



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

(Incorporated in the Cayman Islands with limited liability)
(Stock Code: 1083)



Environmental,
Social and
Governance Report
2022



**Towngas Smart Energy
Company Limited**

Environmental, Social and
Governance Report 2022



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01 About This Report

Towngas Smart Energy Company Limited (“the Group”, “Towngas Smart Energy” or “We”) has always been committed to incorporating the environmental, social and governance (“ESG”) philosophy into the Group’s strategies and day-to-day operations, so as to enhance sustainability performance from various aspects. Since 2013, the Group has released the Environmental, Social and Governance Report (“ESG Report”, previously known as “Sustainability Report” or “Corporate Social Responsibility Report”) annually, focusing on our progress in key ESG areas while addressing stakeholders’ concerns about our material ESG issues. This ESG Report (“this Report”) is the tenth sustainability-related report issued by the Group, aiming at disclosing the Group’s strategic policies, management measures, and performance in relation to ESG.



1.1 Important Notes

Time Scope

The reporting period of this Report is in line with that of the Annual Report 2022 of Towngas Smart Energy Company Limited, covering the period from 1 January 2022 to 31 December 2022 and any prior period where applicable for the purposes of the continuity and comparability of some data.

Reporting Scope

This Report covers data from the headquarters of Towngas Smart Energy Company Limited and its project companies on the Chinese mainland, including utility business and renewable energy business.

Editorial References

- Appendix 27: Environmental, Social and Governance Reporting Guide under Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited
- GRI Sustainability Reporting Standards and GRI 11: Oil and Gas Sector 2021 issued by the Global Reporting Initiative
- SASB Sustainability Accounting Standards issued by the Sustainability Accounting Standard Board
- Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises 4.0 (“CASS-CSR4.0”) of Chinese Academy of Social Sciences
- ISO 26000 Guidance on Social Responsibility of the International Organisation for Standardisation

Information Clarification

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

Due to organisational change, Towngas Smart Energy has revised/updated some non-financial KPIs from 2022, as below:

- We used the control approach to determine our institutional scope for calculating quantitative data for greenhouse gas emissions and safety sectors. Specifically, we incorporated 100% of the emissions of project companies owned 50% or more by us, while those owned less than 50% by us were not included;
- Adjusted/new social KPIs, such as categories of employees KPIs, occupational health and safety KPIs of employees and contractors, aim to increase transparency and align with international best-practice reporting disclosure;
- We adjusted the consolidation range for greenhouse gas emissions data and used the new method to adjust the related data in 2021.

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

Reporting Principles

In preparing this Report, we complied with the disclosure requirements of the “comply or explain” provisions outlined in the ESG Reporting Guide, adhered to the reporting principles of materiality, quantitative, consistency, sustainability context and completeness in the ESG Reporting Guide and the GRI Sustainability Reporting Standards. Description of the application of each of these reporting principles had been provided.

Reporting principle	Response of the Group
Materiality	We identify and assess the current material issues through communication with stakeholders while taking into account the Group’s strategic development and business operations.
Quantitative	We disclose quantitative KPIs in this Report wherever practicable and expound in words on the quantitative data. We also retain in this Report performance data and related explanations on data calculation from the previous year to evaluate and verify the effectiveness of ESG policies and management systems.
Consistency	Unless otherwise indicated, we ensure that the statistical methods disclosed in the Report are substantially consistent from year to year to ensure comparability.
Sustainability context	Wherever possible, the Group discusses its sustainability issues while taking into account its long-term strategies, risks, opportunities and objectives.
Completeness	This Report covers responses to all material issues and provides sufficient information to ensure the completeness of disclosures.

Content Accuracy

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

Access to Report

This Report is available in three formats: print, electronic and mobile. To request a printed copy, please call (852) 2963 3298; to request an electronic copy, please visit our official website at <https://www.towngassmartenergy.com/en>; to access the mobile version, please scan the QR code below.



1.2 Contact Information

If you have any comments or recommendations for the content or reporting format of this Report, please contact us through:

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02 Chairman's Statement



With the ever-changing global context in recent years, including the lingering conflict between Russia and Ukraine, and the increased volatility of the international energy market, there have been many obstacles to mitigating the climate crisis and reducing carbon emissions. Building a clean and low-carbon energy system and accelerating the transition to a cleaner energy structure has already become the common goal and development direction of all countries. Amid these changes, Towngas Smart Energy, as an integrated clean energy corporation, remains vigilant in developing sustainable businesses with vigorous actions, and ceaselessly strengthens its ESG management capabilities to proactively address the global climate crisis while embracing the opportunities for transition.

Riding on the waves of transition towards a low-carbon energy future, the Group continues to develop its "gas + integrated energy" business model, focusing on its three core development strategies: integration, digitalisation and decarbonisation. While perfecting the construction of facilities and consolidating its independent gas sources to ensure a constant supply of natural gas, the Group was also vigorously developing its industrial and residential heating services, and other integrated energy projects. This way, the Group can fully leverage the new opportunities of its city gas business arising from the energy transition towards achieving carbon peak and carbon neutrality (the dual carbon goals). Moreover, the Group took an active role in advancing the industry-wide control of methane emissions by joining the China Oil and Gas Methane Alliance in June 2022, with a determination to achieve an average methane emission intensity in natural gas production close to the world's advanced level by 2025. This can also strengthen the influence of Chinese oil and gas companies in global climate governance.

At present, the Country vigorously promotes environmental protection. The transition towards achieving the dual carbon goals progresses steadily, and the energy revolution is blossoming, ushering in new development opportunities for clean and low-carbon energy. The Group keeps diversifying its renewable energy business by leveraging its huge industrial and commercial customer base of the gas business to steadily pursue investments in and construction and operation of the energy infrastructure in distributed photovoltaics (PV), energy storage, charging and swapping stations, multi-energy supply and other areas, so as to comprehensively build zero-carbon smart industrial parks and develop zero-carbon smart businesses covering zero-carbon planning services, build-own-operate services and energy efficiency enhancement services, helping customers embrace the challenges of climate change and jointly contributing to the ESG development. To further step up technological research and development, the Group has strategically collaborated with industry-leading enterprises and top research institutes to establish a zero-carbon demonstration benchmark. We set up the Joint Research Centre for Zero-carbon Smart Park and Virtual Power Plant Technologies, while the Tera Planet, an ecological platform of Towngas Smart Energy, was also built to strengthen our competitiveness with innovation and upgrade digital and smart transformation with technological empowerment.

Only by earnest practice can lead to a promising future. Amidst the complex and ever-changing macro environment and the increasingly competitive market, Towngas Smart Energy is committed to prioritising ESG issues in its business operations to create long-term value for stakeholders. In the past year, the Group strictly adhered to the principle of legal compliance and comprehensively enhanced corporate governance. We strengthened the quality control of works to improve its safety risk management system, and relentlessly put in place safety productions. On the other hand, the Group established a quality talent echelon in response to business development and to strengthen corporate resilience. It also actively contributed to energy security by leveraging its business strengths, while promoting synergy and innovation among various business segments to accelerate the integration of industrial chains and value chains, manifesting the accountability of an energy enterprise.

Always prepared for the worst while eyeing long-term development, Towngas Smart Energy is committed to unceasingly enhancing its operations while collaborating with all walks of life to promote ESG development. We put our words into action by encouraging our employees to live a more environmentally-friendly and responsible lifestyle as role models in living up to our commitment to sustainable development. During the year, we held the first symposium in Hong Kong that covered environmental, social, and governance issues. That provided a precious opportunity for government officials, entrepreneurs, experts and scholars to interact and discuss trending ESG topics. It also served as an ideal ESG platform to disseminate relevant information, further educating the community on environmental awareness and promoting ESG concepts with a view of thriving with stakeholders. Meanwhile, the Group played an active role in addressing the international concern and requirement for an ecological assessment by becoming the first company in Hong Kong to publish the *Climate-related and Nature-related Directive Guide* referencing the framework of the Task Force on Climate-related Financial Disclosures (TCFD) and the Task Force on Nature-related Financial Disclosures (TNFD) beta version. We thoroughly analysed the risks and opportunities of climate change and biodiversity for the Group, living up to our commitment to sustainable development.

Looking ahead, the Group is fully committed to contributing to the national dual carbon goals, unswervingly putting into practice the sustainable development concept, and constantly cultivating the development of city gas and renewable energy. We also proactively diversify our extended businesses, and innovatively integrate energy innovation and research and development with commercial-scale production. We aim to realise a quality development of the Group's business by leveraging its rich management experience and innovative technology. This can help optimise the energy structure on the Chinese mainland, contributing to the transition towards green energy for achieving the goal of harmonious coexistence between human kind and nature.

Dr. Lee Ka-kit
Chairman
Towngas Smart Energy Company Limited
Hong Kong, 16 March 2023

03 CEO's Statement

The year 2022 witnessed the prolonged development of the COVID-19 epidemic, a sluggish global economic recovery, coupled with energy and climate crises. From a global perspective, The 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 27) was convened in the context of global warming, trying to come up with solutions and eventually a consensus. From a domestic perspective, the Chinese mainland continued its efforts in ecological conservation, and saw the green development concept growing in popularity. Towngas Smart Energy takes an active role in adapting to the trend of the times. We aligned with the national vision of energy transition by constantly enhancing our business mix by providing of clean energy as the major focus. We continuously boosted our development momentum and promoted the transformation and upgrading of the industry by forming two key segments, namely gas and renewable energy. In addition, the Group proactively undertook the initiative to assume social responsibility, manifesting the role of an enterprise with accountability and principles.

With our unswerving efforts, we are pleased that Towngas Smart Energy has been recognised for its pursuit of sustainable development. The Group obtained the top six international ESG ratings during the year, with MSCI upgrading the Group's ESG rating to "A" in full recognition of our competitiveness in sustainability. On environmental protection, the Group debuted its Sustainability-linked Bond issue of US\$200 million in April 2022 to support the operation and investment in renewable energy projects.

Towngas Smart Energy is committed to the green, low-carbon, and innovative development concept. Focused on the development strategies of integration, digitalisation, and decarbonisation, the Group constantly cultivates the development of low-carbon businesses and facilitates the transition towards a green enterprise and society. During the year, we signed a contract for the Towngas Operation Platform (TOP) project to establish a business operation system incorporating plant and network operation, facility management, risk management and gas source management. In the future, we shall also push our operations towards a more informationalised, digital, and smart direction, creating more added value for the low-carbon and digital transition of the energy industry.

As an energy company, safety is the foundation of our business. In this regard, the Group established during the year a safety production theme of Multi-dimensional Control and Flawless Perfection, and proactively enhanced the prevention and contingency mechanisms for major safety issues, while carrying out comprehensive investigations for potential hazards in old pipeline networks and plants. The Group also advanced technological innovation in safety management and implemented production safety accountability at all levels, including the suppliers, to enhance occupational health and safety management.

Towngas Smart Energy has always been dedicated to a stable and safe supply of gas as well as quality service to customers. Amidst the energy crisis, the Group and its parent company strived to secure stable gas sources while consolidating its ability to supply gas through the orderly progress of constructing various gas storage infrastructures. Furthermore, in response to the increasingly diversified demands of our customers, the Group vigorously expanded its extended businesses to provide smart kitchen equipment, gas services and safety management, safe kitchen solutions and other services. We kept adding new features to our Virtual Customer Centre (VCC) and continued the construction of physical "Moment+" Community Healthy Lifestyle Experience Centres to further enhance customer experience. In the future, the Group will continue to leverage our large customer base and quality services to diversify our service offerings to promote a healthy and comfortable living experience to the public.

The Group attaches great importance to safeguarding employees' rights and interests and strives to strengthen the building up of a talent force to enhance the resilience of corporate development. We uphold the principle of diversity and inclusion, providing employees with equal career development opportunities and paths. Utilising both online learning platforms and physical training classes, the Group has a systematic talent training system that enhances employees' ability and quality to cultivate an innovative and professional talent echelon that matches the Group's future development needs. We will continue to ardently establish a diversified talent pool and create a good working environment to show our care and support to our employees, which would help achieve growth and development for both the employees and the Group.

In addition, Towngas Smart Energy upholds the people-oriented approach and proactively participates in charity activities, focusing on education to bring hope with love and change the future with knowledge. In 2022, we continued our branded charity activities, including Gentle Breeze Movement and Rice Dumplings for the Community, and motivated our employees to take part as volunteers to visit the community and support the education of the underprivileged. These projects helped spread warmth and care to the deprived communities and students in less developed areas. We firmly believe the future will be promising if we press ahead with a sense of perseverance. We will therefore persist in carrying out these projects with a loving attitude.

Looking into the future, amidst the profound changes in the global political landscape and economic development, Towngas Smart Energy will continue to take the lead in quality development with higher, better and more resilient corporate governance capabilities, and we will join hands with suppliers, contractors, employees, investors and other stakeholders to forge a sustainable future together.

Mr. Peter Wong Wai-yee
Executive Director and Chief Executive Officer
Towngas Smart Energy Company Limited
Hong Kong, 16 March 2023







04 About Towngas Smart Energy

4.1 Company Profile

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 with an operation mainly on the Chinese mainland, principally engaged in gas, renewable energy and extended business.

4.1.1 Corporate Culture



Mission

To provide our customers with safe, reliable, clean and smart energy along with quality services, while committed to fulfilling our social responsibility, ensuring sustainable business growth, enhancing our shareholders' return on investment, and bringing long-term benefit for our planet, society, and stakeholders.



Vision

To be a leading clean and smart energy supplier, with a view to creating a sustainable world driven by green energy.

4.1.2 Business Overview

Utility Business

Utility business is one of the core businesses of Towngas Smart Energy, which covers the sales of piped gas, and other types of energy, construction of gas pipelines, the sales of gas appliances and related products, and other value-added services. The Group had been committed to exploring the gas market on the Chinese mainland for years, where it helped drive sustainable economic and social development by establishing a stable and clean energy storage system while promoting the application of natural gas in the industrial, commercial and residential sectors. The Group at the same time invested in long-distance pipeline networks, gas storage facilities, liquefied natural gas (LNG) receiving terminals and other related facilities in the upstream and midstream to consolidate independent gas sources and ensure a stable supply of natural gas. The Group adopted the business model of "gas + integrated energy" in the downstream market, focusing on the goals of undertaking projects, establishing standards and venturing out of the gas business, to vigorously develop integrated energy projects such as industrial, residential and commercial heating and provision of clean energy for domestic use and city development. Leveraging its business advantages, the Group extended its business footprint and used digital technology to build a lifestyle cloud platform focusing on the two themes of comfort and health, and offered a variety of products and health services, including smart cooking appliances, high-end kitchen cabinets, home services, insurance, cooking courses, healthy food, and other lifestyle-related products.

Renewable Energy Business

In line with its new business development blueprint, Towngas Smart Energy is committed to promoting the parallel development of its renewable energy business and utility business. The Group adheres to the three core development strategies of integration, digitalisation and decarbonisation, striving to be a leader in the field of smart energy. Focusing on these strategies, the Group continuously accelerated the expansion of the new business of photovoltaic energy, achieved source-grid-load-storage integration and digital upgrade of energy management based on the Towngas Smart Energy Ecological Platform, and built zero-carbon smart industrial parks by investing, building and operating distributed photovoltaics, energy storage, battery charging and swapping, multi-energy supply and other energy infrastructure as well as providing customers with energy value-added services such as carbon management and energy efficiency management. All these contributed to the combat of the global climate crisis while facilitating the Country to achieve the national goals of achieving carbon peak and carbon neutrality.

4.2 ESG Performance Highlights for 2022

Economic performance



Revenue
HK\$ **20,073** million



Gas sales (excluding
Shanghai Gas Co., Ltd.)
15,246 million m³



Pipeline length
70,935 km

Social performance



Work-related deaths
of employee
0



Employees receiving regular
reviews on performance
and career development
100% coverage



Average training hours of
employees for the year
59.32 hours

Environmental performance



Project companies with
ISO 14001 Environmental
Management System
Certification
16



Funds raised from issuance
of Sustainability-linked Bond
US\$ **200** million



Nature-related risk factors
that may affect the Group's
business
10

ESG ratings

MSCI ESG
Rating

A

Standard & Poor's Global
Corporate Sustainability
Assessment

68

Sustainalytics

29.1

FTSE Russell ESG Rating

2.7

Hang Seng Corporate
Sustainability Index

AA-

CDP

B

Note: The Group's ESG rating information is updated up to 28 February 2023.

04 About Towngas Smart Energy

4.3 Accolades and Awards in 2022

Awarded the title of Caring Enterprise by the Street Office of Sungang Street, Luohu District, Shenzhen City for our excellent performance in social responsibility.

Named Smart Environment and Energy Enterprise of the Year in the Smart Industry competition organised by *Jiemian News* for its continuous contribution to environmental governance.

Accorded the title of Environmentally and Socially Responsible Enterprise by *China Environment News* for our contribution to the harmonious development of society, the economy and the environment, upheld by the principle of environmentally friendly development and our participation in charity activities for environmental protection.



JANUARY

JUNE

OCTOBER

NOVEMBER



Won the Best Energy and Resources Company and Most Socially Responsible Listed Company awards at the 2022 Global Investment Trends Forum and the Sixth Golden Hong Kong Stock Awards Ceremony in recognition of our outstanding achievements in areas of corporate governance, industry performance and others, as well as our contribution to poverty alleviation and ecological protection.

Granted the title of 2022 Low-carbon Role Model by *China News Weekly* of China News Service for our marvellous achievements and outstanding performance in energy conservation and emission reduction. This was the second consecutive year that the Group had received this award.

Won the Investor Relations ESG Engagement and Communication of the Year Award at the first ESG China Awards hosted by the British Chamber of Commerce Shanghai for our effective communication with investors in relation to ESG.

Accorded the title of Model Enterprise of Green Development by *China Environment News* for our contribution to creating social, economic and environmental benefits.



Awarded The Outstanding ESG Governance Enterprise in 2022 by Futu for our exceptional achievements in ESG.



Awarded the Second Prize of Energy-Saving and Emission-Reduction Corporate Award by China Energy Conservation Association for our outstanding contributions to the application research of energy conservation and emission reduction on the Chinese mainland.



Granted Environmental and Ecological Contribution Award of China Corporate Social Responsibility List by *Yicai* for our exceptional performance in five areas – social responsibility, harmonious relationships, employee care, environmental responsibility and corporate governance.

DECEMBER



Bagged the titles of Best Energy and Resources Corporate Award and Best in ESG Award at the 7th Zhitong Finance Listed Company Selection for our outstanding performance in business growth, corporate governance, market impact and social responsibility.



Scooped the ESG Leading Enterprise Award, Leading Environmental Project Award and Thematic Award (ESG Investment) at the 4th ESG Leading Enterprise Awards jointly organised by *The Chinese Edition of Bloomberg Businessweek* and Deloitte for our remarkable contribution to promoting ESG development, outstanding performance of photovoltaic power generation projects and comprehensive strategies in ESG investment.

Ranked among the Most Admired Chinese Companies in the energy and public utility industry by *Fortune*.

04 About Towngas Smart Energy

Feature: Promoting Social Sustainability through Business Innovation

Driven by the national goals of achieving carbon peak and carbon neutrality, the Country expedited its efforts to build a comprehensive low-carbon circular economy, whereby the development and application of smart energy had witnessed rapid expansion. Towngas Smart Energy proactively positioned itself at the forefront of the new era by focusing on the three core strategies of integration, decarbonisation and digitalisation to take a lead in developing smart energy in the industry, helping enterprises achieve low-carbon transformation and improving ESG performance under the carbon peak and carbon neutrality goals. In 2022, in order to help enterprises in eight emission-control industries (i.e. petrochemical, chemical, building materials, steel, nonferrous metals, paper manufacturing, power and aviation), high-energy-consuming enterprises and industrial park customers enhance their energy conservation and emission reduction, ensure safety and reliability as well as boost energy efficiency, we invested heavily in renewable energy areas, such as distributed energy, energy storage, digital and smart energy technology, contributing to the sustainable development of renewable energy business.

Promoting Low-carbon Transformation of Enterprises

In late 2021, Towngas Smart Energy announced a new business blueprint to speed up the development of renewable energy business while strengthening our core gas business. Aiming at enabling zero-carbon smart cities, we provided tailored integrated smart energy solutions for corporate customers.



Multiple Approaches to Realise a Low-carbon Factory

Towngas Smart Energy tailored a set of integrated smart energy solutions for IPE Group to help it enable a low-carbon factory setting through energy conservation and emission reduction. The project adopts four major principles: green power, energy conservation, smart technology and carbon offset, through which a series of sub-projects, such as the construction of distributed rooftop photovoltaic power stations and photovoltaic carports, transformation for an energy-efficient central air-conditioning system, transformation for an energy-efficient air compressor system, and waste heat recovery to supply domestic hot water. On average, the overall programme can generate 5.4 million kWh of green power annually. We also provided integrated services to help the client participate in the “electricity-carbon” market and obtained the carbon neutrality certificate issued by Guangzhou Emissions Exchange.



In the future, Towngas Smart Energy will enjoy a close collaboration with IPE Group to kick start more projects on areas like energy storage, virtual power plant, with a view to building the low-carbon factory project into a model of energy conservation and emission reduction in Guangdong province while helping the client achieve carbon neutrality ahead of schedule.



Digital and Smart Energy Innovation

The Group made good use of digital technology to promote low-carbon transformation of the industry and the transition towards adopting renewable energy. Based on a smart energy platform, we developed source-grid-load-storage integrated solutions and provided regional comprehensive energy management and services, involving the investment in and construction and operation of distributed photovoltaic, energy storage, battery charging and swapping, multi-source energy supply and other energy infrastructure as well as smart value-added services such as energy efficiency management, carbon management, virtual power plant and green power trading. Empowered by the Smart Energy Ecological Platform, we had achieved source-grid-load-storage integration and upgraded energy management with digital and smart technology, in an effort to build zero-carbon smart industrial parks and low-carbon factories, facilitating enterprises with ESG management.



Official Launch of Towngas Smart Energy Ecological Platform and its Debut in Hailing District, Taizhou City



In April 2022, the Towngas Smart Energy Ecological Platform jointly developed by Towngas Smart Energy and Tencent Cloud was officially launched. Based on technologies such as the Internet of Things (IoT), big data and artificial intelligence, the platform collects measurement and operating data on photovoltaic, energy storage, battery charging and swapping, energy conservation and other aspects with data visualisation.

It enables the industrial park to carry out smart management, analysis, prediction and enhancement of energy data, provides in a scientific and efficient manner a clear picture of park-wide carbon emissions and manages carbon emissions, thus helping the park to advance speedily towards the zero-carbon goal.

As one of the flagship projects of Towngas Smart Energy, we target to join hands with the government of Hailing District in building a smart Carbon Peak and Carbon Neutrality Centre. Based on the Towngas Smart Energy Ecological Platform, we provided the government, the industrial park, enterprises and individuals with a full range of digital and smart services related to energy, carbon and green power, facilitating the government of Hailing District to build a zero-carbon smart city. To date, distributed PV installations had been installed on the roofs of more than 10 government buildings in Hailing District, such as the government offices and the offices of the Procuratorate. More and more industrial and commercial plants and rural houses had also been equipped with such facilities. By the end of 2022, more than 10% of enterprises in the park were connected to the Towngas Smart Energy Ecological Platform to support the park's smart management, analysis, prediction and enhancement of energy data, which in turn boosted energy efficiency and helped the government of Hailing District move towards a solar city. In the future, Towngas Smart Energy will continue to deepen its strategic cooperation with Tencent Cloud by focusing on serving customers, constantly enhancing the services and functions of the platform based on the zero-carbon needs of customers, the park, industries, the local government and even the Country. With the use of technology to enable digital and smart energy upgrade, the Group would help monitor energy and carbon data and intensity, as well as achieve the energy and carbon goals.



04 About Towngas Smart Energy



Distributed Photovoltaic Power Plant Helps Build a Zero-carbon Smart Industrial Park



Foshan Midea's 5 MW distributed photovoltaic power plant project is located in Foshan Shunde Midea Washing Machine Manufacturing Co., Ltd in Beijiao Town, Shunde District, Foshan City, Guangdong Province. The power plant was connected to our PV cloud in March 2022. The operation and maintenance personnel can keep track of the plant's operations and equipment status real-time through the diverse and practical functions of the PV cloud, such as production monitoring, equipment monitoring, alarm

management, online diagnosis and graphical report and statistics generation. They can also take prompt response to alarms regarding equipment failures, allowing an efficient management of the operation and a precise and timely maintenance of the plant. Furthermore, the client can have full access to monitor power generation and energy consumption conveniently through a website and a mobile app.

