies, systems, major issues and related activities through bulletin boards, emails and Employee Care WeChat groups.

Employees can express their opinions and suggestions through these channels to experience an open and honest communication culture.

## Diversity and Equal Opportunities



Pursuant to the “Universal Declaration of Human Rights” and “International Human Rights Conventions”, the Group upholds the principle of equal opportunity employment and prevents discrimination in the workplace. In 2021, no incident of discrimination was recorded on the grounds of gender, ethnicity, age, health etc., in the recruitment process.

We respect employees’ freedom of association and develop the “Employee Communication Management System” to optimise our internal communication mechanism. We encourage employees to express their opinions to the seniors or human resources department via channels like mail and the employee care WeChat group. Accordingly, relevant personnel or departments are required to respond effectively to employees’ opinions or complaints, thus creating a harmonious atmosphere where they have open and honest communication.

### Internal Communication Mechanism and Channel

With a view to enabling employees to work in a warm and harmonious atmosphere where people have open and honest communication, we have established the following internal communication mechanisms and channels:

## Employee activities



### “My Happy Life”

#### Staff Travel Activities

The Group provided employees with various options through travel agencies. The headquarters as well as regional offices mapped out 12 routes along Dongshan Island in Fujian province, Lijiang River Natural Park in Guilin, Guangxi province, and other places in 2021.





## “My Happy Life”

### Artistic Flower Arrangement Activities

During the spring and summer seasons, the Group held two small-scale artistic flower arrangement activities at the headquarters in Shenzhen. Both activities were well-received by our staff as they enhanced their aesthetic ability and gained more satisfaction when taking part in the activities.



## “My Healthy Life”

### Recreational Activities

We organised recreational activities such as badminton, table tennis, yoga and running groups and established management and incentive systems to encourage participation. The activities were popular among employees because they brought a sense of happiness among staff.



## “My Low-carbon Life”

### Family Activities

We encouraged employees and their children to participate in family activities, such as kneading and outdoor night viewing of animals and plants to promote the parent-child relationship and enhance their perception and exploration of the natural environment.



### Team Building Activities for the Management - “Memorising the Long March and Carrying on the Journey”

In July 2021, the management of the renewable business visited Changting, the starting point of the Red Long March, to explore the historical site, learn the history of the Long March, and commemorate the revolutionary martyrs. The activity has inspired the sense of responsibility and commitment of the management team and strengthened the determination and confidence in the energy industry.



### Team Building Activities for Young Staff – “Our Youth is Different”

At the end of July, the young staff of the Group participated in a special outdoor team building activity.



# 10

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Driving Quality  
Improvement to  
Optimise Operation  
and Management





Towngas Smart Energy champions a range of proactive measures to guarantee the supply of gas, and resolutely provides services and gas on an ongoing basis, ensuring the safe and stable supply of gas. In addition, to serve the evolving demand of customers for products and services, the Group keeps pace with the times and uses innovative technologies to create smart products and online service platforms. To ensure user safety, we offer diversified services integrated online and offline to enhance service quality and user satisfaction.

## Stable Gas Supply



In order to guarantee gas supply, Towngas Smart Energy leverages the quality resources of the parent company, HKCG to actively tap into upstream gas sources, optimise the gas source procurement structure, build a flexible gas source structure with pipeline gas, gas storage and LNG, and comprehensively coordinate the implementation of gas sources and scientific scheduling for the stability of gas supply pressure in the pipeline network. The Group also meticulously carries out hidden hazard investigations, increases the supervision of pipelines at construction sites, and strengthens the inspection and maintenance of key equipment, to ensure the safe operation of the pipeline networks. At the same time, emergency departments such as hotline centres, dispatch centres, and rescue centres are on standby around the clock to ensure that gas hazards can be dealt with in a timely manner.

## Innovative Technologies and Smart Products



### Building Quality Engineering



Towngas Smart Energy continued to strengthen the Group's engineering construction and management capabilities, and effectively standardise the Group's engineering construction work with the internal guidelines for standardised project construction. Since 2015, the Group's engineering department has prepared and issued a series of internal guidance documents in accordance with applicable national norms and industry standards. With the accumulation of project experience and the improvement of engineering technology, the Group's engineering department updates the guidance

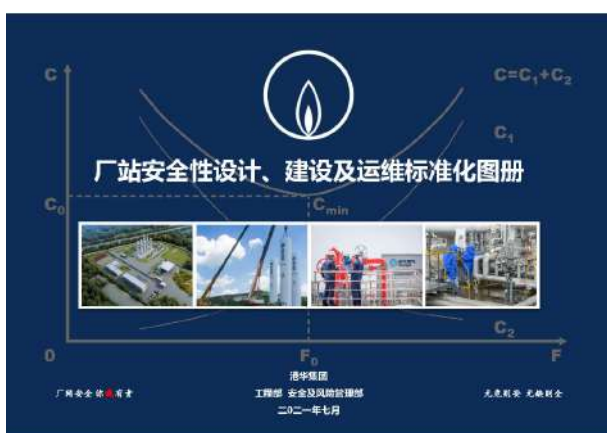
content in a timely manner to ensure the quality of project construction. In 2021, the Group's engineering department revised and released the "Handbook for Standardized Design of LNG Gasification Stations of Towngas Smart Energy", which aims to provide more comprehensive and clear guidance for the construction of the Group's projects.

Towngas Smart Energy is deeply aware that the quality of the project depends on the joint efforts of various groups. As the main construction unit, the Group continues to strengthen the selection and management mechanism of cooperative units. In 2018, the Group commenced the management work on the shortlisting of large-scale gas engineering cooperation units, which mainly includes two parts, unit shortlisting assessment and project record management. In terms of unit shortlisting assessment, each region or company in the Group selects the units from the existing cooperative ones and recommends some based on merits. The selected units go through stages of pre-qualification, on-site assessment, and comprehensive evaluation. Qualifications, technical strength, performance, track record of experience and service level of the shortlisted cooperative units are assessed and the results are announced within the Group. In terms of the project responsibility system, each shortlisted unit should send a fixed project leader to the project of the Group, and the Group should register and record it in a unified manner and announce it to all regions simultaneously.

In 2021, the Group continued to improve the management system of large-scale engineering cooperation units. By taking into account the supervision certificate, quality audit of engineering supervision service, integrity evaluation, and TMS mobile engineering application, the Group updated and issued the "Grand List of Project Supervision Units of Towngas Smart Energy - Conventional Projects of Gas and Water Affairs", "List of Shortlisted Supervision Units and Project Leaders for the Projects of Gas Plant Stations and High-Pressure and Sub-high Pressure Pipelines" and "Measures for the Management of Shortlisted Project Supervision Units of Towngas Smart Energy" to clarify the specific work processes and requirements for the shortlisting management and information filing, and thus promoted the quality management of Group projects.

## Upgrading the design standards of stations and improving the quality of engineering construction

In August 2021, the Group prepared and published the “Atlas of Standardised Security Design, Construction, Operation and Maintenance of Stations”. Through extensive research on its representative gas stations, the Group, on the basis of the existing engineering construction guidelines and the safety management concept governing the whole life cycle of the project, displays in the form of illustrations the key requirements in each phase of an engineering project as regards of gas stations, so as to further improve engineering quality and comprehensively safeguard the Group’s operation efficiency.



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## Innovative VCC Platform

The parent company of Towngas Smart Energy has developed an integrated, safe, convenient and cost-effective “Virtual Customer Centre” (“VCC”) through its extended business platform Towngas Lifestyle App. Towngas Smart Energy and its project companies can rely on the powerful functions of the VCC platform to provide convenient and efficient smart services for more than 15 million users. By the end of 2021, more than 90% of the Group’s project companies have used the parent company’s VCC platform, and the number of online users has reached 6 million. The wide promotion of VCC has greatly improved the satisfaction of the Group’s gas customers and saved the operating costs of the project companies.



In terms of user scenarios, the VCC platform can provide gas customers with increasingly convenient one-stop services, so that they can handle various businesses at home. In 2021, the VCC platform launched new functions such as daily/monthly gas analysis to further offer customers convenience.

In terms of gas meter management, the VCC platform launched the industrial and commercial gas meter management system, which improves the comprehensive industrial and commercial meter integrated management service function, and provided an end-to-end integrated solution for the IoT gas meter on the basis of the residential use IoT meter management platform. The integrated solution specified the Group’s management specifications and standards for industrial and commercial gas meters, standardised the IoT meter data security encryption technology standards, and promoted the development and digital construction of the Group’s smart IoT meters. In the future, blockchain technology will be added to the surface end of IoT to establish an integrated energy consumption service that is efficient, safe, low-carbon and energy-saving, and provide users with a credible carbon bill.



To solve problems such as paperwork orders, system flow, synchronisation, etc. in traditional enterprises, the Group also launched the “Moment Assistant” project on the VCC platform to connect commodity management, manage orders and order data between TMS and TCIS, and to provide multi-functional services for enterprises, such as grid management, placing orders on behalf of customers and sharing merchandise for earning commissions, thus helping enterprises to reduce costs and increase efficiency.

### Expanding Smart Product Category

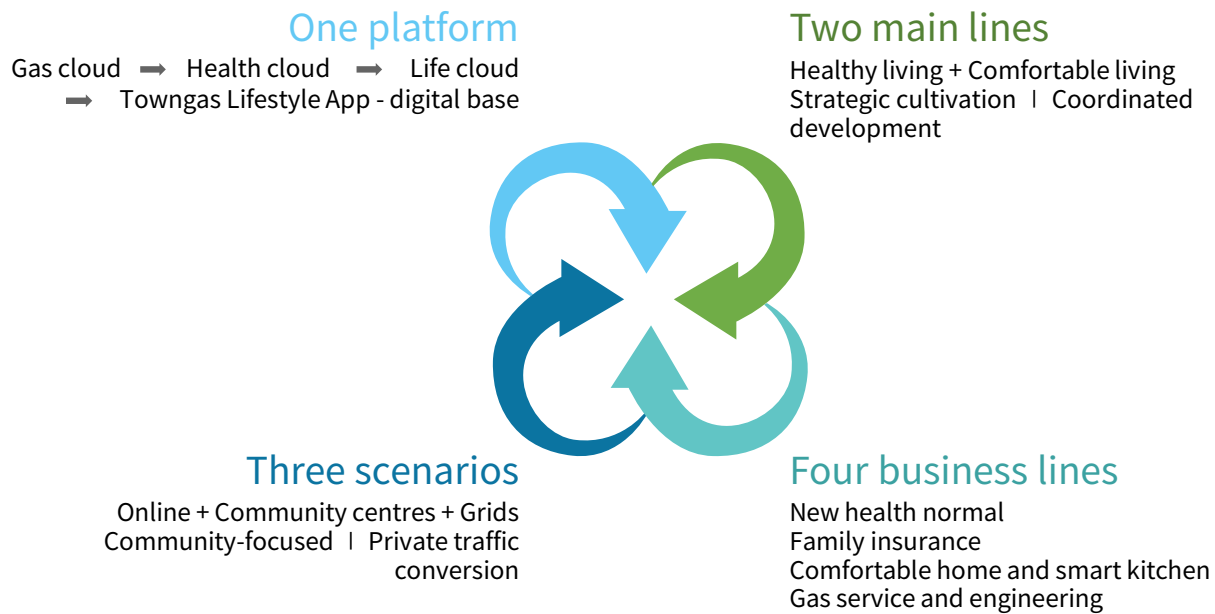
On the basis of compliance with the “Product Quality Law of the People’s Republic of China” and other relevant laws and regulations, Bauhinia, the Group’s brand of extended business, adheres to the concept of “safe gas, safe combustion appliances, professional

installation, professional service” to ensure that its products meet safety standards.

