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Environmental,  
Social and Governance  
Report 2022

# ABOUT THIS REPORT



## Approach to Reporting

The Hong Kong and China Gas Company Limited (Towngas) has been reporting our environmental, social and governance (ESG) performance on an annual basis for over a decade. In this report, we cover our approach to ESG, which is based on our Towngas ESG Strategy, disclose our achievements in six key areas, and acknowledge where further improvements can be made.

## Reporting Scope and Boundary

Unless otherwise indicated, this report covers the material issues identified at Towngas and its subsidiaries (the Group) during the period from 1 January 2022 to 31 December 2022, aligning with the Group's financial year.

## Reporting Guidelines

This report was prepared in accordance with the Global Reporting Initiative (GRI) Universal Standards 2021, and GRI 11 Oil and Gas Sector Disclosures 2021, as well as the Chinese Academy of Social Sciences Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR 4.0). The report also fulfils the mandatory disclosure requirements and "comply or explain" provisions of the latest ESG Reporting Guide (ESG Guide) under Appendix 27 to the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited (SEHK). For the GRI and ESG Guide Content Index, please refer to our [corporate website](#).

This report was also prepared with reference to:

- Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). Please refer to the standalone [Climate-related and Nature-related Directive Guide](#) and the [Climate Change Management](#) section
- International Sustainability Standards Board's (ISSB) Exposure Draft IFRS S2 Climate-related Disclosures
- The Sustainability Accounting Standards Board (SASB) Standards for the Gas Utilities & Distributors sector

This report aims to provide a balanced presentation of the Group's ESG management approach and performance during the Reporting Period. Consistent methodologies are employed, using year-on-year data, for a meaningful comparison.

## Independent Verification

This report has been verified by an independent third party, Hong Kong Quality Assurance Agency, to ensure its accuracy and completeness and to verify its adherence to the reporting guidelines.

## Acknowledgement

We sincerely appreciate our stakeholders for their contributions to this report, including their time, knowledge and insights. We also thank our staff, partners, customers, and other stakeholders who share our vision.

## Your Feedback

The full version of this report is available on the [Towngas website](#) and the [website of SEHK](#). Your comments on this report and opinions on our future ESG strategy can be shared with us by completing the [online questionnaire](#) or emailing us at [cesg@towngas.com](mailto:cesg@towngas.com).

# BOARD STATEMENT

The Towngas Board of Directors (the Board) is committed to our environmental, social and governance (ESG) development for a sustainable future. This commitment is reflected in our Vision and Mission, which guide our evolving ESG strategy.

Our ESG Strategy covers six key areas:

-  Energising the Ecosystem
-  Neutralising our Footprint
-  Engaging with Society
-  Revitalising our Strengths
-  Greening the Future
-  Young-at-heart with Resilience

Material ESG issues are prioritised and regularly reviewed through our engagement with stakeholders as well as monitoring of global trends. The Board has the overall responsibility of overseeing these material ESG issues and evaluating, determining and integrating relevant risks and opportunities into our key governance processes. Our governance procedures are applied to all areas of decision-making and strategic planning across Towngas.

To further integrate ESG practices into our business operations, the ESG Committee has been established. The Board has appointed the Managing Director to be the Chairman of this Committee, which has responsibility for our strategies, policies and practices on ESG matters. Updates on ESG-related policies, initiatives, progress, goals, targets and achievements are reported and discussed on a regular basis.

The Board will continue our commitment to ESG efforts in every aspect of our operations as we work towards creating a sustainable world and long-term value for stakeholders.



# CHAIRMEN'S STATEMENT



**Dr. Lee Ka-kit** Chairman

**Dr. Lee Ka-shing** Chairman

As a socially responsible energy company, we are committed to protecting the environment, acting with caution, and avoiding potential impacts on ecosystems. We aspire to promote sustainable development in society and create a world with clear skies, blue oceans and green energy for future generations.

During the year, Towngas celebrated its 160th anniversary. Our extraordinary journey spans more than a century and a half, and our energy business has evolved to meet the ever-changing needs of our stakeholders while adapting to the changing nature of society. We have been a reliable supplier to our customers, catering to their daily needs, leading to the great success of our business today. On behalf of the Board, we would like to express our gratitude to our hardworking employees, loyal customers, shareholders and investors of the Group.

The climate crisis and recent geopolitical conflicts have hampered the progress of humanity's journey towards sustainability, but they have also prompted us to embark on a new journey. During the year, extreme weather events have become more severe and frequent, causing irreversible damage to our ecosystems. Concurrently, the pandemic and armed conflicts have threatened energy security and disrupted the global supply chain as well as the business environment. These have all contributed to a slow economic recovery. As these challenges persist, we have proposed a new resolution – "Smart Energy for a Brighter Future" – to harness the power of technology to unlock opportunities, and to contribute to mitigating climate risks, ensuring energy security and promoting carbon neutrality.

The Group is committed to becoming carbon neutral through energy transition and innovation, and has set two medium-term 2025 targets – to reduce group operational greenhouse gas (GHG) emissions by 10% (i.e. reduce 140,000 tCO<sub>2</sub>e compared to 2020 baseline), and reduce 10 million tonnes of GHG emissions in the environment per year through coal-to-gas, solar photovoltaic power generation, and energy efficiency improvement projects, among others.

Our decarbonisation strategy focuses on identifying and seizing business opportunities arising from this global challenge, and we have already been investing in smart energy, waste-to-energy, efficiency improvement and other low-carbon projects. The country's "30-60 dual carbon goals" and "Hong Kong's Climate Action Plan 2050" provide a tremendous impetus for the development of clean energy, and the Group will continue to harness the potential of technology and innovation to drive the energy transition under the vision of carbon neutrality.

We recognise the importance of developing alternative energy sources, and one of our key directions is the provision of safe, clean and efficient hydrogen energy. Town gas has a hydrogen content of around 50%. With our pipeline network extending to nearly all areas of Hong Kong, we are exploring opportunities to install hydrogen extraction systems at our customers' sites to provide suitable hydrogen energy supply solutions, with a particular focus on the development of green transportation for Hong Kong. The Group is also proactively exploring the feasibility of blending hydrogen into the natural gas pipelines on the Chinese mainland, and collaborating with the Government to establish future regulations and standards to ensure a safe and reliable hydrogen supply.

Encouraging innovation and collaboration is key to accelerating the energy transition and contributing to the country's dual carbon goals. We have formed a partnership with IDG Capital to launch the Chinese mainland's first Zero-carbon Technology Investment Fund to jointly explore zero-carbon innovations and solutions. We continue to collaborate with the State Power Investment Corporation Limited to organise the second edition of the TERA-Award Smart Energy Innovation Competition, providing a stage for technology talents to protect the environment and turn scientific breakthroughs into viable commercial projects that benefit more people.

We will continue to adhere to a "people-oriented" philosophy to fulfil our corporate social responsibility. Whether it be underprivileged groups or our employees, we will focus on closing the service gaps in society by proactively caring for our surroundings. We believe that our actions will encourage more companies to become involved in promoting sustainable development.

This report sets out the Group's environmental, social and governance (ESG) performance and our goals for the future. As we look forward, it is inevitable that the uncertain global business environment will present challenges to our business. However, we believe this is also a moment of opportunity for us to demonstrate our resilience and capabilities, and remain focused on our commitment to sustainability. We are proud to be part of a noble mission to build a greener and more natural world. Please join us in creating a sustainable future!

**Dr. Lee Ka-kit**  
Chairman

Hong Kong, 17 March 2023

**Dr. Lee Ka-shing**  
Chairman

# MANAGING DIRECTOR'S STATEMENT



The urgent need to address the climate crisis and geopolitical conflicts has resulted in greater awareness and determination to protect the environment and drive a sustainable future. At Towngas, we recognise that being proactive on environmental, social and governance (ESG) issues is not only a trend, but also a responsibility for companies in all sectors.

As a company with over 160 years of history, we integrated ESG considerations into our operations well before the concept was established. Our success for over a century and a half is from constantly reminding ourselves to “think bigger, climb higher, and look further” while keeping abreast of technological developments that transform societies. As an energy company, we believe it is our responsibility to respect nature and ensure the sustainable use of resources.

In this report, we are pleased to share our ESG progress and goals. We have received international recognition for our commendable efforts, including our first-time inclusion in the Dow Jones Sustainability Asia Pacific Index, upgraded MSCI ESG rating to “A”, and achieved the CDP Climate Change “B” List for the second year in a row. Locally, Towngas has been included in the Hang Seng Corporate Sustainability Index for 12 consecutive years, and we once again ranked first at the Exemplar level in the Greater China Business Sustainability Index (BSI), Greater Bay Area BSI and Hong Kong BSI.

To promote in-depth discussions of ESG-related topics, we partnered with the Hong Kong Management Association to host the first business-initiated large-scale ESG Symposium in Hong Kong. Over 20 experts and academics were invited to share their insights on the three “E, S, G” topics. The hybrid event attracted over 5,000 participants from Hong Kong, the Chinese mainland, along with other countries and regions.

To further improve our ESG performance, we have adopted a new strategy called “ENERGY”, which complements our development direction “Smart Energy for a Brighter Future” and reflects the positioning of the Group’s business. This strategy comprises six pillars that outline our key focus areas and goals:

## Energising the Ecosystem

Conserve and utilise resources mindfully with innovative technology and mitigate the impact on biodiversity

## Neutralising our Footprint

Decarbonise our operation and value chain to achieve carbon neutrality and strengthen climate resilience

## Engaging with Society

Fulfil our responsibilities as a corporate citizen and create shared value for our customers and communities

## Revitalising our Strengths

Maintain high standards of corporate governance and business integrity to contribute to our sustainable competitive advantages

## Greening the Future

Devote to developing low-carbon energy and leaving the world a better place for future generations

## Young-at-heart with Resilience

Create a sustainable talent pipeline and supply chain, and safeguard our stakeholders’ health and safety

## Transitioning to Carbon Neutrality

At Towngas, we actively respond to the HKSAR Government and the country’s carbon neutrality goals, and are committed to becoming carbon neutral by 2050 through energy transition and innovation. With our unwavering commitment, we are proud to be a supporter of the Task Force on Climate-related Financial Disclosures (TCFD) and a signatory of the Methane Guiding Principles (MGP) partnership, to reduce the impact of climate change and methane emissions in the natural gas value chain.