In 2022, the plant generated a total of 5,558,200 kWh of electricity with 1,110 full-capacity hours, while energy absorption rate reached 90%, saving approximately 1 million in electricity cost in a year.

Research and Development of Industry Chain Technology

In order to further strengthen research and development (R&D) of our technology, the Group actively works with outstanding partners in the industry chain. We entered into strategic cooperation with leading industry players, as well as R&D and academic institutions to develop projects as zero-carbon benchmark showcases, improving our overall competitiveness through innovation while promoting the zero-carbon transition of the industry with technology.



Unveiling of Tsinghua-Towngas Joint Research Centre for Zero-carbon Smart Park and Virtual Power Plant Technologies

In April 2022, Towngas Smart Energy and the Department of Electrical Engineering and Applied Electronics of Tsinghua University jointly set up the Tsinghua-Towngas Joint Research Centre for Zero-carbon Smart Park and Virtual Power Plant Technologies. Both parties share the vision to build the Centre into a platform for scientific and technological research, resource sharing, talent assemblage and fruit bearing, with a view to driving the development and technological advancement of Energy Internet and new power systems, making ground-breaking contributions to the Chinese mainland's carbon peak and carbon neutrality strategies.

The Department of Electrical Engineering and Applied Electronics of Tsinghua University had already kicked start advanced research on virtual power plants. We leverage our diverse application scenarios and industry influence in the field of zero-carbon smart industrial parks, together with Tsinghua University's solid theoretical research and practical experience in national demonstration projects, to jointly develop industry standards for virtual power plant, so as to forge ahead the Country's energy revolution and contribute to the development of Energy Internet.

In the future, the Tsinghua-Towngas Joint Research Centre for Zero-Carbon Smart Park and Virtual Power Plant Technologies will strive to overcome technological challenges in digital and smart transformation of zero-carbon smart parks, enhancing its academic influence in the virtual power plant field while accelerating the application and promotion of technological achievements in clean energy and low-carbon areas, so as to facilitate the digital and smart advancement of zero-carbon smart industrial parks with technological breakthroughs.

Improving People's Quality of Life through Expanding our Business Boundaries

As a large public utility company, it has always been our mission to meet the people's needs for a better livelihood by shouldering social responsibility in areas of energy supply and people's livelihood, etc., while implementing the Group's development strategy. To mitigate air pollution and greenhouse gas emissions caused by industrial production, the Group adheres to the Country's initiative to replace coal with gas. On the one hand, we continued to promote domestic use of natural gas by replacing and installing pipelines in towns and villages so that the community can have a safe access to clean natural gas. On the other hand, we replaced coal-fired boilers and industrial kilns covered by our pipeline networks with natural gas facilities, and expanded the application of natural gas in, among others, restaurants, hotels, hospitals, schools and commercial complexes, in an effort to help the Country fight the battle in preserving the blue sky.

As the Country stepped up policy support for heat supply businesses, the Group carried out projects on distributed energy with natural gas as the core, and the research and application of multi-source energy supply. We launched the "Gas+" heating business to provide residents with comfortable and quality heating services on one hand, and to industrial and commercial customers with clean, safe and reliable multi-source energy supply and energy custody services through investing in and operating individual or regional energy stations.

The Group is committed to providing customers with an attentive, unique and quality service. To this end, we developed innovative online and offline services to enhance customer experience for extended businesses with a view to continuously improving the customers' quality of life. The "Moment+" Community Healthy Lifestyle Experience Centres serve as a one-stop customer service platform, while the "Moment+" applet, app and website allow customers to access services through a few clicks and enjoy a convenient and hassle-free lifestyle, thereby promoting low-carbon, eco-friendly and healthy way of life.

Companies should put into practice the concept of sustainability and promote social advancement for the community's long-term development. As a responsible corporate citizen, Towngas Smart Energy always strives for service enhancements through technological and business innovation, and for contribution to the Country's enhanced energy structure through boosting energy efficiency. In the future, we will continue to strengthen our R&D in energy and digital technology as well as to explore and develop zero-carbon solutions to empower the green energy development of different regions, with a view to contributing to the country's goals of achieving carbon peak and carbon neutrality, and in the long run, global climate governance.



04 About Towngas Smart Energy

Feature: Exploring New ESG Frontiers with Decisive Actions

Towngas Smart Energy stands firm on prioritising ESG issues as important considerations in business operations, continuously enhancing ESG management, and striving to create longer-term value for all stakeholders while seeking business growth. We constantly explore ESG frontiers and shoulder our social responsibility. At the same time, we communicate our ESG principles to partners and the capital market to help enhance the influence of the industry in the fields of environmental protection, economic development and social advancement.

We are committed to exploring and innovating sustainable business practices and creating long-term ESG values. The Group's actions and results achieved during the year are as follows.

ESG Symposium 2022

On 11 November 2022, the Group together with HKCG and The Hong Kong Management Association jointly held the ESG Symposium 2022, attracting more than 5,000 attendees from Hong Kong, the Chinese mainland and foreign countries and regions, both online and offline. Secretary for Environment and Ecology of the Hong Kong Special Administrative Region, Mr. Tse Chin-wan, was invited to officiate at the event, and more than 20 political and business leaders from different sectors, such as public utilities, finance, social welfare and corporate governance, delivered speeches and joined round-table discussions on popular ESG topics, with a view to promoting collaboration and synergy among all sectors for spearheading the development of sustainability.

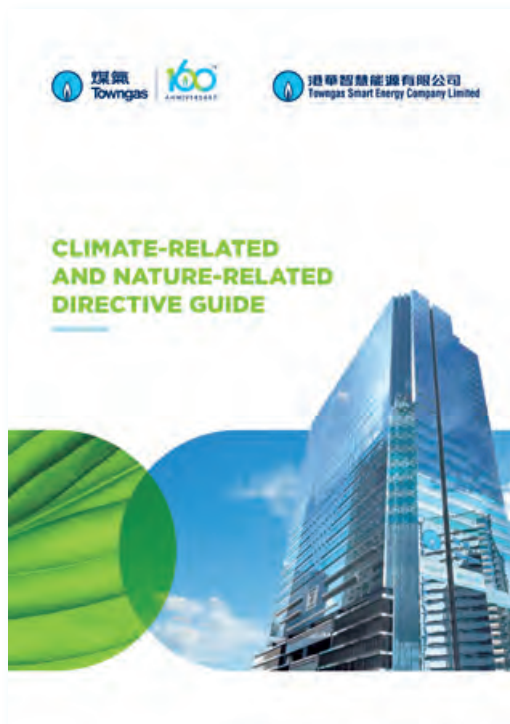


Assessing Biodiversity-related Risks and Opportunities for Harmonious Co-existence with Nature

Responding positively to the call of the United Nations Conference on Biodiversity, Towngas Smart Energy, as a leading company in the energy industry, took the initiative to assume social responsibility through assessing the impact of its business on the ecosystem and biodiversity with a view to minimising its operations' potential hazards to ecosystem, contributing to the global community.

In 2022, we worked with our parent company in accordance with the TNFD (Task Force on Nature-related Financial Disclosures) beta framework to prepare the *Climate-related and Nature-related Directive Guide*. We reviewed and disclosed the impact and dependence of HKCG and Towngas Smart Energy's business operations on ecosystem and biodiversity as well as the risks and opportunities involved. The Guide will serve as a reference for the Group to cope with the risks and opportunities related to climate and nature.

In the *Climate-related and Nature-related Directive Guide*, we adopted the LEAP Nature Risk Assessment Approach and the ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure) tool to assess selected areas of business activities. It was identified that the most material impact of the Group's business activities on nature lies in greenhouse gas (GHG) emissions as well as the use of terrestrial ecosystem and water use. Potential impacts of these factors on business activities were also identified. Set out below is the list of natural risks identified to which we will develop targeted mitigation measures to enhance the Company's adaptability and resilience to the ecosystem.



Physical risks

- Higher GHG concentration
- Depletion of water table
- Poor water flow or quality
- Habitat loss and fragmentation resulting in ecosystem degradation
- Degradation of nature and loss of natural protection can exacerbate severity of damages from extreme weather events
- Species loss and ecosystem degradation due to contamination, accidental leak or spills

Transition risks

- Climate regulations
- Water tariff rise
- Restrictions on land use for future planned projects and/or requirements to restore damaged ecosystems
- More stringent environmental regulations and/or reporting requirements

Business impacts

- Write-offs or early retirement of assets
- Reduced revenue
- Increased cost
- Reputational damage
- Operational disruption

04 About Towngas Smart Energy

In an effort to contribute to biodiversity conservation, the Group undertakes to avoid sites with high biodiversity value as much as possible during project planning and construction stages, and to carry out environmental impact assessments on specific sites in accordance with the requirements of local governments. In addition, the Group leverages innovative technologies to prevent and mitigate biodiversity risks prior to construction and make necessary corrections afterwards, so as to minimise the impact on both animals and plants in ecology.

Methane Emission Control to Cope with Climate Change

Methane is the second-biggest greenhouse gas contributor that leads to global warming. As an integrated clean energy company, we put emphasis on emission control of our gas business while constantly developing our renewable energy business. We commit to the common goal of the Country's carbon reduction target, and keep abreast of the standards and cutting-edge technologies for methane emission control. Towngas Smart Energy has completed the strategic planning of the measurement and calculation of Group's methane emissions in carbon dioxide equivalent. By means such as continuous quality control and management enhancement, application of new technologies, materials and equipment, high-precision detection enabled by the patented "Vehicle-Canine Partnership" technology, active monitoring and early warning, as well as the development of a consolidated smart operation platform (Towngas Operation Platform, "TOP"), the Group focused on controlling methane emissions in natural gas transmission, distribution and application.



Towngas Smart Energy Officially Joined the China Oil and Gas Methane Alliance

In June 2022, Towngas Smart Energy officially joined the China Oil and Gas Methane Alliance with the approval by all its member enterprises.

The Alliance undertakes to implement a series of actions to enhance methane emission control in all respects, aiming at reducing the average methane intensity of member enterprises to below 0.25% in natural gas production by 2025 and to reach the world-class level by 2035. On the basis of its own methane emission control measures, Towngas Smart Energy will strengthen collaboration with players across the industry chain, and work with ecosystem partners to jointly promote methane emission control measures, and to enhance the influence of oil and gas enterprises on the Chinese mainland in global climate governance.



In the future, we will, as always, facilitate the sustainable development of the Chinese mainland's oil and gas industry, and work with the industry to undertake the responsibility for methane emission control, so as to continuously promote green energy development.

Setting an Industry Model by Exploring Green and Sustainable Financing

To achieve the Group's long-term sustainability goals, we formulated a sustainability-linked financing framework in 2022, which aims at highlighting the transparency of our sustainability tools to investors, creditors or other stakeholders through the selection of sustainability key performance indicators ("SKPIs") and the setting of related goals. The framework is in line with the principles for sustainability-linked bonds and sustainability-linked loans. We set in it two SKPIs and pledged that in case any of the SKPIs is not met, the Group would pay additional interest to live up to its commitment to sustainability. We will add or modify SKPIs and related goals in a timely manner according to industry changes, market development and the implementation progress of the Group's ESG strategies.

In 2022, Towngas Smart Energy became the first energy company to issue a sustainability-linked bond in Hong Kong, raising a total of US\$200 million. This bond symbolises our vision of a smart energy business based on integration, digitalisation and decarbonisation.

The Bond is linked to the sustainability-linked financing framework. The proceeds of this sustainability-linked bond are used to achieve below two sustainability performance targets (SPTs).

	Total photovoltaic installed capacity	Solar energy sales to total energy sales ratio
2020 (Baseline)	0 GW	0%
2022 (Progress)	0.55 GW*	0%
2025 (SPT)	8 GW	7%
2028 (SPT)	11 GW	8%

* The total photovoltaic installed capacity by 2023 Q1 is expected to reach 1.03GW.

Besides, Towngas Smart Energy has also successfully arranged a 7-year green loan of RMB500 million for the development of renewable energy business. The green loan proceeds have been fully allocated to the investments in photovoltaic system for generation of solar energy.

In addition, HKCG, the Group's parent company, and IDG Capital jointly established during the year the first Zero-carbon Technology Investment Fund on the Chinese mainland with the theme of "technology investment + scenario-based empowerment". With 5 billion raised in the first phase, the fund primarily invested in zero-carbon technology-related fields such as solar energy, wind energy, powered battery, energy storage, smart grid, hydrogen energy, as well as carbon trading and management. Leveraging the Group's diverse business scenarios, the fund will help investees speed up the development and application of their products and technologies, and continuously explore innovative zero-carbon technologies and solutions, facilitating energy conservation and emission reduction for industrial and commercial customers.

Strengthening ESG Disclosures and Promoting ESG Principles

While exploring sustainability practices, we strive to develop various effective communication channels with the capital market to communicate the Group's ESG measures and strategies and proactively respond to the rating agencies' evaluation of our ESG performance, with a view to further enhancing our ESG performance. In 2022, Towngas Smart Energy was rated by six international ESG ratings: a CDP rating obtained for the first time and rating upgrades received from four other agencies, namely the MSCI, S&P Global Corporate Sustainability Assessment, Sustainalytics and FTSE Russell. These show the rating agencies' recognition of the Group's excellent ESG performance. We are also committed to improving ESG disclosures. Since the release of our corporate social responsibility report in 2013, which was the first corporate social responsibility report in the city gas industry, we have been publishing sustainability-themed reports annually for 10 consecutive years. We also regularly release the latest information on ESG via free public platforms, such as WeChat Official Account and Energypedia on Facebook, to promote ESG principles.

Looking forward, we will keep innovating in sustainability practices and working with stakeholders to pursue a future of sustainability.

05

Corporate Governance and ESG Governance





05 Corporate Governance and ESG Governance

Towngas Smart Energy advocates a sustainable development through the provision of a clean energy and quality smart services in a low-carbon, environment-friendly, safe and stable manner. We uphold business ethics, adhere to the management philosophy of integrity, and actively undertake corporate social responsibility for making positive impacts to the economic and social development of the communities where we operate. We strive to build a sustainable business model and uphold the responsibility of an energy enterprise to boost energy efficiency and reduce emissions and carbon, putting in action the Group's sustainable development philosophy and contributing to the accomplishment of the UN Sustainable Development Goals (UN SDGs).

5.1 Statement of the Board

Towngas Smart Energy is committed to integrating ESG elements into the Group's strategic decision-making process and day-to-day operation. Guiding the continual development of business with the sustainability philosophy, it strives to strike a balance between the Group's development and environmental protection together with social progress. The Board places a high value on the Group's ESG management. It made the following statement upon reviewing our ESG performance in 2022.

5.1.1 Responsibilities of the Board for ESG Governance

The Board of Directors of the Group attaches great importance to ESG management. It established an ESG Committee at the Board level, which consists of five directors and is chaired by the Chief Executive Officer, Mr. Peter Wong Wai-ye. Responsible for overseeing matters related to the Group's ESG management, mainly including health and safety, environmental protection, operational processes, relationships with employees, customers and suppliers, as well as community engagement, the ESG Committee also encourages innovation as a means to promote the sustainable development of the Group.

5.1.2 ESG Management Policies and Strategies

To further advance the Group's ESG management, we amended and issued during the year the Terms of Reference of the ESG Committee, which clearly specifies the responsibilities of the ESG Committee.

We value sound communication with stakeholders and keep abreast of trends in the energy market. In addition to identifying and assessing material ESG issues every year, we discuss and review the materiality assessment results at ESG Committee meetings. The Group applied during the year the double materiality assessment method for the first time to assess its ESG issues from the perspectives of materiality and financial impact. The materiality assessment results were discussed at the ESG Committee, which the ESG-related risks and opportunities were then identified, and formulated and adjusted according to the Group's sustainable development strategies.

5.1.3 Targets, Indicators and Monitoring

The ESG Committee held regular meetings in 2022 to assess and review the effectiveness of the Group's ESG efforts. Taking into account the trends of the macro environment and the strategic direction of the Group's business development, the ESG Committee reviewed and discussed the Group's ESG management performance in five key areas, including business opportunities creation, health and safety assurance, environmental protection, contribution to stakeholders and corporate governance enhancement.

To ensure the authenticity and reliability of the Group's ESG disclosures, we engaged the Hong Kong Quality Assurance Agency to conduct independent verification on this Report. As communicated with and under the guidance of the ESG Committee, this Report discloses in detail the progress and effectiveness of the Group's ESG efforts in 2022.

5.2 ESG Governance

5.2.1 ESG Management

Comprising senior management members of relevant departments, ESG Working Group was established under the ESG Committee of Towngas Smart Energy to ensure the effective implementation of the Group's sustainable development strategy. Guided by the ESG Committee, the ESG Working Group discusses and formulates specific plans for work enhancement on material ESG issues every year with a target to manage the risks related to the Group's various ESG areas properly. In addition, to ensure the execution of ESG efforts is faithful and efficient, we link the remuneration of relevant executive directors and senior management with ESG management performance, so as to strengthen the management's accountability to achieving the Group's ESG management targets.

5.2.2 Support to the UN Sustainable Development Goals

Towngas Smart Energy is fully aware of the importance of implementing sustainable development strategies to facilitate the unification of ecological, economic and social benefits. Upon careful evaluation, we selected three UN SDGs that are closely related to the Group's principal business and value chain. We conducted analysis on the actual or potential impacts, whether positive or negative, of the Group's business operations and took appropriate ESG management measures to help realise the UN SDGs.



Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all.

Potential impacts:

- ▲ Innovation in energy storage technology has promoted the large-scale commercial application of new energy supply models.
- ▲ Reshape customers' energy demand and promote the use of digital and smart clean energy.

Actions taken/achievements:

- Set the targets of carrying out 200 zero-carbon smart industrial parks and achieving 8GW of total photovoltaic installed capacity by 2025.
- Set the target of achieving total photovoltaic installed capacity of 11GW in 2028.

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Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable.

Potential impacts:

- ▲ Safeguard the bottom line of safety with higher standards and requirements to ensure the gas safety of customers and society.
- ▼ Hazards in the gas pipeline network may lead to gas accidents.
- ▼ Noise and environmental pollution may be generated during the construction of engineering projects.

Actions taken/achievements:

- Strengthened the inspection of hazards in the gas pipeline network; inspection of all pipelines and plants in service was completed at the end of 2022.
- Jointly developed the Towngas Operation Platform, and it will be promoted throughout the Group after the successful pilot project.
- Built a smart photovoltaic cloud platform using information technologies such as AI recognition, cloud computing and big data to promote the digital transformation of construction management for large-scale projects.



Goal 13: Take urgent actions to combat climate change and its impacts.

Potential impacts:

- ▲ Provide growth opportunities for new business.
- ▼ Methane leaking from pipelines increases greenhouse gas emissions.
- ▼ Inadequate assessment of and response to climate change risks may affect the stability of gas supply.

Actions taken/achievements:

- Issued the first 5-year Sustainability-linked Bond and raised US\$200 million.
- Set climate change targets to achieve carbon neutrality.
- Joined the China Oil and Gas Methane Alliance to promote methane emission control actions.
- Conducted assessment of climate change risks and prepared and published TNFD report.

5.3 Stakeholder Communication and Materiality Assessment

5.3.1 Communication Channels and Demands

Towngas Smart Energy attaches great importance to a close liaison with stakeholders. It established diversified online and offline communication channels to make public the latest development of its corporate mission and vision, demonstrating its accountability towards stakeholders. These channels promote mutual understanding and support, and help build up stakeholders' trust. The Group takes the initiative to listen to and identify the concerns of stakeholders, and responds to their feedback and expectations in a timely manner, so as to enhance the Group's social responsibility performance, laying a solid foundation for its sustainable development. Listed below are the key stakeholders identified, their concerns, communication channels and our responses:

Stakeholders	Concerns	Communication channels	Responses
Government and regulators	<ul style="list-style-type: none"> • Legal operations and lawful tax payment • Energy transition and enhanced energy efficiency • Potential for future growth • Industrial competitive advantages • Safe production • Promoting the healthy development of the industry and economy 	<ul style="list-style-type: none"> • Documents submitted to the Government • Exchange programmes • Day-to-day communication and report(s) • Government-enterprise cooperation projects 	<ul style="list-style-type: none"> • Compliance with relevant laws and regulations • Promoting actively “coal-to-gas” and photovoltaic projects • Release of data on environmental emissions and safe production • Enhancing risk management capabilities • Attending industrial symposia from time to time
Shareholders and investors	<ul style="list-style-type: none"> • Strategic planning for development • Company performance and return on investment • Corporate governance • Information disclosure 	<ul style="list-style-type: none"> • Annual general meetings • Annual reports and interim results reports • Circulars and announcements • Press conferences • Social media 	<ul style="list-style-type: none"> • Regular disclosure of business information • Maintenance of good profitability • Continuous enhancement in corporate governance
Customers	<ul style="list-style-type: none"> • Product quality and reliability • Customer service and communication • After-sales services • Operation in compliance with laws and regulations 	<ul style="list-style-type: none"> • Customer service centres • Exhibitions • Customer service hotline and emails 	<ul style="list-style-type: none"> • Effective response to customers’ requests in a timely manner • Quality customer services • Customer satisfaction surveys
Employees	<ul style="list-style-type: none"> • Equal job opportunities • Smooth career development paths • A safe and healthy working environment • Sound training systems • Protection of rights and occupational health 	<ul style="list-style-type: none"> • Job performance assessments • Training in occupational health and safety • Training in career and products • Regular staff meetings attended by the management • Suggestion boxes, emails and bulletin boards 	<ul style="list-style-type: none"> • Employee activities • Care for employees’ health • Training opportunities • Provision of a safe working environment

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Stakeholders	Concerns	Communication channels	Responses
Suppliers	<ul style="list-style-type: none"> Fair procurement Supplier quality performance Operation in compliance with laws and regulations Quality of raw materials supplied Green procurement 	<ul style="list-style-type: none"> Annual business review meetings Suppliers' assessments Strategic cooperation Procurement arrangement 	<ul style="list-style-type: none"> Public tenders Supplier management system Continuous policy enhancement Improved management efficiency
Community/charity bodies	<ul style="list-style-type: none"> Safe operations Environmental protection Organising charity activities Building harmonious communities 	<ul style="list-style-type: none"> Community publicity Charity activities Philanthropy activities Science-popularising activities 	<ul style="list-style-type: none"> Volunteering in local communities Participation in charity and environmental protection activities Poverty alleviation, support to the needy, and caring activities to the communities
Business partners	<ul style="list-style-type: none"> Company strategies Project progress Service quality Market development 	<ul style="list-style-type: none"> Meetings Interviews Strategic cooperation 	<ul style="list-style-type: none"> Implementation of company policies and standards Corporate governance Audits Work inspections

5.3.2 Double Materiality Approach

To fully understand the significance of ESG issues to the Group's business development, the Group engaged an external consultant to conduct stakeholder questionnaire surveys to identify, evaluate and rank material issues, so as to address the ESG issues that stakeholders are most concerned about. That would also assist the Group in perfecting its ESG management and better integrating its sustainable development philosophy into corporate governance and operations.

The Group introduced during the year the double materiality principle for the first time in the assessment of material issues. Guided by the draft double materiality methodology published by the European Financial Reporting Advisory Group (EFRAG), we comprehensively assessed the impacts of each ESG issue on the environment, society and the Group's financial performance from two dimensions: impact materiality and financial materiality.

Our materiality assessment covers the following five steps:

1

Issue Identification

During the year, based on the requirements of the Environmental, Social and Governance Reporting Guide, and with reference to the GRI Sustainability Reporting Standards as well as the SASB Sustainability Accounting Standards while taking into consideration the results of industry benchmarking, we consolidated and streamlined the Group's original 32 issues into 20 material ESG issues that stakeholders were most concerned about and were characteristic of the Group's business.