In 2021, Bauhinia continued to expand the category of smart products to include smart gas alarms and smart water purifiers, forming a diversified “smart kitchen” series to create a more convenient and comfortable living style for users.

In terms of quality control, the entire line of “Bauhinia” products has received dual checks by the national quality supervision and inspection authorities, laboratories under China National Accreditation Service for Conformity Assessment as well as the Group’s relevant quality control department. A total of 42 random batch inspections were organised in 2021. Among them, 28 batches of entire machines and 14 batches of key parts were randomly checked, and the number of samples totalled 180 pieces/sets with samples covering all products and production plants.

## Extended Business Development Strategy



### Community Ecology



## Service with Quality Guarantee



### Improving Customer Services



Quality service is the competitive advantage of Towngas Smart Energy. In strict accordance with relevant laws and regulations such as the “Law of the People’s Republic of China on the Protection of the Rights and Interests of Consumers”, the Group cares about the opinions and demands of each customer. The Group has established a multi-channel feedback mechanism to collect and respond to the comments and suggestions of customers in a timely manner, ensuring that the improvement plans are formulated and implemented. At the same time, the Group also organised a number of internal training activities and competitions on professional service skills to improve employees’ service standards and service awareness.

#### “Dandelion Scheme”

In 2021, the training and certification activity, named “Dandelion Scheme”, for elite internal trainers on customer service was successfully held. The training was mainly conducted based on three newly-developed professional courseware - the “Customer Centre Service Manual”, the “Hotline Centre Service Manual” and the “Home Service Manual”. 213 participants from different regions and companies of the Group attended the training and were certified as “elite internal trainers on customer service”, of which 55 well-performed internal trainers were awarded the title of Excellent Trainer.



#### “Smiling Service Ambassadors with Three Courtesies”

On 25 October 2021, the Group’s fourth “Smiling Service Ambassadors with Three Courtesies” competition for skillful and courtesy service was completed in Shanghai. This competition for skills and courtesy service focused on examining the participants’ skills and abilities on service courtesy. The participants demonstrated the smiling service culture with three courtesies and their charisma by showing their excellent service images and skills. A total of 45 participants from all over the country took the lead in winning the title of “Smiling Service Ambassadors with Three Courtesies”. They gathered on the same stage in Shanghai and competed fiercely in three rounds of “Written Test on Service Courtesies”, “Keynote Speech” and “Service Troubleshooting”. In the end, 23 “Smiling Service Ambassadors with Three Courtesies” stood out and successfully advanced.

Taking this event as an opportunity, the “Smiling Service Ambassadors” of the Group and Shanghai Gas gathered here to exchange views, broaden their horizons, and inspire each other, so as to improve the service standards of the entire gas industry.



## “Qualifier of the Fourth Bauhinia After-Sales Service Skills Competition”

In 2021, the “Qualifier of the Fourth Bauhinia After-Sales Service Skills Competition” was held by the Group, with “Smart Kitchen” as a newly added item. After this competition, the participants deepened their understanding of the new products for the benefit of providing customers with higher standards of services.



## Customer Satisfaction Management

### Customer Satisfaction Survey of the Group

In 2021, Towngas Smart Energy showed enterprises and residential users in various regions of the Group entrusted an independent third-party research company to conduct the Group’s customer satisfaction surveys. The results showed that the Group’s customer satisfaction level continues to increase, and the overall satisfaction score of the Group in 2021 was 95.68%, up 1.15 percentage points compared with 94.53% of the previous period. At the same time, the survey pointed out that the overall satisfaction of customers across the country with Towngas Smart Energy is higher than that of other public utilities.

## Third-party Evaluations and Surveys on Service Quality

Towngas Smart Energy takes the third-party service quality survey as the main basis, the “mystery customer survey” and “customer satisfaction survey” as the key point, and conducts the service quality investigation and evaluation of the enterprises within the Group that meet the criteria in the form of on-site secret visits and telephone questionnaire interviews. In order to continuously improve the service quality evaluation system, in 2021, Towngas Smart Energy entrusted a third-party survey agency to carry out the sixth service quality survey, and the results showed that the “Mystery Customer Survey” and the “Customer Satisfaction Survey” had improved compared with the previous survey results.

## Handling Customer Complaints

With a view to providing professional customer service and effectively handling customer complaints, Towngas Smart Energy set out the guideline on the “Process of Handling Customer Feedback and Complaints in the Group” to specify the requirements for service attitude, process, quality and efficiency of customer service providers so as to strictly implement the customer-first service concept.

Furthermore, the Group continued to monitor public opinion and telephone complaints, and issued prompt warnings to project companies to ensure that they would record complaints in detail, and follow up and handle the public opinion properly. In 2021, the Group achieved the goal of a 100% customer complaint response rate, realising the entire process tracking from monitoring to handling.

The Group continued to conduct a summary analysis of the collected complaints and provided feedback with the relevant analysis results to each region to facilitate regional improvement and ensure that the Group’s service standards were upheld. In response to significant customer complaints, the Group urged relevant project companies to carry out rectification. For example, through analysing customer complaints, the Group realised that “connection lead time is too long” and “application procedure is complicated” accounted for a relatively high proportion of complaints. It thus required multiple project companies to set up special project groups to jointly study and resolve problems from the perspective of improving customer satisfaction. The Group pledges to handle each and every customer complaint in a



serious manner and actively formulates relevant standards and guides its subsidiaries to deal with relevant complaints in a timely manner. In 2021, the Group received and handled a total of 66 customer complaints in terms of public opinion monitoring and direct customer complaints.

### Return of “Bauhinia” Products

Project companies selling “Bauhinia” products are required to give feedback to the quality control unit should they discover substandard products. The unit will analyse the reasons for the non-conformities, and determine whether it is a problem with an individual case or a batch. It will then work with the supplier to formulate improvement measures. If it is a batch problem, the quality control unit will notify the project companies to return the entire batch of substandard products to the supplier who shall then reissue qualified products of the same model in the same quantity. In 2021, among the products sold by “Bauhinia”, there were no cases of product return due to quality reasons.

## Intellectual Property Protection

Intellectual property protection is of great importance to enhancing the innovation and competitiveness of companies. Towngas Smart Energy has taken positive measures to safeguard intellectual property rights effectively and prevent infringements.

The Renewable Business Department of the Group formulated the “Administrative Measures for Intellectual Property Declaration and Management of Towngas China Energy Investment Ltd.” to regulate intellectual property management, enhance the employees’ awareness of intellectual property protection, and effectively protect intangible assets. As of the end of 2021, the Group had declared 16 invention patents, such as “Method for Selecting Heating Water Equipment”, and “Method for Feasibility Analysis of Water Source Heat Pump”, as well as four software copyrights, such as “Integrated Energy Project Design Platform”.

While effectively protecting its intellectual property rights, Towngas Smart Energy clearly states the relevant provisions of intellectual property division and confidentiality in its contract with third parties, including but not limited to confidentiality content,

the scope of confidential personnel, confidentiality period, confidentiality liability, etc., and stipulates the ownership and sharing of technical achievements. In terms of collaboration with external suppliers, the Group has also mandated all suppliers to make a declaration in their contract with the Group that products provided do not constitute any copyright infringement, including intellectual property rights and other related rights. In 2021, the Group carried out its work in strict accordance with the confidentiality agreement signed by both parties to the contract, and there were no rights disputes.

## Information Security Protection

Ensuring information security is the basic obligation of the Group as a public utility, and we always regard the protection of customer information and privacy and the right to know as the top priority of platform building and internal management. On the basis of strictly complying with the “Cybersecurity Law of the People’s Republic of China” and other relevant laws and regulations, the Group has established a comprehensive management policy to standardise the relevant processes of information security protection.

## Internal Information Security Management

To ensure the effective management of internal information security of Towngas Smart Energy, the Group updated and promulgated version 2.1 of the “Towngas Smart Energy Group IT Management System” in 2021. In accordance with the requirements of using licensed software, software that may be used by office computers was put into four categories, and different management requirements for various types of software were specified to comprehensively regulate the use of computer software.

- Standard configuration — Software to be installed in all computers by IT personnel after the Company purchases the license
- Request-based configuration — Software as required by the user to be installed by the IT personnel after the Company purchases the license
- Prohibited configuration — Software prohibited from being installed or used on office computers

- Free installation — Software to be installed when applied by office computer users

In accordance with the requirements of the “Regulations on Cybersecurity Classification Protection”, the Group issued the “Towngas Smart Energy Corporate Cybersecurity Classification Protection Work Guidelines” in September 2021, and arranged for relevant personnel inside the Group to attend video training sessions to learn more about the cybersecurity law and classification protection work guideline in October. A total of 550 participants from about 140 companies (including companies further invested by affiliates) attended the session. The majority of the Group’s project companies have been applying for qualification reviews at the local management institution in accordance with the requirements of the relevant regulations and have obtained the classification protection evaluation certificates in respect of the relevant systems.

## The Group’s Information Management Centre

By functional zoning, the Group’s Information Management Centre owns the host room and the auxiliary equipment and distributor room. The data room mainly stores various sets of information systems shared throughout the Group, such as TMS, Office Automation (“OA”), and email system. The Group has also leased Information Data Centre (“IDC”) cabinets in Dongguan to set up a business system and a remote disaster recovery system, to facilitate the business data transmission to the disaster recovery IDC in real time. Drills of disaster recovery for the business system are held at least once a year as required.

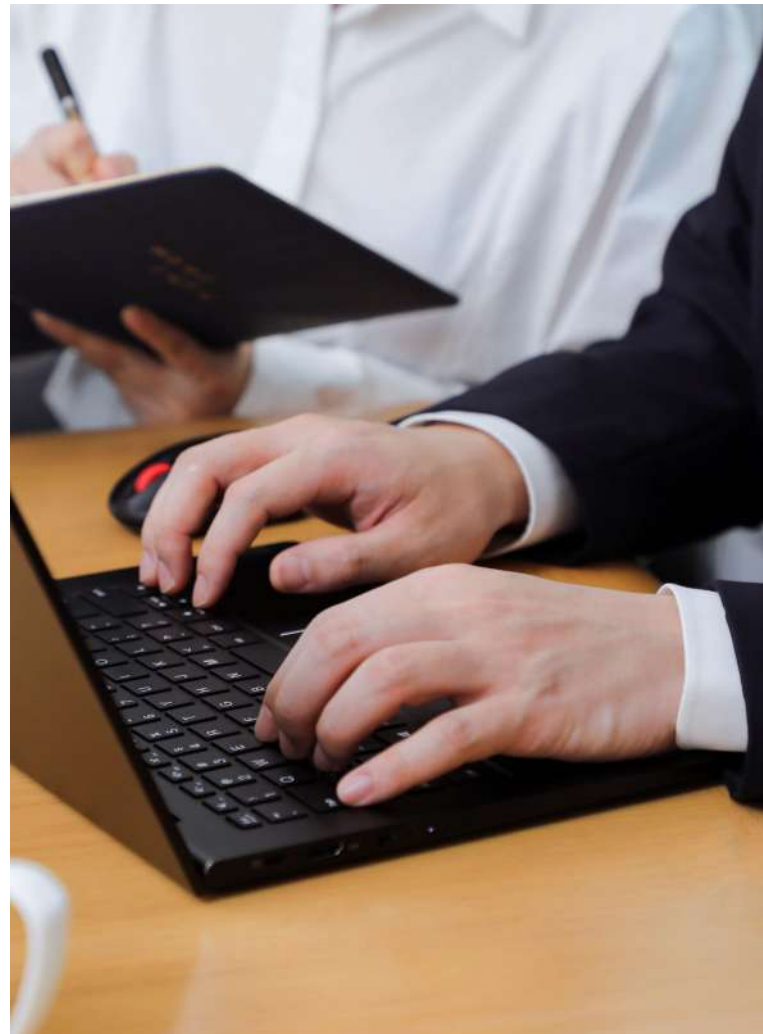
In addition, to protect the data, the Information Centre backs up online data locally on a 14-day cycle, or backs up critical data in the tape library locally on a 90-day cycle. Also, the Group regularly recovers backup data to verify its effectiveness.