We have also become the first company in Hong Kong to publish the Climate-related and Nature-related Directive Guide, in response to the Taskforce on Nature-related Financial Disclosures (TNFD) framework to review and disclose the ecological and biodiversity impacts, as well as risks and opportunities. The Guide also further aligned with the Recommendations of the TCFD by disclosing financial information related to the potential opportunities and risks led by climate change.

To support the development of a voluntary carbon trading market and low-carbon economy in Hong Kong, we joined Hong Kong Exchanges and Clearing Limited’s (HKEX) Hong Kong International Carbon Market Council. We were also among the first users to complete a carbon trade on Core Climate, the new international carbon marketplace initiated by HKEX.

Furthermore, we established the Towngas Energy Academy in the Shenzhen-Hong Kong Innovation and Technology Cooperation Zone in Futian, Shenzhen. This has signalled the start of closer cooperation between Shenzhen and Hong Kong in science and innovation, further strengthening research capabilities and digital intelligence innovation in the field of new energy to facilitate energy development and environmental protection in the country.

## Building Resilience to Create Positive Impact

Towngas is committed to building resilience through the development of a sustainable workforce and supply chain, as well as supporting customers and contributing to the community.

We prioritise providing a safe and healthy working environment for our employees and advocate for fair practices, such as guaranteeing equal opportunities to attract and retain talent. We also invest in our talents to prepare for the Group’s developmental needs, and maintained the gender pay ratio of basic salary in Hong Kong at 1:1. Additionally, we proactively manage our supply chain risks and became the first public utility in Asia to adopt the S-Carbon Platform, which helps suppliers manage their greenhouse gas emissions and improve the overall ESG performance of the industry.

During the fifth wave of the COVID-19 epidemic in Hong Kong, we leveraged our strength to show our support by launching the HK\$10-million Dining Coupon Scheme and spending HK\$3 million to purchase anti-epidemic supplies for both the underprivileged and the catering industry. Additionally, we have developed our own Smart Controllers that incorporate the Internet of Things (IoT) technology to allow customers to remotely monitor gas appliance status via a mobile app. This technology can enhance household safety for elderly individuals with mild cognitive impairment and reduce the burden on carers.

## Strengthening Corporate Governance

At Towngas, we are committed to managing risks, implementing fair business operations, protecting data privacy, and enhancing cybersecurity as part of our efforts to strengthen corporate governance. We have included ESG issues as our primary consideration in daily operations, and have established an ESG Committee to drive and implement work plans related to ESG matters. We have also implemented a system to link the variable compensations of relevant Senior Executives with ESG material issues. This affirmed the Group’s commitment to ESG issues.

## A Sustainable Future

Over the past 160 years, Towngas has overcome many challenges and evolved with the changing times. Our key to success has been embracing the “3 Changes (3Cs)”: Climate Change – responding to extreme weather events and the impact of temperature/sea level rise on our business; Business Change – transforming from a traditional utility company to an integrated clean energy company to support the country’s dual carbon goals and Hong Kong’s pursuit of carbon neutrality by 2050; and Mindset Change – encouraging our colleagues to be open to reflection and developing strategic plans to face future challenges.

We firmly believe that “Tough Times Create Stronger Teams”. The Group will look beyond the challenges, seize upcoming opportunities, and strive to create a sustainable future.

**Mr. Peter Wong Wai-yee**  
Managing Director  
Hong Kong, 17 March 2023

# BUSINESS PROFILE

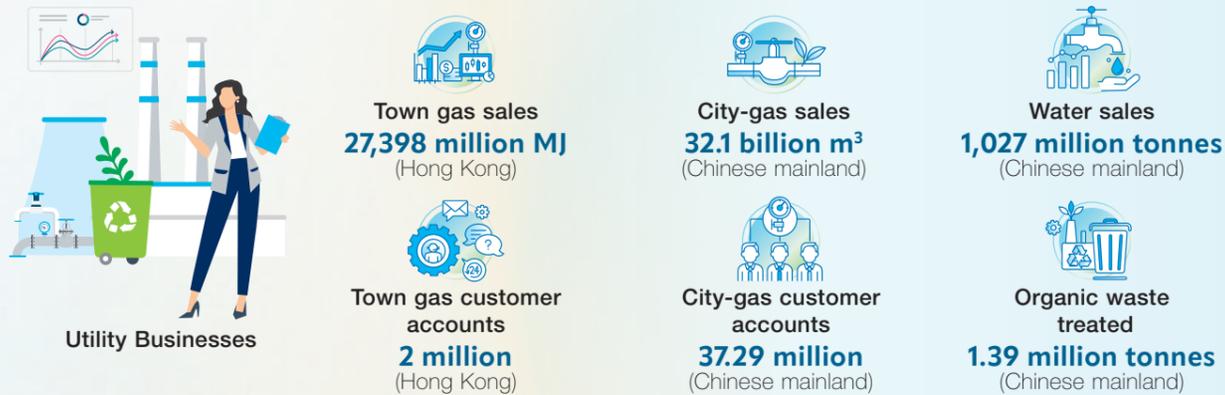
## Towngas: 160 Years of Service

Towngas was founded in 1862 as Hong Kong's first public utility. Our Hong Kong-based business has evolved from providing streetlamps services using coal to celebrating our 160 years of service as an integrated clean energy supplier in Hong Kong and the Chinese mainland. Currently, Towngas, a limited liability company, is incorporated and headquartered in Hong Kong and listed on The Stock Exchange of Hong Kong Limited (Stock Code: 3).

More information on the expansion of our business portfolio in 2022 is available in our [Annual Report 2022](#).

### Business Profit in 2022

#### Town gas Piped city-gas Water/Waste treatment projects



#### Smart energy



#### Sales of gas appliances, kitchen furnishings and insurance



### Financial Analysis



Based in Hong Kong, Towngas has a portfolio comprising 624 projects in 28 provincial regions on the Chinese mainland, as well as one in Thailand.



# TOWNGAS CARBON NEUTRALITY ROADMAP

Towngas is committed to achieving carbon neutrality by 2050 through energy transition and innovation, including the development of renewable energy, waste-to-energy, green hydrogen, energy efficiency improvement, methane reduction, and other collaborative projects with universities and research institutes.

## 2050 Carbon Neutral

### 1990s



Commenced **gas** businesses on the Chinese mainland



Started to use renewable **landfill gas** in Hong Kong

### 2010s



Began to develop **distributed energy systems, organic waste resource utilisation and biomass utilisation**



### 2000s



Developed new energy projects that are **low** in carbon emissions and air pollution



## 2025



**200** zero-carbon smart industrial parks



**8 GW** solar photovoltaics



**60 electric vehicles** in service to replace petrol cars



## Targets



Reduce group operational GHG emissions by **10%** (2020 baseline)



Reduce **10 million** tonnes of GHG emissions in the environment per year through coal-to-gas, solar photovoltaic power generation, and energy efficiency improvement projects, among others



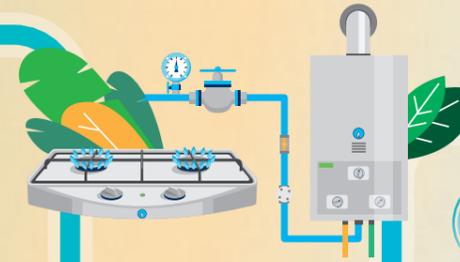
Reduce **15%** electricity use for North Point Headquarters building (2015 baseline)

### 2030

Target



Increase **2%** eco-efficiency of gas appliances



**Renewable Energy and Biofuel**



**Carbon Capture and Trading**



**Green Hydrogen**



**Carbon Management**



**Further Energy Efficiency Improvement**



# 2022 HIGHLIGHTS



## E Energising the Ecosystem

### Biodiversity Protection

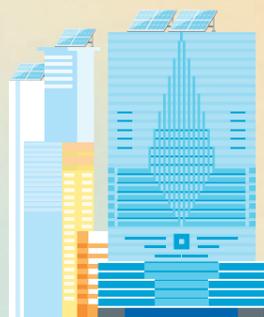
- Conducted a **LEAP nature risk assessment** in alignment with the TNFD

### Environmental Management

- Towngas and **44** of its project companies have obtained **ISO 14001** certifications

### Resources Management

- Electricity use at North Point Headquarters building was reduced by **13.5%** (2022 vs 2015)



## N Neutralising our Footprint

### Climate Change Management

- Disclosed **climate-related financial information** in alignment with the TCFD

### Methane Emissions Reduction

- Completed pipeline leakage study and concluded **leakage rate from our pipeline** falls between the range of **0.045 – 0.13%**



### Global Partnerships



- Became a **TCFD supporter** and signatory of the **Methane Guiding Principles** partnership

## E Engaging with Society

### Community Investment

- Donated **HK\$10 million** worth of dining coupons
- Over **43,000 households** benefited from Towngas Concession Schemes totalling **HK\$25 million**



### Reliable Gas Supply



- Completed **1.5 km** gas pipeline to supply town gas to the Lok Ma Chau Loop Makeshift Hospital

## R Revitalising our Strengths

### ESG-linked Compensation

- Variable compensations** of the **Managing Director** and senior executives are linked to material ESG issues



### Business Integrity

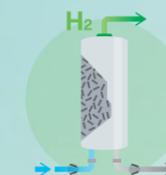


- Provided **anti-corruption training** to the Board

## G Greening the Future

### Energy Transition

- 183** renewable energy projects spread across 24 provincial regions



- First hydrogen extraction** pilot project commissioned (Hong Kong)

- Launched the Chinese mainland's **first RMB10 billion** Zero-carbon Technology Investment Fund with IDG Capital



### Green and Sustainable Finance

- Issued **US\$200 million** sustainability-linked bond and arranged **RMB500 million** green loan

## Y Young-at-heart with Resilience

### Diversity and Inclusion

- Gender pay ratio: **1:1** (Hong Kong) (Basic Salary)

### Learning and Development

- Average training hours per employee: **58.1** (Group)

### Supplier Engagement

- Adopted the **S-Carbon platform** to manage GHG emissions from our supply chain of Hong Kong operations