2 Questionnaire Survey

Based on the principle of double materiality, we designed two questionnaires, impact materiality assessment and financial materiality assessment. The most relevant internal and external stakeholders, such as the management and employees of the Group and business partners, were invited to participate in the survey. A total of 463 valid responses were received in 2022.

3 Impact Materiality Assessment

In impact materiality assessment, we took into account the possibility and severity of positive and negative impact to comprehensively assess the impact of ESG issues on the environment and society, and preliminarily grouped 20 ESG issues according to their degree of impact:

Impact Issues	Higher impacts	Average impacts	Lower impacts
	Response to climate change	Innovation and digital transformation	Improvement in energy efficiency
	Occupational health and safety	Sound corporate governance	Energy affordability
	Protection of employees' rights and interests	Biodiversity	Employment practice
	Asset integrity and issue management	Water resource and wastewater	Protection of intellectual property rights
	Waste management	Business ethics and anti-corruption	Accurate product and service information
	Product and service quality	Diversity, equal opportunities and anti-discrimination	Supply chain management
		Confidentiality and information security	Community relations management

4 Financial Materiality Assessment

In the financial materiality assessment, we conducted in-depth analysis on the impacts of various ESG issues on the Group's short-term financial performance from the perspective of 6 capitals developed by the International Integrated Reporting Committee (IIRC), namely financial capital, manufactured capital, intellectual capital, human capital, social and relationship capital, and natural capital.

5 Plotting the Double Materiality Matrix

Based on the results of the impact and financial materiality assessments, we plotted a materiality matrix for the year and ranked the 20 issues in a scientific and reasonable manner based on the actual business operation of the Group. The issues were divided into three groups: very important, important and less important, so as to determine the focus of this Report and the development direction of the Group's ESG management in future.

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The ESG materiality matrix and groupings for the year are as follows:



Environmental

- 1 Improvement in energy efficiency
- 2 Response to climate change
- 3 Biodiversity
- 4 Waste management
- 5 Water resource and wastewater

Social

- 6 Occupational health and safety
- 7 Asset integrity and issue management
- 8 Energy affordability
- 9 Product and service quality
- 10 Protection of employees' rights and interests
- 11 Confidentiality and information security
- 12 Diversity, equal opportunities and anti-discrimination
- 13 Protection of intellectual property rights
- 14 Employment practice
- 15 Community relations management
- 16 Accurate product and service information
- 17 Supply chain management

Business and governance

- 18 Innovation and digital transformation
- 19 Sound corporate governance
- 20 Business ethics and anti-corruption



5.4 Compliance & Governance

5.4.1 Risk Management and Internal Control

To safeguard the long-term interests of stakeholders, Towngas Smart Energy places great emphasis on risk management by committing itself to establish a sound risk management and internal control systems to further enhance its overall risk resilience in line with stakeholders' expectations. The Group has a multi-tiered risk management structure, within which mechanisms have been established for exercising relevant authority, decision-making and supervision. These mechanisms can effectively identify, evaluate and manage various major risks faced by the Group and project companies. The Group is thus able to formulate strategies and execute projects prudently and deliver better business performance as a result.

5.4.2 Business Ethics

Towngas Smart Energy strictly complies with stipulating laws and regulations, such as the Anti-Monopoly Law of the People's Republic of China and the Anti-Unfair Competition Law of the People's Republic of China. It has formulated and implemented various in-house policies on business conduct, like the Code of Conduct, by which all employees are required to abide. The Group has zero tolerance for any form of commercial bribery, unfair competition and infringement of intellectual property rights. In 2022, Towngas Smart Energy did not have any bribery, fraud, or corruption lawsuits filed and concluded against the Group or its employees.

The Group advocates a corporate culture of honesty and integrity. It formulated in-house anti-corruption policies, such as the Anti-fraud Policy, based on Hong Kong's Prevention of Bribery Ordinance. All employees are strictly prohibited from illegal acts like offering and accepting bribes. Employees and external stakeholders are encouraged to monitor the work relating to the Group's operations, and report to the Group with reference to the in-house Whistleblowing Policy* if there is any breach of regulations or discipline. Pursuant to Towngas Smart Energy's Anti-fraud Policy, training sessions featuring anti-fraud and anti-corruption were provided for all employees of the Group during the year, which helped further enhancing staff members' awareness of honesty and integrity. At the Board level, attendance for the anti-corruption training was 100%.

The Group proactively rolled out anti-corruption training courses for its employees to advocate honesty and integrity to further enhance their standard of business ethics. The Group will continue to perfect its compliance system and control measures, create an culture of honesty and integrity, protect lawful operations and strengthen its compliance management to improve business ethics. In 2022, a video course on the Company's Code of Conduct was produced. It is a mandatory course for all employees, and was promoted through a number of methods such as thematic learning, induction learning for new recruits and corporate culture learning activities.

In terms of anti-monopoly, we have established a sound anti-monopoly compliance mechanism. We kept monitoring and stayed versed in anti-monopoly-related legislation. Compliance training and exchange opportunities were arranged for our business departments to systematically prevent monopoly risks. Through these ongoing efforts, the Group's business model continued to improve incessantly, with an increasingly healthy compliance system. Anti-monopoly awareness among employees also kept raising.

* The Whistleblowing Policy stipulates that all reports (other than those involving directors of Towngas Smart Energy and members of the Executive Committee) from Towngas Smart Energy are collected and handled by the parent company. The policy has been uploaded to the official website, the link of which is as follows: <https://www.towngassmartenergy.com/en/About-Us/Corporate-Governance>

05 Corporate Governance and ESG Governance



Summary of Annual Internal Audit

In 2022, the internal audit department of Towngas Smart Energy carried out a total of 48 audit projects, followed up on the implementation of recommendations in 18 audit reports, assisted project companies to establish and improve 44 sets of rules and regulations, and reported to the audit committees or board of directors of 4 project companies on the audit details for the current year. It also reported to the Group's Audit Committee every six months on the details of the overall audit.



Whistleblowing Mechanism and Whistleblower Protection Policy

Towngas Smart Energy acts in strict compliance with national laws and regulations and the Group's in-house Whistleblowing Policy, aiming at establishing an open and transparent whistleblowing process, implementation and monitoring mechanisms. The Group's employees and stakeholders are encouraged to report any misconduct, fraud and irregularities in the following ways:

In writing	<p>Whistleblowers should lodge the case to the Head of Corporate Audit & Risk Management Department ("CARD") of the HKCG Group** in writing in a sealed envelope clearly marked "To be opened by addressee only", and mailed it to:</p> <p>Hong Kong China 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</p> <p>or</p> <p>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</p>
By email	<p>Whistleblowers can download a template of Whistleblowing Form from the Group's website, fill in the form and submit it to the Head of Corporate Audit & Risk Management of the HKCG Group at the following email address:</p> <p>GangHua.whistleblower@towngas.com</p>

** 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 a complaint involves a director or an Executive Committee member of Towngas Smart Energy, the whistleblower can report in writing directly to the Chairman of the Board's Audit and Risk Committee by post (postal addresses same as the above) or by email (email address: BAC.Chairman.1083@towngas.com).

The Group adheres in strict compliance with the Whistleblowing Policy and regards confidentiality as its top priority by protecting the substance of complaint and identity of whistleblowers so as to safeguard the rights and interests of whistleblowers. Any act or threat of retaliation is strictly prohibited, and if there is any, those concerned will be subject to disciplinary action, and can result in immediate dismissal in severe cases.

5.4.3 Information Security and Data Protection

Data Protection Policy, Oversight Mechanism and Training

Towngas Smart Energy always places great importance on information security and data protection, and complies strictly with various in-house policies such as Privacy Policy on Personal Data and Quick Guide to Employees' Information Security, with a view to protecting customers' personal data to ensure the confidentiality, integrity and availability of the Group's information and technology assets. To further enhance the security level of customers' information, Towngas Smart Energy launched proactively during the year digital and smart transformation with the application of a security solution via hardware based encryption system. This solution offers hardware based data encryption, encryption key management and encryption key issuance, and enjoys the following advantages when compared with software based encryption technology:

- A security chip or a security module is used in hardware based encryption technology as a memory hardware. The Country's homegrown commercial password SM1/2/3/4/9 is used to encrypt important business data, which provides a higher password security level;
- Data transmission complies with Towngas Smart Energy's exclusive standard security communication protocol, which ensures an enhanced security;
- The entire process of encryption key issuance stays within a secured environment and involves absolutely no risk of leakage or loss of encryption keys. Security control is exercised over data in the complete life cycle, ranging from data generation, storage, transmission to issuance to make sure a secured user data information at the source.

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The security solution of the hardware based encryption system meets not only the standard for Grade 3 Certification under the National Information Security Grade-based Protection, but also the needs of the gas meter market by providing customers with upgraded hardware based encryption security that is simple, convenient and cost-effective. The generation of encryption keys indicates that the Group's IoT security platform and hardware based encryption security solution are officially being used across the Group, partners and suppliers. By continuously improving the security of the platform, the Group assures quality and secured services for customers in the big data era.

Moreover, the Group implemented an array of measures during the year to strengthen its confidentiality, including but not limited to enabling a strong password strategy, using virtual private network ("VPN") two-factor authentication and introducing a situational awareness platform, etc. The Group is fully aware of the importance of information security, and provides training to enhance security awareness among employees. In 2022, a network security expert was engaged to organise videoed training related to server room of the Group's headquarters. That involved over 400 employees, enhancing their awareness on cyber security. Moreover, an external law firm was engaged by the Group's Legal Department to carry out topical training in the Personal Information Protection Law focusing on the Group's three core systems (Towngas Management System, TCFS Customer System and VCC System).



5.4.4 Protection of Intellectual Property Rights

Towngas Smart Energy is aware of the importance of the protection of scientific research achievements. By strengthening intellectual property management, and promoting the protection of intellectual property rights, the Group commits to raising employees' awareness of and ability to prevent and control intellectual property risks. The Group ensures that on one hand its own intellectual property rights are protected from infringement, and on the other hand it fully respects the intellectual property rights of others.

The Group follows strictly various in-house rules and regulations, such as the Detailed Rules Governing Intellectual Property Rights and the Procedures for Incentives to Intellectual Property Rights, which lay out regulatory guidelines for the ownership, incentives, management and use of various intellectual property rights as well as the handling of infringements, so as to keep strict controls over the entire process starting from patent mining to submission of applications. While the group regulates its intellectual property management and commits to raising the employees' awareness of intellectual property protection, the Group encourages all employees to be innovative. In the contracts signed with external partners, clear stipulations are present detailing the division of intellectual property rights and confidentiality agreements, such as confidential particulars, involvement of personnel, confidentiality period, and confidentiality accountability. Stringent clauses on the ownership and sharing of technological achievements are also included.

In 2022, the Group submitted five applications for patents, such as the Method for Achieving a Low-carbon Planning Platform and Related Products. Two patents on inventions were granted, including the Method for Dispatch and Control of Heating Systems and Related Facilities. Another four design patents, such as the Zero-carbon Panoramic Graphical User Interface for Display Screen Panels, and 11 software works such as the Carbon Emission Monitoring Software were also granted.



06

Safe Production Ensures Health and Livelihood





06 Safe Production Ensures Health and Livelihood

Production safety affects the safety of people's lives and properties, social stability and economic development. The Group always keeps in mind that production safety is the cornerstone for the survival and development of a company. We therefore strictly control safety risks in business operations and take quality engineering as the Group's first line of defence for safety, in an effort to consolidate the foundation of production safety in an all-round manner. The Group upholds the production safety principles of being people-oriented and implementing safety-first comprehensive governance with a focus on prevention, organically integrates safety culture into its health, safety and environmental ("HSE") management system, and continuously enhances employees' safety awareness and accountability to solidify the Group's safety and ensure sound and stable operations.

6.1 HSE Management System

Towngas Smart Energy strictly complies with the requirements of HSE-related laws and regulations, industry standards and relevant policies such as the Production Safety Law of the People's Republic of China, and constantly improves the Group's HSE management system with reference to the standards and essence of the quality management system (ISO 9001), environmental management system (ISO 14001), occupational health and safety management system (ISO 45001) and energy management system (ISO 50001) for regular reviews, discussions and revisions on HSE management measures so as to ensure the ongoing effectiveness of its HSE management system, which is applicable to all its employees and contractors.

The Group supports and encourages its project companies to apply and receive occupational health management system certifications and obtain certificates for production safety standards. In 2022, 17 project companies in the group obtained the certification of occupational health and safety management system ISO 45001.

HSE Management Policy

The Company always upholds the principle of ensuring the health and safety of employees, stakeholders and the public and strives for safe, low-carbon and environmentally-friendly operations, making every effort to create an ideal living environment for the next generation.

HSE Management Target

The Group's work-related injury rate per thousand employees* in 2022 is under 1.5.

* Work-related injury rate per thousand employees = number of work-related injuries × 1,000 (persons)/total number of employees

HSE Commitment

- Fully comply with relevant laws, regulations and management standards of the regions where the Group operates;
- Continuously improve the occupational health and safety management system with a target for zero accidents;
- Strengthen work-related health and safety measures to reduce potential health and safety hazards in operations and services;
- Conduct necessary health and safety assessments for all large-scale projects and regularly review daily operations;
- Enhance the health and safety awareness of employees, contractors and business partners through education and training;
- Encourage the use of new technologies, techniques, materials and equipment for the purposes of safety, energy conservation and environmental protection;
- Encourage employees to participate in the management of risks and opportunities related to occupational health and safety, so as to comprehensively improve safety management performance.

In 2022, the Group integrated the safety management systems of utility business and renewable energy business. The Group's Safety Management Committee ("SMC") is the highest safety management body of the Group, and is chaired by the Group's Chief Executive Officer and composed of senior executives. Its major responsibilities are to review the overall HSE performance of the Group, formulate HSE policies and put forward improvement proposals for safety strategies. As required by the Group, all business segments, business regions and project companies had their own safety committees under the Group's SMC. In 2022, the SMC held five meetings related to safety and risk management.

The Group strictly implements a production safety accountability system. Persons in charge of safety management at all levels have to sign every year the Work Safety Responsible Letter to ensure that the Group's health and safety goals and accountabilities are thoroughly understood and assigned to all levels so as to achieve the "Three Musts" (safety management is a must for industry management, business management, production and operations management). That ensures safety management and risk prevention are carried out in every nook and cranny. In terms of safety management at junior level, each project company would break the Group's safety KPIs further down and link them with the annual KPIs of functional departments, teams and employees, regularly evaluate production safety performance and implement the one-vote veto system for those responsible for production safety accidents.

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Goal-setting of HSE Management

The Group reviews every year the report on safety and risk management in the annual reports of the Board from all project companies, conduct analysis on the project companies' implementation of safety management measures and performance, and evaluate the types and levels of risks for each project company. Based on the annual safety risk assessment results of all project companies, and considering the HSE performance of previous year, the Group would develop safety management goals for the next year which would be assigned to business segments, business regions and project companies together with the Work Safety Responsible Letter. The Group holds fast to the Plan-Do-Check-Act (PDCA) cycle for safety management to ceaselessly enhance the safety management performance of project companies, so as to improve the safety risk management of the Group as a whole.

The Group aims at achieving zero accidents as its target for health and safety management. Based on the HSE performance of the previous year, we took comprehensive measures to improve the Group's HSE management, maintained an effective and proactive HSE management system, and endeavoured to reduce the safety risks in business operations.

	Target in 2022	Result achieved
The Group's work-related injury rate per thousand employees	1.5	0.28

6.2 Safe Operation

Towngas Smart Energy attaches great importance to safe operation and considers itself accountable for the safety of all employees, contractors, customers, business partners and other stakeholders. Quality engineering and construction is the Group's first line of defence for production safety. For engineering management, the Group puts safety first and strives for integrating safety, quality and cost so as to eliminate safety hazards from the source. The Group has established a series of management measures and work norms related to production safety. On this basis, the relevant functional departments of the Group's utility and renewable energy business segments developed a series of technical operation guidelines with reference to industry standards and specifications to put in place standard safety management measures and operating procedures in the course of daily operations.

Utility Business

For renovation of old gas pipelines, the Group has developed and issued the Guidelines for Annual Inspection of Gas Pipelines and the Guidelines for Assessing the Condition of City Gas Pipelines – Courtyard Pipelines and Risers to guide project companies in evaluating pipelines scientifically and reasonably determining the scope of improvement. In addition, the Group offers technical support to assist project companies in carrying out pipeline inspection to check whether gas pipeline networks are aging, with a view to extending the service life of pipelines. To date, the Group has completed the replacement of all old pipelines and the overall transformation and replacement of grey cast-iron pipes.

For safety assessment and hazard screening of gas stations, the Group strictly implements the requirements of the National Work Plan for Urban Gas Safety Inspection and Rectification, Implementation Plan for Renovation and Replacement of Aging City Gas Pipelines (2022-2025) and other relevant documents, and conducts safety inspections under the “Group coordination + self-inspection” model, mainly covering the following aspects:

1) Carrying out hazard screening for in-service pipelines and stations

In accordance with the national requirements for renovation and replacement of aging gas pipelines, the Group participated in the compilation of two important national standards, namely the Measures for the Management of Integrity of Urban Gas Transmission and Distribution Pipelines and the Inspection and Evaluation of In-service Polyethylene Gas Pipelines, and prepared and issued memorandums, i.e. the Notice and Collection of Feedback on the Latest Requirements of the Ministry of Housing and Urban-Rural Development (MOHURD) and the National Development and Reform Commission of the People’s Republic of China (NDRC) for Replacement of Aging Gas Pipelines and the Notice on Strengthening the Screening of Compliance Hazards in Gas Stations. The Group required project companies to conduct self-monitoring and hazard screening from various aspects such as the serviced life of equipment or facilities, damage or illegal occupation by third parties, safety distance control and special equipment supervision, covering all in-service gas pipelines and stations within the Group. As at 31 December 2022, the Group had completed the screening of all in-service pipelines and stations, with good overall compliance performance and manageable risks of safety hazards.

2) Improving the operational safety assessment of gas stations

In accordance with the national standards and relevant policy requirements and based on the actual operations of the Group’s gas stations and its long-term operating experience, the Group prepared and issued during the year the Guidelines for Safety Assessment of Gas Stations to regulate and guide project companies in establishing a safety assessment system for gas stations and for conducting self-inspection and self-correction. This helps to implement the double-prevention mechanism of hierarchical safety risk management and hazard screening and resolution.

3) Launching the safety inspection plan for the Group’s old stations

On top of completing the screening of compliance risks required by the Country, the Group formally started the operation inspection of old stations (which have been in operation for over 20 years) to validate the results of self-inspection and self-evaluation of project companies, so as to further promote the implementation of the Group’s requirements and ensure the safe operation of gas stations.

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100-Day Campaign for Gas Safety

To ensure the effectiveness of urban gas safety inspection and rectification and to stop the rising trend of gas accidents, the Group launched a 100-Day Campaign for gas safety from July to October in 2022 in accordance with the requirements of the Office of the Work Safety Commission of the State Council.

On 6 July, the Corporate Safety and Environmental Management Department of the Group issued to all project companies a memorandum named Instructions on Carrying Out the 100-Day Campaign for Gas Safety which requires project companies to assume its corporate responsibility by promptly carrying out self-inspection and then self-correction to rectify any problems and hazards found. Through the campaign, project companies strengthened their communication with local government authorities, and effectively promoted the rectification of key issues such as unauthorised blocks built on pipelines, pipelines crossing confined space, cooking appliances without flame-out protection, and absence of combustible gas leakage alarms at catering venues. All business regions and project companies conducted nearly 200 safety inspections under the 100-Day Campaign, and received more than 400 safety inspections from the State Council and provincial inspection team and relevant departments of local governments. We received positive feedback for the entire campaign.



For elimination of potential safety hazards of gas leak, the Group focuses on improving the construction quality of pipeline networks and continuously carrying out comprehensive gas leak detection to reduce the risk of gas leakage and to minimise the occurrence of accidents. For example, the Group applied AI image recognition to carry out AI review of engineering quality, and conducted in-depth research on non-destructive testing of welded joints of polyethylene ("PE") pipes to improve the welding quality of welded joints, so as to ensure the integrity of pipeline networks and reduce methane leakage. It used mobile cameras to monitor third-party damage to gas pipelines, leading to gas leakage. It also developed high-precision rapid leak detection (vehicle-canine partnership) technology for fast and efficient daily leak detection. In addition, it deployed a low-power valve well monitoring system to check the combustible gas concentration in cities' underground gas pipeline wells, valve wells/chambers, city pipe corridors and other confined spaces, thus resolving the issue of lack of monitoring at these underground blind spots.



Vehicle-canine partnership

Data on gas leakage in 2022

In 2022, the Group detected 176 gas leakage incidents which were **100%** resolved. No safety accidents caused by gas leakage occurred.



In terms of digital management for the safe operation of gas pipeline networks, the Group reached a strategic agreement with a number of well-known energy and information technology companies to jointly develop the TOP platform in 2022, in an effort to develop integrated smart solutions for safe operation in the gas industry. The TOP platform is based on technology applications such as the application of GIS, spatiotemporal data management, IoT and visual networking throughout the process of gas operation and maintenance. Taking data resource as an important factor of production, the platform builds up a visualised, digitalised and smart business operating system covering plant network operation, facility management, risk management and gas source management to promote proactive prevention and establish an asset integrity management system, thus ensuring safe and sound operation of the gas system. System development of the platform had been completed and trial was expected to be carried out in January 2023. After the system is put into use, the Group will connect the TOP platform with its existing information management system (Towngas Management System, TMS) and Towngas Customer Information System (TCIS) and Virtual Customer Centre (VCC), a lifestyle service platform to form an integrated management system, in a drive to enable the Group's operations to be more information-based, digital and smarter.

Renewable Energy Business

In the process of project construction for the renewable energy business, the Group has utilised new technologies such as IoT and big data to establish a smart PV cloud platform which integrated smart energy efficiency measurement, cameras and other smart tools into the system via 5G IoT to achieve integrated perception and monitoring of safety information on personnel, facilities and the environment in PV plants. Based on the data collected by sensing devices, the platform applies AI trend analysis and image and video analysis to examine and identify anomalies of personnel, facilities and the environment. This helps to improve the ability to prevent risks related to these areas in PV plants.

In terms of improving the management of construction technology and safety, the Group has developed sound operating procedures for distributed photovoltaic construction as well as prepared and issued a number of operation and installation guidelines to ensure the quality and safety of project construction. Trainings for construction-related management personnel by means such as regular meetings were organised to further enhance their professional standard.

Management of Major Incidents

The Group's HSE management system documents have included incident management procedures and incident reporting system, clearly defining the Group's classification of incidents, reporting, emergency response, investigation, analysis and handling, etc. Project companies should report to their superiors according to the level of incidents stipulated in the Group's regulations. Major safety accidents must be reported directly to the Chief Operating Officer while the Corporate Safety and Environmental Management Department of the Group would be responsible for arranging and coordinating incident investigation and analysis, safety issue rectification and inspection of the implementation of preventive measures.

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6.2.1 Dedicated Issue of the Oil and Gas Industry – Asset Integrity Management

To meet the growing energy demand, the Chinese mainland's oil and gas pipeline network is expanding, which leads to higher requirements for the safe and sound operation of the oil and gas pipeline network. In recent years, the frequent occurrence of oil and gas pipeline accidents has aroused great public concern about pipeline safety, which coupled with the promulgation and enforcement of the new Production Safety Law of the People's Republic of China and the new Environmental Protection Law of the People's Republic of China, put unprecedented pressure on oil and gas pipeline companies in respect of safety and environmental protection. In order to ensure the safe and stable supply of energy and improve the safety of oil and gas pipelines, effectively securing the operational safety of pipeline networks and fully capitalising the value of pipeline assets have become major issues that oil and gas pipeline companies must address. In the oil and gas industry, the key purpose of asset management is to ensure the integrity of assets and boost economic benefits while improving the safety and reliability of assets in their life cycle, so as to achieve corporate sustainability.

Leveraging years of experience in the construction, operation and maintenance of pipeline projects, the Engineering Department of the Group for gas business has developed management measures appropriate for all aspects of project management, and ultimately formed a professional and efficient system for engineering construction, operation and maintenance management, so as to achieve the management goals in respect of the safety, efficiency and costs of gas business assets in their life cycle.