The Information Centre conducts Classified Protection of Information Security (CPIS) Level 3 evaluation for business systems involving critical infrastructure. It conducts an on-site assessment of the protection measures of physical security, network security, and business system security; and the Centre hosts security in accordance with CPIS Level 3 standards. In 2021, the TMS information management system of the Group’s Information Centre was awarded CPIS Level 3 Certificate while the email system was awarded a Level 2 Certificate.

## Anti-Ransomware Security Training

In August 2021, the Group conducted a video training session on anti-ransomware security, which was attended by around 600 people. Assisted by regional IT managers, the project companies were required to implement security work such as backup, antivirus measures, disaster recovery drills, and patch updates, strengthening their network and information security management effectively and efficiently.





## Renewable Energy Platform Safety Management

Towngas Smart Energy’s renewable business acts in strict compliance with the “Cybersecurity Law of the People’s Republic of China”, and has formulated related management systems such as the “OEM Project Development Management System of TCEI(Towngas China Energy Investment Limited)-EIoT Platform Department” and the “Classified Data Security Management and Review System of TCEI-EIoT Platform Department” to support the safety management of smart energy platforms. In order to ensure data security, TCEI-EIoT Platform Department carries out data security governance throughout the data lifecycle, and defines corresponding control points and management processes at the links of data collection, transmission, storage, use, sharing and destruction for integrated use in different business scenarios.

### Integrated Energy Management Platform

On 30 November, the Integrated Energy Management Platform successfully obtained the Classified Protection of Information System Security 2.0 (CPIS 2.0) Certificate. When performing data collection of energy projects, an encryption gateway and an encryption module<sup>8</sup> were adopted to provide channels and protect data security.



<sup>8</sup> Using encryption algorithms SM1, SM2 and SM3 certified by the State Cryptography Administration and the IPSEC-VPN protocol issued by the State Cryptography Administration, the encryption gateway and encryption module are able to shield against common cyber attacks and act as a firewall in the form of a white-list, which have passed the security assessments by authorities such as the State Cryptography Administration and the Ministry of Public Security.

## Customer Information Security Protection

Towngas Lifestyle, the extended business platform of the parent company, has issued regulatory documents such as the “VCC Information Security Laws and Regulations Administration Procedures”, “VCC Information Security Incidents Management Procedures”, “VCC System Development and Acceptance Security Management Procedures”, “VCC Data Security Management Procedures”, “VCC Security Review and Inspection Procedures”, “VCC Operation and Maintenance Safety Personnel Management Procedures”, “VCC Information Security Team and Scope of Responsibilities”, “VCC Malware Prevention Management Procedures” and “VCC Security Training and Assessment Management Regulations” to define the information security management process of the platform. Under the guidance of Towngas Lifestyle, the Group’s project companies strictly follow the abovementioned normative documents, strengthen information security management, and ensure customer information security.

Towngas Lifestyle has also applied for relevant qualification certifications, including but not limited to ISO 9001 Quality Management System, ISO 20000 Information Technology Service Management System, and ISO 27001 Information Security Management System. In addition, the Group has successfully obtained the CPIS Level 3 Certificate for the Towngas Lifestyle Gas Cloud platform system, “Home Lifestyle” system, Towngas Lifestyle smart IoT management system, and Towngas e-commerce system. These certifications ensure that the project companies under Towngas Smart Energy can implement solid protection of customer information security when using VCC, Gas Cloud, Towngas “Home Lifestyle” system, Smart IoT and other systems.





Towngas Group Suppliers” and the principles of voluntariness, equality, fairness and integrity, as well as business ethics.

### The Main Channels for the Group to Select Suppliers:

1. Authorised agencies or directly affiliated companies of suppliers already approved by HKCG in the Chinese mainland; and
2. Suppliers that are assessed and deemed satisfactory by the Group and have the intention to collaborate.

By the end of 2021, we had 131 major suppliers, including 125 from the Chinese mainland and six from overseas countries and regions.

### The Group Encourages Suppliers to Actively Fulfil Corporate Social Responsibility (CSR)

The Group sets out expectations on suppliers for the active performance of CSR in areas of business ethics, employee relations, market activities, community involvement and environmental protection.

## Supply Chain Management

## Supplier Management

The Group strictly observes the “Bidding Law of the People’s Republic of China” and has formulated internal regulatory documents regarding the management of the supply chain, such as the “Guidance for Supplier Evaluation”, the “Blue Book: Procurement Manual for Group Affiliates”, the “Manual on Combined Procurement Management”, the “Supplier Code of Conduct”, to create a sound supplier management system. To ensure the economic benefits of the Group’s business, we select the most competitive materials or services according to the quality of the supplier’s goods, delivery time and service standard, and encourage the project companies to adopt environmentally friendly materials and services to save resources, reduce pollution and promote the recycling of materials. In addition, the Group requires suppliers to strictly comply with the “Basic Requirements for

Promote corporate social responsibility of suppliers

Compliant operations

Fulfil duties and obligations for health and safety

Comply with the provisions of the environmental law

Respect and enforce human rights and fundamental rights of employees

Uphold integrity

Supplier assessment consists of an examination of the Group’s operating status, development outlook, quality management system, CSR performance and other aspects. The Group requires existing suppliers to conduct quality management assessment through “Easy Quality Management” mobile application and 6S applications self-review. The Group also manages existing suppliers through methods such as quality inspections, random examinations of products and supplier performance reviews.

After the Group’s review, suppliers formulate improvement plans based on the feedback.

If the Group assesses the improvement results of suppliers as “unqualified”, the Group will take measures such as stopping suppliers from shipping and accepting orders, and withholding corporate inventory to control quality risks.

### 6S Management

Application on 6S Management such as the suppliers’ production, warehouse and laboratory are scored by the Group regularly.

For new suppliers, the evaluation is carried out on aspects such as production site quality, 6S, and CSR and the standards should be met. Suppliers accredited by the Group are required to be re-examined at least once every 1 to 3 years.

In 2021, under the impact of COVID-19, the Group conducted online CSR self-assessment, 6S self-review and quality management self-assessment for major suppliers. A total of 174 suppliers completed CSR self-assessment and 177 suppliers completed 6S self-review.



Note: Other phrases except safety are translated from Japanese.



## Supplier Quality Improvement Conference

Affected by the domestic pandemic, the gas business organised six special online management meetings on quality improvement for key products, attended by a total of 59 suppliers, through which we informed suppliers of the Group's management requirements in the areas of quality, CSR, and 6S. In addition, we organized 160 suppliers to watch the training videos of CSR and 6S online and complete tests afterwards.



Our major suppliers account for over 90% of the procurement and possess ISO 9001, ISO 14001, and ISO 45001 certificates.

## Enhancing Integrity in Procurement



The Group regularly sends official letters to suppliers to remind them not to offer or accept any hospitality or gifts in order to maintain fair competition in business activities. We encourage suppliers to comply with the Group's "Fraud Prevention Policy" and constrain suppliers with written anti-corruption and anti-fraud clauses in procurement contracts. In addition, the Group plans to formulate anti-corruption and anti-fraud policies and establish a monitoring mechanism for suppliers and contractors to ensure the transparency of the procurement process.

## Green Procurement



The Group has formulated policies on environmental protection procurement and proactively advocated that project companies choose environmental-friendly products and services to conserve resources, reduce pollution, and promote materials recycling. We express our environmental concerns to our suppliers and encourage them to meet our environmental standards. When different products of the same quality and commercial conditions are available, we give priority to those from suppliers with environmental certificates (e.g., ISO 14001), such as sustainable timber and wood products. We also advocate for plain packaging and avoid the use of environmentally unfriendly materials (e.g., non-degradable plastics).



### Extending the Service Life of Parts to Reduce Waste

1. Use coated pipes and wide-edge fittings to extend the service life and avoid environmentally unfriendly operation such as on-site painting, so as to improve the overall quality and reduce the risk of accidents.
2. Copper valves suppliers are required to stop using traditional nickel plating in shell processing, thus reducing the use and emission of hazardous substances.

# 11

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Pursing Low-carbon  
Development to  
Create a Better  
Future





At the historical juncture of the national energy transition, Towngas Smart Energy, as a leading clean energy supplier, made strategy planning in the field of smart energy many years ago and actively explored new opportunities for sustainable development, so as to continuously strengthen the Group's environmental governance. The Group actively expands its renewable business, and explores the investment opportunities in the urban energy transition to realise the "dual-carbon" goal, contributing to the country's energy consumption and emissions reduction targets.

## Environmental Management Approach and Objectives



The Group provides customers with quality gas and services to reduce pollution and waste, striving to create an ideal living environment for the next generation.

Environmental management objectives set by the Group:

- Continuously improve environmental management performance and strive to increase resource and energy use efficiency;
- Encourage the application of new technologies, new techniques, new materials and new equipment to achieve safety, energy conservation and environmental protection;
- Raise the environmental awareness of employees and related parties through education and trainings.

## Environmental Governance Policy



In accordance with laws and regulations such as the "Environmental Protection Law of the People's Republic of China", "Law of the People's Republic of China on the Prevention and Control of Air Pollution", "Law of the People's Republic of China on Prevention and Control of Water Pollution", "Law of the People's Republic of China on the Prevention and Control of Environmental Noise Pollution", "Law of the People's Republic of China on Promoting Clean Production", "Water Law of the People's Republic of China", "Energy Conservation Law of the People's Republic of China", "Environmental Impact Assessment Law of

the People's Republic of China", "Law of the People's Republic of China on the Prevention and Control of Pollution by Solid Waste" and "Law of the People's Republic of China on the Prevention and Control of Radioactive Pollution", Towngas Smart Energy has formulated a series of internal regulatory documents, such as the "Environmental Protection Management Guidelines" and "Employee Environmental Protection Handbook", to guarantee that project companies within the Group comply with the environmental protection laws and regulations and other requirements of the Group in production and operation, thus reducing and preventing environmental pollution, achieving sustainable development, and promoting environmental protection proactively and effectively. In 2021, the Group and its project companies did not have any penalties imposed by government departments for violating environmental laws and regulations.