### Health and Safety

- 834,799** regular safety inspections (Hong Kong)

- Group lost-time injury frequency rate:

Employees	<b>0.53</b>	accidents per 1,000,000 work-hours
Contractors	<b>0.14</b>	

## ESG Ratings and Recognitions

**MSCI ESG RATINGS**

MSCI ESG Rating 2022  
A

**SUSTAINALYTICS**  
a Morningstar company

**RATED**

Sustainalytics ESG Risk Ratings 2022  
Medium Risk

**CDP**

DISCLOSURE INSIGHT ACTION

CDP 2022  
Climate Change score: B

Member of  
**Dow Jones Sustainability Indices**  
Powered by the S&P Global CSA

Dow Jones Sustainability Asia Pacific Index 2022  
ESG score: 67/100

**Hang Seng Corporate Sustainability Index Series Member 2022-2023**

Hang Seng Corporate Sustainability Index 2022-2023  
AA

**Greater China Business Sustainability Index**  
**Greater Bay Area Business Sustainability Index**  
**Hong Kong Business Sustainability Index**

Ranked First, Exemplar Level

Centre for Business Sustainability,  
The Chinese University of Hong Kong Business School

**Junzi Corporation Award**  
Junzi Corporation Exemplary Award

The Hang Seng University of Hong Kong

**Caring Company 2021/22**  
20 Years Plus Caring Company Logo

The Hong Kong Council of Social Service

**HKACE Customer Service Excellence Award 2021**  
Program Award - Service Leadership Award - Gold Award

Hong Kong Association for Customer Service Excellence

**Hong Kong Green and Sustainable Finance Awards 2022**

- Pioneering Organization in ESG Disclosure Enhancement – The Hong Kong and China Gas Company Limited
- Outstanding Award for Green and Sustainable Bond Issuer (Smart Energy) – Largest Single Sustainability Linked Bond Award – Towngas Smart Energy Company Limited

Hong Kong Quality Assurance Agency

**The Asset Triple A Sustainable Capital Markets Awards 2022**  
Best Sustainability - Linked Bond

The Asset

**UNSDG Achievements Awards Hong Kong 2022**

- Grand Award
- Project Awards (Gold Award)
- Project Awards (Outstanding Impact)
- Organisation Awards (Sustainable Organisation – Silver Award)

Green Council

**Best Corporate Governance and ESG Awards 2022**  
ESG Awards (Hang Seng Index Category)

The Hong Kong Institute of Certified Public Accountants

**The 21st Hong Kong Occupational Safety and Health Awards**

- OSH Enhancement Program Award – Gold Award
- OSH Innovative Award - Gold Award
- Best OSH Video Performance Award - Gold Award
- OSH Annual Report Award - Gold Award
- Safety Performance Award – Outstanding Award

- The Hong Kong and China Gas Company Limited
- Towngas - Gas Production
- P-Tech Engineering Company Limited - SENT
- Towngas Telecommunications Company Limited
- ECO - HK LPG Filling Station
- U-Tech Engineering Company Limited

Occupational Safety & Health Council

**TVB ESG Awards 2022**

- Outstanding ESG Award
- Best in ESG Practices
- Best in ESG Report
- ESG Project Innovation Award
- Innovative Climate Technology Award

Television Broadcasts Limited

**Social Capital Builder Logo Awards**  
Community Investment and Inclusion Fund  
Home and Youth Affairs Bureau

**Corporate and Employee Contribution Programme 2021/22**  
Platinum Award

The Community Chest of Hong Kong

**Industry Cares Recognition Scheme 2022**

- Outstanding Caring Awards (Enterprise Group)
- The Most Innovative Award (Enterprise Group)

Federation of Hong Kong Industries

**Award of Excellence 2021/2022**

The Community Chest of Hong Kong

# OUR ESG APPROACH

As we transition from a traditional utility company to an integrated clean energy supplier, Towngas continues to prioritise environmental, social and governance (ESG) issues for contributing to a sustainable future.

In 2022, we formulated the ESG Strategy “ENERGY” to guide our efforts in this evolving process. The ESG Strategy approved by our ESG Committee aligns with our Vision and Mission.



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



**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 stakeholders’ return on investment, and bringing long-term benefit for our planet, society, and stakeholders.

Our ESG Strategy “ENERGY” comprises of six pillars – **E**nergising the Ecosystem, **N**eutralising our Footprint, **E**ngaging with Society, **R**evitalising our Strengths, **G**reening the Future, **Y**oung-at-heart with Resilience, which takes into account both the positive and negative impacts on our stakeholders.

By focusing on these pillars, we aim to achieve long-term business sustainability and generate shared value for all stakeholders.



## Managing ESG at Towngas

ESG brings both risks and opportunities for companies. To address these, the Group requires a strategic plan that takes advantage of opportunities while mitigating ESG risks. The Towngas Board of Directors (the Board), the highest governance body, oversees the effectiveness of risk management and long-term development strategies.

To effectively oversee material ESG issues and manage ESG at Towngas, the Board has appointed our Managing Director, Mr. Peter Wong Wai-ye, who is also an Executive Director on the Board, to be the Chairman of our ESG Committee. The Chairman reports the latest ESG matters and provides updates to the Board at least annually.

Our ESG Committee comprises Executive Committee Members and relevant senior executive. The ten members from various business sectors support and strengthen our ESG work, covering operations, finance, human resources, engineering, commercial, safety and environment and community engagement.

The Corporate ESG Department reports to, discusses with and seeks approval from the ESG Committee for existing and new projects. The Department is responsible for implementing the Group’s ESG strategy, leading ESG disclosures and identifying areas for improvement. It also monitors the ESG trends and works closely with different stakeholder groups to facilitate ESG development.

In 2022, the ESG Committee continued to meet bi-annually and discussed the following key ESG topics:

-  Carbon neutrality roadmap and partnership
-  ESG-linked compensation for senior executives
-  Climate-related financial impacts and physical risks adaptation
-  Establishment of ESG Working Committee
-  ESG ratings performance and improvement plan
-  Community initiatives undertaken

For more details on how we manage ESG, please refer to our [corporate website](#).

### Energising the Ecosystem

Conserve and utilise resources mindfully with innovative technology and mitigate the impact on biodiversity

### Neutralising our Footprint

Decarbonise our operation and value chain to achieve carbon neutrality and strengthen climate resilience

### Engaging with Society

Fulfil our responsibilities as a corporate citizen and create shared value for our customers and communities

### Revitalising our Strengths

Maintain high standards of corporate governance and business integrity to contribute to our sustainable competitive advantages

### Greening the Future

Devote to developing low-carbon energy and leaving the world a better place for future generations

### Young-at-heart with Resilience

Create a sustainable talent pipeline and supply chain, and safeguard our stakeholders’ health and safety

## ESG Policy

The ESG Policy sets forth our commitment to conducting our business in an environmentally, socially and economically responsible manner. Approved by the Managing Director, the ESG Policy is supported by 23 ESG-related policies to advance sustainable growth in the long term. These policies were reviewed and updated during the year to ensure their effectiveness. To view these policies, please refer to our [corporate website](#).

### ESG Policy

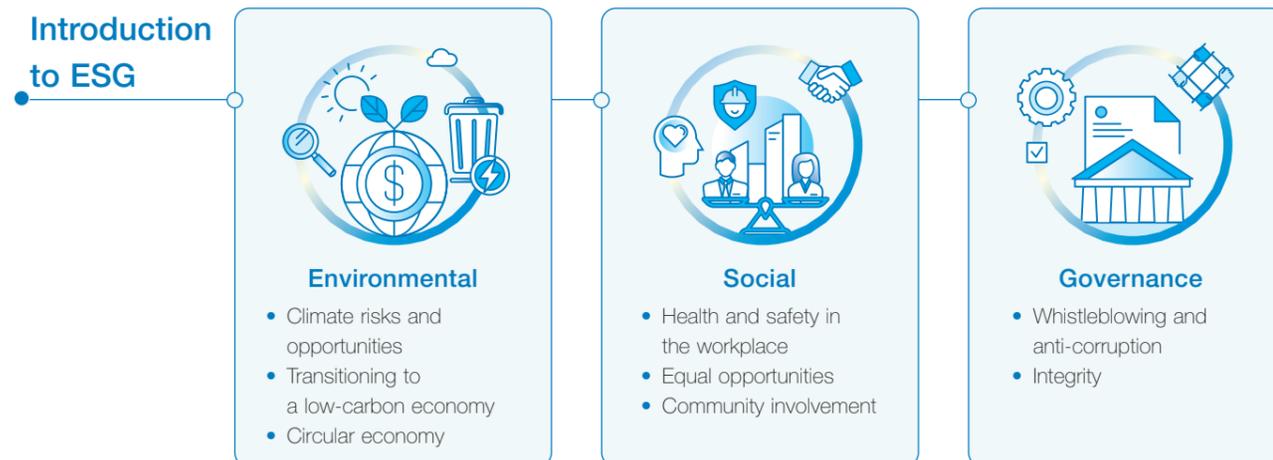
 <p><b>Environmental:</b></p> <ul style="list-style-type: none"> <li><a href="#">Climate Change Policy</a></li> <li><a href="#">Environmental Policy</a></li> </ul>	 <p><b>Social:</b></p> <ul style="list-style-type: none"> <li><a href="#">Anti-Discrimination Policy</a></li> <li><a href="#">Code of Conduct</a></li> <li><a href="#">Code of Practice for Suppliers</a></li> <li><a href="#">Customers Services Code of Conduct Policy</a></li> <li><a href="#">Employee Policy</a></li> <li><a href="#">Health and Safety Policy</a></li> <li><a href="#">Human Rights Policy</a></li> <li><a href="#">Social Investment Policy</a></li> <li><a href="#">Sustainable Purchasing Policy</a></li> </ul>	 <p><b>Governance:</b></p> <ul style="list-style-type: none"> <li><a href="#">Anti-Fraud Policy</a></li> <li><a href="#">Board Diversity Policy</a></li> <li><a href="#">Dividend Policy</a></li> <li><a href="#">Information Security Policy</a></li> <li><a href="#">Nomination Policy</a></li> <li><a href="#">Personal Data Privacy Policy</a></li> <li><a href="#">Policy and Procedures on Disclosure of Inside Information</a></li> <li><a href="#">Policy on Shareholders' Communication</a></li> <li><a href="#">Risk Management Framework</a></li> <li><a href="#">Security Policy</a></li> <li><a href="#">Stakeholder Engagement Policy</a></li> <li><a href="#">Whistleblowing Policy</a></li> </ul>
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## ESG Communication and Engagement

To build stakeholders' trust and interest in Towngas and enhance our reputation, we communicate our ESG initiatives to both our internal and external stakeholders regularly.