Safety is always the Group's top priority in project management. We put emphasis on the effective management of assets in their life cycle with a focus on quality, safety and cost-effectiveness. To ensure project safety while ensuring cost-effectiveness, we use a variety of technical means to safeguard quality and safety in every step of project management such as planning, design and construction. The Group's asset integrity management is mainly reflected in the following aspects:

- Scientific planning for project construction: based on the current market dynamics and business needs and taking into account local development planning, energy structure changes and other conditions as well as the Group's operating conditions and development goals, we scientifically develop targeted project construction plans to boost the efficiency in using project capital on the basis of ensuring the quality and safety of project construction.
- Standardised system to ensure engineering quality: the Group has formulated and issued over the years 90 engineering technology guidelines and 40 engineering management guidelines, covering specifications and guidelines for all kinds of projects. The extensive promotion and application of the Group's engineering standardised systems can help ensure and improve the quality of the Group's projects.



Winning the Standard Technology Innovation Award from the China Association for Engineering Construction Standardisation

In August 2022, the national standard Liquefied Natural Gas (LNG) Gasification Supply Installations in Towns (GB/T 38530-2020), which was prepared by a number of bodies including the Group, received the Standard Technology Innovation Award from the China Association for Engineering Construction Standardisation.



- Dynamic management of contractors and partners: the Group consistently implements project management measures, such as the Guidelines for Project Bidding and Tendering, Management Measures for the Selection of Construction Partners, Measures for Evaluation of Project Construction, and Measures for Joint Inspection and Acceptance of Projects and Risks Involving Major Works, to strengthen the dynamic management of quality and safety of construction by contractors from various aspects including bidding and tendering, partner selection, construction evaluation, completion and inspection for acceptance.
- Information technology to boost management efficiency: the Group's engineering and construction projects are managed via TMS which includes project cost modules and engineering mobile applications such as the application of robots to enhance project settlement and the application of AI image recognition to conduct AI review of engineering quality, covering the every aspects of project cost, progress and quality management, ensuring the efficient implementation of the Group's engineering technical standards and management requirements. In addition, the Group's existing TMS-SOM has enabled the management of physical information as well as the operation, inspection and maintenance information on assets and facilities, and established a database for the life cycle management of projects. On this basis, the TOP platform developed in 2022 would build an integrated, visualised, digitalised and smart operation and maintenance system for the Group. Based on data applications, the Group uses a big data analysis platform for project construction to strengthen the assessment of project quality and enable the traceability of the project process, thus boosting the efficiency of project management.
- Innovative approaches to ensure a safe operation: the Group keeps innovating management approaches for the operation and maintenance of pipeline networks with a target to reducing the risk of gas pipeline leakage, such as adopting joint maintenance to boost the maintenance efficiency of the Group's stations, and developing and applying high-precision rapid leakage detection (vehicle-canine partnership) to enhance the efficiency of monitoring the Group's leakage points.

6.2.2 Safety and Risk Review Mechanism

The Group continuously improves its safety and risk review mechanism and formulates and implements planned safety reviews, with full coverage of the Group's project companies in two and a half years. Furthermore, project companies are subject to random checks in the form of unplanned safety inspection. Thanks to the arrangement combining both planned safety audits and unplanned safety inspections, the daily safety risk management of project companies has kept on improving. The safety and risk audit results of a project company are based on two factors: on-site audit results and the achievement of its safety management goals. The former one mainly covers its safety and risk management including the planned safety audits, unplanned safety inspections, rectification of potential hazards and follow-up. The latter factor includes targets for safety incidents and KPIs for safety performance (including work-related injury indicators).

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The safety and risk review results of each project company are included in its annual report to the Board and linked to the performance of the management of that project company. For project companies with excellent results, the Group offered them bonuses to enhance their motivation to strive for continuous improvement. In addition, the Corporate Safety and Environmental Management Department of the Group would consolidate and summarise the safety and risk review results of project companies, report to the Group's SMC any major hazards identified in the process, and supervise and follow up the rectification implemented by project companies to ensure effectiveness of the efforts.



Items for Safety and Risk Reviews

The Group's safety and risk reviews involve nearly 800 inspection items, areas of which include occupational health and safety, fire safety, pipeline network security, customer safety, plant/energy station safety, engineering safety, emergency response, security management, traffic safety and environmental protection.



At the level of the Board of the Group, the Group's SMC conducts on-site safety inspections on key project companies every year. At the level of project companies, the Group requires each project company to strictly implement the mechanism of monthly safety inspections by the general manager, in which the general manager of the project company is tasked as the first person in charge of production safety and is required to inspect in person the company's safety risk management at least twice a month, so as to discharge the duties regarding production safety management. In 2022, the Safety and Environmental Management Department of the Group conducted a total of 69 safety audits and inspections (planned and unplanned).



6.3 Occupational Health and Safety Management

Occupational Health and Safety Management of Employees and Contractors

The Group has in place an effective safety risk prevention and control system. Each year, all project companies and related contractors have to identify and assess safety risks involved in their activities, facilities, product design, work processes and workplaces in accordance with the Group's regulations. For the management of major risks, the Group strictly implements a double-prevention mechanism, i.e. having dedicated personnel to conduct regular screening of dedicated hazards, carrying out hazard management in a hierarchical manner.

The Group's safety enhancement costs include the costs of safety technical measures, emergency rescues, safety education and training, labour protection and health care, accidents, insurance and others expenses directly related to production safety. This year's safety enhancement costs totalled 338 million.

For contractors' occupational health and safety management, the Group requires all contractors to comply with the Group's HSE policy, undertake the HSE responsibilities specified by the Group, implement the safety goals set by the Group including the work-related injury rate and the number of work days lost due to work-related injuries, and purchase production safety liability insurance for their employees.

In 2022, there were three employees injured at work, and one work-related fatality from a contractor*.

Data on the Performance of Occupational Health and Safety Management for Employees and Contractors**

Indicator	2022
Employee	
Rate of severe work-related injuries ***	0
Number of recordable work-related injuries ****	3
Rate of recordable work-related injuries per 1,000 employees ****	0.28
Rate of recordable work-related injuries per 1,000,000 hours worked ****	0.11
Lost days due to work injury	147 days
Number of patients suffering from occupational disease	0
Contractor	
Number of recordable work-related injuries	1
Lost days due to work injury	0
Number of patients suffering from occupational disease	0

The number and rate of work-related fatalities in the past three years:

Year	Number of work-related fatalities	Rate of work-related fatalities*****
2022	0	0
2021	0	0
2020	0	0

* The fatal accident in 2022 involved a contractor's employee who was injured as a result of not fully complying with safety practices during construction, and he passed away due to a later infection of his wound.

** During the year, we used the control approach to determine our institutional scope. Specifically, we incorporated in the calculation 100% of the data of project companies owned 50% or more by us, while that of the project companies owned less than 50% by us were not included.

*** Severe work-related injuries refer to injuries (excluding deaths) occurring at work that make it impossible or difficult for workers to recover to their pre-injury health status within six months.

Rate of severe work-related injuries (excluding deaths) = Number of severe work-related injuries × 1,000,000/total working hours during the year.

**** Recordable work-related injuries refer to work-related injuries that result in a worker's death or resignation, work limitation or job transfer, medical treatment beyond first aid, loss of consciousness, or other significant injuries diagnosed by a doctor or other licensed healthcare professional.

Rate of recordable work-related injuries per 1,000,000 hours worked = Number of recordable work-related injuries × 1,000,000/total working hours during the year.

Rate of recordable work-related injuries per 1,000 employees = Number of recordable work-related injuries × 1,000/total number of employees.

***** Rate of work-related fatalities = number of work-related fatalities/total number of employees.

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Safety Education and Training

Education always comes first for safety management. In 2022, we adopted the theme of Multi-dimensional Control and Flawless Perfection for safety education and leveraged online and offline channels to promote a wealth of safety knowledge among the employees to strengthen their awareness of production safety. To facilitate the real-time learning of employees all over the Country and enhance their learning results, we communicated management requirements and operating specifications related to occupational health and safety to employees through the Group's WeChat Official Account, Towngas Mobile Academy, video workshops and other HSE learning and communication platforms of the Group. Regarding safety trainings for contractors, the Group requires all project companies to arrange prior to the commencement of the project regular construction site meetings for safety learning, safety training, special occupational training and high-risk operation guidance and training, so as to enhance the safety awareness of employees and contractors with a target of avoiding accidents.

We attach great importance to building a team of professional technical personnel such as certified safety engineers. In order to build a top-notch and quality team in the gas industry, the Group established Towngas Shandong Training Institute to train professional technicians. Front-line employees, engineering technicians and other professional and technical personnel must receive professional training at Towngas Shandong Training Institute and pass the examination before taking up their posts. We strictly follow the requirements of national laws and regulations, and 100% of our gas professional and technical personnel are certified prior to reporting at their respective positions.

Indicator	Total ¹
Safety training hours	333,540 hours



Practical Training for Confined Space Operations

The Group puts strong emphasis on the safety management of confined space operations, and has developed and issued relevant work guidelines and safety inspection requirements. We share with employees and project companies safety tips for confined space operations and regularly carry out special inspections in confined spaces to enhance the safety awareness of operators and improve the Group's related safety management.

In 2022, HKCG, the Group's parent company, and Towngas Shandong Training Institute jointly set up a special research group to develop a systematic training and performance evaluation scheme for confined space operations. Combining theoretical teaching and practical training to increase the operators' professional knowledge on confined space operations, the scheme helps operators improve on-site skills by immersing them in practical drills.



¹ During the year, we used the control approach to determine our institutional scope for calculating emissions. Specifically, we incorporated 100% of the emissions of project companies owned 50% or more by us while those of project companies owned less than 50% by us were not included.



Safety Knowledge Competition on Multi-dimensional Control and Flawless Perfection

In November 2022, Towngas Smart Energy and its parent company's Corporate Safety and Environmental Management Department jointly held a safety knowledge competition with the theme Multi-dimensional Control and Flawless Perfection, to better ensure safe operation and management in the North China region in winter and spring, strengthen the awareness of production safety, and safeguard the bottom-line of safety.

This safety knowledge competition in North China not only reviewed the proficiency of employees in theoretical knowledge on safety, but also improved their practical safety-related response skills in daily production and operations, stimulating the enthusiasm and initiative of all employees in North China for safety work, promoting a good culture from "I'm required to stay safe" to "I want to be safe, I will be safe, I can be safe". This event also formally kicked start the task of ensuring a stable gas supply for North China in winter 2022.



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COVID-19 Prevention and Control

With the relaxation of COVID-19 restrictions across the Country, epidemic prevention and control measures such as venue code, verification of nucleic acid test results and itinerary code were gradually lifted. As such, the Group promptly issued the Work Plan for the Prevention and Control of COVID-19 for Towngas Group's Utilities Business on the Chinese mainland (Second Edition) to guide business regions and project companies to update their emergency plans for COVID-19 in a timely manner. In addition, we abridged the authoritative views and scientific information related to COVID-19 prevention, updated and issued the Handbook for Personal COVID-19 Prevention, urged employees to strengthen personal protection and reminded them to be the first person in charge of their own health.



6.4 Customer and Community Safety Management

As a responsible public utility company, Towngas Smart Energy undertakes the responsibility of ensuring gas safety of customers and the communities. To strengthen project companies' management of customer gas safety and further implement customer gas safety inspections, the Group's Customer Service Department would take the lessons learned from gas accidents happened on the Chinese mainland and send timely notices to all regional and project companies in different seasons, reminding them on customer safety measures. Furthermore, we would issue technical guidelines in due course to guide project companies carrying out rectification actions.



Virtual reality (VR) simulation of gas use scenarios

In terms of on-site safety inspection, the Group emphasises on conducting regular on-site safety inspections and explicitly requires project companies to conduct on-site safety inspection for customers at least once every two years to strictly follow the national requirements. At the inspection, gas appliances and pipeline facilities should be fully examined to eliminate any potential hazards, in a bid to continuously enhance the safety of gas facilities in customers' homes.



Safety culture corridor

In this year's National Work Safety Month, the Group held a series of activities under the theme of Eliminating Hazards for Safety, including hazard screening involving all employees, emergency drills and safety skills competition, to enhance employees' safety awareness and skills. To advocate safe production as the responsibility of all staff members and promote the building of a proactive safety management culture with the theme of "I want to be safe, I will be safe, I can be safe", the Group held a hazard screening photo contest and a HSE essay contest, attracting the participation of 81 project companies.

The Group also promotes gas safety knowledge through its official website, WeChat Official Account, community publicity activities, etc. The Group has held series of safety knowledge publicity activities on the theme of “Gas Safety for Everyone” annually from 2019 onwards. Each year, the Group would pick a different topic and encourage employees and project companies to propose creative schemes for promoting gas safety knowledge to the community. Outstanding schemes would be publicised within the Group. In this way, the Group continues to step up the project companies’ publicity efforts of gas safety knowledge, which in turn raises customers’ awareness of gas safety and helps them develop the habit of safe gas use, thus preventing the occurrence of gas accidents.

This year, the Group hosted the Country-wide Competition for Creative Publicity of Gas Safety Knowledge. Creative proposals were assessed comprehensively from the aspects of, among others, content, form and effectiveness. Eventually 14 project companies were selected for awards. The project company winning the gold award adopted both online and offline channels to deliver a rich content through a smart, novel and attractive presentation. The two silver awards were able to maximise their publicity impact by fully utilising their corporate resources, and innovatively tailored publicity materials specifically for the local needs.



Successful Completion of the Research on the Production of Gas Safety Education Video to Contribute to the Safe Development of the Gas Industry on the Chinese mainland

In April 2022, the Group was invited to assist the Urban Construction Department of China’s Ministry of Housing and Urban-Rural Development (“UCD-MOHURD”) in producing a gas safety education video. The project aims at promoting the knowledge of gas safety to the cadres in the Party and Government all over the Country, through the newly produced gas safety education video, to urge all regulatory agencies to take up the accountability for gas production safety, with a view to preventing gas accidents and ensuring the safety of people’s lives and properties.

The Group’s project outcome carries a distinctive theme and is rich in content and highly targeted, fulfilling the research objectives. While the project was concluded in November, the Group would keep enhancing the video to ensure that the final output would impress the audience with the importance of gas safety, improving the regulators’ capabilities and jointly promoting the safe development of the Country’s gas industry.



07

Addressing Climate Change to Jointly Create a Green Future





07 Addressing Climate Change to Jointly Create a Green Future

Towngas Smart Energy faces up to the profound impacts of climate change on human society and follows the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) to incorporate climate change into its strategic planning and management practices. By identifying and evaluating the climate-related risks and opportunities facing the Group, we promptly sort out potential risks and take countermeasures, and seize the opportunities of low-carbon development and transformation while achieving the Group's green development as well as sustainable and stable operation.



7.1 Climate Change Governance

Starting with governance, strategies, risk management, and metrics and targets, the Group has comprehensively improved its ability to address climate risks by establishing a climate change governance system, identifying climate change risks and opportunities, and developing dedicated response measures, etc.

The Group established a climate change governance system covering from the Board to the operational level and integrated the response to climate change into its business development and operation strategies to ensure an effective implementation of climate strategies and climate risk management measures. The ESG Committee of the Board is responsible for supervising the Group's efforts related to climate change, of which instructions would be carried out by the ESG Working Group under it. This would enable major risks reviewed and countermeasures taken, thus promoting the Group's sustainable development. The actions taken include:

Identify climate change risks and opportunities, assess the relevance of risks, and set goals.

Study the impacts of potential extreme weather and natural disasters on the safety of gas transmission, distribution, storage and pipeline networks, and develop targeted countermeasures in a timely manner.

Supervise the daily communication between the management and the operating departments, and dynamically identify ESG risks including climate change risks that may have potential impact on the Group's business and operations.

7.2 Climate Change Strategies

It is the mission of Towngas Smart Energy to provide clean and reliable energy. We vigorously develop business related to renewable energy based on our existing resources to promote the Group's low-carbon transformation towards smart energy, so as to enhance the Group's climate resilience in all respects.

In 2022, based on the TCFD recommendations, we worked together with our parent company, HKCG, to prepare the *Climate-related and Nature-related Directive Guide*, formulating applicable transition and physical risk scenarios by reference to publicly available climate scenarios proposed by international institutions. We conducted in-depth analysis on the major risks and opportunities facing our business under various scenarios and developed more prudent strategies for future business development.

In terms of transition risk scenarios, we kept abreast of the latest trends. We reviewed the scenarios and descriptions of the four scenarios identified in 2020, taking into consideration the Net Zero Emissions by 2050 Scenario, incorporating the changes in the international energy market and the latest national policy requirements and with making reference to the World Energy Outlook 2021 of the International Energy Agency (IEA). We developed four transition risk scenarios during the year.



07 Addressing Climate Change to Jointly Create a Green Future

Transition Risk Scenarios

Scenarios	IEA scenarios referenced	Scenario descriptions
Current Policies	Current Policies Scenario (CPS)	The global energy structure remains unchanged, and governments across the world no longer promote the implementation of climate change policies or relevant commitments, resulting in rising energy-related emissions and growing pressure on energy security.
Stated Policies	Stated Policies Scenario (STEPS)	Governments are committed to implementing existing climate change policies and reaching established goals. Under this scenario, due to the use of renewable energy and the boost in energy efficiency, the growth of global carbon emissions will slow down.
Below 2°C	Sustainable Development Scenario (SDS)	Based on the Paris Agreement, governments across the world finally achieve the goal of limiting global temperature rise to less than 2°C by developing new technologies, boosting energy efficiency and formulating policies.
Net Zero by 2050	Net Zero Emissions by 2050 Scenario (NZE)	Based on existing commitments and goals, governments across the world further tighten energy-related policies to achieve a reduction of approximately 40% in carbon emissions from global energy activities and industrial production between 2020 and 2030 and reach net-zero emissions by 2050, while limiting global temperature rises to 1.5°C.

In terms of physical risk scenarios, we applied three Representative Concentration Pathways (RCP 2.6, RCP 4.5 and RCP 8.5) proposed by the Intergovernmental Panel on Climate Change (IPCC) to simulate different global temperature rise scenarios from 1.5°C to a sharp rise of 4°C, so as to fully identify the physical risks (including acute and chronic risks) that have a significant impacts on the Group's business and assets and thereby develop more effective countermeasures.

7.3 Climate-related Risk Management

7.3.1 Addressing Transition Risks and Opportunities

Based on the assumptions under the four transition risk scenarios, we have fully identified the potential transition risks and opportunities facing our core business. With these identification results, we communicated with various business departments and internal stakeholders, considered the probability of events and their positive or negative impacts in the short, medium and long term, and evaluated and ranked the risks. We eventually developed risk mitigation plans and response strategies taking into consideration our deep insights into national policy changes, industry technology development, reputation impacts, changes in market preferences and other potential factors.

Transition risks/ opportunities	Time horizon	Descriptions	Countermeasures
Policy and legal	Short to medium term	<ul style="list-style-type: none"> The licensing or regulation of products and services gets increasingly strict, making it difficult to obtain licences for businesses with a negative impact on the environment 	<ul style="list-style-type: none"> Follow government policies to develop low-carbon products and services Adopt low-carbon energy and improve energy efficiency to reduce direct greenhouse gas emissions
Technology	Medium to long term	<ul style="list-style-type: none"> Unsuccessful investment of the transition to low-emission technologies or new technologies, incurring additional costs New low-carbon technologies are widely applied, leading to market restructuring 	<ul style="list-style-type: none"> Reduce emissions during operations Support research and development by using patented technologies
Market	Medium to long term	<ul style="list-style-type: none"> Changes in fossil fuel prices Changes in consumer behaviour 	<ul style="list-style-type: none"> Develop new businesses and shift to be a multi-energy supplier
Reputation	Long term	<ul style="list-style-type: none"> Investors may give up investing in fossil fuels and turn to invest in low-carbon businesses 	<ul style="list-style-type: none"> Establish open and transparent communication and disclosure channels and increase available capital

In order to enhance the Group's business resilience, we will pay close attention to international dynamics and domestic policy changes, create synergies, enable a timely understanding of the concerns of external stakeholders and fully communicate with them, enhance the public's awareness of climate change, facilitate low-carbon actions, and promote the development of green and low-carbon lifestyles.

07 Addressing Climate Change to Jointly Create a Green Future

7.3.2 Addressing Physical Risks

The Group made full use of the results of identification of major climate risks in the scenario analysis process to conduct physical risk assessment for major assets vulnerable to extreme climate disasters, covering acute risks caused by acute climate events such as typhoons, rainstorms and floods, as well as chronic risks caused by chronic climate events such as extreme high temperature. We assessed the potential impacts of risks based on the occurring probability and degree of impact of risk events, and formulated targeted countermeasures.

Physical risks	Time horizon	Descriptions	Countermeasures
Acute risks	Medium term	<ul style="list-style-type: none"> • Rainstorms • Increase in the frequency and intensity of river floodings • Increase in the frequency and intensity of typhoons 	<ul style="list-style-type: none"> • Improve the ability of infrastructure to withstand with climate change risks • Strengthen crisis management plans
Chronic risks	Long term	<ul style="list-style-type: none"> • Temperature rise and extremely high temperature 	<ul style="list-style-type: none"> • Develop new businesses and shift to be a multi-energy supplier

We attach great importance to our management team’s knowledge of ESG and climate change, and equip them to be well prepared for addressing potential climate risks by offering them training and organising publicity activities. In the future, the Group will continue to update and enhance the Group’s climate resilience strategies and make timely improvements for key potential risks based on risk assessment results. Meanwhile, we will keep a close watch on the prediction of future climate risks by domestic and foreign institutions, and update and enhance strategies and countermeasures related to climate change in a timely manner.



7.4 Carbon Emission Reduction Targets and Practices

7.4.1 Carbon Emission Reduction Targets and Actual Emissions

To fully support the Chinese mainland's goals of achieving carbon peak and carbon neutrality, the Group vigorously promotes the setting of carbon emission reduction targets to gradually reduce greenhouse gas emissions. To date, the Group has set a short-term target to reduce greenhouse gas emissions from operations (Scopes 1 and 2) by 10% by 2025 or earlier, with 2020 as the benchmark year. In the future, we will continue to explore the development of longer-term carbon emission reduction targets and formulate a carbon neutrality roadmap to accelerate green and low-carbon transformation.