## Combat Climate Change



In the face of the challenge imposed by global climate change, our investors and many other stakeholders are paying increasing attention to how the Group is addressing the challenges of climate change and enhancing the resilience and operational efficiency of its own businesses to achieve sustainable development. We took into account and implemented the recommendations of the Task Force on Climate-Related Financial Disclosures ("TCFD") to conduct a comprehensive Group-wide assessment in 2019 and to clarify the current situation of the Group through a gap analysis. Based on the Group's assessment results, we disclose relevant information from three dimensions: climate change governance and strategies, risk management, and carbon reduction objectives and practices.

## Governance and Strategies Addressing Climate Change



We attach great importance to climate risk management. By making reference to international conventions such as the “United Nations Framework Convention on Climate Change” and the “Paris Agreement” and national strategic policies such as the “14<sup>th</sup> Five-Year Plan and Vision 2035”, as well as the Group’s business development planning and internal governance framework, we have sorted out governance requirements and duty divisions regarding climate change, developed policies for climate change management, and improved the evaluation mechanism of risks and opportunities of climate change, which all together fully reflect the Group’s sustainable development mission of vigorously promoting restructuring from traditional gas to smart energy.

The Group has developed the ESG governance structure and takes measures that fit the structure to

manage climate change-related matters in a unified manner, and stated clearly the duties in the monitoring and management of climate-related risks and opportunities between the Board of Directors and the Environment, Society and Governance Committee. In line with the TCFD’s recommendations, Towngas Smart Energy conducted a comprehensive assessment in 2020 to analyse the risks and opportunities of the transformation of its energy-related businesses in different climate scenarios. Based on the various scenarios proposed by the International Energy Agency in the “World Energy Outlook 2019”, we identified the following four scenarios in combination with changes in international and national policies and current scientific, and technological innovation and application practices.

Scenario Analysis		
Scenario		Description
<b>Scenario One</b>	Best of Both Worlds (rise well below 2 °C)	Similar to the IEA’s Sustainable Development Scenario (SDS). Bold emissions reduction targets are met through 1) new/alternative technologies, 2) efficiency improvements, and 3) government policies. Demand for natural gas peaks around 2035. In 2040, renewables will replace coal as the main source of energy in the Chinese mainland: renewables (34%), coal (28%), oil (14%), natural gas (13%), nuclear (11%).
<b>Scenario Two</b>	Policy Driven	Similar to IEA’s SDS, but with a less optimistic assumption for technological development and adoption. Governments take the lead and consider meeting climate and environmental goals to be the highest priority in their policy making process. Consumer choices are limited; business and industrial activities are further taxed and regulated.
<b>Scenario Three</b>	Business-led	Similar to IEA’s Stated Policies Scenario (STEPS). Governments take a back seat in climate and environmental policies. Carbon emissions slow down due to some uptake in renewables and efficiency gains, but there is no peak in global energy-related carbon emissions.
<b>Scenario Four</b>	Greenhouse Earth (rise of 4 °C, business-as-usual scenario)	Similar to IEA’s Current Policies Scenario. Governments do not follow up on climate-related commitments and policies; fossil fuel subsidies continue, hindering the uptake of renewable energy. Demand for natural gas increases by over 140% in 2040 as compared with 2018, with coal remaining the main energy source (46%), followed by oil (20%), renewables (15%), natural gas (13%) and nuclear (6%).



The rise of global temperature and sea level and the frequent occurrence of drought, floods and other extreme weather will pose enormous challenges to our daily operations. In addition, the development of international and domestic policies, the market's low-carbon reorientation, and the Group's goodwill may have a significant impact on our future business operations. To achieve sustainable development and enhance operational resilience, we have incorporated response to climate change risks and opportunities into our overall development planning.

As for physical risks, acute weather events caused by climate change, such as frequent typhoons and torrential downpours, may affect the continuity of our operation, while chronic risks, such as high temperature and droughts, may lead to increased energy consumption and higher operating costs in the operation of projects and buildings. The rise of sea level may lead to asset losses in related areas. We take into consideration the impacts of regional climate during the arrangement of operational assets, and develop emergency response measures for acute weather events to avoid or mitigate operational impacts or asset losses.

As for transition risks, we have identified risks from four dimensions based on TCFD's recommendations: market, technology, policy and regulation, and reputation. The increasingly stringent climate and environmental policies imply that the regulation of carbon-intensive businesses, products and services will be tightened. With the accelerated transition to a low-carbon economy, if we fail to effectively control or reduce the carbon emissions generated by our operations and provide low-carbon services and products, it may lead to brand image damage, customer loss and a drop in market share. We are doing research on and promoting novel and alternative technologies for energy conservation and emission. We purchase clean energy and provide low

carbon services and products to reduce carbon emission of our own and of the value chain. Meanwhile, we have organised energy conservation and emission reduction initiatives such as the "Initiatives for Environmental Protection and Carbon Reduction in 2021" in our daily office operations, and have called on stakeholders to contribute to carbon emissions reduction.

We believe that climate change brings many opportunities for the enterprise. We improve energy efficiency and water efficiency of operations in offices to reduce operating costs and sensitivity to carbon transaction price change. We offer a wide range of products and services to help our customers transit to clean energy and achieve energy efficiency and emission reduction. This has enabled us to gain a stronger competitive position in the transition to a low-carbon economy.

In 2021, the Group issued the "Memorandum on the 2021 Initiative for Environmental Protection and Carbon Reduction" and the "2021 Climate Change Information Collection Form" to collect climate-related information of project companies (e.g., floor area, address, tanks condition, electricity usage, delivery of natural gas, water consumption, discharge volume of waste water, etc.). The Group is collecting information from project companies to prepare for systematic identification and assessment of climate change risks in the future.

Based on the Group's overall vision of sustainable development and the major climate risks and opportunities identified, we will continue to refine our overall strategy and action guidelines in specific areas for climate change response so as to strengthen the management of specific climate change risks and opportunities continuously and effectively, thereby contributing to the Group's sustainable development.



## Carbon Reduction Targets and Practices

The Group will comprehensively look into the energy consumption structure of its own operations, continuously monitor the quantitative indicators of greenhouse gas emissions, and proactively set targets and creates action plans for carbon emissions reduction in an effort to support the realisation of the country's dual-carbon goals.

In accordance with the "14<sup>th</sup> Five-Year Plan", we actively utilise innovative technologies to develop integrated energy services, thus helping customers improve energy efficiency and achieve the green energy transition. In 2021, our gas business completed 100 green energy comprehensive service projects, including distributed photovoltaics, hot

water sales and heating services for industrial parks, which improved the resource efficiency of our customers and expanded the range of clean energy applications. Together with its parent company, the Group has more than 110 renewable energy projects in 21 provinces, autonomous regions and municipalities, and has negotiated the development of 32 zero-carbon smart industrial parks, covering multiple businesses such as multi-energy complementary supply (cooling, heating and electricity), photovoltaics, energy storage, battery charging and swapping stations, integrated energy services for industrial and commercial customers, etc. We have been setting up project companies.

### Highlights of City Gas Business

#### Optimising heating services

In 2021, the Group intensified the development of the heating business in the customer market. On one hand, the Group promoted energy-saving, highly-efficient and low-carbon heating appliances to customers, and provided high-quality gas project implementation and gas supply services. On the other hand, the Group actively invested in the development of "gas + electricity" multi-energy complementary heating projects to provide safe, reliable, energy-efficient, and low-carbon services for society.



### Highlights of Renewable Business

#### Highlights of renewable energy generation

In 2021, the photovoltaics power generation capacity approximated at 18 million kilowatt hours, with a carbon dioxide emissions reduction of 12,420 tonnes.





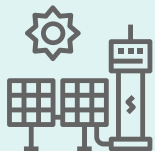


### Demonstration project for integrated green energy solutions - Shenzhen Gas Building Distributed Energy Station

The integrated energy project in Shenzhen Gas Building is a demonstration project showcasing the “source-grid-load-storage” method at Towngas Smart Energy. The aim is to provide safe, reliable, stable, energy-efficient, and green energy for the Shenzhen Gas Building, and to achieve the green and low-carbon transformation of the building.

The project brings together integrated green energy services such as commercial gas distributed energy systems, energy storage system and construction energy saving service, and leverages core technologies, such as integrated energy solution design software and integrated energy management platform, jointly developed by Tsinghua University and Towngas Smart Energy Company Limited, and digital technology based on IoT to enable intelligent, safe and efficient energy operation. Thus, the

project provides a leading integrated green energy solution to meet the requirements of enterprises in the Shenzhen Gas Building for safe, clean, efficient and cost-effective energy utilisation.



The annual power generation capacity of the project is approximated at 1,201,000 kilowatt hours, the annual cooling capacity at 1,539,000 kilowatt hours, the overall efficiency of system energy utilisation at more than 80%, and the annual carbon dioxide emission reduction at about 185.73 tonnes, sulphur dioxide emission reduction at about 0.39 tonnes and nitrogen oxide emission reduction at about 0.14 tonnes.



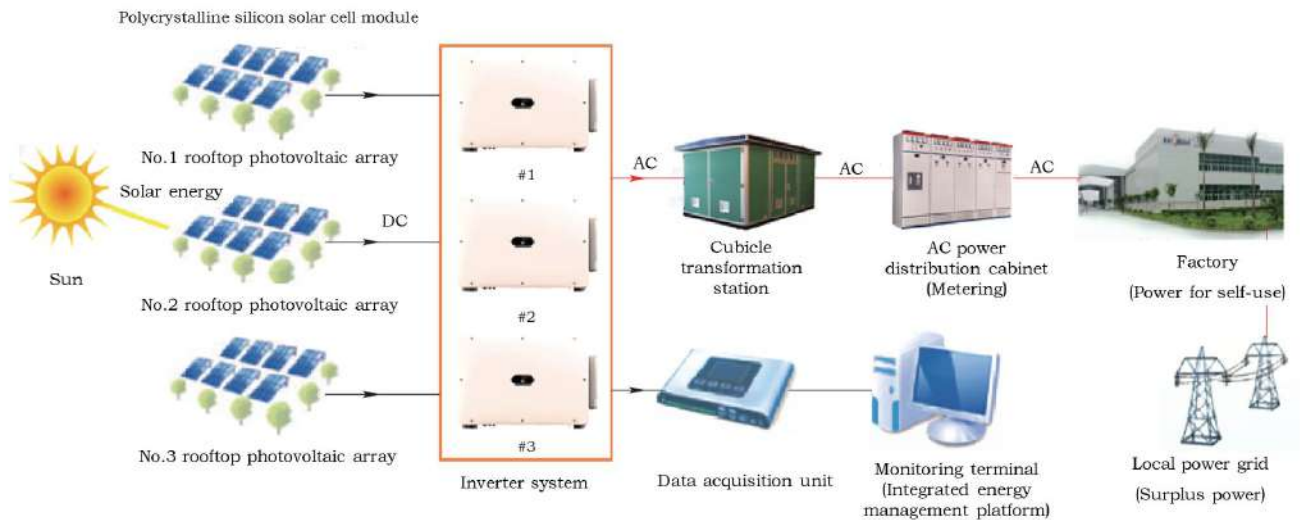
## 5.5 megawatts distributed photovoltaic power generation project in Foshan

In 2021, Towngas Smart Energy installed 5.5 megawatts of distributed photovoltaic power for the colour steel tile houses of three production workshops of an industrial plant in Foshan.