### Internal Training

Increasing awareness of Towngas' commitment to ESG among our employees will improve collaboration and accelerate transformation. We produced nine in-house ESG training videos compulsory for all employees and contractors, and since 2022, all new employees in Hong Kong are required to attend these trainings.



Additionally, we have incorporated ESG elements into various internal training programmes, from leadership training, such as Young Towngas Leadership Competence Accelerated Programme, to technical training, such as Technician Trainee Programme. We strive to nurture an ESG mindset among different levels of our employees.

## Towngas ESG Symposium

In November 2022, we hosted the ESG Symposium 2022 in partnership with The Hong Kong Management Association (HKMA). We invited over 20 experts from diverse industries, including public utilities, finance and investment, social welfare, and corporate governance to share their insights on ESG-related topics such as trends on ESG standards, decarbonisation strategies and roadmap, ways to combat climate change, creation of shared value and corporate governance. The hybrid event attracted over 5,000 participants from Hong Kong, the Chinese mainland, and other countries and regions. Towngas will continue to integrate ESG principles into our businesses and strive to be at the forefront of ESG to lead cross-sectoral collaboration for climate, nature and sustainability-related development.



### Thought Leadership

We actively participate in ESG-related conferences and seminars to promote the importance of and demonstrate our commitment to ESG. By sharing our experience and expertise, we intend to inspire other corporations to integrate ESG into their business strategy. In 2022, we delivered sharing on various occasions, including:



Organiser	Conference/Seminar/Course	Topic
Centre for Business Sustainability, CUHK Business School	Business Sustainability Conference 2022	Integrating ESG into Business Strategy
City University of Hong Kong	Climate Change, Corporate Strategy and Asset Management (Elective Course)	Future Transformational forces for Corporations – Regulations, Technologies and Innovation
ReThink Hong Kong	ReThink HK 2022	Getting Real: Hong Kong's Paradigm Shift to a Hydrogen Economy
S&P Global Market Intelligence	TCFD Alignment Seminar – Driving Corporate Transformation in a Changing Climate	Contributing to Climate Change: Navigating and Embracing the TCFD Journey
The Hong Kong Management Association	HKMA/BOC Life Sustainability Summit 2022	Sustainability Vision Championing Sustainability Inside Out
World Green Organisation	Sustainable Investing & ESG Conference 2022	Driving Sustainability with ESG

## Supporting the Sustainable Development Goals

Our dedication to addressing the impacts of climate change and reducing carbon emissions in Hong Kong and the Chinese mainland aligns with our support for the United Nations Sustainable Development Goals (SDGs).

We have identified four SDGs that are most relevant to our operations and value chain. We assessed any possible adverse impacts on our operations, including risks to people and the environment, and selected the products, services or investments that would contribute most to the SDGs. Meanwhile, the impacts and contributions of each SDG on our company across all stages of the value chain are reviewed on an annual basis.

### How we are Contributing to SDGs

**6** CLEAN WATER AND SANITATION



**Potential Impacts:**

- + A safer and more reliable drinking water supply for our customers
- Production processes consume/generate a significant amount of water/wastewater

**Actions Taken/Achievements:**

-  **2.77 million** customer accounts with drinking water up to the national standard
-  **> 120,000 m<sup>3</sup>** of water conserved through reverse osmosis systems at Tai Po Gas Production Plant

Ensure availability and sustainable management of water and sanitation for all

**7** AFFORDABLE AND CLEAN ENERGY



**Potential Impacts:**

- + Expand our gas supply coverage and promote coal/ diesel to gas conversion
- + Develop a clean and smart energy business
- Fossil fuels as our primary raw materials for town gas production

**Actions Taken/Achievements:**

-  **2 million** town gas customer accounts (Hong Kong)
-  **37.29 million** city-gas customer accounts (Chinese mainland)
-  **183** renewable energy projects spread across **24** provincial regions
-  Landfill gas takes up approximately **1%** of town gas fuel mix
-  Approximately **231,500 tonnes** of hydro-treated vegetable oil (HVO) and sustainable aviation fuel (SAF) produced

Ensure access to affordable, reliable, sustainable and modern energy for all

**11** SUSTAINABLE CITIES AND COMMUNITIES



**Potential Impacts:**

- + Provide a safer and more reliable energy supply
- + Encourage recycle and reuse within our company's businesses and for customers
- Generate hazardous and non-hazardous waste during operation and along the value chain

**Actions Taken/Achievements:**

-  Uninterrupted gas supply: **99.994%** (Hong Kong)
-  **No major** incidents or chemical leakages at our chemical plants
-  Cumulatively processed approximately **500,000 tonnes** of organic waste and produced **22 million m<sup>3</sup>** of bio-natural gas from an organic waste resource utilisation project in Suzhou city
-  Collected **> 1,500 tonnes** of used appliances for recycling

Make cities and human settlements inclusive, safe, resilient and sustainable

**13** CLIMATE ACTION



**Potential Impacts:**

- + Encourage a low-carbon lifestyle along our value chain
- Our operations and businesses are exposed to physical and transition risks
- Generate greenhouse gas emissions that accelerate climate change

**Actions Taken/Achievements:**

-  Committed to achieving **carbon neutrality by 2050** through energy transition and innovation, with two medium-term carbon reduction targets
-  Disclosed **climate-related financial information** to enhance alignment with the Recommendation of the Task Force on Climate-related Financial Disclosures (TCFD)
-  Commissioned the **first hydrogen extraction pilot project** to produce high purity of hydrogen (99.97%)
-  Compared with the 2005 baseline, carbon intensity of Hong Kong gas production decreased by **25%**
-  Completed pipeline leakage study and concluded leakage rate from our pipeline falls between the range of **0.045 – 0.13%**
-  One of the **first users** to complete a carbon trade through Core Climate

Take urgent action to combat climate change and its impacts

## Stakeholder Engagement and Double Materiality Assessment

We regularly engage both external and internal stakeholders to collect feedback on material ESG issues and impacts of our initiatives to evaluate the effectiveness of our current ESG strategy. This helps us to identify risks and opportunities and improve our ESG performance by responding to stakeholders' feedback and expectation.

### Stakeholder Engagement Approach

We conduct regular engagement exercises with key stakeholders through a variety of channels, as displayed on our [corporate website](#).

### Double Materiality Assessment

To ensure our ESG Report aligns with global reporting best practices and addresses topics that reflect the significant impact on the economy, environment and society and on Towngas' enterprise value, we conducted a comprehensive double materiality assessment this year. This approach helps us recognise significant risks and opportunities from both a financial and non-financial standpoint, hence supporting the development of our ESG strategy and targets.

We communicated with stakeholders through online surveys, focus group discussion and interviews to gain an in-depth understanding of their concerns and interest in Towngas' potential material issues. The exercise included internal and external participants from diverse fields, including employees, suppliers, academics, local communities, NGOs and professional bodies.

To ensure open and fair discussion, the dialogues were facilitated by an independent third-party consultant.

We adopted the internationally recommended three-step process of Identification, Prioritisation and Validation for the double materiality assessment.

## 1 Identification

- Reviewed and adopted ESG issues from previous stakeholder engagement exercises
- Incorporated updates from megatrends, international reporting standards and ESG ratings requirements
- Conducted online surveys, focus group discussion and interviews with external and internal stakeholders in Hong Kong and the Chinese mainland
- Updated to 27 topics based on evaluation of potential and actual impacts of the material issues

## 3 Validation

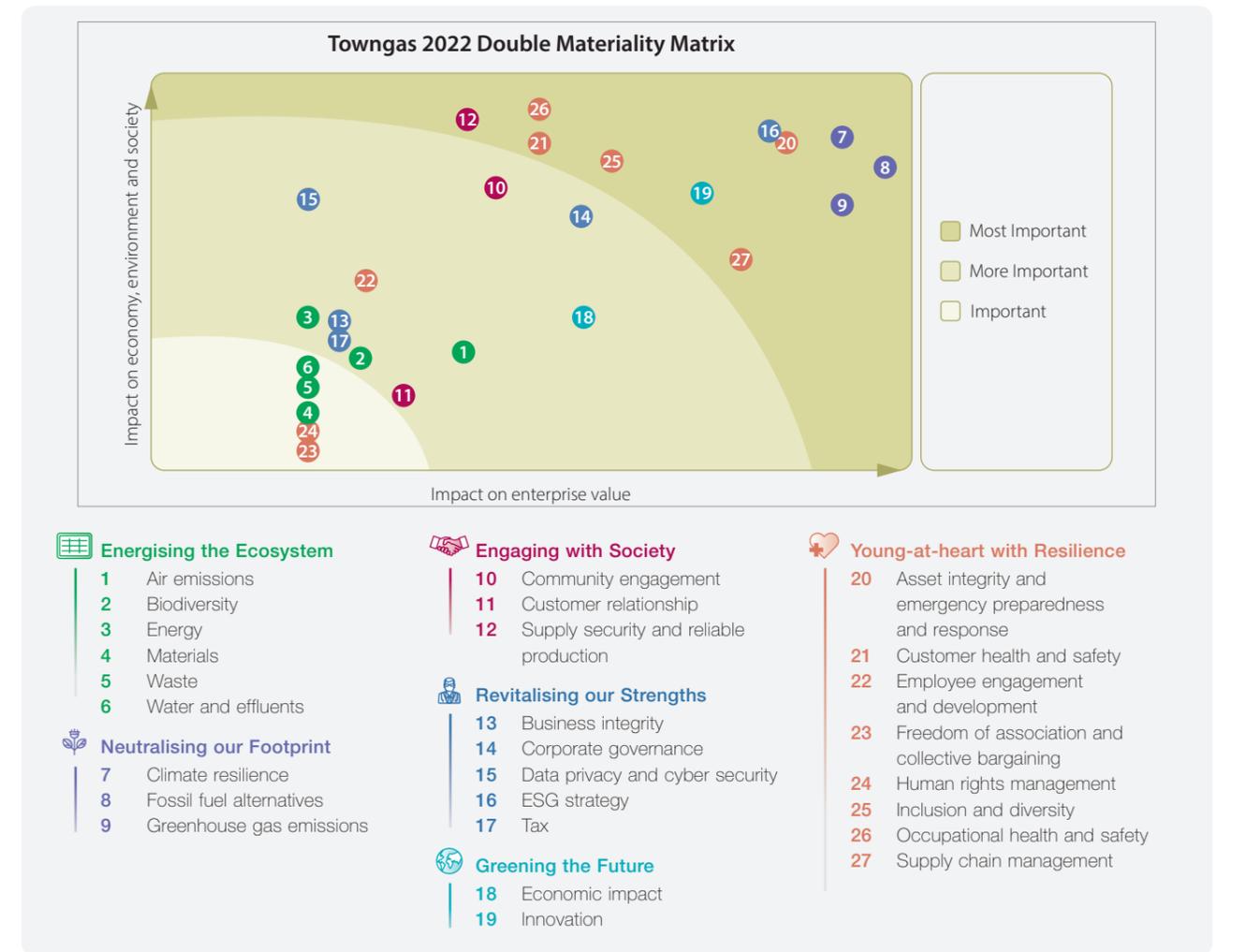
- The prioritised list of material issues was presented to the ESG Committee for discussion and validation