Greenhouse Gas Emissions in 2022 *

	Greenhouse gas emissions (Scope 1)	Greenhouse gas emissions (Scope 2)	Greenhouse gas emissions (Scopes 1 and 2)	Greenhouse gas emission intensity	
	tonnes CO ₂ e	tonnes CO ₂ e	tonnes CO ₂ e	tonnes CO ₂ e per HK\$100 million	tonnes CO ₂ e per company
Gas business	13,245.1	30,190.2	43,435.3		
Distributed energy system ("DES")	38,719.9	1,100.9	39,820.8	414.8	935.5
Total greenhouse gas emissions	51,965.0	31,291.1	83,256.1		

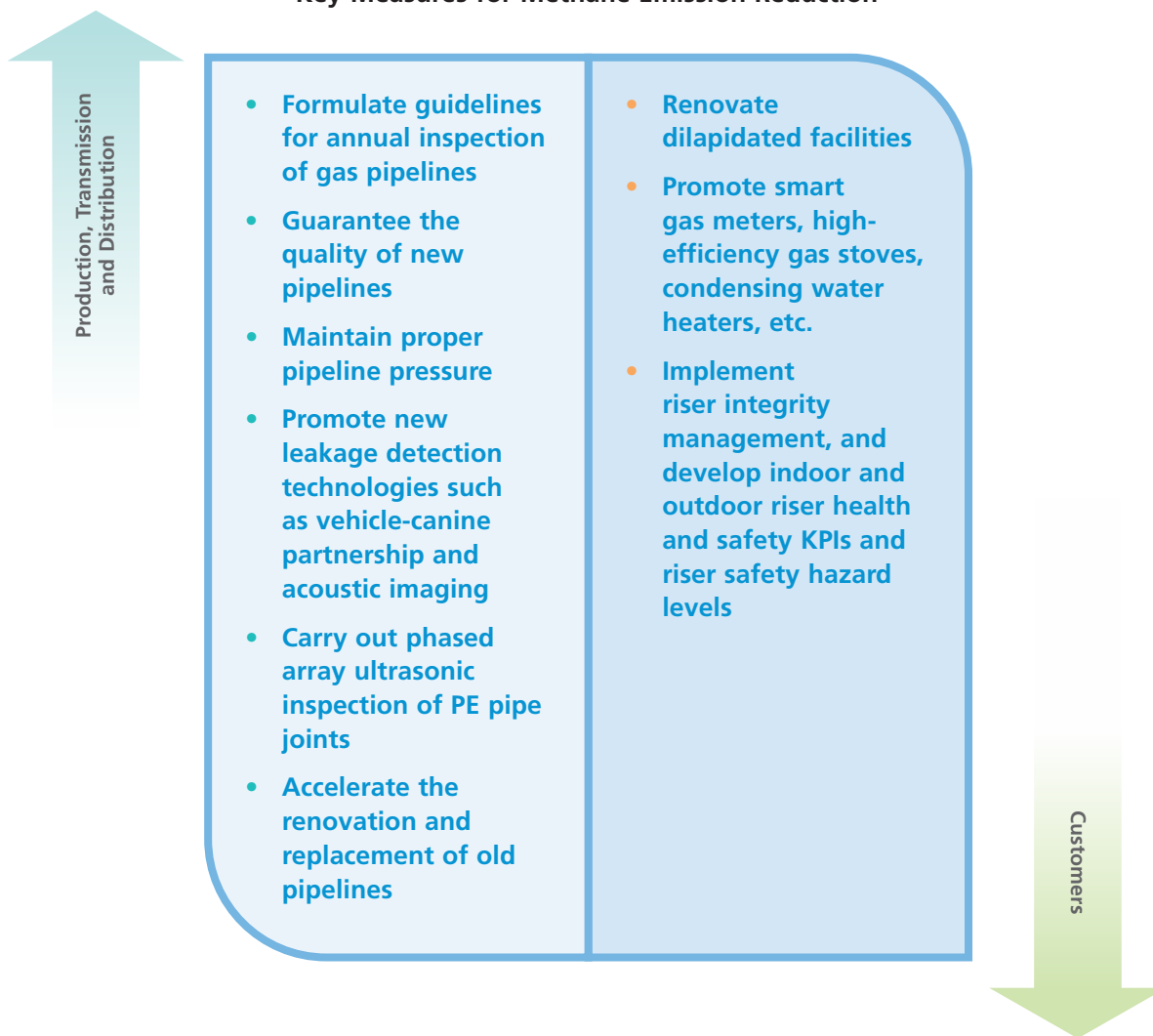
* During the year, we used the control approach to determine our institutional scope for calculating emissions. Specifically, we incorporated in the calculation 100% of the emissions of project companies owned 50% or more by us, while that of the project companies owned less than 50% by us were not included.

07 Addressing Climate Change to Jointly Create a Green Future

7.4.2 Greenhouse Gas Emission Reduction Practices

With the promotion of the Chinese mainland's strategy of achieving the goals of carbon peak and carbon neutrality, the use of natural gas which enjoys the overall advantage as a clean, low-carbon and high-efficiency energy source has become an important measure for carbon emission reduction in the Country's energy system. Leveraging on its existing gas business, Towngas Smart Energy promoted methane emission reduction, established internal management and technical guidelines while improving the management of production, transmission and distribution and customer management, strengthened engineering design and construction, as well as solidified the foundation for emission reduction. At the same time, we increased investment to fully capture the development opportunities in the natural gas industry, and ensured the stable supply of natural gas by investing in long-distance pipelines, gas storage, LNG terminals and other related facilities so as to help enhance its energy structure and facilitate low-carbon transition.

Key Measures for Methane Emission Reduction





Commencement of Roof Air Raising of 2# Storage Tank in Tangshan LNG Project

On 9 October 2022, the kick-off ceremony for roof air raising of 2# storage tank in Tangshan LNG Project Phase II funded by Towngas Smart Energy was successfully held, signifying a breakthrough in the construction of the project while laying a solid foundation for the orderly advancement of future work and the scheduled commissioning of the project.

Tangshan LNG Project is a key national natural gas infrastructure interconnection project located in the Logistics Zone of Caofeidian Port, Tangshan City, Hebei Province. It includes the phased construction of 20 LNG storage tanks of 200,000 m³ in size each and two unloading berths. Towngas Smart Energy invests in the construction of 2# and 6# storage tanks in Phase II of the project, which are expected to be completed and put into use by the end of 2023. Through the commissioning of the project, the Group will further help enhance the energy structure in the Beijing-Tianjin-Hebei region and ensure a stable energy supply of the region, thus contributing to preserving the blue sky while achieving the goals of carbon peak and carbon neutrality.



We also vigorously promoted the application of various types of clean energy such as solar energy, in addition to natural gas, to increase the percentage of clean energy used and facilitate emission reduction in the value chain while ensuring that customers' energy needs are fully met. In 2022, Towngas Smart Energy continued to install PV panels for customers which would provide green power to customers accounting for 12% to 34% of their total power consumption. It is expected that the annual power generation at full capacity will reach 1.4 billion kWh, saving approximately 1.06 million tonnes of carbon emissions a year.

In addition, the Group applied innovative technologies to develop integrated energy services. We provided customers with integrated energy solutions that meet their needs to improve energy management efficiency and achieve low-carbon development. In response to the quality development needs of hotel chains and hotel management companies, we focused on the main business scenarios of hotels and constantly proposed and introduced innovative solutions and operation and management technologies to help customers in the hotel industry solve management problems and embark on a more eco-friendly development path.

07 Addressing Climate Change to Jointly Create a Green Future



Exploring Green Transformation of the Hotel Industry

On 22 November 2022, the Green Transformation of Hotels – Conference of Introducing the Group's Integrated Solutions for Hotels organised by Towngas Smart Energy was held via online live broadcast. Industry leaders such as China Hospitality Association, Huazhu Hotels Group Ltd and the Group's energy experts gathered online to share cutting-edge viewpoints, explore industry trends, and present energy and carbon-related achievements.

In order to help hotels cut costs, enhance efficiency, save energy and reduce carbon emissions, Towngas Smart Energy leveraged its years of experience in gas and other energy operations, technological innovation capabilities and sound ecosystem and launched the "Smart Energy Conservation and Emission Reduction Solutions for the Hotel Industry". The Solutions are able to meet the multi-scenario needs of hotels through efficient energy supply and smart housekeeping services, covering green energy supply, smart energy conservation, smart washing, energy and carbon management, etc.

Targetting at the issues of cost reduction challenge, heavy maintenance and slow response in the hot water and heating scenarios of hotels, the Group provides a variety of optional services such as investment, construction, operation and maintenance, billing based on hot water flow/energy used and turnkey projects. These services involve the application of multi-energy coupling technology and a smart operation and maintenance platform with a view to providing customers with a stable, hassle-free and energy-efficient hot water supply and heating services, with an energy conservation rate of over 10%. Targetting at the management issues such as redundant design, extensive energy use, low efficiency, and lack of smart technology in the heating and cooling scenarios of hotels, the Group provides a smart energy conservation scheme featuring IoT control of the central air-conditioning system. Under the model of "Zero Investment from Hotels and Bilateral Sharing of Energy Conservation Benefit", the scheme helps hotels achieve energy conservation and cost reduction while eliminating the need for on-duty personnel, facilitating a smart operation. It has become a popular choice of many hotel owners, as its average energy conservation rate of central air conditioning is above 15%. To address the issues of heavy investment, poor services and difficult supervision in the linen washing scenarios of hotels, Towngas Smart Energy established a professional laundry business brand, C-Tech Laundry. By building low-carbon central laundry plants across the Country, it helps hotels save significant investment in building laundries, and enables hotels and the laundry industry to save water and gas and cut carbon emissions by more than half. With new technology applications, it provides different types of hotels with bed linens laundry, smart rental washing, clean washing and tailored washing services, which can help save significantly the hotel's time of linen counting and reduce the loss rate of linen. In terms of energy and carbon management, Towngas Smart Energy leverages its practical experience in improving ESG performance as a listed company to provide hotels with all-scenario one-stop energy and carbon management services based on the Towngas Smart Energy Ecological Platform, covering aspects such as energy usage diagnosis, energy conservation and efficiency improvement, low-carbon energy supply, carbon management, carbon neutrality planning, etc.

In the future, the Group will continue to leverage its advantages and work with partners to facilitate the green development of the hotel industry.



7.4.3 List of External Industry Associations or Initiatives in which the Group Participates

China Oil and Gas Methane Alliance

As one of the members, Towngas Smart Energy will strengthen cooperation with the whole industry and actively promote methane control actions along the whole industry chain. We strive to reduce the average methane intensity in natural gas production to below 0.25% by 2025, which is close to the performance of the leading players in the world, and work to reach world-class level by 2035, with an aim to influence Chinese oil and gas enterprises in global climate governance.

Climate Governance Initiatives

Towngas Smart Energy joined the Climate Governance Initiatives (CGI) in Hong Kong as one of the eight founding partners. Dr Loh Kung Wai Christine, the Independent Non-Executive Director of Towngas Smart Energy, was appointed to the Advisory Council and Mr Isaac Yeung Chung Kwan, Senior Vice President of Towngas Smart Energy, was appointed to the Steering Committee. The Hong Kong Institute of Directors launched CGI Hong Kong, aiming to mobilise directors to address climate change in their businesses.

TCFD Supporter

Commit to working toward its own implementation of TCFD recommendations to disclose and manage climate risks and opportunities.

08

Promoting Green Operation for Environmental Protection





08 Promoting Green Operation for Environmental Protection

Green development is the necessary pathway for a company to achieve sustainable development. This is the philosophy which Towngas Smart Energy upholds to fully implement the Country's and local governments' ecological and environmental policies. We have in place a sound internal environmental management system to comprehensively improve green management, integrating the green concept into the process of project construction, production and operation while constantly strengthens the management of emissions and resources. We implement also the concepts of a green production, circular economy and ecological protection through measures such as enhancing energy use, improving production skills and processes, energy-efficient transformation of facilities and waste recycling, thus aligning economic and environmental benefits.



8.1 Environmental Management

8.1.1 Environmental Management Policies and Goals

Towngas Smart Energy strictly abides by relevant laws and regulations on environmental management and protection, and strives to minimise environmental pollution and resource waste while providing customers with quality gas and services, endeavouring to create an ideal living environment for the next generation.

In addition, the Group set the following environmental management goals based on its production and operation characteristics:

Continuously improve environmental performance and boost the efficiency of resource and energy use;

Encourage the application of new technologies, processes, materials and facilities for the purposes of safety, energy conservation and environmental protection;

Improve the environmental awareness of employees and external stakeholders through education and training.

Towngas Smart Energy complies with the Environmental Protection Law of the People's Republic of China and other laws and regulations related to environmental protection. We formulated a series of measures such as the Environmental Management Guidelines and Employees' Handbook for Environmental Protection to ensure that the Group and project companies strictly abide by the Group's requirements in the course of production and operation and carry out environmental protection work in an orderly manner so as to achieve the Group's environmental goals. As at 31 December 2022, 16 companies under the umbrella of Towngas Smart Energy had passed the ISO 14001 environmental management system certification.

8.1.2 Environmental Risk Management

Towngas Smart Energy has a strict control and management over environmental risks that may arise in projects, and implements an early warning and monitoring system from project construction to production and operation through enhanced environmental monitoring and a comprehensive set of environmental management procedures for construction projects. We at the same time strengthened our risk response and management measures by building targeted risk mitigating facilities in project sites to cope with potential environmental incidents. In 2022, there were no major incidents as litigation or punishment against the Group due to environmental violations.



Heightened Environmental Monitoring

We have a well-established internal environmental monitoring and management system to regulate in detail the monitoring, discharge and disposal of sewage, pollutants and noise in each project. Moreover, we regularly evaluate every project to constantly improve production processes for meeting the environmental standards during operations.



Environmental Management of Projects

Project planning stage

Conduct environmental impact assessment in accordance with the Law on Environmental Impact Assessment, Regulations on Environmental Management of Construction Projects, Administrative Measures for Supervising the Preparation of Environmental Impact Report (Form) for Construction Projects, etc.

Project construction stage

Adopt green construction by requiring all project companies and contractors to strictly monitor the use of water, electricity and the noise level, attach importance to the recycling of construction by-products (such as solid waste and construction waste), make the best efforts in resource conservation and reduce construction activities that would negatively impact the environment.

Project operation stage

Carry out garbage classification, and hand over non-hazardous waste generated in operations to qualified agencies for recycling; strengthen production management, improve production processes and increase the repairable rate to reduce the generation of hazardous waste from the source; dispose hazardous waste in strict accordance with relevant national regulations to ensure compliance.



Environmental Emergency Management

We have a sound environmental risk prevention and control system, and constantly improve the various risk response and management measures. To address environmental risks involved in production and pollution generating processes, we conducted risk analysis and evaluation of unexpected environmental pollution incidents, and built dedicated environmental response facilities accordingly which were registered with local environmental authorities.

08 Promoting Green Operation for Environmental Protection

8.2 Emissions Management

Emissions Data for 2022

Exhaust emissions		Sulphur dioxide emissions	Nitrogen oxide emissions	Respirable suspended particulates (PM10) emissions
		kg	kg	kg
		854.8	50,621.2	1,227.6
Hazardous waste	Hazardous waste (solid)	Hazardous waste intensity (solid)	Hazardous waste (liquid)	Hazardous waste intensity (liquid)
	tonnes	tonnes/company	litres	litres/company
	17.7	0.20	7,510.0	84.4
Non-hazardous waste	Non-hazardous waste (solid)	Non-hazardous waste intensity (solid)	Non-hazardous waste (liquid)	Non-hazardous waste intensity (liquid)
	tonnes	tonnes/company	litres	litres/company
	80,400.9	903.4	477.6	5.4

8.2.1 Exhaust Management

To avoid environmental pollution caused by exhaust generated in business operations, we strictly implement the national requirements for ecological and environmental protection to reduce exhaust emissions by reinforcing exhaust management, advocating the elimination of old facilities among project companies, improving processes and workflows, replacing coal-fired boilers with gas boilers, and applying energy conservation technologies such as waste heat recovery. We also treat the exhaust generated in business operations to ensure that the gas discharged meets environmental standards.

8.2.2 Waste Management

In an effort to strengthen waste management, the Group encourages all project companies to hand over hazardous waste to qualified waste disposal agencies for treatment, and to recycle and dispose non-hazardous waste through a comprehensive recycling arrangement so as to turn hazardous waste into non-hazardous waste or reusable resources while minimising the quantity of waste. That would help to put recycling into practise and at the same time reduce environmental pollution.

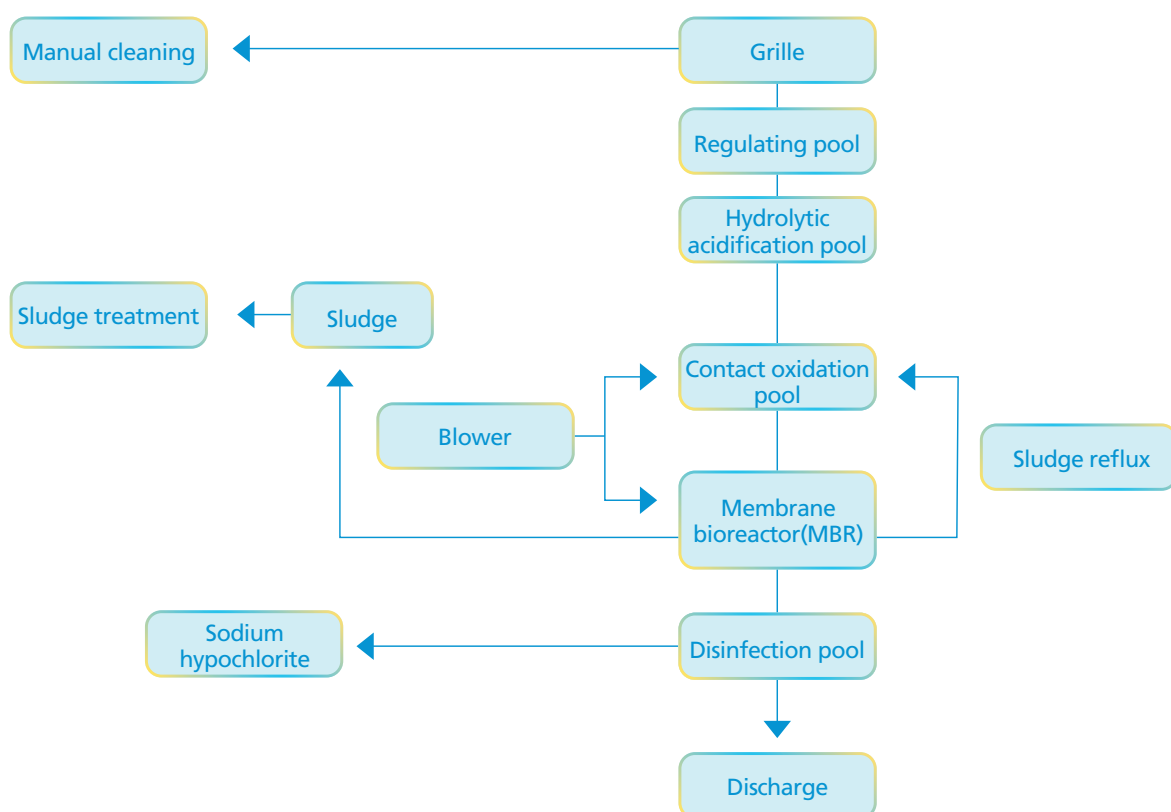
8.2.3 Wastewater Management

The Group also attaches importance to wastewater management. We require all project companies to strictly comply with the provisions of the Group’s Management Guidelines for Environmental Protection to treat production and domestic wastewater separately to ensure the compliance of wastewater discharge. In addition, to address the risk of unexpected discharge of wastewater caused by emergencies, we have built mitigating facilities such as liquid collecting pools and fire-fighting pools in strict accordance with relevant national standards to effectively prevent leaked substances and fire-fighting water from spreading to the external environment and causing serious environmental impact.

Some of the wastewater discharged by the Group comes from its laundry business, C-Tech Laundry, which mainly includes production wastewater generated in the washing and rinsing procedures in the laundry process of the washing machines and large scale laundry facilities, the manual washing process of heavily dirty linen, and the steam generation process in boiler heating, as well as domestic wastewater generated in the course of operations. We also recycle the wastewater that can be reused, and treat the wastewater that cannot be recycled for up-to-standard discharge.

In strict accordance with the national standard GB8978-1996, C-Tech Laundry has built wastewater treatment facilities in the five plants in operation and prepared the Operating Procedures for Wastewater Treatment. With the management by dedicated personnel, this could ensure that the discharged wastewater meets all stipulating requirements. In 2022, on the wastewater discharge front, the five plants operated by C-Tech Laundry reduced the chemical oxygen demand of the wastewater to under 100 mg/L before discharge, which met the national first-class standard.

Wastewater Treatment Flow Diagram of C-Tech Laundry



08 Promoting Green Operation for Environmental Protection

8.3 Resource Management

According to the requirements of the Management Guidelines for Environmental Protection and the Employee Handbook for Environmental Protection, the Group further implements resource management, including measuring and performing statistical analysis of resources and energy, conducting regular energy audits, formulating energy conservation indicators and conducting energy conservation inspections. The Group has also established energy conservation requirements for production, construction and transportation to integrate the concept of energy conservation and emission reduction into all aspects of production and operations and actively applies low-carbon technologies and processes to boost the efficiency of resource use.

8.3.1 Use of Resources

Resource Consumption Data for 2022

Diesel	Natural gas	LPG	Coal	Others	Direct consumption of resources (from fuel combustion)
MWh	MWh	MWh	MWh	MWh	MWh
2,476.7	226,213.9	11.8	0	17,029.9	245,732.3

Electricity purchased	Total energy consumption	Energy consumption intensity	Total water consumption	Water consumption intensity
MWh	MWh	MWh/company	m ³	m ³ /company
44,213.6	289,945.9	3,257.8	495,797.7	5,570.8

8.3.2 Energy Use

The Group embraces the state's call for energy conservation and emission reduction by exploring energy conservation and emission reduction technologies to boost energy efficiency. We eliminate outdated facilities and processes, introduce and apply energy-efficient and eco-friendly technologies, and closely monitor and regularly review our energy consumption in every aspect through establishing a scientific management system with statistical records on every resource used. In addition, the Group fully leverages its business advantages and utilises its renewable energy technology capabilities to reduce its purchased amount of electricity, further promoting its green transformation.



Application of Automatic PV Cleaning Robots

During the operation, various kinds of dirt often accumulate on the surface of PV panels, resulting in a loss of 5-20% in power generation efficiency. Service life of PV modules would also be shortened by approximately 10%. Manual cleaning, however, has a number of disadvantages, such as high cost, low efficiency and high water consumption. In order to boost energy and cleaning efficiency, we started in 2022 to use PV cleaning robots. This approach significantly improves cleaning efficiency (by 3-5 times of manual cleaning efficiency) while reducing cleaning cost (30-50% less than manual cleaning cost), enhancing the efficient use of water resources. In the meantime, by we have carried out robot application experiments for new coatings, and plan to expand application scenarios in 2023 to increase the penetration of robot cleaning with a view to creating a new resource-saving mode of PV operation.



Since its establishment, C-Tech Laundry has attached great importance to energy management in day-to-day operations. It has developed and implemented a series of energy management measures such as the Management Measures for Facilities' Operation and Operating Standards for Powered Facilities, and set targets for each plant regarding its electricity and gas consumption per unit of linen. Covering design, production and distribution processes, we apply technical approaches such as equipment transformation and process enhancement as well as management approaches including performance assessment and production plan enhancement to reduce energy consumption. In 2022, the energy consumption of C-Tech Laundry was lower than the industry average.

08 Promoting Green Operation for Environmental Protection

8.3.3 Water Resources Management

Based on the various business characteristics of the Group, we carry out targetted measures to reduce water consumption, such as water recycling, grey water treatment as well as water-saving transformation and development of water-efficient technology. We also conduct regular inspection and maintenance of water supply facilities and water use equipment during production and operation to eliminate water leakage, thus ensuring the effective use of water resources.

C-Tech Laundry, which uses water from municipal pipe networks, is the major contributor of water consumption in the Group. Based on its business conditions and water consumption track record, C-Tech Laundry set in 2022 water consumption targets for each of its plants and carried out regular statistical analysis of water consumption to ensure effective water resources management. It adopted a series of measures, including water recycling and reuse, application of water-efficient facilities and improvement of production processes, to effectively reduce water consumption in the course of operations, thus achieving its water consumption targets. In 2022, the water consumption of C-Tech Laundry was lower than the industry average.

8.4 Publicity and Education to Enhance Environmental Awareness

While advancing its own environmental efforts, Towngas Smart Energy also lays emphasis on promoting a culture of environmental protection. It proactively organises publicity and education activities to enhance environmental awareness and to advocate environmental concepts. In 2022, the Group promulgated environmental concepts under the theme of green development through various channels. Other activities, including game quizzes with prizes, green promotional video production competition, selection of showcases on environmental protection and creative eco-friendly design competition, were also organised to spread the concept of smart, innovative, green, low-carbon and eco-friendly development.





Environmental Charitable Activities

In 2022, Towngas Smart Energy made arrangements for employees to take part in environmental charitable activities such as the Environmental Day (June 5th) and the Blue Carbon Protection action to publicise environmental concepts through actions, enhancing the community's environmental awareness.

Environmental Day (June 5th): By making an appeal on the World Environment Day, it aimed at publicising environmental concepts, promoting the public shift to a greener living and a change in consumption habits, and encouraging all community groups in society to adopt a green lifestyle.

Blue Carbon Protection action: All employees were called on to put into practice the blue carbon concept with actions. They took part in activities such as removing invasive plant species in mangrove wetlands to help mangroves grow healthily to recover their blue carbon capabilities including typhoon resistance, water purification and climate change mitigation.