Equipped with the integrated energy design platform and green energy solution services developed by the Joint Research Centre for Regional Integrated Energy

Planning Technology with Tsinghua University, the project integrates distributed photovoltaics to meet the enterprises' demand for safe, clean, efficient and economical energy.

The following graphic is the diagram of the power generation process of distributed photovoltaics.





The project is expected to generate 124.38 million kilowatt hours of electricity over a 25-year period, representing an average annual power generation of 4,975,500 kilowatt hours. The annual reduction in standard coal use reaches 1,990 tonnes. The reduction of carbon dioxide, sulphur dioxide and nitrogen oxide emissions reaches 4,900 tonnes, 1.5 tonnes, and 0.75 tonnes respectively.

The project adopts Energy Management Contracting (“EMC”) mode, providing users with energy-saving project design, raw materials and equipment procurement, construction, training, operation and maintenance, energy-saving monitoring and other one-stop comprehensive services. It achieves profitability by sharing with customers the energy-saving benefits generated after the implementation of the project. After the completion of this project, the electricity that can be supplied to customers accounts for more than 80% of the total annual photovoltaic power generation, so that it can be self-sustainable, and the electricity will be supplemented by the mains when the power generation is insufficient. When there is a surplus of electricity, usually during public holidays, the surplus will be transmitted to the power grid. This reduces the energy costs of existing users and achieves a win-win situation between the producer and the user.

Economic benefits:

Reduce cost of energy consumption for users by about

**10%**



We vigorously invest in the research and development of the smart energy ecology platform to enhance the digital and intelligent service capabilities of the Group’s ecology platform, and to realise the zero-carbon construction of industrial and commercial parks, including carbon monitoring, intelligent operation and maintenance, energy conservation and carbon reduction, and value-added transaction and trading, etc. At the same time, through smart technology and professional services, we will use the smart platform to aggregate the energy, flexible load and energy storage resources of customers inside the industrial parks to ensure a stable, reliable, safe and green power supply.

### Integrated Energy Planning Platform

The integrated energy planning platform is a product jointly developed by Towngas Smart Energy and Tsinghua University. The platform can be used for the planning and design of the integrated energy schemes of the industrial and commercial parks, providing guidelines for the construction of integrated energy facilities that are clean, efficient, low-carbon and safe in the parks. As of the end of 2021, the integrated energy platform has had access to a total of 24 energy projects under Towngas Smart Energy, achieving optimisation of multiple energy sources coordination.

### Technical Cooperation with Nr Electric Co., Ltd

Towngas Smart Energy and Nr Electric Co., Ltd have carried out in-depth technical cooperation, aiming to complete the development of Towngas Virtual Power Plants (“VPP”) products and support Towngas Smart Energy’s business of the virtual power plants. Internally, this cooperation realises the integration and synergy of multiple energy sources such as source-grid-load-storage. Externally, it supports the business of power market transactions and trading, power auxiliary services, and power demand response.

In order to further enhance the climate resilience of enterprises, the Group will pay close attention to the development of national policies and the clean energy market dynamics. We will continuously improve our own smart energy business planning, promote consumer education and our brands with the theme of sustainable development, and assist in the country’s energy structure transition and development.







# Emissions Management



## Greenhouse Gas Emissions



The Group complies with national environmental protection laws and regulations, and promotes the use of environmentally friendly products and technologies in daily operations. Statistical surveys are conducted on greenhouse gas emissions every year. Project companies are required to strengthen organisation and management, enhance systems, and keep proper records of various items in order to reduce the emissions of greenhouse gas. The Group performs comparative analysis and target control of

the carbon emissions data reported by the project companies to ensure that the data anomalies can be reasonably analysed and corrected. In addition, the Group actively prepares the work plan for the verification of the Scope 3 greenhouse gas emissions, and the relevant departments within the Group will continue to promote the development of the work and disclose more comprehensive greenhouse gas emissions data in the future.

	Nitrogen oxide (NO <sub>x</sub> )	Sulphur dioxide(SO <sub>2</sub> )	Respirable suspended particulates (PM10)
	Kg	Kg	Kg
2021	38,946.0	574.1	1,380.7
2020	18,973.3	145.4	1,344.9
2019	21,310.0	139.5	1,563.2

	Greenhouse gas Scope 1	Greenhouse gas Scope 2	Total greenhouse gas emissions Scope 1 + Scope 2	Greenhouse gas emission intensity		
	Tonnes	Tonnes	Tonnes	Tonnes/HK\$ 100 million	Tonnes /company	
2021	Gas Business	10,854.0	25,179.5	36,033.5		
	Distributed energy system("DES")	19,927.5	435.6	20,363.1	329.3	679.5
	Total greenhouse gas emissions	30,781.5	25,615.1	56,396.6		
	Solar photovoltaic projects <sup>9</sup>			(12,420.0)		
2020	10,506.2	24,072.1	34,578.3	269.6	437.7	
2019	10,996.9	23,754.1	34,751.0	268.9	439.9	

Note: Due to the formal operation of the group's distributed energy projects this year, our own greenhouse gas emissions increased substantially. Distributed energy projects boosted energy efficiency for customers and to reduce their consumption of other energy sources.

<sup>9</sup> The solar photovoltaic projects, installed on the client side, generated a total of about 18 million kilowatt hours of electricity in 2021, equivalent to reducing greenhouse gas emissions by 12,420 tonnes.

## Exhaust Gas Management

In terms of exhaust gas management, the Group requires project companies to strictly comply with the national regulations and monitoring requirements on exhaust gas emissions. The Group also requires project companies to phrase out and replace equipment that severely pollutes the atmospheric environment, to collect the exhaust

gases or to prevent and control pollution of exhaust gas emissions from operations. During the operation of energy stations for renewable energy, the Group requires the relevant project management departments to conduct regular maintenance on generators, combustion engines and boilers to ensure the compliance of exhaust gas emissions.

<p><b>Exhaust Gas Management</b></p>	<p><b>Objective: The Group advocates that all project companies phrase out the old equipment, optimise process flow and reduce exhaust gas emission as much as possible.</b></p>	<p>Ensure that the construction site strictly complies with the production and operation procedure, and volatile materials that can cause atmospheric pollution are sealed tightly.</p> <p>Construction operations prone to dust generation are conducted using wet dust suppression to mitigate the problem.</p> <p>Avoid melting bitumen and burning asphalt felt, paint and other waste that can produce toxic and harmful soot and odours at construction sites.</p> <p>The safety management guidelines for odourants were updated, and the precautionary measures for leakage and emergency prevention measures were improved.</p> <p>Air conditioning equipment should use environmentally friendly refrigerants to reduce emissions of ozone-depleting substances.</p> <p>Heating boilers should use clean energy such as natural gas as far as possible, and adopt energy-saving measures.</p>
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## Waste Management

Each project company should set up waste separation bins at major workplaces in accordance with the Group's requirements, and put up clear signs for hazardous waste disposal sites. The Group encourages project companies to reuse recyclable and non-hazardous waste, while hazardous waste

and industrial waste from production activities, such as mercury-containing fluorescent lamps, thermometers, paint barrels, tetrahydrothiophene barrels, waste oil and insulating materials, are disposed of by qualified waste disposal agencies.

<p><b>Hazardous Waste Management</b></p>	<p><b>Objective: The Group actively advocates project companies to purchase green and environmentally friendly products to replace materials or products that pollute the environment, thereby reducing the generation of hazardous waste.</b></p>	<p>In accordance with relevant state regulations, the hazardous waste management plan is formulated, and relevant information on the type, production, flow, storage and disposal of hazardous waste is reported to the ecology and environment department of local governments at or above the county level.</p> <p>Do not dispose of, deposit and bury hazardous waste without proper permission, transfer hazardous waste to qualified disposal units for disposal, and record statistics on the quantity and timing of the transfer.</p> <p>The transfer and disposal of hazardous waste are conducted in accordance with the state's relevant regulations of hazardous waste transfer manifests.</p>
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Non-Hazardous Waste Management	Objective: The Group actively encourages employees to reduce the generation of non-hazardous waste by increasing the use of recyclable products.	The principle of “reducing quantity, recycling, hazard-free treatment” of prevention and control of solid waste pollution from the “Law of the People’s Republic of China on the Prevention and Control of Solid Waste Pollution” is strictly followed.
		Non-hazardous waste is collected and classified into recyclables and non-recyclables. Recyclables are reused or sold to eligible units.

### Recycling of packaging materials

During the construction of photovoltaic projects in the renewable business, a large amount of solar panel packaging materials will be discarded. The Group requires contractors to collect these recyclable

and non-hazardous waste during the construction process and to achieve “collecting and recycling on the same day”.

	Non-hazardous waste (solid)	Intensity of non-hazardous waste (solid)	Non-hazardous waste (liquid)	Intensity of non-hazardous waste (liquid)
	Tonnes	Tonnes/company	Litres	Litres/company
2021	85,628.1	1,031.7	498.5	6.0
2020	58,787.2	744.1	614.4	7.8
2019	41,303.6	522.8	651.4	8.2

Note: As the Group has new projects under construction this year, the production of non-hazardous waste of the Group has increased substantially.

	Hazardous waste (solid)	Intensity of hazardous waste (solid)	Hazardous waste (liquid)	Intensity of hazardous waste (liquid)
	Tonnes	Tonnes/company	Litres	Litres/company
2021	16.2	0.20	8,298.0	100.0
2020	15.3	0.19	8,274.9	104.7
2019	16.9	0.21	6,763.9	85.6

## Waste Water Management

The Group also attaches great importance to waste water management. The project companies are required to strictly comply with the Group’s “Management Guidelines for Environmental Protection” to avoid arbitrarily discharging domestic waste water, waste water (liquid) from plant stations, and waste water (liquid) from construction sites to water bodies. Equipment that severely pollutes the water environment should be phased out. Waste water (liquid) from plant stations and construction sites are separately collected and discharged in compliance with the emissions standard after sewage treatment.

C-Tech Laundry, the Group’s investment platform for the laundry business, is committed to creating a “green, low-carbon and smart centralised laundry station”, and constantly promotes “intelligent, standardised and large-scale” laundry plants to replace traditional stand-alone washing workshops. The Group attaches great importance to waste water discharge management. C-Tech Laundry has built sewage treatment facilities in five laundry plants that have been put into production and operation, and has strictly complied with local laws and regulations to meet the standard of waste water discharge.