## 2 Prioritisation

- Stakeholders' feedback was considered from two aspects:
  - **Financial materiality:** reflecting the views of Towngas' management level on positive and negative impacts on Towngas' enterprise value
  - **Impact materiality:** reflecting the concerns of diverse stakeholders who believe the selected ESG issues may contribute significant positive and negative impacts on the economy, environment and society
- A revised materiality matrix was developed based on the most impactful topics on society and environment and Towngas' enterprise value

### Towngas 2022 Double Materiality Matrix

The double materiality matrix below summarises the relative importance of the 27 material issues by their impact on economy, environment and society (Y-axis), and impact on Towngas' enterprise value (X-axis). 11 of them were prioritised as most material issues.



This year, climate resilience, fossil fuel alternatives, greenhouse gas emissions, asset integrity and emergency preparedness and response, and ESG Strategy are the top five material issues for Towngas. Compared with the previous year, the difference is from factoring in those material issues that are important to Towngas' enterprise value.

The impacts of climate-related issues were recognised by our stakeholders, who have great expectations on companies to track their greenhouse gas emissions, set decarbonisation targets, mitigate climate risks and ensure resilience.

Other issues include asset integrity and emergency preparedness and response, as well as fossil fuel alternatives. To address these topics, Towngas is actively exploring sustainable energy solutions to ensure the supply of safer and more reliable energy. For ESG strategy, we have been integrating ESG factors into our business and operations to create a sustainable business and contribute to society.

### Boundaries and Impacts

This report covers all material issues and their corresponding boundaries, where their impacts occur and Towngas' involvement, as shown in the table below.

#### Topic Boundaries for Material Issues

	Material Issues	Boundaries				Impacts
		Employees	Contractors and suppliers	Customers	Community	
1	Air emissions	✓	✓	✓	✓	Energising the Ecosystem
2	Biodiversity	✓	✓		✓	
3	Energy	✓	✓	✓	✓	
4	Materials	✓	✓			
5	Waste	✓	✓			
6	Water and effluents	✓	✓	✓	✓	
7	Climate resilience	✓	✓	✓	✓	Neutralising our Footprint
8	Fossil fuel alternatives	✓	✓	✓		
9	Greenhouse gas emissions	✓	✓	✓	✓	
10	Community engagement	✓			✓	Engaging with Society
11	Customer relationship	✓	✓	✓		
12	Supply security and reliable production	✓	✓	✓	✓	
13	Business integrity	✓	✓	✓	✓	Revitalising our Strengths
14	Corporate governance	✓	✓	✓	✓	
15	Data privacy and cyber security	✓	✓	✓		
16	ESG Strategy	✓	✓	✓	✓	
17	Tax	✓	✓			
18	Economic impacts	✓	✓	✓	✓	Greening the Future
19	Innovation	✓	✓	✓	✓	
20	Asset integrity and emergency preparedness and response	✓	✓	✓	✓	Young-at-heart with Resilience
21	Customer health and safety	✓	✓	✓		
22	Employee engagement and development	✓				
23	Freedom of association and collective bargaining	✓	✓			
24	Human rights management	✓	✓			
25	Inclusion and diversity	✓	✓			
26	Occupational health and safety	✓	✓			
27	Supply chain management	✓	✓			

### Stakeholder Engagement Results and Our Responses

The below summarised key stakeholder feedback from the engagement process and our corresponding responses:

#### ESG Strategy



**Strong corporate governance is the backbone of any well-run company, essential to enhancing business resiliency, ESG and long-term financial performance**

During the Reporting Period, we made significant efforts to explore the remuneration connection to ESG performance with senior executives through various benchmarking and internal discussions. The variable compensations of the Managing Director and senior executives are linked to ESG material issues in order to enhance accountability beyond shareholders and drive performance improvement. Additionally, to enhance board diversity, at least one female board member will be appointed to the Board on or before 31 December 2024. A more diverse team will lead to a broader range of perspectives in the decision-making process.

#### Climate Resilience



**Climate change caught the attention of all stakeholders and more transparent climate-related disclosure is required**

In alignment with the Task Force on TCFD recommendations, we conducted a comprehensive climate scenario analysis and evaluated the potential financial impacts of climate change. This analysis helps us to factor in climate-related impacts when making business decisions. Additionally, we conducted on-site assessments, as well as ESG and climate-related trainings for employees at sites that are identified to be climate sensitive on the Chinese mainland, to strengthen climate change adaptation and resilience. For further information, please refer to the *Climate Change Management* section.

#### Energy Transition



**Smooth energy transition conveys the message of investing in smart energy to foster business growth and a low-carbon future**

To create a low-carbon future and support business growth, we aspire to pivot from utilising traditional energy sources to becoming an integrated energy supplier. Therefore, we have consistently developed distributed energy systems and hydrogen energy, along with renewable energy, including the establishment of zero-carbon smart industrial parks and a smart energy platform, as well as other waste-to-energy projects.

# ENERGISING THE ECOSYSTEM



**Biodiversity Protection**

**Air Emissions**

**Resources Management**

**Environmental Management**

The 15th Conference of the Parties (COP15) to the United Nations Convention on Biological Diversity (CBD) was held in Montreal, Canada in 2022. Government representatives reached a consensus to establish a new set of global goals and biodiversity-related targets to be achieved by 2030. These aim to halt biodiversity loss, restore ecosystems and protect indigenous rights, as well as to increase finance for developing countries. All the efforts are urgently needed to ensure there is no further acceleration of the global rate of species extinction.

As an organisation that depends on and affects natural resources, biodiversity, and the environment, Towngas is dedicated to responsible operations that minimise our impact and conserve natural resources through effective environmental management and collaborative projects.

## 2022 Performance Highlights

-  Conducted a **LEAP** nature risk assessment in alignment with the TNFD
-  Towngas and **44** of its project companies have obtained **ISO 14001** certifications
-  Electricity use at North Point Headquarters building was reduced by **13.5%** (2022 vs 2015)
-  First time to obtain **ISO 50001** certification at North Point Headquarters building
-  **>1,500 tonnes** of metal recovered through the Used Gas Appliance Recycling Programme
-  Conserved **>120,000 m<sup>3</sup>** of water via the reverse osmosis systems at the Tai Po Gas Production Plant

## Future Actions and Targets

-  Reduce **15%** electricity use for North Point Headquarters building by 2025 (2015 baseline)
-  Increase **2%** in the overall energy efficiency of gas appliances by 2030
-  Stay updated with the latest **TNFD** framework and continuously enhance our actions

## Management Approach

At Towngas, we prioritise protecting the environment and promoting sustainable development. Our *Environmental Policy* outlines our commitments to using resources responsibly, reducing emissions and waste, and minimising our impact on biodiversity.

The Group makes a concerted effort to control and monitor air emissions from our operations to improve air quality. We also use natural resources efficiently and reduce waste generation when possible. We support and encourage our

customers and value chain partners to do the same. We are committed to mitigating the impact of our activities on biodiversity and strive for no net loss, with the goal of having a net positive impact.

Moreover, our *Sustainable Purchasing Policy* promotes the use of sustainable products and services throughout Towngas.

For more information on our management approach and relevant policies, please refer to our *corporate website*.

## Protecting Natural Capital and Biodiversity



As a responsible corporate, Towngas is dedicated to minimising the impact of its operations on the natural environment. In 2022, we became the Taskforce on Nature-related Financial Disclosure (TNFD) Forum Member to support the development of the TNFD framework, and to report and act on evolving nature-related risks.

To meet increasing stakeholder concerns and ensure biodiversity conservation, Towngas published the *Climate-related and Nature-related Directive Guide* (the Guide) and became the first Hong Kong company to respond to the TNFD framework. Aligned with the TNFD (beta v0.2) framework, we conducted a pilot LEAP assessment to identify the nature-related risks and opportunities across the four realms of land, ocean, freshwater and atmosphere in our operations. For more details, please refer to *the Guide*.



“Our planet is facing an unprecedented biodiversity loss. Habitat loss and destruction, climate change and illegal trade of endangered species continue to pose major threats to ecosystems. Collective actions from all of us are required to reverse nature loss.”

– OPCF is a charity in Hong Kong to advocate, facilitate and participate in effective conservation of Asian wildlife.



**Howard Chuk**  
Foundation Director,  
Ocean Park Conservation Foundation



### The LEAP Nature Risk Assessment

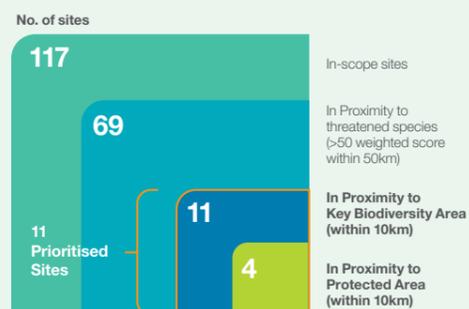
The four steps of the LEAP assessment are “Locate”, “Evaluate”, “Assess”, and “Prepare”. It provides us with a comprehensive understanding of our nature-related risks and opportunities, allowing us to make informed business decisions.