08 Promoting Green Operation for Environmental Protection



Low-carbon Initiative to Embrace Green Journey towards Dual Carbon Goals

In March 2022, Towngas Smart Energy organised its annual low-carbon initiative to embrace green journey towards dual carbon goals. More than 90 companies participated in the campaign, and in total planted over 3,600 trees, saved over 9,300 kWh of electricity, travelled 3,200 km on foot and cycled nearly 5,300 km. Designed with five themes, i.e. Walking and Riding, Carpooling, Scientific Car Maintenance, Towngas Green Planting Day and Earth Hour, the campaign encouraged participants to adopt green, low-carbon and healthy lifestyles, gradually nurturing green habits and ultimately integrating sustainability into daily life.





Inclusive Carbon Scheme and Platform for Towngas Employees – Towngas Tan Hui Platform

In April 2022, Towngas Smart Energy set up the Inclusive Carbon Working Committee to prepare and implement the Inclusive Carbon Scheme for its employees in order to further guide and motivate employees in adopting low-carbon concepts and behaviour. The internal activity will display employees' environmental acts (carbon footprint) in life and at work on the Group's extended business platform, Towngas Lifestyle, with commendation and rewards.

Towngas Tan Hui Platform, an inclusive carbon platform developed by Towngas Smart Energy, was launched on 1 January 2023 for all full-time employees of the Group's utilities business on the Chinese mainland. It covers two major scenario, including: low-carbon life and green office. Employees can get green energy points ("Green Points") through online meetings, walking, no leftovers campaign, purchase of green products, gas bill payment and electronic invoicing. The Green Points accumulated can be used not only to exchange coupons from the Group's "Moment+" mall, but also to obtain green certificates, tree claims and join in the ranking Competition of Green Points.



09

Adhering to the People-oriented Principle and Promoting Talent Cultivation





09 Adhering to the People-oriented Principle and Promoting Talent Cultivation

Strengthening human resource capacity building is the foundation for enhancing productivity and creativity of enterprises. Adhering to the people-oriented principle, Towngas Smart Energy is committed to building a diverse talent team that is highly professional and innovative. We continuously improve our human resource management system, extensively recruit outstanding talents, improve our multi-level talent cultivation system and create a diversified workplace of equal opportunities culture, with the view of building a career development platform for employees to grow with unleashed potential and achieve their personal values.



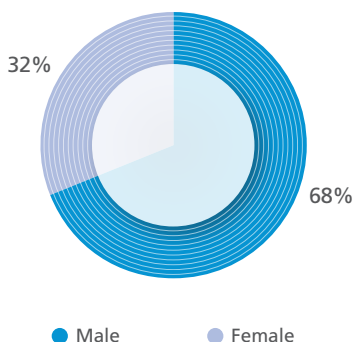
9.1 Recruitment and Employment

The Group strictly complies with employment-related laws and regulations such as the Labour Law of the People's Republic of China, and develops the Towngas Smart Energy Employee Handbook, which clearly stipulates important matters such as employees' recruitment and employment, salary and benefits, training and development as well as code of conduct, so as to comprehensively strengthen employee management. In addition, we continuously promote digitisation in human resource management and enhance data management mechanisms. In 2022, a total of five project companies under the Group adopted an improved electronic management system, greatly improving the efficiency of employee management. In the future, we will continue to expand the application of the system.

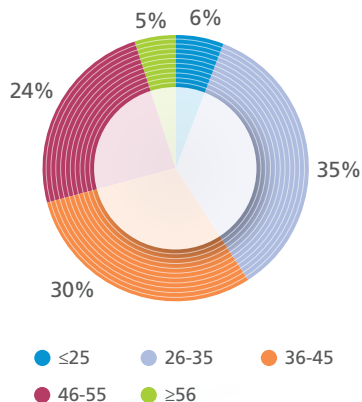
We carried out recruitment exercise in an orderly manner based on the actual needs of business development and make job offers in accordance with laws and regulations. We actively expanded recruitment channels to bring in high-calibre talents through campus recruitment, cooperation with third-party recruitment platforms and head-hunting agencies, as well as internal recommendation. To support the continuous expansion of the renewable energy business in particular, the Group made greater efforts for campus recruitment exercises by holding offline job fairs in a number of colleges. The Group also fully utilised the functions of the campus recruitment official account and the online recruitment system for its employer brand promotion. These also facilitated resume delivery, thereby enhancing both corporate recruitment efficiency and student application experience.

During the year, the total number of employees continued on the rise compared with that of the previous year. As at the end of 2022, the Group had a total of 23,663 full-time employees. The coverage of labour contract reached 100%.

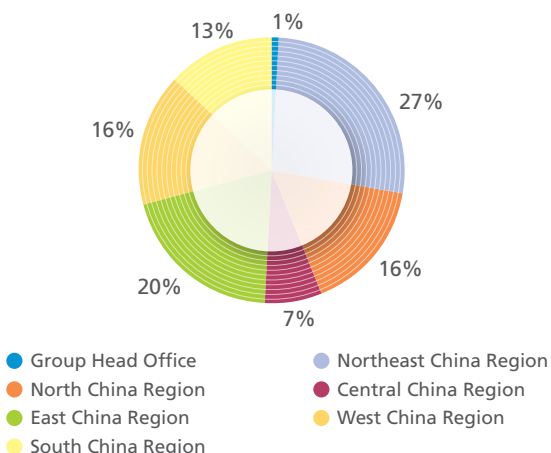
Staff Ratio by Gender



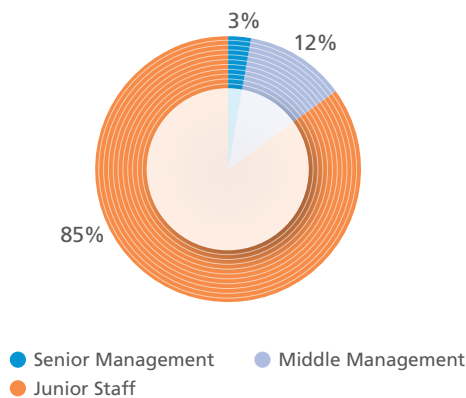
Staff Ratio by Age Group



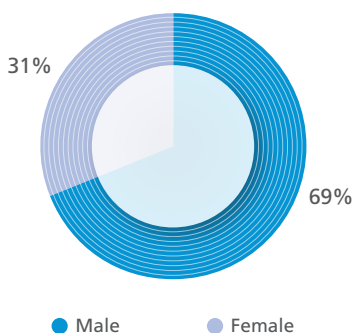
Staff Ratio by Region*



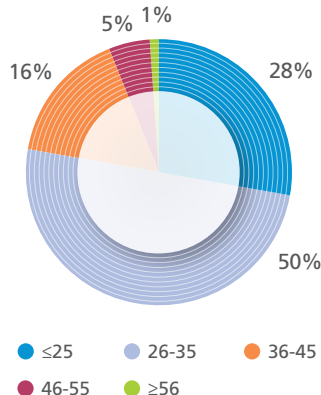
Staff Ratio by Employee Category



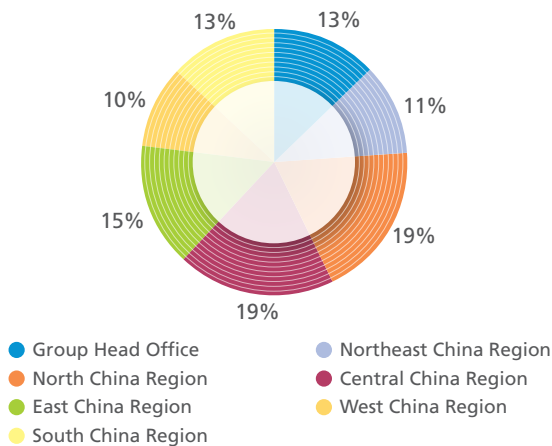
New Staff Ratio by Gender



New Staff Ratio by Age Group



New Staff Ratio by Region



* Since 1 February 2023, the Group has adjusted the regional division of its utility business segment on the Chinese mainland. The new regions are: East China, West China, Central China, North China, Northeast China and South China.

09 Adhering to the People-oriented Principle and Promoting Talent Cultivation

9.1.1 Preventing Child Labour and Forced Labour

The Group complies with the requirements of the Law on the Protection of Minors of the People's Republic of China and the Provisions on the Prohibition of Using Child Labour, and prohibits child labour and forced labour. We strengthened information review at employee recruitment and employment, requiring applicants to fill in the Job Application Form in accordance with the regulations and ensure that all personal information they provide is true and valid. Relevant departments strictly review and verify the documents and personal information submitted by the candidates, and offer a job only when the information is confirmed to be accurate. In case of violation such as the use of fraudulent identity or provision of false information, the concerned will be dealt with sternly in accordance with the regulations of the Group with rectification made as soon as possible. In addition, we implement standard working hours in accordance with the law. Except for those who are qualified for irregular working hours or comprehensive working hours, standard working hours are applied to all employees. The departments will reasonably arrange work tasks according to needs and strictly control employees' monthly hours of overtime work to ensure that working hours do not exceed the upper limit stipulated by law.

During the year, no incidents of child labour or forced labour took place in the Group.

9.1.2 Diversity and Anti-discrimination

As a responsible corporate citizen, the Group references to the Universal Declaration of Human Rights, International Human Rights Conventions and other initiatives of international human rights organisations, and upholds the principle of equal opportunities in employment. We fully respect the differences between employees; eliminates any discrimination and prejudice due to age, gender, nationality, race, religious belief, health status, etc., and prohibits all forms of harassment. A standard complaint handling process of related incidents is also in place. All these are targeted at creating an equal and safe working environment. We are committed to building a diverse talent team. To this end, we continuously broaden the channels of recruitment, formulate plans for building a diversified talent pool, provide equal development opportunities and a broad development space for all employees in order to help them grow rapidly and achieve their personal value. During the year, no incidents of discrimination or harassment took place in the Group.



9.2 Human Capital Development

Talents are the key force in achieving the sustainable development of enterprises. The Group pays close attention to the enhancement of employees' work efficiency and expertise, and constantly improves its performance appraisal and salary distribution mechanisms to keep up the employees' motivation and enthusiasm. We also keep improving our talent training system, and expand online and offline training channels to provide employees with a broad platform for career development.

9.2.1 Employee Performance and Salary Management

The Group regards performance enhancement and salary management as important ways to effectively motivate employees. In terms of performance management, we formulated and issued the Towngas Smart Energy Operation Guidelines on Corporate Performance Management, and established performance management standards and standardised processes. Managers are required to provide more guidance to employees on improving their performance competence, so that a closed-loop management system consisting of performance target setting, performance monitoring and guidance, performance assessment and appraisal, and performance result application can be formed, effectively achieving corporate strategic objectives.

During the year, all business segments of the Group enhanced their prevailing performance appraisal systems from different dimensions according to their needs. Among them, the utility business segment focused on production safety and incorporated relevant indicators into the performance appraisal criteria for key positions. The renewable energy business segment innovatively reformed the evaluation model by introducing the Objectives and Key Results (OKR) method, aligning employees' personal objectives with corporate strategic objectives. Besides, an all-round 360-degree evaluation was applied to certain promotion paths, through which performance was evaluated comprehensively from all perspectives. This was to help employees understand their strengths and weaknesses and enable tailor-made development plans in the right direction. As at the end of 2022, all employees of the Group were subject to regular reviews on performance and career development.

In terms of salary management, we followed the principles of performance-based remuneration and equal pay for equal work. We improved our salary distribution mechanism according to the requirements of Towngas Smart Energy Employee Handbook, Measures for the Administration of Salary and Welfare for Expatriates and other systems. The objective was to ensure that the salary matches the rank and is not affected by gender, age, nationality, disability and region, etc. At the end of each year, we carry out a salary review and determine an employee's salary for the next year according to his/ her performance, the Group's operating efficiency and market conditions, aiming at evaluating employees' commitment and duly compensate them in a scientific, reasonable, comprehensive and accurate manner.

9.2.2 Employee Development and Training

To support the development and rapid growth of employees, the Group has set up dual career pathways, and built a talent career development and training system to improve the professional skills and calibre of employees. Multiple career development platforms are provided for employees at junior, middle and senior levels, including vertical promotion, horizontal development and job rotation of core positions, completely unleash the potential of employees and facilitate their long-term development. We also continuously promote the Talent Ladder Scheme to drive business development.



09 Adhering to the People-oriented Principle and Promoting Talent Cultivation



Talent Ladder Scheme

As the core for training the Group's management talents, the Talent Ladder Scheme consists of five levels, i.e. entry team, management trainees, manager training scheme, director training scheme and senior management training course, providing a rapid development path for management talents from bottom to top. We enlarge our talent pool via external recruitment and internal selection, and develop tailored training plans to meet the ability improvement needs of talents at their different development stages. Arrangements like job rotation and position mentoring are also provided to strengthen employees' professional skills, thus facilitating their growth.

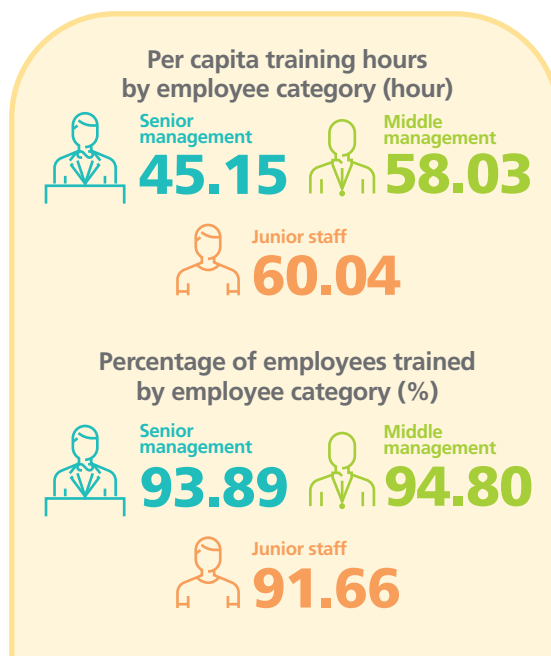
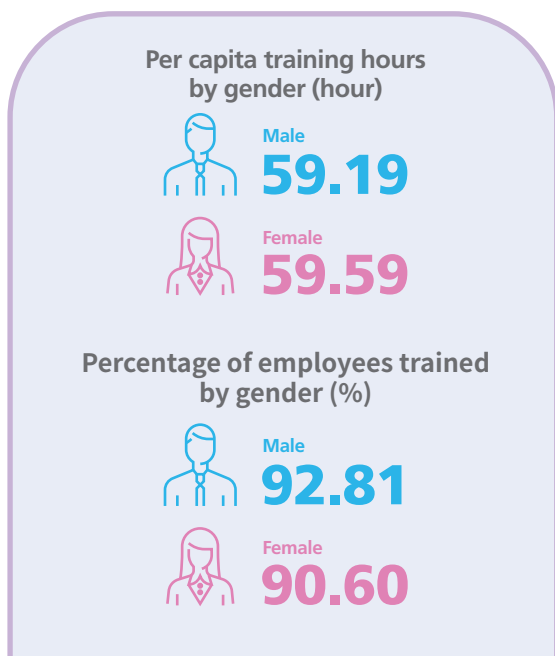


Spark Talent-specific Career Path Mechanism

In order to promote talent development and stimulate team vitality, a Spark Talent-specific Career Path Mechanism was launched by the renewable energy business segment in 2022. Targeting at employees with high potential who graduated for less than five years, the mechanism provided them with a career ladder moving upward from assistant to officer, then to manager, and finally to director. Diverse incentive measures such as job development, promotion, salary and welfare, and echelon project awards were also available to open up the internal career paths and provide a broad leeway for young talents' development. In December 2022, the mechanism was officially put into effect and a total of 16 employees were recommended by their departments to take part in the selection. Final decisions were made from an integrated performance assessment including panel discussion, all-round 360-degree assessment and annual performance appraisal.



We have in place a mature talent training system, providing an array of internal and external curriculum resources in the format of training projects both online and offline. Content of the training projects covers corporate culture, professional technology, business management and personal improvement which can fully meet the needs of employees in career development and personal growth. Meanwhile, all business segments of the Group continue to enhance the format of training by promoting the construction of online learning platforms, so as to improve the accessibility and convenience of training. During the year, five learning modules related to gas business were designed and built via the Towngas Mobile Academy platform, namely general knowledge, professional skills, business knowledge, leadership training and cultural activities, for employees to choose and learn at their own preferences, which provided tremendous stimulation for learning among employees. In 2022, there were 12,650 persons studied online and received 134,415 training hours in total. In addition, the Human Resources Department can also design learning schemes according to the talent development needs of specific posts or levels, and combine courses freely to improve the professionalism of relevant employees in a targeted manner. Focusing on the digital transformation, the renewable energy business training officially launched the Merit School learning platform on 9 January 2023, which features the integration of external curriculum resources, management of internal knowledge base, career development path design, visual-based learning data, management of the talent pool and other functions. This enhances the employee's learning experience, and provides comprehensive support to employees for accumulating professional knowledge and improving business capabilities.



Fresh Graduate Training Programme – Spark Scheme

In 2022, the Spark Scheme Phase III fresh graduate training programme was launched by the renewable energy business, with 22 participants taking part in a total of 572 training hours. Training and activities of the programme include face-to-face training, self-study of online courses, tutors’ guidance, monthly On-The-Job Training, reading clubs, sharing sessions and topic researches. The programme’s objective is to facilitate fresh graduates to quickly change their mentality and adapt to their new role, assist them in getting acquainted with the Group’s business and help them fit in well with the team and fulfil their tasks.



09 Adhering to the People-oriented Principle and Promoting Talent Cultivation



Towngas Shandong Training Institute – Training for Industry Professionals



Since the promulgation of the 100-day Action Plan for Province-wide Inspection and Rectification of Urban Gas Safety Hazards in Shandong Province, replacement of the polyethylene (PE) pipes in many cities were confirmed, which led to a sudden upsurge in the demand for workers with specialty in gas installation and maintenance. In this context, Towngas Shandong Training Institute organised a training scheme in a timely manner and invested sufficient teaching resources to ensure that persons-in-charge, safe production managers and

front-line workers were able to meet the basic requirement of holding a certificate. The project adopted both means of online and offline trainings, effectively improving the professionalism of practitioners in the gas industry, and provided a large talent pool for the province-wide rectification projects.



9.3 Protection of Employees' Rights and Interests

The Group cares about the development needs of employees and puts emphasis on protecting the employees' rights and interests. By establishing effective and diverse communication and complaint channels as well as conducting employee satisfaction surveys, we proactively listen to employees and improve our human resources management measures.

9.3.1 Employee Communication Channels

We respect employees' freedom of association and welcome all employees to join the group activities organised by the Group. We have developed and refined the internal communication mechanism of employees, and made smooth the internal communication channels. In this way, we can learn employees' suggestions and demands in a timely manner and help solve the problems they may encounter at work and in life.



The Group's internal communication channels include the following:



In addition, employees are encouraged to report any cases of harassment, discrimination and other violations as well as any dissatisfaction at work through the complaint channel. According to the requirements of employee communication management, we have established standardised complaint processes and relevant management should treat the cases in a serious manner and provide a definite reply. Employees can complain to their superiors or the Human Resources Department, or to the senior management via the Human Resources Department until a satisfactory result is obtained.

9.3.2 Employee Satisfaction Survey

To enable a better understanding of the Group's current operation and management, business segments of the Group conducted employee satisfaction surveys to collect opinions and demands from the perspectives of working atmosphere, internal fairness, rewards, equality and respect, and cultural identity, to enhance employees' sense of identity and belonging. At the same time, we evaluated the effectiveness of the Group's human resources management based on the survey results, identified potential issues and took improvement measures. In 2022, the Group's overall survey participation rate and employee satisfaction rate maintained a relatively high level, with the participation rate from renewable energy business reaching 91.37%. After an in-depth analysis, we further clarified the standards for promotion, rewards and punishment, improved the welfare system, and strengthened communication by organising regular internal and inter-departmental communication to meet the mental needs of employees, and in turn improved employees' overall satisfaction.

09 Adhering to the People-oriented Principle and Promoting Talent Cultivation

9.4 Employee Care

In addition to paying five social insurances and the housing provident fund as well as providing statutory and annual leaves for all employees in accordance with the law, the Group provides a variety of commercial insurances, paid leaves and other welfare benefits. We care about employees' physical and mental health, and hence have provided health checkups, established the Towngas Smart Energy Mental Health Hotline, and hosted a variety of festival celebrations and team building activities. It is our target to help relieve their pressure from work and life, and to improve their sense of happiness in multiple ways.

9.4.1 Employee Welfare and Benefits



Social Security

Pensions, medical, unemployment, maternity and 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, gynaecological diseases, maternity insurance



Leave and Holidays

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



Other Benefits

Subsidies for mobile phone plan expenses, festive benefits, recreational activities, annual health checkup, annual trip travel



Scholarship Scheme for Employees' Children

The Group has been organising the Towngas Smart Energy Scholarship Scheme for Employees' Children since 2013 to alleviate employees' economic pressure caused by their children's education while promoting employees to care for their families and the next generation. In 2022, the Scheme received eight applications. After a comprehensive evaluation, three applicants were awarded a scholarship of up to \$10,000.



9.4.2 Employee Care and Activities



Towngas Smart Energy Mental Health Hotline

A healthy body cannot do without a healthy mind. Knowing that fast-paced life is apt to cause anxiety, the Group launched in 2014 a mental health consulting platform, the Towngas Smart Energy Mental Health Hotline, to help employees lighten their mood, relieve their stress, and prevent and deal with various mental health problems. Over the past eight years, the Hotline has walked through the COVID-19 epidemic and home isolation together with the employees. According to statistics, employee concerns during the epidemic mainly focused on self-growth and family relations, accounting for about 74% of the total cases. In order to effectively handle their cases, we guide employees with patience over the Hotline to lighten their mood and face the challenges at work and in life with an optimistic attitude. Furthermore, we share with employees heart-warming tips from time to time, based on social topics of concern and our understanding of the mental status of employees, to help safeguard their mental health well-being.



Health Checks for Employees



Taking care of our body starts with a health checkup. To call on employees to strengthen health management on their own initiative, the Group arranges annual health checks for employees for preventing diseases in a scientific way. Employees can make appointments for health checks at any of the 159 chain health checks centres and public hospitals in 23 cities across the Country through

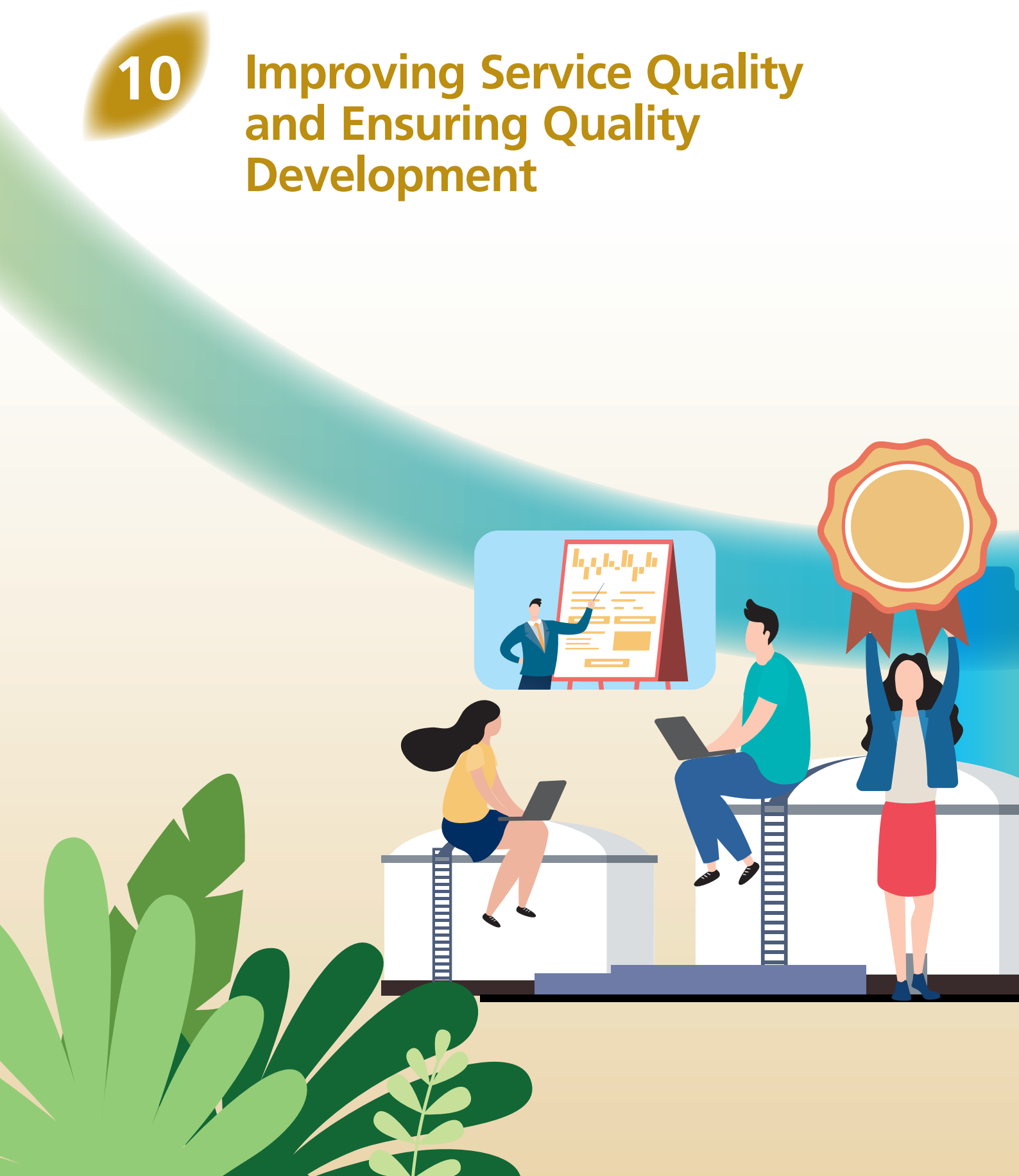
our partner, the 160 Health Checks service platform. During the year, we upgraded the health checks package for employees aged over 40, and raised the fee allowance accordingly. At the same time, more attention was paid to the health management of senior management, for whom a variety of choices for physical check-ups were provided with a target of providing a more comprehensive health checks package.