<p><b>Waste Water Management</b></p>	<p><b>Objectives: The Group encourages employees to save water and purchases water-saving equipment to improve water efficiency and reduce waste water generation.</b></p>	<p>Ensure that waste water containing oil, detergent and other pollutants in the plant stations, rather than discharged directly into the sewer, is collected and properly treated and discharged. When a plant station cannot dispose of the waste water by itself, the waste water should be handled by the municipal sewage disposal system for comprehensive treatment.</p>
		<p>Ensure that the waste water generated during the construction process is collected and discharged after filtration or sedimentation.</p>
		<p>On semi-open storage sites, the storage sites should be provided with cofferdam or liquid collecting tanks, together with leakage emergency treatment equipment, facilities, materials, etc., where appropriate.</p>
		<p>The contaminated water should be collected separately and cannot be discharged into the sewer after a fire. The fire residues and the contaminated water should be disposed of in accordance with local regulations.</p>



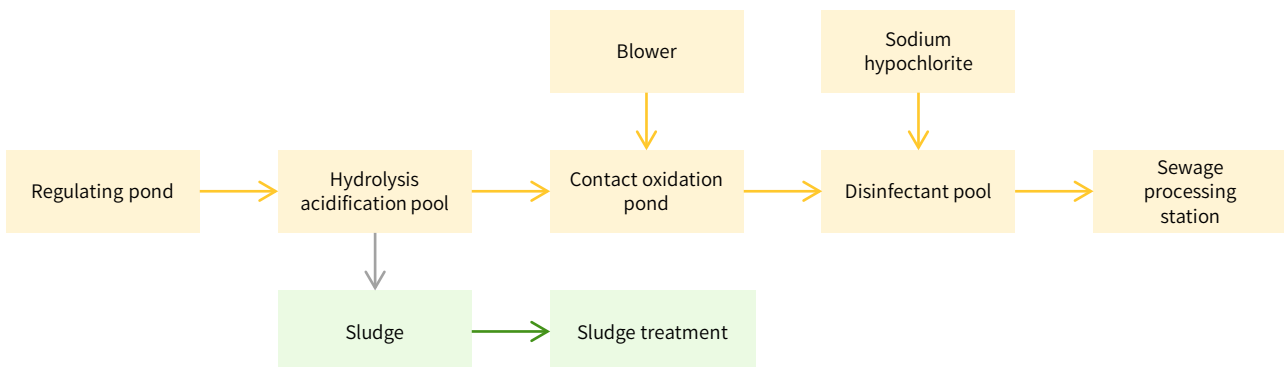


### Waste Water Treatment at C-Tech Laundry Plants

C-Tech laundry plants have built waste water treatment facilities in strict accordance with the national standard GB8978-1996, with the “Operating Procedures of Waste Water Treatment” formulated and personnel assigned to ensure that the discharge of waste water meets the standard.

In 2021, all five operating C-Tech laundry plants are capable of reducing the chemical oxygen demand concentration to below 500mg/L in term of waste water discharge, reaching the level 3 national standard.

The waste water treatment process is as follows:



# Green Operation



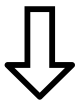
In accordance with the “Energy Conservation Law of the People’s Republic of China” and “Measures for the Administration of Industrial Energy Conservation”, the Group formulated the “Environmental Protection Management Guidelines” and the “Employee Environmental Protection Handbook”, which contain clear provisions on resource saving and energy conservation, such as the separate measurement and statistical analysis of resources and energy, the formulation of energy-saving indicators, and the implementation of energy-saving inspections. At the

same time, the Group also formulated specific requirements for energy conservation in production, office buildings and transportation.

## Green office



The Group actively organises various public welfare activities with the theme of environmental protection, and calls on the project companies and employees to work together in pursuit of a greener and healthier office space, and a better environment.



Formulate an office energy-saving and environmental protection plan, strengthening publicity, and urging every employee to save energy and reduce emissions.



Set up clear signs for water saving to remind employees to close the tap after use, so as to prevent the water leakage and running; strengthen the maintenance and management of water-consumption equipment; arrange relevant personnel to provide repairs in cases of leaking pipes and water heaters in a timely manner.



Use natural light as far as possible for lighting in office areas and public areas; turn off the lights when leaving; adopt a responsibility management system to divide the workplace into different areas, where the person located in each area shall turn off unnecessary lights and enhance the self-awareness in this regard.



Cut off power supply for lights and accessory equipment immediately after using conference room; turn off computers and displays after work to eliminate waste of energy.



In terms of air-conditioning temperature, the indoor temperature shall be lower than 26°C in summer and not be higher than 20°C in winter.



Routes for driving should be planned in advance to reduce travel distance and to avoid slopes and congested roads.

## Use of Resources

	Diesel	Natural gas	LPG	Coal	Others	Consumption of non-renewable resources (from fuel combustion)
	kWh in '000s	kWh in '000s	kWh in '000s	kWh in '000s	kWh in '000s	kWh in '000s
2021	2,461.6	147,372.7	10.1	0	16,437.6	166,282.0
2020	2,340.5	30,158.7	11.3	0	14,805.2	47,315.7
2019	2,407.3	29,770.9	13.5	0	16,144.6	48,336.3

	Electricity purchased	Total energy consumption	Energy consumption intensity	Total water consumption	Water consumption intensity
	kWh in '000s	kWh in '000s	kWh in '000s /company	Cubic metres	Cubic metres /company
2021	41,692.9	207,974.8	2,505.7	326,333.3	3,931.7
2020	38,644.1	85,959.9	1,074.5	271,329.3	3,434.5
2019	39,318.6	87,654.9	1,095.7	290,346.2	3,675.3

Note: Due to the growth of the Group's business and the increase of new projects this year, the Group's energy consumption of natural gas and water resources has increased substantially.



## Energy Utilisation

### Electricity Conservation

The Group's electricity is mainly consumed in the office. In order to save electricity, we have developed a series of electricity consumption measures in the office, and equipped the office with electricity-saving equipment, such as LED lights, etc. In addition, the Group plans to use its renewable energy technology capabilities to reduce the Group's own purchased electricity consumption from the source and actively strive to achieve low-carbon development.

### Efficient Use of Water Resources

C-Tech Laundry business involves the use of a large amount of resources, especially water resources which come from the municipal pipe network. The Group attaches great importance to energy conservation across the entire laundry industrial chain. Starting from the design, production, delivery, etc., the Group selects high conversion boiler, highly efficient production equipment, new energy trucks, etc., and then adopts standardised operation management to enable C-Tech Laundry to reduce energy costs (water, electricity, natural gas, etc.), over 15% lower than the industry average.

#### C-Tech Laundry water saving plan

C-Tech reduces water use by implementing various projects and enhancing management:

1. Choose efficient tunnel washer instead of using standalone machines
2. Recycle water used for production
3. Adjust and optimise washing process to reduce water consumption
4. Carry out classification properly and treat heavily soiled textiles separately to reduce the rate of rewashing
5. Statistics should be collected on water consumption on a daily basis, and abnormal data should be analysed and resolved in a timely manner

Condensate water reuse from dryer and ironing machine

Reduce steam consumption by  
**12%**

Water reuse in the production process of the tunnel washer

Save **50%** of water compared with traditional laundry methods

Reuse of the treated waste water

Save up to **30%** of water when compared with direct disposal

## Green Construction

In respect of civilised construction and environmental protection in the construction of engineering projects, the Group defines the first person responsible and sets out explicit rules in the contracts and job responsibilities. In addition, the Group stipulates that the construction enterprise should be paid more than 50% of the safe and civilised construction expenses immediately after the construction project commences, so that the construction enterprise has sufficient funds to invest in environmental protection management for the construction of the engineering projects.



### Huizhou style gas station - Chizhou Qingyang Towngas Gate Station

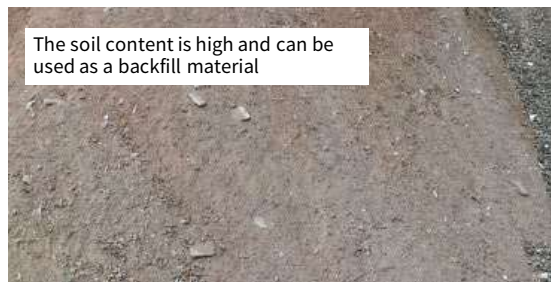
In planning and construction of gas stations, we take design specifications and functions of the stations into account and strive to achieve a balance between the style of local architecture and community environment. When designing gas stations, project companies in Anhui Province retained the style and characteristics of Huizhou style architecture to reduce the impact on the historical and cultural sights. We strive to bring our station buildings in concert with the community environment, thus bridging the community and gas enterprises.

During the construction of Chizhou Qingyang Towngas Gate Station, the Huizhou architecture style featuring horse-head walls, dark colour tiles and white walls was integrated with the environmental landscape of the hills and mountains, creating a harmonious beauty of classic simplicity and “harmony between man and nature” while safeguarding the city’s gas supply needs.



### Reuse of construction waste - pipe trench backfilling of recycled aggregate

During the construction of pipelines, the Group uses recycled aggregate of construction waste to backfill pipe trenches and produce regenerative bricks. While the waste is turned into treasure, the demand for river sand is reduced, thus reducing the environmental impact and energy consumption. Construction waste resource utilisation is of great significance to achieving energy conservation and emission reduction, and to building a resource-saving and environmentally-friendly society. It is essential for improving ecological environment protection, promoting high-quality development, and implementing circular economy.





**R&D of new excavation technology to reduce road excavation and environmental impact**

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Adopt trenchless pipe repair technology and use waste pipelines (gas, water pipes, etc.) to save underground space.

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Optimise the stone crushing equipment to obtain small-sized and round sand soil for the local use of excavation earth, thus reducing the external transportation of earth and purchase of sand. In this way, the construction costs are reduced and the image of environmental protection is enhanced.

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# Training and Publicity of Environment Protection



With the aim to improve adaptability to climate change, and act in accordance with the sustainable development requirements of the ESG system, in 2021, the Group issued “Initiatives for Environmental Protection and Carbon Reduction Action in 2021”, to advocate project companies to carry out environmental protection work, and encourage employees to do whatever they can to save resources and protect the environment. In addition, we compiled and published the “Memorandum for Waste Classification Guidelines” to provide training for employees regarding waste classification and to publicise environmental protection philosophy.

In 2021, responding to the country’s call for low-carbon development and environmental protection, the Group organised a series of training activities during the year and worked together with employees to fulfil the commitment to low-carbon

environmental protection. In this way, a green, ecological, healthy and environmentally friendly lifestyle is further promoted, and the concept of “smart, innovative, green, low-carbon, environmental-friendly” is instilled into the heart of employees.

## Low-carbon Environmental Protection Activities

Under the theme of “Environmental Naturalists”, the Group’s Volunteer Team called on the project companies and employees to explore ways to reduce waste in daily life turn waste into treasure so as to take concrete actions for nature and environmental protection. “Environmental Naturalists” has four major initiative themes: “Green Recycling Program”, “Nature Dreamer”, “Towngas Green Planting day” and “Earth Hour”.



### “My Low-carbon Life” activities

The Group headquarters organised a series of “My Low-carbon Life” activities, such as the Towngas special event on domestic waste classification at

Shenzhen Domestic Waste Classification Science Education Museum.





### Tree-planting Day

In 2021, about 60 project companies participated in the Tree-planting Day activity, and planted around 9,600 saplings.



### The First “Sustainable Development Award” Assessment Event

In the current year, the Group held the first “Sustainable Development Award” event, which encouraged various project companies to innovate and develop energy-saving technologies, and to carry out environmental-protection and carbon-reduction projects.

In the future, we will constantly run and optimise the assessment event, encouraging active engagement of more project companies.

### Earth Hour

More than 80 project companies participated in the Earth Hour activity, saving about 16,000 units of electricity.



# 12

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Showing Care  
through Social  
Services to Build a  
Harmonious  
Community



In addition to providing high-quality services and stable energy supplies for our customers, Towngas Smart Energy continues to create a good community relationship. Over the years, Towngas Smart Energy, together with various project companies, has focused on community development, subsidising education through public welfare, targeted poverty alleviation, and environmental-friendly activities so as to proactively shoulder corporate responsibility and facilitate sustainable development of society.

## Support Community Development

Towngas Smart Energy is on a mission to implement its corporate social responsibility. The Group makes use of its own expertise and resources to assist in community construction with local conditions taken into consideration. We carry out diversified activities to pay back to society through concrete actions.