For this pilot assessment scope, we chose to focus on the 100 prioritised locations across the Group’s businesses that were previously identified for our Task Force on Climate-related Financial Disclosures (TCFD) reporting, alongside an additional 17 projects included based on the potential impact of their business activities on nature. In total, 117 locations across six project categories within our own operation are included in the assessment scope.

#### Locate



Among the 117 in-scope locations, there are 69 identified as higher biodiversity value locations that are in proximity to threatened species. 11 of these sites are located within 10km of a key biodiversity area, of which four are also within 10km of a protected area. These 11 sites are considered prioritised sites from a biodiversity perspective.



#### Evaluate



Among the 11 prioritised sites, 10 are Piped City-gas Projects, and 1 is a Midstream and Upstream Project. The most significant impact drivers identified include greenhouse gas (GHG) emissions, terrestrial ecosystem use, and water use, whilst key dependencies include mass stabilisation and erosion control.

From the evaluation, we have identified our impact drivers and dependencies to nature:

- Pipelines used for gas distribution/transportation have a significant spatial footprint, which can lead to
  - ◊ Habitat degradation<sup>1</sup>
  - ◊ Habitat fragmentation<sup>2</sup> in freshwater, marine, and terrestrial ecosystems throughout the pipelines’ life cycle, ultimately leading to biodiversity loss
- Upstream processing can use large amounts of water from the localised area water

<sup>1</sup> Habitat degradation means they can no longer support native wildlife. (<https://www.nwf.org/Educational-Resources/Wildlife-Guide/Threats-to-Wildlife/Habitat-Loss>)  
<sup>2</sup> Habitat fragmentation means cutting up one patch of habitat into several smaller patches and makes it difficult for migratory species to find places to rest, mates and food along their migration routes. (<https://www.nwf.org/Educational-Resources/Wildlife-Guide/Threats-to-Wildlife/Habitat-Loss>)

#### Assess



Based on the dependencies and impact drivers identified for the two project types, we have subsequently assessed our business impacts. More details on other project types can be found in *the Guide*.

Our potential business impacts include increased cost and reputational damage, which are resulted from the below drivers:

**1** Restrictions on land use for future planned projects and/or requirements to restore damaged ecosystems;

**2** Increased natural hazard costs (e.g., impaired assets due to damages from floods or landslides);

**3** Increased insurance premiums and/or reduced availability of coverage;

**4** Costs to restore damaged ecosystems; and

**5** More stringent environmental regulations and/or reporting requirements lead to increased costs to adhere to these regulations and/or reporting requirements.

#### Future plan



We recognise that this assessment is the first of many steps in our journey to advance our nature conservation. As the TNFD v1.0 is planned for release in 2023, we will conduct further work under the “Assess” and “Prepare” steps and make appropriate disclosures where applicable. We will further assess our nature-related risks and opportunities and prepare for disclosures in alignment with the TNFD standards.



## Taking Action

The results of our pilot assessment have allowed us to better recognise the ways in which our gas processing and distribution operations can disturb the land and wildlife habitats. At Towngas, we are committed to working towards no net loss and minimising our impact on biodiversity by striving to:

-  Avoid operating in areas rich in biodiversity or in close proximity to World Heritage areas or International Union for Conservation of Nature (IUCN) Category I-IV protected areas;
-  Minimise the need for digging on public roads by adopting trenchless technology during pipeline construction and maintenance works to reduce the environmental impact of excavation;
-  Promote biodiversity awareness among employees and stakeholders through community investment and training programmes; and
-  Collaborate with external stakeholders such as government departments and non-government organisation (NGOs) to protect and enhance biodiversity.



### Plantation Enrichment Project (PEP)

Since 2017, we have been a proud sponsor of the PEP. The PEP is an initiative organised by the Agriculture, Fisheries and Conservation Department and coordinated by The Green Earth, which aims at enriching the ecological value of plantations and supporting biodiversity in Hong Kong's country parks. In 2022, our employees contributed to plant saplings of local native species such as Chinese Sloanea and Lingnan Garcinia at Shing Mun Country Park. With guidance from The Green Earth, the event raised our people's awareness of the local ecology. For example, the Chinese Sloanea and Lingnan Garcinia can attract monkeys in the wild to pick their fruits instead of rummaging around in human bins for food. By planting various local species in the country parks, the biodiversity of the area could be effectively enhanced.



### Farming for Charity

In 2013 we initiated the Farming for Charity project to promote sustainable land use practices among farmers in Hong Kong. Through this project, we have brought together our employees and their families, university students, customers and members of the wider community to produce organic crops using regenerative agricultural methods. To date, the project has replenished 10,000 square feet of local farmland, with more added each year. We have also invited university professors, industry experts and NGOs to visit the project and learn about its innovative approach to ecological vibrancy.



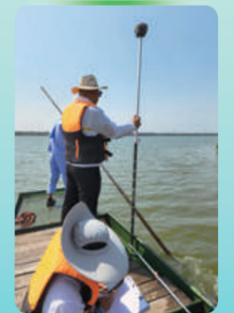
## Taihu Lake Conservation

In 2022, our wholly-owned subsidiary, Hong Kong & China Water Limited (Hua Yan Water) conducted ecological research work of the Taihu Lake water source in Suzhou city, Jiangsu province, making every effort to strengthen ecological restoration and water conservation at the source of the protected lake. From the perspective of ecosystem integrity, we conducted a quantitative assessment of fish diversity and dominant species amount, as well as restoration of advanced aquatic plants, to provide first-hand scientific data for adjusting and optimising the fish population in the lake source. Based on this, we proposed an adjustment and control plan for the fish assemblage structure, an ecological fish stocking plan, and formulated water source ecosystem management measures to improve the stability of the lake source ecosystem and provide a theoretical basis for water quality improvement.

We have formulated plans such as the "Restoration and Reconstruction Plan for Submergent Plants" and the "Fish Stocking Plan", and completed lake source ecosystem control and management plans, such as:



In the future, we will continue to follow the conservation plans to protect the natural resources and biodiversity of the Taihu Lake water source.



## Resources Management

### Conserving Energy

In 2022, our North Point Headquarters building received ISO 50001:2018 Energy Management Systems certification for the first time, confirming our energy management system aligns with international best practices. Prior to the certification, North Point Headquarters obtained Final Platinum BEAM Plus Existing Buildings V2.0 – Comprehensive Scheme with a score of 100. To manage our energy consumption more efficiently, we use a cloud-based energy management system. We have implemented various energy-saving projects, such as modernising the freight lift, optimising the chiller plant, and replacing of light-emitting diode (LED) lighting for office floors. To better understand our energy consumption patterns, we have initiated an energy audit during the year to identify opportunities for energy and cost savings.

Our goal is to reduce electricity use at our North Point Headquarters building by 15% by 2025, compared to the 2015 baseline. In 2022, we achieved:



### Improving Efficiency of Gas Appliances

We are committed to helping our customers save energy and reduce the carbon footprint of the community. To achieve this goal, we continually upgrade and improve the energy efficiency of our residential gas appliances. Our aim is to increase overall energy efficiency by 2% by 2030.

We believe in providing consumers with the information they need to make informed decisions about energy usage. To facilitate this, all of our residential cooking appliances and water heaters will meet at least Grade 2 in the Mandatory Energy Efficiency Labelling Scheme (MEELS) to be effective from September 2023.

### Conserving Water

Towngas has committed to a water efficiency target of 96%. In 2022, Towngas achieved the target through various water management measures, including leakage management, process improvement and adoption of innovative technologies. In addition, our three reverse osmosis systems at our Tai Po Gas Production Plant ran smoothly and saved over 120,000 m<sup>3</sup> of water in 2022. To conserve water, one of the most precious resources in the world, we also collect and reuse rainwater wherever possible. A rainwater collection tank is installed at our North Point Headquarters building, and the rainwater collected is used for cleaning and irrigation.

We recognise the increasing significance of water stress and conducted an assessment with the analysis of Towngas' impact and dependencies on water sources at our selected project sites (please refer to *the Guide* for more details). The results of the assessment will be used to review our water management practices.

We also strive to minimise effluent spills that can negatively impact the environment. No reportable effluent spills happened at any of our operations during the Reporting Period.

### Managing Waste

At Towngas, we take the proper management of hazardous waste seriously, ensuring that all of our waste is treated in strict compliance with the local laws and regulations.

In addition to this, we also promote waste reduction and recycling throughout our operations. We encouraged employees to donate the excess food to people in need during Chinese New Year, organised a site visit to a glass and plastic waste recycling facility, hosted a t-shirt upcycling workshop, and promoted e-waste recycling.

As we have successfully met over 40 waste reduction and recycling targets to date, Towngas has earned the Wastewi\$e Certificates at the Excellence Level for 21 consecutive years.

### Reducing Customer Waste

We have implemented the Used Gas Appliance Recycling Programme since 2003. This programme collects unwanted appliances from customer premises and sells them to recycling contractors, with all proceeds going to environmental causes. In 2022, we recovered over 1,500 tonnes of scrap metal through this programme, bringing the total amount recovered since 2003 to approximately 23,000 tonnes.

To encourage our customers to switch to our eBilling service, Towngas ran a programme from August 2021 to July 2022 to donate HK\$20 to green groups for each new eBilling application. Over 32,000 customers registered eBilling services during the period, which has further reduced paper consumption significantly.



## Air Emissions

Air quality is critical to public health, and we are committed to improving it through continuous monitoring and control of air pollutants. In addition to complying with all local regulations, we strive to further reduce our air emissions through various measures.

Our air emissions mainly include non-GHG emissions such as nitrogen oxides (NO<sub>x</sub>), sulphur oxides (SO<sub>x</sub>) and respirable suspended particulates (RSP).

The main sources of air emissions are combustion from fuels such as natural gas and naphtha and vehicle fuel burning and therefore, directly related to carbon emissions. Our efforts to increase energy efficiency and reduce carbon emissions will also lower air emissions. For more details, please refer to the *Our Carbon Reduction Initiatives* section.