The annual health checks for employees in 2022 ran from June to November. The participation rate of employees reached 90% in five months.



10

Improving Service Quality and Ensuring Quality Development





10 Improving Service Quality and Ensuring Quality Development

Towngas Smart Energy's vision is to be a leading clean and smart energy supplier, with a view to creating a sustainable world driven by green energy. We are committed to generating robust operating results in return for the trust of investors. Through strengthening our communication and cooperation with suppliers, customers, business partners and other stakeholders in our daily operation, and leveraging the technologies and resources of our business segments, we strive to constantly improve the quality of products and services as well as customer experience.



10.1 Supply Chain Management

Towngas Smart Energy regulates its own conduct and operation by following relevant laws and regulations such as the Bidding Law of the People's Republic of China, and formulates and strictly implements systems such as the Manual on Procurement Management. Corresponding standards and management methods are in place to strengthen the compliance management of suppliers and procurement processes. At the same time, we have established and regularly reviewed our comprehensive management system covering the whole process from supplier development, access and review. We required our suppliers to strictly conform to the Basic Requirements for Towngas Group Suppliers, and developed anti-corruption and monitoring mechanisms to jointly build a transparent supply chain. In addition, the Group values training for and communication with suppliers, which can help suppliers better understand the needs of the Group and boost the sustainable development of the supply chain. As at 31 December 2022, we had 121 major suppliers, of which 117 were from the Chinese mainland and 4 from overseas.

10.1.1 Supplier Management

Suppliers are required to comply with Towngas Smart Energy's unified standards as well as the requirements on quality, environment, health and safety while abiding by business ethics and undertaking social responsibility. For approval and acceptance of new suppliers, we have strict management requirements and will conduct evaluation on quality, corporate social responsibility, 6S, management system certification and other aspects. To manage qualified suppliers, we conduct on-site inspections, quality control, random product checking and performance review. Suppliers are also required to carry out online self-assessment every year, based on which results they will formulate an improvement plan. The Group will evaluate the effectiveness of the improvement measures. For those who are assessed as unqualified, their qualification as our supplier will be suspended. For major non-conformities identified in the inspections, measures will be taken to control quality-related risks, such as suspending goods delivery and orders acceptance, and freezing enterprises' inventory.

Total number of new suppliers	Percentage of new suppliers that were screened using social criteria (%)	Percentage of new suppliers that were screened using environmental criteria (%)
23	100	82.61

10.1.2 Supplier Training and Communication

The Group attaches importance to the coordination and communication with suppliers and strives to establish and maintain good partnership with suppliers and peers to achieve mutual growth. In 2022, we held a number of online and offline meetings with partners and suppliers to promote exchanges and learning between the two sides. We also invited all of the Group's suppliers to receive online training courses on corporate social responsibility and provided relevant examinations.

10.1.3 Integrity of Suppliers

In 2022, major suppliers of the Group had established anti-corruption systems and monitoring mechanisms. We also signed integrity handbooks with suppliers and included anti-corruption into our online training for suppliers, in a bid to achieve transparent procurement, and eliminate any chance of corruption. During the year, the coverage of anti-corruption training provided by the Group for suppliers was 73%. For corruption cases spotted, we share with HKCG, our parent company, the channel of reporting corruption cases to bolster the Group's integrity management. During the year, no reports of corruption or fraud along the supply chain were discovered or confirmed by the procurement and logistics department of the Group.

10.1.4 Green Procurement

The Group adopts the strategy of green procurement and formulates environmentally friendly procurement policies. By purchasing eco-friendly products and services, we aim at conserving resources, reducing pollution and promoting resource recycling. We will also ensure that resource consumption and waste are minimised throughout the procurement process. We advocate that all project companies choose green, energy-efficient products and adopt environmentally friendly materials and services so as to ensure that products can be properly disposed of after use. In 2022, the Group's green procurement requirements were incorporated into the *Manual on Procurement Management* and the *Blue Book: Procurement Manual for Group Affiliates*. The Group also promoted the concept of green procurement to suppliers, and encouraged them to put it into practice. By this way, efforts are pooled to achieve the goal of carbon neutrality through multiple channels.

10.2 Customer Service Management

Quality service is the core competitiveness for our development. Adhering to customer- and people-oriented service principles, the Group constantly enhances its processes and improves its quality of work and services to provide an enhanced customer experience with Towngas Smart Energy's characteristics.

10.2.1 Supplier Training and Communication

The Group provides customer services in strict compliance with the Law of the People's Republic of China on the Protection of the Rights and Interests of Consumers and other relevant laws and regulations. We collect customer opinions and suggestions through multiple channels and perspectives, and take targeted actions to improve quality of work and services. In 2022, the Group urged all regional companies to carry out in-depth analysis on the results of the Mystery Shopper Assessment and Customer Satisfaction Survey conducted by third-party companies in 2021, and carried out enhancement activities including service system strengthening, special training, and competitions of service standards and skills with a view to continuously improving service awareness and work performance.

10 Improving Service Quality and Ensuring Quality Development



Results of Projects for Enhancing Customer Experience

To improve the service experience of gas customers, the Group teamed up with more than 20 representative enterprises in various regions to conduct in-depth research on all aspects of our services. Customers' overall impression and expectation on our services were gauged through surveys and in-depth interviews etc. Based on the analysis of public opinions and complaints, and taking into account the experience of and feedback obtained from front-line customer service personnel, the team gained a better understanding of the current situation, prepared analysis reports and customer improvement research reports, and then came up with reasonable suggestions and proposals to promote our service to a new height.



Customer Satisfaction Survey by Bauhinia

In 2022, bauhinia launched through local joint ventures a customer satisfaction survey on after-sales services including the timeliness of delivery and installation, dress code, service attitude, maintenance skills and quality of related personnel. The overall customer satisfaction was over 98%, exceeding the goal of 95%. By virtue of its quality services and well-established after-sales service system, Bauhinia won two awards at the end of 2021, namely the Top 10 Chinese After-sales Service Provider and Five-star Chinese After-sales Service Provider by National Standards presented by China General Chamber of Commerce and National Commodity After-service Conformity Certification Evaluation Committee.



To regulate and unify service standards, the Group provides front-line staff with guidance through the Smile Service Manual. On top of that, we conduct analysis and monitoring to identify problems and issues. Plans are formulated to improve services and quality of work, and provide training to front-line staff to enable effective implementation into the daily work. As a result, issues and problems are resolved efficiently and properly.

In terms of customer complaints, the Group continues to improve its system. By monitoring public opinions and call-in complaints, we sum them up and conduct analysis, and feedback the analysis results to each region. For key customer complaints, the Group urges and monitors that rectification and improvement be made by relevant enterprises to ensure customer satisfaction.

10.2.2 Customer Privacy Protection

The Group strictly abides by laws and regulations to protect customer privacy, and safeguarding their interests. During the development of its mobile applications, Bauhinia only obtains the minimum customer information as necessary and takes safety and protective measures. After the promulgation and implementation of the Data Security Law of the People's Republic of China and the Law of the People's Republic of China on the Protection of Personal Information in 2022, we enhanced our mobile applications by adding pop-up windows to communicate our privacy policy and related menu in a timely manner, therefore facilitating users in understanding the information. During the year, there was no infringement of customer privacy or loss of information in the group.

10.2.3 Responsible Marketing

In the process of product, service and brand marketing, the Group strictly obeys the laws of places where we operate, including but not limited to the Advertising Law of the People's Republic of China, and the Law of the People's Republic of China on the Protection of Personal Information. We endeavour to deliver responsible marketing contents to consumers. Exaggeration, deception and false information in publicity are strictly prohibited. We have formulated unified rules and established a unified sharing platform for brand publicity. Via the platform, we are able to update product publicity materials, advertising rules and other information in a timely manner, thereby avoiding violations in the process of promotion. We also require suppliers for branding publicity stick to the requirements of laws and regulations. Advertising and branding publicity involving as portrait rights, font copyright and intellectual property rights must secure and come with legal approval documents to avoid any legal disputes. During the year, there were no complaints or legal proceedings about misleading or deceiving information of products and services. Neither was there any violation in marketing.



Training on Product Marketing Skills

In 2022, Bauhinia arranged more than 10 marketing training sessions for the Bauhinia teams of joint ventures via the online platform Ding Talk and offline seminars. The sessions covered a number of areas including product introduction, sales skills, installation and after-sales services, as well as marketing and promotion compliance, etc. The training was also provided to all employees of the Company, aiming at ensuring an accurate and consistent understanding of product functions, service consultation and product-related standards, to avoid misinformation or exaggerations.



10.3 Product Quality Management

Good and quality product is the cornerstone of Towngas Smart Energy. On this basis, we keep enhancing product design and quality inspection processes.

In 2022, Bauhinia continued to innovate its product design and diversify its smart appliances. By replacing tin water tanks with oxygen-free copper water tanks and cast-iron burner heads with die-cast aluminium burner heads, the service life of water heaters and gas appliances were effectively extended. During the year, a new burner with air intake from the surface was launched, effectively solving the problem of accidental flameout. In terms of quality control, the entire line of Bauhinia products has received dual checks by the national quality supervision and inspection authorities and qualified units with approved qualifications. A total of 67 random batch inspections were conducted in 2022. Among them, 47 batches underwent comprehensive random checks and 20 batches underwent key parts random checks. The total number of samples checked is 176 pieces/sets, with checked samples covering all products and production plants.

10 Improving Service Quality and Ensuring Quality Development

10.3.1 Quality Control System

It is a responsibility and basic requirement for the Group to ensure its quality of products, services and operation. In strict compliance with quality-related laws and regulations, Bauhinia has established a comprehensive management system covering OEM product management, feedback on quality issues, random checking of products, product recalls and monitoring of the assurance system for supplier quality.

OEM product management

Newly developed products of Bauhinia must fully meet national standards with control imposed from the very beginning of production. Durability test is added to the production process, and only products passing the test can be put into the market.

Feedback on quality issues

After its products are sold, Bauhinia would proactively communicate with the manufacturers about quality issues highlighted by the regular feedback from customers so as to refine the products and enhance the product quality in the laboratory to enable the best user experience.

Product random checking

Regular random checks will be conducted on products included in the random check list, as well as on important components and parts with significant quality issues to determine if they meet the relevant requirements.

Product recalls

Any products that threaten customers' health and safety will be immediately recalled.

Monitoring of the assurance system for supplier quality

On-site quality monitoring is regularly carried out, and raw materials, parts and components purchased from outsourcing, production processes of assembly lines, and finished products before delivery are all put under inspection and supervision. During the visits, implementation and effectiveness of the measures proposed in the suppliers' rectification reports of the previous year would be verified. Quality of products and processes with received complaints on defects would also be checked to ensure improvement.

10.3.2 Products Recall

Through collecting and conducting analysis on the information gathered from market feedback, random product checking and external supervision and inspection, the Group closely monitors if there is bulk products with quality issue in a serious nature. If the issue is not an isolated incident, project companies would be instructed to recall products in bulk, solve the concerned quality issue to avoid reoccurrence. On the other hand, Bauhinia manages products by a bar code system, making it possible to track defective products by batch, thus enhancing the control over production quality. In 2022, among the products sold by Bauhinia, there were no cases of product return due to quality reasons.

10.3.3 Quality Certification

In compliance with the Product Quality Law of the People's Republic of China and other relevant laws and regulations, Bauhinia promotes to the public the concepts of safe use of gas, safe cooking appliances, professional installation and professional service while ensuring that its products fully meet all safety standards. Bauhinia products have obtained the compulsory compliance qualifications required for dedicated products, relevant energy efficiency records, and hygiene and safety approvals for products that involve water. The certificates are subject to strict annual reviews, change and other management requirements.



11

Undertaking Corporate Responsibility and Manifesting Love and Care





11 Undertaking Corporate Responsibility and Manifesting Love and Care

Upholding the ethos of benefitting society and contributing to the community, Towngas Smart Energy actively undertakes corporate social responsibility and contributes to the society by holding year-round charity activities of educational support and community care, enhancing public awareness of charity.

11.1 Educational Support

In response to the government initiative of poverty alleviation through education, Towngas Smart Energy leverages the Group's nationwide industrial and resource advantages to create a better teaching and learning environment for teachers and students in poverty-stricken areas. Since its launch in 2013, our Gentle Breeze Movement charity brand has been contributing to rural school construction and student development by organising donations and supporting activities on a regular basis with dedicated fundings. The Group also integrates the charity resources of its project companies across the Country to vigorously support national education development.

Gentle Breeze Movement Set Foot in Pingnan County, Guangxi Zhuang Autonomous Region

In May 2022, our Gentle Breeze Movement extended its presence to Shuangzhai Primary School in Pingnan County, Guangxi Zhuang Autonomous Region, by donating two sets of multi-functional teaching facilities and building up a Towngas Charity Library. The Group also funded the renovation of basketball courts, badminton courts and table tennis courts, enabling children to grow stronger through exercise while promoting their all-round development. This educational support activity amounted to approximately RMB180,000.

During the activity, our staff members delivered a fascinating science lecture to the school children by showing an animation on gas safety and sharing tips on the safe use of gas, raising children's awareness of gas safety.



Gentle Breeze Movement Set Foot in Pengxi County, Sichuan Province

In December 2022, our Gentle Breeze Movement reached successively Pengxi Special Education School and Pengxi Chengnan School in Pengxi County, Sichuan Province, donating school uniforms, school bags, books and daily necessities with a total value of about RMB180,000.

Pengxi Chengnan School has admitted a large number of local children to meet their needs for quality education arising from urban development while Pengxi Special Education School provides full-time boarding education to children with special educational needs. As the two schools are not equipped with water filter systems and lack of stable supply of hot water in their simple bathrooms, Towngas Smart Energy remodelled the bathrooms in the two schools, and installed brand new water heaters, washing machines, dryers, water purification systems and disinfection cabinets in the school canteens, facilitating a healthy diet and good living environment for the school children.



Since the establishment of the Gentle Breeze Movement, the Group has donated more than RMB3.5 million, benefiting more than 7,000 students from over 30 schools in 12 provinces, autonomous regions and municipalities across the Country. In the future, the Group will continue to shoulder its corporate social responsibility and reach out to more places in need by means of our Gentle Breeze Movement while drawing public attention to rural education.

11 Undertaking Corporate Responsibility and Manifesting Love and Care

11.2 Community Care

Towngas Smart Energy has always been committed to improving people's livelihood, helping those in need, contributing to society, showing care and support, and promoting the harmonious and healthy development of the community.

Rice Dumplings for the Community

Towngas Smart Energy organised the Rice Dumplings for the Community activity before the Dragon Boat Festival, calling for the participation of project companies to show their care by sending their holiday greetings to people in need. That received an overwhelming response from project companies. Staff members volunteered to visit the communities, fire stations, social welfare institutions and special education schools to send handmade rice dumplings and festive gifts to disadvantaged families, firefighters, the elderly living alone and children with special needs. More than 32,000 rice dumplings and daily necessities of over RMB170,000 were shared, benefiting over 7,000 people.



Love and Care for Military Retirees

In September 2022, volunteers from Towngas Smart Energy joined hands with the community of Sungang Street in Luohu District, Shenzhen City, Guangdong Province, to show their care for military retirees as a National Day activity. Premium rice, cooking oil and other gifts were presented to 75 individuals in the district, including those enjoying preferential relief and military retirees in need or with serious illnesses, sharing festive blessings with them in advance.

11.3 Other Charity and Philanthropic Activities

As a caring and socially responsible enterprise, Towngas Smart Energy not only carries out charity activities such as educational support and community care, but also actively calls for its employees to take part in charities and philanthropies. During the year, the volunteer team of Towngas Smart Energy officially joined Shenzhen Volunteer Association and continued to contribute to volunteer services in Shenzhen by actively participating in volunteer activities with a commitment to the spirit of participation, mutual assistance, dedication and progress.

Tree Planting Activity in Mangrove Wetlands

In October 2022, the volunteer team of Towngas Smart Energy jointly carried out mangrove planting with Shenzhen Spring Environmental Protection Volunteer Association in Baguang Tulip Mangrove Wetland Park in Dapeng New District, Shenzhen. The volunteers worked hard for more than two hours and planted 26 coastal heritiera seedlings in the park, facilitating the growth of mangrove and biodiversity in the wetlands while raising awareness of environmental protection and encouraging more people to join in charity and environmental protection activities.

Construction of Gas Project for the Emergency Hospital in Lok Ma Chau Loop

At the height of the COVID-19 epidemic in February 2022, the Central Government approved the urgent construction of community isolation facilities (mobile cabin facilities) in Hong Kong, aiming at protecting the health and safety of Hong Kong people. One of the largest of these facilities was located in Lok Ma Chau Loop. To ensure a stable and safe supply of gas to patients, quarantined people and staff, the Group took active response to undertake the gas project for the mobile cabin facilities in Lok Ma Chau Loop through a fast and efficient planning and arrangement. An engineering team was formed to provide full support to the project. Despite the COVID-19 epidemic, continuous wet weather and complex construction situations, safe construction and quality of the project were not compromised. Eventually, the Group completed the project with quality and kicked start a safe gas supply on 3 April, four days earlier than the scheduled delivery date, rendering strong support to Hong Kong's anti-epidemic efforts.



Towngas Smart Energy incessantly undertakes its corporate social responsibility through charity projects such as Gentle Breeze Movement and Rice Dumplings for the Community. During the year, our over 8,000 volunteers provided social services of more than 410,000 hours and about RMB6.18 million were allocated in charity, with over 170,000 beneficiaries. In the future, we will continue to expand our coverage in charity by dedicating resources to help people in need and showing our love and care to the regions in need, with a view to setting an example for creating a harmonious and inclusive society.

Appendix I: Key Statistics

Operating Performance				
Economic Data	Unit	2022	2021	2020
Revenue	HK\$' million	20,073	17,125	12,826
Profit for the year attributable to shareholders	HK\$' million	965	1,253	1,447
Earnings per share	HK cents	30.17	41.53	49.56
Gas sales volume (excluding Shanghai Gas)	Million cubic meters	15,246	14,579	12,003
Length of pipeline network	Kilometers	70,935	63,727	58,081

Environmental Performance				
Emissions	Unit	2022	2021	2020
Nitrogen oxide (NO _x)	Kilograms	50,621.2	38,946.0	18,973.3
Sulphur dioxide (SO ₂)	Kilograms	854.8	574.1	145.4
Respirable suspended particulates (PM10)	Kilograms	1,227.6	1,380.7	1,344.9
Total volume of hazardous waste				
Total volume of hazardous waste (solid)	Tonnes	17.7	16.2	15.3
Intensity of hazardous waste (solid)	Tonnes/company	0.20	0.20	0.19
Total volume of hazardous waste (liquid)	Litres	7,510.0	8,298.0	8,274.9
Intensity of hazardous waste (liquid)	Litres/company	84.4	100.0	104.7
Total volume of non-hazardous waste				
Total volume of non-hazardous waste (solid)	Tonnes	80,400.9	85,628.1	58,787.2
Intensity of non-hazardous waste (solid)	Tonnes/company	903.4	1,031.7	744.1
Total volume of non-hazardous waste (liquid)	Litres	477.6	498.5	614.4
Intensity of non-hazardous waste (liquid)	Litres/company	5.4	6.0	7.8

Use of Resources	Unit	2022	2021	2020
Diesel	MWh	2,476.7	2,461.6	2,340.5
Natural gas	MWh	226,213.9	147,372.7	30,158.7
LPG	MWh	11.8	10.1	11.3
Coal	MWh	0	0	0
Others	MWh	17,029.9	16,437.6	14,805.2
Consumption of non-renewable resources (from fuel combustion)	MWh	245,732.3	166,282.0	47,315.7
Electricity purchased	MWh	44,213.6	41,692.9	38,644.1
Total energy consumption	MWh	289,945.9	207,974.8	85,959.9
Energy consumption intensity	MWh/company	3,257.8	2,505.7	1,074.5
Total water consumption	Cubic meters	495,797.7	326,333.3	271,329.3
Water consumption intensity	Cubic meters/company	5,570.8	3,931.7	3,434.5
Total weight of product packaging materials	Tonnes	660.6	753.3	660.3
Average weight of product packaging materials per piece	Tonnes	0.002	0.002	0.002

Environmental Performance ¹				
Emissions	Unit	2022	2021	
Greenhouse gas emissions				
Gas business	Tonnes CO ₂ e	43,435.3	41,823.8	
Distributed energy projects	Tonnes CO ₂ e	39,820.8	24,103.2	
Total greenhouse gas emissions	Tonnes CO ₂ e	83,256.1	65,927.0	
Greenhouse gas emissions intensity	Tonnes CO ₂ e/ HK\$100 million	414.8	385.0	

¹ During the year, we used the control approach to determine our institutional scope for calculating emissions. Specifically, we incorporated 100% of the emissions of project companies owned 50% or more by us while those of project companies owned less than 50% by us were not included.

Appendix I: Key Statistics

Social Performance				
Staff	Unit	2022	2021	2020
Total headcount	Persons	23,663	23,287	22,506
Type of employment				
Full-time	%	100	99.9	100
Part-time	%	0	0.1	0
By gender				
Male	%	68	68	67
Female	%	32	32	33
By age group				
≤25	%	6	6	7
26-35	%	35	36	35
36-45	%	30	29	30
46-55	%	24	24	23
≥56	%	5	5	5
By region²				
Group Head Office	%	1	2	2
Northeast China	%	27	33	34
North China	%	16	19	19
Central China	%	7	8	8
East China	%	20	5	4
West China	%	16	19	20
South China	%	13	14	13
By employee category				
Senior Management	%	3	3	3
Middle Management	%	12	12	11
Junior Staff	%	85	85	86

² Since 1 February 2023, the Group has adjusted the regional division of its utility business segment on the Chinese mainland. The new regions are: East China, West China, Central China, North China, Northeast China and South China.