### “Rice Dumplings for the Community”

In 2021, Towngas Smart Energy continued to hold the “Rice Dumplings for the Community” activity to pass on traditional Chinese culture and to build harmonious communities. More than 50 project companies actively responded to the call of the Group and joined hands with local communities, schools and public welfare organisations to launch the annual “Rice Dumplings for the Community” charity activity before the Dragon Boat Festival, and organised volunteers to send handmade rice dumplings and festive gifts to those in need, including orphans, the elderly, sanitation workers as well as charities, showing their love and care for the society. Nearly 1,000 Towngas volunteers participated in the activity, benefiting over 5,500 people, donating more than 20,400 rice dumplings, and in-kind festive gifts worth over RMB 133,000.



### Caring for retired military personnels

On 9 September 2021, Towngas Smart Energy, adhering to the philosophy of “concerted efforts of government and enterprise for the mutual support”, jointly held the activity themed Mid-Autumn Festival and National Day with the community of Sungang Street in Luohu District, showing respect and concern for veterans. More than 140 bags of high-quality rice and 70 barrels of cooking oil produced by the “Bauhinia” Farm have been distributed to 72 people including those enjoying preferential treatment and retired military personnels in need on Sungang Street, offering blessings for both Mid-Autumn Festival and National Day.



On 23 December 2021, together with the community of Sungang Street, Towngas Smart Energy again held a Spring Festival activity for 36 veterans and people in need and distributed rice produced by the “Bauhinia” Farm and eCards from Towngas Lifestyle to them, sending them New Year greetings in advance.





As a public utility, Towngas Smart Energy highly recognises the veterans' spirit of dedication and we will continue to do everything in our power to provide support and comfort for retired military personnel with the community of Sungang Street in Luohu District.

### Building a “Barrier-free City” with Love and Care

On 15 October 2021, the White Cane Safety Day, in order to promote the construction and development of barrier-free environment, and to help the vast number of people with disabilities better integrate into society, Towngas Smart Energy Heart-warming Volunteer Team, in conjunction with *Shenzhen Special Zone Daily* and Shenzhen Accessibility Development Centre, launched the “Barrier-free City” experience activity. By virtue of this activity, volunteers experienced how difficult it is for people with disabilities to get around, and will actively take part in the construction of barrier-free environment and support them in practical way and convey love to them.



## Subsidising Education

As an enterprise with a high sense of social responsibility, Towngas Smart Energy has been paying great attention to rural education development for a long time, and has always shouldered social responsibility within the Group's capabilities. We launched the “Gentle Breeze Movement” charity brand in 2013 to officially embark on the journey of assisting the rural school. Over the past eight years, the footprint of Towngas Smart Energy has covered a number of regions including Sichuan, Chongqing, Jiangxi, Anhui, Shandong, Fujian and Liaoning. The Group invested over RMB 3.15 million in rural school project construction, and distribution of teaching, stationery and sports supplies. As of now, the Group's charity activities have supported rural education development and benefited more than 30 schools nationwide.

## Targeted Poverty Alleviation

Enterprises are an indispensable and important force in poverty alleviation. Towngas Smart Energy has responded actively to the country's strategic demand for “Targeted Poverty Alleviation” and has cooperated with the project companies to spare no effort to make good use of our strengths and advantages to facilitate the local development of poverty alleviation projects, and to strive to help rural families improve their living environment.

### Bauhinia Movement

“Bauhinia Movement”, a community public welfare campaign to “serve the people with whole heart and love”, endeavours to care for families in need in the community. The campaign focuses on the concerns of the people, and addresses the daily needs of the underprivileged families by giving away cooker and stove sets, and making indoor safety rectification for free.

In 2021, the “Bauhinia Movement” was launched in more than 30 cities across the country, and was highly recognised by consumers and local governments. In view of this, the campaign was included as a model example and Towngas “Bauhinia” has become the only brand in the gas appliance industry listed in the album dedicated to the 100<sup>th</sup> anniversary of the Communist Party of China - “Epic of the New Era - Poverty Alleviation”.





### Shimmer Campaign

In 2021, the Group launched the “Shimmer Campaign” to send love to around 2,000 people, including disadvantaged families, children with special needs and sanitation workers and was awarded Thank You Plaques “Heart for Public Welfare, Love for the World” and “Delivering Kindness and Benefiting the Society”

by the CPC Party Member Station of Shenzhen and Service Centre of the Party and the Public, the Rose Workshop Fund of Shenzhen Zhiji Association and the Rose Workshop Association of Luohu District of Shenzhen.



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# Key Statistics



Operating Performance	Unit	2021	2020	2019
Revenue	HK\$ million	17,125	12,826	12,924
Profit for the year attributable to shareholders	HK\$ million	1,253	1,447	1,308
Earnings per share	HK cents	41.53	49.56	46.06
Gas sales volume	Million cubic metres	14,579	12,003	11,120
Length of pipeline network	Kilometres	63,727	58,081	52,031

Environmental Performance				
Emissions	Unit	2021	2020	2019
Nitrogen oxide (NO <sub>x</sub> )	Kg	38,946.0	18,973.3	21,310.0
Sulphur dioxide (SO <sub>2</sub> )	Kg	574.1	145.4	139.5
Respirable suspended particulates (PM10)	Kg	1,380.7	1,344.9	1,563.2
Greenhouse gas emissions				
Gas business	Tonnes	36,033.5	34,578.3	34,751.0
Distributed energy projects	Tonnes	20,363.1	/	/
Total greenhouse gas emissions	Tonnes	56,396.6	34,578.3	34,751.0
Greenhouse gas emissions intensity	Tonnes/HK\$100 million	329.3	269.6	268.9
Greenhouse gas emissions from the photovoltaic solar projects	Tonnes	(12,420.0)	/	/
Total volume of hazardous waste				
Total volume of hazardous waste (solid)	Tonnes	16.2	15.3	16.9
Intensity of hazardous waste (solid)	Tonnes/company	0.20	0.19	0.21
Total volume of hazardous waste (liquid)	Litres	8,298.0	8,274.9	6,763.9
Intensity of hazardous waste (liquid)	Litres/company	100.0	104.7	85.6
Total volume of non-hazardous waste				
Total volume of non-hazardous waste (solid)	Tonnes	85,628.1	58,787.2	41,303.6
Intensity of non-hazardous waste (solid)	Tonnes/company	1,031.7	744.1	522.8
Total volume of non-hazardous waste (liquid)	Litres	498.5	614.4	651.4
Intensity of non-hazardous waste (liquid)	Litres/company	6.0	7.8	8.2

Environmental Performance				
Use of Resources	Unit	2021	2020	2019
Diesel	kWh in '000s	2,461.6	2,340.5	2,407.3
Natural gas	kWh in '000s	147,372.7	30,158.7	29,770.9
LPG	kWh in '000s	10.1	11.3	13.5
Coal	kWh in '000s	0	0	0
Others	kWh in '000s	16,437.6	14,805.2	16,144.6
Consumption of non-renewable resources (from fuel combustion)	kWh in '000s	166,282.0	47,315.7	48,336.3
Electricity purchased	kWh in '000s	41,692.9	38,644.1	39,318.6
Total energy consumption	kWh in '000s	207,974.8	85,959.9	87,654.9
Energy consumption intensity	kWh in '000s /company	2,505.7	1,074.5	1,095.7
Total water consumption	Cubic metres	326,333.3	271,329.3	290,346.2
Water consumption intensity	Cubic metres /company	3,931.7	3,434.5	3,675.3
Total weight of product packaging materials	Tonnes	753.3	660.3	676.2
Average weight of product packaging materials per piece	Tonnes	0.002	0.002	0.002



Social Performance				
Staff	Unit	2021	2020	2019
Total headcount	People	23,287	22,506	22,385
<b>Staff ratio by type of employment</b>				
Full-time	%	99.9	100	100
Part-time	%	0.1	0	0
<b>Staff ratio by gender</b>				
Male	%	68	67	67
Female	%	32	33	33
<b>Staff ratio by age group</b>				
≤25	%	6	7	8
26-35	%	36	35	33
36-45	%	29	30	30
46-55	%	24	23	24
≥56	%	5	5	5
<b>Staff ratio by region</b>				
Group Head Office	%	2	2	1
Northeast China Region	%	33	34	35
Northern China Region	%	19	19	19
Anhui-Jiangxi Region	%	8	8	8
Jiangsu-Zhejiang Region	%	5	4	4
Southwest China Region	%	19	20	20
Southern China Region	%	14	13	13
<b>Staff ratio by rank</b>				
Senior Management	%	3	3	/
Middle Management	%	12	11	/
Junior Staff	%	85	86	/

Social Performance				
Staff	Unit	2021	2020	2019
<b>Total number of new employee</b>	People	768	/	/
<b>Staff ratio of new employees by gender</b>				
Male	%	69	69	66
Female	%	31	31	34
<b>Staff ratio of new employees by age group</b>				
≤25	%	22	28	/
26-35	%	56	54	/
36-45	%	20	14	/
46-55	%	2	3	/
≥56	%	0	1	/
<b>Staff ratio of new employees by region</b>				
Group Head Office	%	18	2	/
Northeast China Region	%	16	19	/
Northern China Region	%	21	27	/
Anhui-Jiangxi Region	%	10	13	/
Jiangsu-Zhejiang Region	%	12	13	/
Southwest China Region	%	10	10	/
Southern China Region	%	13	16	/
<b>Employee turnover</b>	%	3.05	2.22	3.31
<b>Employee turnover ratio by gender</b>				
Male	%	69	73	66
Female	%	31	27	34
<b>Employee turnover ratio by age group</b>				
≤25	%	12	23	19
26-35	%	65	57	50

Social Performance					
Staff	Unit	2021	2020	2019	
36-45	%	17	14	24	
46-55	%	5	5	6	
≥56	%	1	1	1	
Employee turnover ratio by region					
Group Head Office	%	11	2	5	
Northeast China Region	%	18	16	15	
Northern China Region	%	8	9	12	
Anhui-Jiangxi Region	%	13	18	22	
Jiangsu-Zhejiang Region	%	13	17	13	
Southwest China Region	%	17	16	14	
Southern China Region	%	20	22	19	
Coverage of labour contract	%	100	100	100	
Coverage of social insurance	%	100	100	100	
Ratio of female management	%	3.58	3.85	3.76	
Proportion of employees receiving regular performance and career development review	%	100	100	100	
Health and Safety					
Employees' health and safety					
Safety training	Hours	625,063	613,104	607,768	
Safety enhancement costs	RMB million	539.39	429.68	377.08	
Number of work-related injuries	People	4	13	14	
Employee injury rate per thousand people	/	0.17	0.6	0.6	
Accident rate per 1,000 employees	/	0.13	0.31	0.58	
Number of work-related fatalities	People	0	0	0	
Ratio of work-related fatalities	%	0	0	0	
Work days lost due to work-related injuries	Days	115	232	342	