At our chemical plants, we regularly monitor air emissions to ensure compliance with regulatory requirements. SO<sub>x</sub> and NO<sub>x</sub> generated from our town gas production sites are properly managed and well below licence limits.

# NEUTRALISING OUR FOOTPRINT



Climate Change Management

Carbon Neutrality

In November 2022, business leaders and country representatives from around the world gathered at the 27th Conference of the Parties of the United Nations Framework Convention on Climate Change (COP27) to affirm their commitment to transitioning to a clean energy mix by using low-emission fuels and renewable energy and phasing out of coal and inefficient fossil fuels.

As an environmentally and socially responsible business, Towngas recognises the importance of factoring in the impacts of climate change into our business decisions and working towards decarbonisation. We strive to reduce emissions and foster goals of reaching carbon neutrality by 2050.

To further our efforts, Towngas has conducted climate-related risk assessments and analysed the financial impacts of various scenarios, culminating in the launch of our Climate-Related and Nature-Related Directive Guide this year, which serves to enhance the company's resilience.

## 2022 Performance Highlights

-  Disclosed **climate-related financial** information in alignment with the TCFD
-  Completed pipeline leakage study and concluded leakage rate from our pipeline falls between the range of **0.045 – 0.13%**
-  Became a **TCFD** supporter and signatory of the **Methane Guiding Principles** partnership
-  Renewable energy generated from solar panels reached over **304,000 kWh** in Hong Kong

## Future Actions and Targets

-  Achieve **carbon neutrality by 2050** with **two** medium-term carbon reduction targets
-  Supply **waste heat** from the Tai Po Gas Production Plant to a neighbouring food factory in 2023
-  Strengthen **climate resilience** by visiting our project companies on the Chinese mainland
-  Install second phase of PV systems at the Tai Po Gas Production Plant to generate an addition **300,000 kWh** of clean energy annually

## Management Approach

Our *Climate Change Policy* outlines our commitment to combating climate change.

We started to conduct climate-related assessment as early as 2015 and began to align our climate-related reporting with the Task Force on Climate-Related Financial Disclosures (TCFD) recommendation in 2019. From the assessment, we understand the risks associated with a changing climate and have made appropriate provisions for them in our businesses. We have also identified opportunities made possible by new technologies, products and services that could enable us to become more resilient and adaptive to climate change.

Climate-related risks are reviewed and updated on at least a bi-annual basis. We will continue to align our disclosures with the TCFD recommendations, not only to communicate with our stakeholders in a more transparent manner but also to ensure our business grows sustainably.

We recognise that our operations emit greenhouse gas (GHG) that contribute to climate change. Therefore, we are continuously monitoring and reducing our direct and indirect GHG emissions.

For more information on our management approach and relevant policies, please refer to our *corporate website*.

## Climate Change Management

Towngas was one of the first companies in Hong Kong to address climate change risks since 2015. We have aligned our disclosure with the Recommendations of the TCFD since 2019. A standalone *Climate-related and Nature-related Directive Guide* (the Guide) was published in 2022 to further enhance our transparency on climate-related financial disclosures.

### Transition Risks and Opportunities

Transition risks are risks related to the transition to a low-carbon economy, with four major categories: policy and legal, technology, market and reputation.

In 2022, Towngas incorporated the latest International Energy Agency (IEA)'s Net Zero Emissions by 2050 Scenario and Network for Greening the Financial System (NGFS) scenarios into our transition risk scenario analysis to assess our resilience to climate change.

Top transition risks were prioritised mainly under the Net Zero 2050 Scenario and Below 2°C Scenario for gas-related business. The Group has been diversifying its businesses to work toward the path of energy transition.

Risk/Opportunity	Time Horizon	Description (example)
<b>Policy and Legal</b>	Short to Medium Term (2020-2030)	Mandates on/regulation of products and services
<b>Technology</b>	Medium to Long Term (2025-2050)	Extra costs incurred for the transition to lower emissions technologies
<b>Market</b>	Medium to Long Term (2025-2050)	Shifting consumer behaviour
<b>Reputation</b>	Long Term (2030-2050)	Shareholders are likely to divest from fossil fuels and invest in low-carbon business

### Physical Risks

Physical risks are risks related to the physical impacts of climate change, either acute (e.g., floods, droughts) or chronic (e.g., sea level rise, temperature increase).

From the physical risk assessments at the asset level for 100 major assets on the Chinese mainland conducted in 2021, we identified assets that are considered climate-sensitive in terms of potential losses due to climate change. Visits for six selected sites were conducted in 2022, in which we observed that effective systems are in place to prevent different climate stressors. Environmental, social and governance (ESG) and climate-related knowledge trainings were also provided to strengthen their climate change adaptation and resilience.

Risk	Time Horizon	Description (example)
<b>Acute</b>	Medium Term (from 2030)	Heavy rainfall and increased frequency and intensity of river floods
<b>Chronic</b>	Long Term (from 2050)	Extreme heat and increased temperature

## Climate-Related Financial Disclosures

The table below shows the financial impacts of potential risks under scenarios with the most significant negative effect on the Group's business in 2050.

Scenario	Risk	Scenario	Type of Impact	Financial Impact (HK\$ million)		
				<500	500-1,500	>1,500
1.5°C scenario	Transition	Policy and Legal	Net Zero 2050	EBITDA <sup>1</sup>		•
		Market		EBITDA <sup>1</sup>		•
		Technology		Expenditure	•	
		Reputation		Expenditure	•	
4°C scenario	Physical	RCP 8.5	Acute	Expenditure		•
			Chronic	EBITDA <sup>1</sup>	•	

<sup>1</sup> For gas, water and related businesses in Hong Kong and the Chinese mainland

The Group has been working to transform into a clean energy company and support the low-carbon future through diversifying its business and financing decarbonisation efforts. For the Group's business on the Chinese mainland:

	2021	2022
Revenue from low-carbon business over gas business	10%	13%
Investment in low-carbon business over gas business	11%	28%

We expect these numbers to grow continuously in the future and believe that the effects of risks will be offset by the opportunities the Company has developed in low-carbon business.

### Alignment with TCFD Recommendations

We have aligned our TCFD disclosures with the four pillars recommended by the TCFD below:

	Page number in the ESG Report	Page number in the Guide
<b>Governance</b>		
Board's oversight	<u>3</u>	<u>8-10</u>
Management's role	<u>17</u>	<u>9-11</u>
<b>Strategy</b>		
identification of climate-related risks and opportunities	<u>36</u>	<u>18-25</u>
Impact of climate-related risks and opportunities	<u>36-37</u>	<u>18-25</u>
Climate-related scenarios and resilience strategy	<u>36-37, 60-67</u>	<u>13-17, 26-29</u>
<b>Risk management</b>		
Processes for identifying and assessing climate-related risks	<u>22-25, 36</u>	<u>13-24</u>
Processes for managing climate-related risks	<u>36-45</u>	<u>12, 18-24</u>
Integration of climate-related issues into overall risk management	<u>3, 17, 55-56</u>	<u>9</u>
<b>Metrics and targets</b>		
Metrics used to assess climate-related risks and opportunities	<u>37, 66-67</u>	<u>27</u>
Scope 1, 2 and 3 GHG emission	<u>38</u>	<u>26-27</u>
Targets to manage climate-related risks and opportunities	<u>10-11, 38, 66-67</u>	<u>28</u>

## Carbon Neutrality

We are committed to becoming carbon neutral by 2050 with two medium-term targets by 2025:

- Reduce group operational GHG emissions by 10% (2020 baseline)
- Reduce 10 million tonnes of GHG emissions in the environment per year through coal-to-gas, solar photovoltaic power generation, and energy efficiency improvement projects, among others

The Science Based Targets initiative (SBTi) is developing a new methodology for the oil and gas sector to set science-based targets (SBTs), and currently does not accept commitments or validate targets. Nevertheless, we are getting prepared to set SBT and closely monitoring the development of SBTi.

### Our Carbon Footprint

Our total scope 1 and 2 carbon emissions in 2022 were 2,503,000 tCO<sub>2</sub>e, which covered all seven types of GHGs specified in the Kyoto Protocol.

In 2022, the methodology to consolidate GHG emissions was revised from equity basis to control basis. Our GHG emissions was updated from 1,492,000 tCO<sub>2</sub>e (old methodology) to 2,503,000 tCO<sub>2</sub>e (updated methodology). The 2025 medium term target of reducing group operational GHG emissions by 10%, under the updated methodology, accounts for 235,000 tCO<sub>2</sub>e.

We have long disclosed our scope 1 and 2 emissions. To recognise the significance of emissions throughout the value chain, we started disclosing our scope 3 emissions for gas production in Hong Kong and gas distribution on the Chinese mainland in 2020 and 2021 respectively.

For the Chinese mainland gas distribution business, our scope 1, 2 and 3 emissions totalled 20,296,000 tCO<sub>2</sub>e, with scope 3 emissions accounting for approximately 99.5%.



Scope 1: direct emissions from owned or controlled sources  
 Scope 2: indirect emissions from the generation of purchased energy  
 Scope 3: other indirect emissions that occur in the value chain  
 Category 11 refers to the use of sold products (e.g., town gas, natural gas)

For Hong Kong gas production, our scope 1, 2 and 3 emissions totalled 2,156,000 tCO<sub>2</sub>e, with scope 3 emissions accounting for approximately 85%. Town gas production and consumption account only for approximately 1.0% and 4.3% of GHG emissions in Hong Kong, respectively. The carbon intensity of gas production in Hong Kong in 2022 was 0.576 kg CO<sub>2</sub>e per unit of town gas – a decrease of 25% compared to the 2005 baseline.