Staff	Unit	2022	2021	2020
Total number of new employees	Persons	1,457	768	/
Staff ratio of new employees by gender				
Male	%	69	69	69
Female	%	31	31	31
Staff ratio of new employees by age group				
≤25	%	28	22	28
26-35	%	50	56	54
36-45	%	16	20	14
46-55	%	5	2	3
≥56	%	1	0	1
Staff ratio of new employees by region²				
Group Head Office	%	13	18	2
Northeast China	%	11	16	19
North China	%	19	21	27
Central China	%	19	10	13
East China	%	15	12	13
West China	%	10	10	10
South China	%	13	13	16
Employee turnover	%	2.76	3.05	2.22
Employee turnover ratio by gender				
Male	%	70	69	73
Female	%	30	31	27
Employee turnover ratio by age group				
≤25	%	17	12	23
26-35	%	57	65	57
36-45	%	18	17	14
46-55	%	7	5	5
≥56	%	1	1	1

Appendix I: Key Statistics

Staff	Unit	2022	2021	2020
Employee turnover ratio by region²				
Group Head Office	%	10	11	2
Northeast China	%	11	18	16
North China	%	13	8	9
Central China	%	14	13	18
East China	%	11	13	17
West China	%	18	17	16
South China	%	23	20	22
Coverage of labour contract	%	100	100	100
Coverage of social insurance	%	100	100	100
Ratio of female management³	%	28.76	24.14	/
Proportion of employees receiving regular performance appraisal and career development review	%	100	100	100
Health and Safety				
Staff				
Number of recordable work-related injuries	Persons	3	4	13
Rate of recordable work-related injuries	1,000 employees	0.28	0.17	0.60
Rate of recordable work-related injuries	1,000,000 hours worked	0.11	/	/
Number of work-related fatalities	Persons	0	0	0
Ratio of work-related fatalities	%	0	0	0
Work days lost due to work-related injuries	Days	147	115	232
Number of employees with occupational diseases	Persons	0	/	/

³ During the year, a revision was made to the calculation method of the ratio of female management. We calculated the number of female management as a percentage of the total number of management (middle and senior management staff), and retroactively adjusted the data of 2021.

Development and Training	Unit	2022	2021	2020
Training ratio by staff gender				
Male	%	92.81	96.84	91.05
Female	%	90.60	96.83	89.64
Training ratio by employee category				
Senior Management	%	93.89	94.87	90.41
Middle Management	%	94.80	95.11	98.20
Junior Staff	%	91.66	97.14	97.63
Per capita training hours by staff gender				
Male	Hours	59.19	52.27	58.81
Female	Hours	59.59	54.21	56.69
Per capita training hours by employee category				
Senior Management	Hours	45.15	44.19	50.50
Middle Management	Hours	58.03	52.51	65.61
Junior Staff	Hours	60.04	53.23	57.29
Supply Chain Management				
Number of major suppliers				
Number of major suppliers	Number	121	131	129
Proportion of spending on local suppliers				
	%	98.11	/	/
Number of major suppliers by geographical region				
Chinese mainland	Number	117	125	124
Overseas countries and regions	Number	4	6	5

Appendix I: Key Statistics

Product Responsibility	Unit	2022	2021	2020
Percentage of products subject to recalls over safety and health concerns	%	0	0	0
Number of product- and service-related complaints received	Cases	50	66	42
Anti-corruption	Unit	2022	2021	2020
Number of concluded legal cases regarding corrupt practices	Cases	0	0	0
Coverage of people receiving anti-corruption training	%	100	/	/
Anti-corruption training	Hours	11,526	523	/
Community Investment	Unit	2022	2021	2020
Number of volunteers	People	8,038	6,900	6,700
Number of beneficiaries	People	178,535	170,000	80,000
Hours of social services	Hours	415,441	300,000	570,000
Charity investment by the Group	RMB'000	6,178	7,410	5,700

SASB: Gas Utilities and Distributors				
Issue	Index No.	Accounting Indicator	Unit	2022
Integrity of gas transmission facilities	IF-GU-540a.3	Percentage of gas transmission and distribution pipelines inspected	%	100
	IF-GU-000.C	Length of high-pressure gas pipelines	Kilometers	5,471
		Length of medium-pressure gas pipelines		29,542
		Length of low-pressure gas pipelines		35,922

Appendix II: Reporting Standards

Statement of use	Towngas Smart Energy Company Limited has reported the information cited in this GRI content index for the period January 1, 2022 through December 31, 2022 with reference to the GRI Standards.			
GRI 1 used	GRI 1: Foundation 2021			
GRI Standards		GRI 11: Oil and Gas Sector 2021 Sector Standard Ref. No.	ESG Reporting Guide by The Stock Exchange of Hong Kong Limited	Section
General Disclosures				
GRI 2: General Disclosures 2021	2-1 Organisational details			1.1 Important Notes
	2-2 Entities included in the organisation's sustainability reporting		Reporting Scope	1.1 Important Notes
	2-3 Reporting period, frequency and contact point			1.1 Important Notes
	2-4 Restatements of information		Reporting Principles	1.1 Important Notes
	2-5 External assurance			Verification Statement
	2-6 Activities, value chain and other business relationships		KPI B5.1	4.1.2 Business Overview 10.1.1 Supplier Management Appendix I: Key Statistics
	2-7 Employees		KPI B1.1	Appendix I: Key Statistics
	2-8 Workers who are not employees		KPI B5.1	10.1 Supply Chain Management
	2-9 Governance structure and composition			See the annual report for details
	2-10 Nomination and selection of the highest governance body			See the annual report for details
	2-11 Chair of the highest governance body			See the annual report for details
	2-12 Role of the highest governance body in overseeing the management of impacts			See the annual report for details
	2-13 Delegation of responsibility for managing impacts		Governance Structure	See the annual report for details

Appendix II: Reporting Standards

GRI Standards	GRI 11: Oil and Gas Sector 2021 Sector Standard Ref. No.	ESG Reporting Guide by The Stock Exchange of Hong Kong Limited	Section
2-14 Role of the highest governance body in sustainability reporting		Governance Structure	5.1 Statement of the Board
2-15 Conflicts of interest			See the annual report for details
2-16 Communication of critical concerns			5.3.1 Communication Channels and Demands
2-17 Collective knowledge of the highest governance body			5.1 Statement of the Board
2-18 Evaluation of the performance of the highest governance body			See the annual report for details
2-19 Remuneration policies			9.2.1 Employee Performance and Salary Management
2-20 Process to determine remuneration			9.2.1 Employee Performance and Salary Management
2-22 Statement on sustainable development strategy		Governance Structure	5.1 Statement of the Board
2-23 Policy commitments			5.4.2 Business Ethics
2-24 Embedding policy commitments			Appendix III: List of Policies
2-26 Mechanisms for seeking advice and raising concerns			5.4.2 Business Ethics
2-27 Compliance with laws and regulations			Appendix III: List of Policies
2-28 Membership associations			7.4.3 List of External Industry Associations or Initiatives in which the Group Participates
2-29 Approach to stakeholder engagement		Reporting Principles	5.3 Stakeholder Communication and Materiality Assessment

GRI Standards		GRI 11: Oil and Gas Sector 2021 Sector Standard Ref. No.	ESG Reporting Guide by The Stock Exchange of Hong Kong Limited	Section
Material Topics				
GRI 3: Material Topics 2021	3-1 Process to determine material topics			5.3.2 Double Materiality Approach
	3-2 List of material topics			5.3.2 Double Materiality Approach
Economic Performance				
GRI 201: Economic Performance 2016	201-2 Financial implications and other risks and opportunities due to climate change	11.2.2	General Disclosure A4 KPI A4.1	7.3.1 Addressing Transition Risks and Opportunities
Indirect Economic Impacts				
GRI 203: Indirect Economic Impacts 2016	203-1 Infrastructure investments and services provided	11.14.4		Feature: Exploring New ESG Frontiers with Decisive Actions 7.4.2 Greenhouse Gas Emission Reduction Practices
Procurement Practices				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.14.1	KPI B5.2	10.1.1 Supplier Management
GRI 204: Procurement Practices 2016	204-1 Proportion of spending on local suppliers	11.14.6		Appendix I: Key Statistics
Anti-corruption				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.20.1	General Disclosure B7 KPI B7.2	5.4.2 Business Ethics
GRI 205: Anti-corruption 2016	205-2 Communication and training about anti-corruption policies and procedures	11.20.3	KPI B7.3	5.4.2 Business Ethics
	205-3 Confirmed incidents of corruption and actions taken	11.20.4	General Disclosure B7 KPI B7.1	5.4.2 Business Ethics

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GRI Standards		GRI 11: Oil and Gas Sector 2021 Sector Standard Ref. No.	ESG Reporting Guide by The Stock Exchange of Hong Kong Limited	Section
Anti-competitive Behaviour				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.19.1		5.4.2 Business Ethics
GRI 206: Anti-competitive Behaviour 2016	206-1 Legal actions for anti-competitive behaviour, anti-trust, and monopoly practices	11.19.2		5.4.2 Business Ethics
Tax				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.21.1		See the annual report for details
GRI 7: Tax 2019	207-1 Approach to tax 207-2 Tax governance, control, and risk management	11.21.4 11.21.5		See the annual report for details See the annual report for details
Materials				
GRI 3: Material Topics 2021	3-3 Management of material topics		General Disclosure A2 General Disclosure A3 KPI A3.1	10.1.4 Green Procurement
GRI 301: Materials 2016	301-1 Materials used by weight or volume		KPI A2.5	Appendix I: Key Statistics
Energy				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.1.1	General Disclosure A2 KPI A2.3 General Disclosure A3 KPI A3.1	8.1.1 Environmental Management Policies and Goals
GRI 302: Energy 2016	302-1 Energy consumption within the organisation	11.1.2	KPI A2.1	8.3.1 Use of Resources
	302-3 Energy intensity	11.1.4	KPI A2.1	8.3.1 Use of Resources
	302-4 Reduction of energy consumption			8.3.2 Energy Use
	302-5 Reductions in energy requirements of products and services		KPI A2.3	8.3.2 Energy Use

GRI Standards		GRI 11: Oil and Gas Sector 2021 Sector Standard Ref. No.	ESG Reporting Guide by The Stock Exchange of Hong Kong Limited	Section
Water and Effluents				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.6.1	General Disclosure A2 General Disclosure A3 KPI A3.1	8.1.1 Environmental Management Policies and Goals
GRI 303: Water and Effluents 2018	303-1 Interactions with water as a shared resource	11.6.2	KPI A2.4 KPI A3.1	8.3.3 Water Resources Management
	303-2 Management of water discharge-related impacts	11.6.3	KPI A3.1	8.2.3 Wastewater Management
	303-3 Water withdrawal	11.6.4		8.3.3 Water Resources Management
	303-4 Water discharge	11.6.5		8.2.3 Wastewater Management
	303-5 Water consumption	11.6.6	KPI A2.2	8.3.3 Water Resources Management
Biodiversity				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.4.1	General Disclosure A3 KPI A3.1	Feature: Exploring ESG Frontiers with Decisive Actions
GRI 304: Biodiversity 2016	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	11.4.2		See <i>Climate-related and Nature-related Directive Guide</i> for details
	304-2 Significant impacts of activities, products and services on biodiversity	11.4.3		See <i>Climate-related and Nature-related Directive Guide</i> for details

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GRI Standards		GRI 11: Oil and Gas Sector 2021 Sector Standard Ref. No.	ESG Reporting Guide by The Stock Exchange of Hong Kong Limited	Section
Addressing Climate Change				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.2.1	General Disclosure A1	7.1 Climate Change Governance
		11.3.1	KPI A1.5	8.1.1 Environmental Management Policies and Goals
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	11.1.5	General Disclosure A3 KPI A3.1	7.4.1 Carbon Emission Reduction Targets and Actual Emissions
	305-2 Energy indirect (Scope 2) GHG emissions	11.1.6	KPI A1.2	7.4.1 Carbon Emission Reduction Targets and Actual Emissions
	305-4 GHG emissions intensity	11.1.8	KPI A1.2	7.4.1 Carbon Emission Reduction Targets and Actual Emissions
	305-5 Reduction of GHG emissions	11.2.3		7.4.2 Greenhouse Gas Emission Reduction Practices
	305-7 Nitrogen oxides (NOx), sulphur oxides (SOx), and other significant air emissions	11.3.2	KPI A1.1	8.2.1 Exhaust Management
Waste				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.5.1	General Disclosure A1	8.1.1 Environmental Management Policies and Goals
			KPI A1.6	
GRI 306: Waste 2020	306-1 Waste generation and significant waste-related impacts	11.5.2	General Disclosure A3 KPI A3.1	8.2.2 Waste Management
	306-2 Management of significant waste-related impacts	11.5.3	General Disclosure A3 KPI A3.1	8.2.2 Waste Management
	306-3 Waste generated	11.5.4	KPI A1.3 KPI A1.4	8.2.2 Waste Management

GRI Standards		GRI 11: Oil and Gas Sector 2021 Sector Standard Ref. No.	ESG Reporting Guide by The Stock Exchange of Hong Kong Limited	Section
Supplier Environmental Assessment				
GRI 3: Material Topics 2021	3-3 Management of material topics		General Disclosure B5	10.1 Supply Chain Management
GRI 308: Supplier Environmental Assessment 2016	308-1 New suppliers that were screened using environmental criteria		KPI B5.4	10.1.4 Green Procurement
	308-2 Negative environmental impacts in the supply chain and actions taken		KPI B5.3	10.1.1 Supplier Management
Employment				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.10.1; 11.11.1	General Disclosure B1	9.1 Recruitment and Employment
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	11.10.2	KPI B1.2	Appendix I: Key Statistics
	401-2 Benefits provided to full-time employees (temporary or part-time employees excluded)	11.10.3	General Disclosure B1	9.4 Employee Care
Labour Relations				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.10.1		9.3 Protection of Employees' Rights and Interests

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GRI Standards		GRI 11: Oil and Gas Sector 2021 Sector Standard Ref. No.	ESG Reporting Guide by The Stock Exchange of Hong Kong Limited	Section
Occupational Health and Safety				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.9.1	General Disclosure B2	6.1 HSE Management System
GRI 403: Occupational Health and Safety 2018	403-1 Occupational health and safety management system	11.9.2	KPI B2.3	6.1 HSE Management System
	403-2 Hazard identification, risk assessment, and incident investigation	11.9.3		6.2.2 Safety and Risk Review Mechanism
	403-3 Occupational health services	11.9.4	KPI B2.3	6.3 Occupational Health and Safety Management
	403-5 Worker training on occupational health and safety	11.9.6	KPI B2.3	6.3 Occupational Health and Safety Management
	403-6 Promotion of worker health	11.9.7		9.4 Employee Care
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	11.9.8	KPI B2.3	6.3 Occupational Health and Safety Management
	403-8 Workers covered by an occupational health and safety management system	11.9.9		6.1 HSE Management System
	403-9 Work-related injuries	11.9.10	KPI B2.1 KPI B2.2	6.3 Occupational Health and Safety Management
	403-10 Work-related ill health	11.9.11	KPI B2.1	6.3 Occupational Health and Safety Management

GRI Standards		GRI 11: Oil and Gas Sector 2021 Sector Standard Ref. No.	ESG Reporting Guide by The Stock Exchange of Hong Kong Limited	Section
Training and Education				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.10.1; 11.11.1	General Disclosure B3	9.2.2 Employee Development and Training
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	11.10.6 ; 11.11.4	KPI B3.1 KPI B3.2	Appendix I: Key Statistics
	404-2 Programs for upgrading employee skills and transition assistance programs	11.10.7		9.2.2 Employee Development and Training
	404-3 Percentage of employees receiving regular performance and career development reviews			9.2.1 Employee Performance and Salary Management
Diversity and Equal Opportunity				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.11.1	General Disclosure B1	9.1.2 Diversity and Anti-discrimination
GRI 405: Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	11.11.5	KPI B1.1	9.1.2 Diversity and Anti-discrimination
Anti-discrimination				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.11.1	General Disclosure B1	9.1.2 Diversity and Anti-discrimination
GRI 406: Non-discrimination 2016	406-1 Incidents of discrimination and corrective actions taken	11.11.7		9.1.2 Diversity and Anti-discrimination
Freedom of Association and Collective Negotiation				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.13.1		9.3.1 Employee Communication Channels

Appendix II: Reporting Standards

GRI Standards		GRI 11: Oil and Gas Sector 2021 Sector Standard Ref. No.	ESG Reporting Guide by The Stock Exchange of Hong Kong Limited	Section
Child Labour and Forced Labour				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.12.1	General Disclosure B4 KPI B4.1 KPI B4.2	9.1.1 Preventing Child Labour and Forced Labour
Local Communities				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.15.1	General Disclosure B8	11.1 Educational Support 11.2 Community Care
GRI 413: Local Communities 2016	413-1 Operations with local community engagement, impact assessments, and development programmes	11.15.2	KPI B8.1 KPI B8.2	11.1 Educational Support 11.2 Community Care
Supplier Social Assessment				
GRI 3: Material Topics 2021	3-3 Management of material topics		General Disclosure B5	10.1 Supply Chain Management
GRI 414: Supplier Social Assessment 2016	414-1 New suppliers that were screened using social criteria	11.10.8 11.12.3		10.1.1 Supplier Management
Customer Health and Safety				
GRI 3: Material Topics 2021	3-3 Management of material topics		General Disclosure B6 KPI B6.4	6.4 Customer and Community Safety Management
GRI 416: Customer Health and Safety 2016	416-1 Assessment of the health and safety impacts of product and service categories	11.3.3		8.2.1 Exhaust Management 10.3 Product Quality Management 10.3.1 Quality Control System
	416-2 Incidents of non-compliance concerning the health and safety impacts of products and services		KPI B6.1	10.3.2 Products Recall

GRI Standards		GRI 11: Oil and Gas Sector 2021 Sector Standard Ref. No.	ESG Reporting Guide by The Stock Exchange of Hong Kong Limited	Section
Marketing and Labelling				
GRI 3: Material Topics 2021	3-3 Management of material topics		General Disclosure B6	10.2.3 Responsible Marketing
GRI 417: Marketing and Labelling 2016	417-1 Requirements for product and service information and labelling		General Disclosure B6	10.2.3 Responsible Marketing
	417-2 Incidents of non-compliance concerning product and service information and labelling		KPI B6.2 KPI B6.3	10.2.3 Responsible Marketing
	417-3 Incidents of non-compliance concerning marketing communications			10.2.3 Responsible Marketing
Customer Privacy				
GRI 3: Material Topics 2021	3-3 Management of material topics		General Disclosure B6 KPI B6.5	10.2.2 Customer Privacy Protection
GRI 418: Customer Privacy 2016	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data		KPI B6.5	10.2.2 Customer Privacy Protection
Asset Integrity and Critical Incident Management				
GRI 3: Material Topics 2021	3-3 Management of material topics	11.8.1		6.2.1 Dedicated Issue of the Oil and Gas Industry – Asset Integrity Management
GRI 11.8: Asset Integrity and Critical Incident Management	306-3 Significant spills	11.8.2		6.2 Safe Operation
	Additional sector-specific disclosures	11.8.3		6.3 Occupational Health and Safety Management

Appendix III: List of Policies

ESG Aspects	Major Laws, Regulations and Policy Guidances Observed	Certain Internal Systems of the Group
A1. Emissions	Law of the People's Republic of China on the Prevention and Control of Pollution by Solid Waste Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution	
A2. Use of Resources	Law of the People's Republic of China on Prevention and Control of Water Pollution Water Law of the People's Republic of China Energy Conservation Law of the People's Republic of China	Management Guidelines for Environmental Protection Employee Environmental Protection Handbook Management System for Equipment Operation Operating Standards for Power Equipment Operating Procedures of Wastewater Treatment
A3. The Environment and Natural Resources	Environmental Protection Law of the People's Republic of China Environmental Impact Assessment Law of the People's Republic of China Regulation on the Management of Environmental Protection of Construction Projects Supervision and Management Measures for the Preparation of Environmental Impact Statements (Forms) of Construction Projects	
A4. Climate Change	World Energy Outlook 2021 Opinions on Complete, Accurate and Comprehensive Implementation of the New Development Concept and Efforts for Carbon Peak and Carbon Neutrality	<i>Climate-related and Nature-related Directive Guide</i>

ESG Aspects	Major Laws, Regulations and Policy Guidances Observed	Certain Internal Systems of the Group
B1. Employment	Labour Law of the People’s Republic of China Labour Contract Law of the People’s Republic of China Social Insurance Law of the People’s Republic of China Employment Promotion Law of the People’s Republic of China	Towngas Smart Energy Employee Handbook
B2. Health and Safety	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 Work Plan on Detection and Elimination of Urban Gas Hazards Nationwide Implementation Plan on Renewal and Renovation of Old Urban Gas Pipelines (2022-2025)	Guidelines for Safety Assessment of Gas Plants and Stations Guidelines for Annual Inspection of Gas Pipelines Guidelines for Assessment of Old Urban Gas Pipelines – Courtyard Pipelines and Risers Work Plan on Prevention and Control of COVID-19 in Mainland Public Utilities of Towngas Smart Energy (Second Edition) Personal COVID-19 Prevention Handbook
B3. Development and Training		Towngas Smart Energy Operation Guidelines on Corporate Performance Management Towngas Smart Energy Operation Guidelines on the Adoption of Dual Career Pathways
B4. Labour Standards	Law on the Protection of Minors of the People’s Republic of China Provisions on the Prohibition of Using Child Labour Universal Declaration of Human Rights International Human Rights Conventions	Employee Communication Management System Measures for the Management of Salary and Welfare for Expatriates

Appendix III: List of Policies

ESG Aspects	Major Laws, Regulations and Policy Guidances Observed	Certain Internal Systems of the Group
B5. Supply Chain Management	Bidding Law of the People's Republic of China	Manual on Procurement Management Blue Book: Procurement Manual for Group Affiliates White List of Suppliers Basic Requirements for Towngas Group Suppliers
B6. Product Responsibility	Advertising Law of the People's Republic of China Product Quality Law of the People's Republic of China Law of the People's Republic of China on the Protection of the Rights and Interests of Consumers Data Security Law of the People's Republic of China Law of the People's Republic of China on the Protection of Personal Information Trademark Law of the People's Republic of China Patent Law of the People's Republic of China Copyright Law of the People's Republic of China	Service with a Smile Manual Management Rules for Intellectual Property Methods for Intellectual Property Incentives
B7. Anti-corruption	Supervision Law of the People's Republic of China Anti-monopoly Law of the People's Republic of China Anti-money Laundering Law of the People's Republic of China Anti-unfair Competition Law of the People's Republic of China Prevention of Bribery Ordinance of Hong Kong	Code of Conduct Anti-fraud Policy Whistleblowing Policy
B8. Community Investment	Charity Law of the People's Republic of China	



Verification Statement

Scope of Verification

Hong Kong Quality Assurance Agency (“HKQAA”) conducted an independent verification for the Environmental, Social and Governance Report 2022 (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 1 January 2022 to 31 December 2022. The Report also 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 and with reference to the Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises 4.0 (“CASS-CSR4.0”) of Chinese Academy of Social Sciences, Sustainability Reporting Standards of the Global Reporting Initiative (“GRI Standards”) and GRI 11: Oil and Gas Sector 2021 of Global Reporting Initiative, Standards of Sustainability Accounting Standards Board (“SASB Standards”) and ISO 26000 Guidance on Social Responsibility Guidance (“ISO 26000”) of International Organisation for Standardisation.

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 is not involved in calculating and compiling the data or the development of the Report. Our verification activities are independent from Towngas Smart Energy.

Verification Statement

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, GRI Standards, GRI 11: Oil and Gas Sector 2021, SASB Standards and 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 2023

Feedback

Dear readers,

Greetings! Thank you for your interest in the Towngas Smart Energy Company Limited Environmental, Social and Governance Report 2022. To help enhance our communication with stakeholders and continuously improve our ESG performance and future reporting, we would like to invite you to share your invaluable opinion and suggestions.

Environmental, Social and Governance Report Committee
Towngas Smart Energy Company Limited
March 2023

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. How would you rate the level of clarity, accuracy and completeness of the disclosed information, data and indicators in this Report?
 Very high High Fair Low Very low No Opinion
4. How would you rate the design and layout of this Report?
 Excellent Good Fair No Opinion
5. Which part of this Report interests you most?
 Governance Safety Addressing Climate Change Environmental Protection
 Staff Quality and Services Charity No Opinion
6. Which parts of the content of this Report do you suggest an improvement?
 Governance Safety Addressing Climate Change Environmental Protection
 Staff Quality and Services Charity No Opinion
7. Information that you wish to know about but is not disclosed in this Report:

8. Your opinion and suggestions regarding the Group's ESG performance and reporting:



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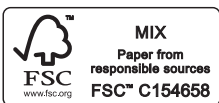
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