Social Performance				
Development and Training	Unit	2021	2020	2019
<b>Training ratio by staff gender</b>				
Male	%	96.9	91.1	99.5
Female	%	96.8	89.6	99.8
<b>Training ratio by staff type</b>				
Senior Management	%	94.9	90.4	96.6
Middle Management	%	95.1	98.2	99.8
Junior Staff	%	97.1	97.6	99.5
<b>Per capita training hours by staff gender</b>				
Male	Hours	52.3	58.8	51.2
Female	Hours	54.2	56.7	42.7
<b>Per capita training hours by staff type</b>				
Senior Management	Hours	44.2	50.5	58.9
Middle Management	Hours	52.5	65.6	56.9
Junior Staff	Hours	53.2	57.3	47.1
<b>Supply Chain Management</b>				
Number of major suppliers	Number	131	129	225
<b>Number of suppliers by geographical region</b>				
Chinese mainland	Number	125	124	200
Overseas countries and regions	Number	6	5	25



<b>Social Performance</b>				
<b>Product Responsibility</b>	<b>Unit</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>
Percentage of products subject to recalls for safety and health reasons	%	0	0	0
Number of products and service-related complaints received	Cases	66	42	54
<b>Anti-corruption</b>				
Number of concluded legal cases regarding corrupt practices	Cases	0	0	0
Anti-corruption training	Hours	523	/	/
Number of people receiving anti-corruption training	People	523	/	/
<b>Number of people receiving anti-corruption training by type of stakeholders</b>				
The Board of Directors	People	10	/	/
Senior Management	People	60	/	/
Middle Management	People	244	/	/
Junior Staff	People	209	/	/
<b>Community Investment</b>				
Number of Towngas Smart Energy volunteers	People	6,900	6,700	6,780
Number of beneficiaries	People	170,000	80,000	104,500
Hours of social services	Hours	300,000	570,000	124,000
Charity investment by the Group	RMB'000	7,410	5,700	4,550

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# Appendix: “ESG Reporting Guide” by The Stock Exchange of Hong Kong Limited

A stylized, white-line-art illustration of a city skyline is positioned in the lower right quadrant of the page. The skyline includes several rectangular buildings of varying heights, a prominent wind turbine on the right side, and two rounded, bushy shapes at the bottom left that represent trees or shrubs. The background of the entire page is a soft, light green gradient.

ESG Indicators		Disclosure Status	Location in the Report
<b>Area: Environment</b>			
<b>A1: Emissions</b>			
	<p>Relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste :</p> <hr/> <p>(a) the policies; and</p> <hr/> <p>(b) compliance with relevant laws and regulations that have a significant impact on the issuer.</p> <hr/>		
General Disclosure	<p>Note: Air emissions include NO<sub>x</sub>, SO<sub>x</sub>, and other pollutants regulated under national laws and regulations.</p> <p>Greenhouse gases include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride.</p> <p>Hazardous wastes are those defined by national regulations.</p>	Disclosed	P76 – P80
A1.1	The types of emissions and respective emissions data	Disclosed	P76, P78
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).	Disclosed	P76
A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Disclosed	P78
A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Disclosed	P78
A1.5	Description of emissions target(s) set and steps taken to achieve them.	Disclosed	P76 – P79
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.	Disclosed	P76 – P79



ESG Indicators		Disclosure Status	Location in the Report
<b>A2: Use of Resources</b>			
General Disclosure	Policies on the efficient use of resources, including energy, water and other raw materials.  Note: Resources may be used in production, in storage, transportation, in buildings, electronic equipment, etc.	Disclosed	P81 – P85
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).	Disclosed	P82
A2.2	Water consumption in total and intensity (e.g. per unit of production volume, per facility).	Disclosed	P82
A2.3	Description of energy use efficiency target(s) set and steps taken to achieve them.	Disclosed	P81 – P83
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.	Disclosed*	P83
A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced.	Disclosed	P95
<b>A3: Environment and Natural Resources</b>			
General Disclosure	Policies on minimising the issuer's significant impact on the environment and natural resources.	Disclosed	P68
A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them.	Disclosed	P68 – P80
<b>A4: Climate Change</b>			
General Disclosure	Policies on identification and mitigation of significant climate-related issues which have impacted, and those which may impact, the issuer.	Disclosed	P68 – P70
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.	Disclosed	P68– P75

\*Towngas Smart Energy mainly engages in gas transmission and distribution which do not require a large amount of water. The water demand of C-Tech Laundry plants under the Group accounts for a large part of the total need/consumption.



ESG Indicators		Disclosure Status	Location in the Report
<b>Area: Society</b>			
<b>B1: Employment</b>			
General Disclosure	<p>Relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare:</p> <p>(a) the policies; and</p> <p>(b) compliance with relevant laws and regulations that have a significant impact on the issuer.</p>	Disclosed	P46 – P54
B1.1	Total workforce by gender, employment type (for example, full-or part-time), age group and geographical region.	Disclosed	P46 – P47
B1.2	Employee turnover rate by gender, age group and geographical region.	Disclosed	P47
<b>B2: Health and Safety</b>			
General Disclosure	<p>Relating to providing a safe working environment and protecting employees from occupational hazards:</p> <p>(a) the policies; and</p> <p>(b) compliance with relevant laws and regulations that have a significant impact on the issuer.</p>	Disclosed	P32 – P33
B2.1	Number and rate of work-related fatalities occurred in each of the past three years including the reporting year.	Disclosed	P34
B2.2	Lost days due to work injury.	Disclosed	P34
B2.3	Description of occupational health and safety measures adopted, how they are implemented and monitored.	Disclosed	P34 – P41
<b>B3: Development and Training</b>			
General Disclosure	<p>Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities.</p> <p>Note: Training refers to vocational training. It may include internal and external courses paid by the employer.</p>	Disclosed	P49 – P51
B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management).	Disclosed	P49
B3.2	The average training hours completed per employee by gender and employee category.	Disclosed	P49



ESG Indicators		Disclosure Status	Location in the Report
<b>B4: Labour Standards</b>			
General Disclosure	Relating to preventing child and forced labour:	Disclosed	P52
	(a) the policies; and		
	(b) compliance with relevant laws and regulations that have a significant impact on the issuer.		
B4.1	Description of measures to review employment practices to avoid child and forced labour.	Disclosed	P52
B4.2	Description of steps taken to eliminate such practices when discovered.	Disclosed	P52
<b>B5: Supply Chain Management</b>			
General Disclosure	Policies on managing environmental and social risks of the supply chain.	Disclosed	P64 – P66
B5.1	Number of suppliers by geographical region.	Disclosed	P64
B5.2	Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, how they are implemented and monitored.	Disclosed	P64 – P65
B5.3	Description of practices used to identify environmental and social risks along the supply chain, and how they are implemented and monitored.	Disclosed	P64 – P66
B5.4	Description of practices used to promote environmentally preferable products and services when selecting suppliers, and how they are implemented and monitored.	Disclosed	P66
<b>B6: Product Responsibility</b>			
General Disclosure	Relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress:	Disclosed	P56 – P63
	(a) the policies; and		
	(b) compliance with relevant laws and regulations that have a significant impact on the issuer.		
B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons.	Disclosed	P61

ESG Indicators		Disclosure Status	Location in the Report
B6.2	Number of products and service-related complaints received and how they are dealt with.	Disclosed	P60
B6.3	Description of practices relating to observing and protecting intellectual property rights.	Disclosed	P61
B6.4	Description of quality assurance process and recall procedures.	Disclosed	P61
B6.5	Description of consumer data protection and privacy policies, and how they are implemented and monitored.	Disclosed	P61 – P63
<b>B7: Anti-corruption</b>			
General Disclosure	Relating to bribery, extortion, fraud and money laundering:	Disclosed	P18 – P21
	(a) the policies; and		
	(b) compliance with relevant laws and regulations that have a significant impact on the issuer.		
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.	Disclosed	P19
B7.2	Description of preventive measures and whistle-blowing procedures, and how they are implemented and monitored.	Disclosed	P19 – P20
B7.3	Description of anti-corruption training provided to directors and staff.	Disclosed	P20 – P21
<b>B8: Community Investment</b>			
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.	Disclosed	P90 – P92
B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport).	Disclosed	P90 – P92
B8.2	Resources contributed (e.g. money or time) to the focus area.	Disclosed	P90– P92, P100

# Verification Statement

## Scope of Verification

Hong Kong Quality Assurance Agency (“HKQAA”) conducted an independent verification for the Environmental, Social and Governance Report 2021 (“the Report”) of Towngas Smart Energy Company Limited (“Towngas Smart Energy”). The scope of HKQAA’s verification covered the performance data and information regarding environmental, social and governance aspects of Towngas Smart Energy for the period from 1st January 2021 to 31st December 2021. Also, the Report outlines the commitments and efforts of Towngas Smart Energy towards sustainability.

The Report has been prepared in accordance with Appendix 27 - Environmental, Social and Governance Reporting Guide (“ESG Guide”) under Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited, the Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises 4.0 (“CASS-CSR4.0”) and referencing ISO 26000 Guidance on Social Responsibility Guidance (“ISO 26000”).

## Level of Assurance and Methodology

The process applied in this verification was based on the International Standard on Assurance Engagements 3000 (Revised), Assurance Engagements Other Than Audits or Reviews of Historical Financial Information issued by the International Auditing and Assurance Standards Board. Our evidence gathering process was designed to obtain a reasonable level of assurance for devising the verification conclusion.

Our verification procedures covered:

- review of the report compilation, stakeholder engagement and materiality assessment processes;
- examination of the raw data and supporting evidence of the selected samples; and

- evaluation of the mechanism for collecting, collating and reporting of performance data.

## Independence

Towngas Smart Energy is responsible for preparing the report. HKQAA does not involve in calculating, compiling, or in the development of the Report. Our verification activities are independent from Towngas Smart Energy.

## Conclusion

Based on the verification results and in accordance with the verification procedures undertaken, HKQAA has obtained a reasonable assurance and is in the opinion that:

- The Report has complied with all mandatory disclosure requirements and “comply or explain” provisions outlined in the ESG Reporting Guide;
- The Report has been prepared in accordance with CASS-CSR4.0 and referencing ISO 26000 for disclosure;
- The Report illustrates the sustainability performance of Towngas Smart Energy, covering all material and relevant aspects in a balanced, comparable, clear and timely manner; and
- The data and information disclosed in the Report are reliable and complete.

**Signed on behalf of Hong Kong Quality Assurance Agency**



Connie Sham  
Head of Audit  
February 2022



# Feedback

Dear readers,

Greetings! Thank you for your interest in the Towngas Smart Energy Company Limited Environmental, Social and Governance Report 2021. To help us enhance our communication with stakeholders and continuously improve our corporate social responsibility performance and future reporting, we would like to invite you to share your valuable opinion and suggestions.

Environmental, Social and Governance Report Committee

Towngas Smart Energy Company Limited

March 2022

1. Your overall comments on this Report:

Excellent  Good  Fair  No Opinion

2. Do you think this Report objectively reflects the actual corporate social responsibility performance of the Group?

Yes  Fair  No  No Opinion

3. What do you think about the clarity, accuracy and completeness of the disclosed information, data and indicators in this Report?

Very high  High  Fair  Low  Very low  No Opinion

4. What do you think about the design and layout of this Report?

Excellent  Good  Fair  No Opinion

5. Which part of this Report interests you most?

Governance  Safety  Staff  Quality & Services  Environment  Charity  No Opinion

6. Which parts of the content of this Report do you think need improvement?

Governance  Safety  Staff  Quality & Services  Environment  Charity  No Opinion

7. Content that you wish to know about but is not disclosed in this Report:

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8. Your opinion and suggestions in respect of the corporate social responsibility performance of the Group and the reporting:

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