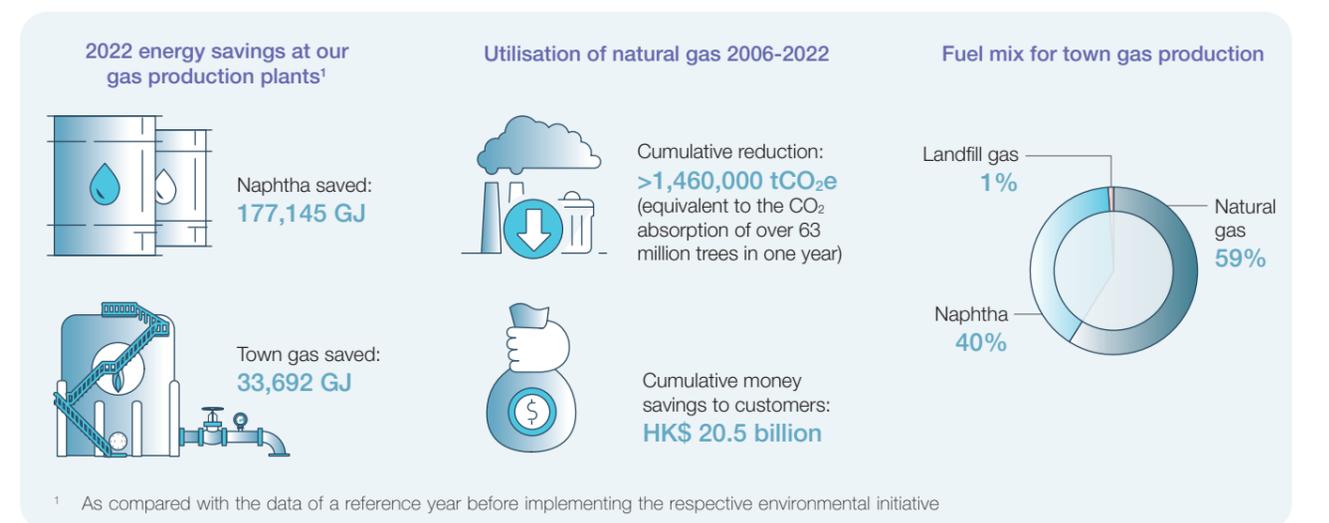
The carbon inventory was verified against ISO 14064-1:2018 by a third party.

### Our Carbon Reduction Initiatives

To reduce our carbon footprint, we have been transitioning away from high-polluting fossil fuels for decades. In the 1960s, we stopped using coal and introduced a much cleaner fuel, naphtha, to the fuel mix.

As early as 1999 and 2006, we added landfill gas and natural gas to our production of town gas. We were among the early adopters of renewable fuels such as landfill gas in Hong Kong. Our commitment to decarbonisation will continue as we strive to improve energy efficiency, reduce methane leakage and promote the use of renewable energy and hydrogen.

In Hong Kong, we used 210,837 GJ of landfill gas in our town gas production in 2022.



### Switching to Electric Vehicles

We are actively embracing the shift to electric vehicles (EVs), which produce less noise, fewer roadside emissions and carbon emissions.

To support the HKSAR Government's One-for-One Replacement Scheme, we aim to replace older petrol vehicles with newer electric models, and have formulated an EV Conversion Plan to convert 60 vehicles to EVs by 2025, and increase the number when feasible.

As at the end of 2022, we purchased 28 EVs and installed 30 chargers at our headquarters. To ensure convenient charging, we are also developing a charging management system accessible through mobile apps.

## Reducing Methane Leakage

According to the Sixth Assessment Report published by the Intergovernmental Panel on Climate Change (IPCC), methane is a potent greenhouse gas and a significant contributor to climate change, with a global warming potential 28 times higher than that of carbon dioxide (CO<sub>2</sub>). To mitigate its impact, international leaders are working to reduce their countries' methane emissions, such as the establishment of the national-level Global Methane Pledge. The Chinese mainland also declared to control the key non-CO<sub>2</sub> greenhouse gas emissions in their Nationally Determined Contributions.

The chemical composition of town gas consists of approximately 30% of methane, while in natural gas, the methane content can reach over 90%. We have been working progressively to monitor and reduce the possibility of gas leakage from our pipeline network, which totals approximately 130,000 km in Hong Kong and the Chinese mainland.



### Pipeline Leakage Study

We are aware of the existing leakage detection studies in the academic field and within the gas industry globally. However, relevant local studies and data are limited. Data, such as emission factors, sourced from international research papers can be used to provide an overview of pipeline leakage scenarios which might not be applicable to the local situation. As such, to study the impact of methane leakage in a local context, we conducted an extensive pipeline leakage study in 2022, in collaboration with the City University of Hong Kong, to quantify various leakage sources from our gas pipelines in Hong Kong.

At the initial stage of the study, international literature reviews and desktop studies were conducted to obtain information on major leakage sources and relevant data.

#### Major Leakage Sources



##### Third-party damage

Pipelines are occasionally damaged by external parties during excavation and other construction works involving ground penetration. Although the damages to the pipelines in these scenarios are usually the largest, they are often reported immediately.



##### Regular leakage

Although odorant is present in town gas, most of the time, tiny leaks are not immediately discovered due to the very low concentration of odorant in the air. Regular leakage includes those identified by town gas detectors during pipeline leakage surveys.



##### Pipeline commissioning and decommissioning

During pipeline commissioning, town gas is initially injected into the pipeline to push the air or inert gas out. Therefore, the gas mix will be flared or directly purged. Reverse actions are conducted during pipeline decommissioning by using air or inert gas to push the town gas out of the pipeline.

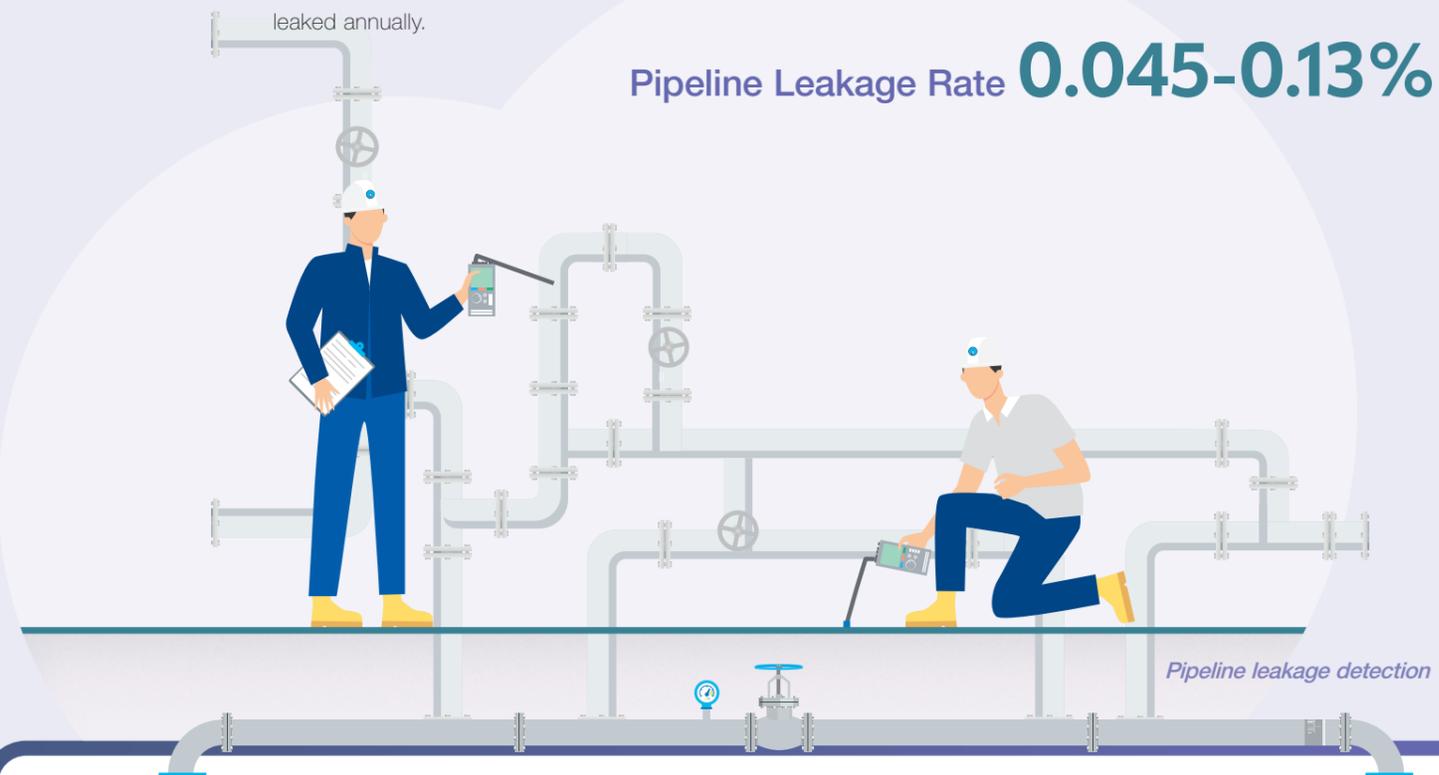


##### Permeation

Although the most leakproof materials have been chosen for our pipelines, micro permeation will inevitably occur from our polyethylene (PE) pipelines.

To account for our unique pipeline landscape in Hong Kong, a local methodology is developed for a more accurate and holistic estimation of pipeline leakage, including measurements were taken, various data was collected from our network operations, and site visits were conducted in order to study the leakage patterns. The results concluded that the pipeline leakage rate from our pipeline falls between the range of 0.045-0.13%, equivalent to about 4,000-12,000 tCO<sub>2</sub>e of methane being leaked annually.

Pipeline Leakage Rate **0.045-0.13%**



## Leakage Prevention and Detection

We continue to monitor and enhance our pipeline infrastructure. As most of our pipeline networks are located in cities and areas with road access, which makes monitoring and leakage detection relatively straightforward. Gas detectors, sniffer dogs and vehicles equipped with sensitive laser methane detectors are used for more comprehensive and precise leakage detection. In Hong Kong, we conduct comprehensive leakage surveys one to six times every year based on the risk level. On the Chinese mainland, pipelines in rural areas may require extra manpower and effort to detect leakage. To enhance the efficiency and safety of detecting leakage in these areas, we have deployed drones with methane sensors for broader coverage and more comprehensive monitoring.

We also upgrade and repair ageing pipes to ensure the pipelines are in good condition and to reduce leakage. As at 2022, over RMB4.5 billion has been invested in replacing the old pipelines and purchasing advanced equipment. The vast majority of our pipelines, 98%, are made of steel or PE, and the pipelines are mainly interconnected through welding to effectively reduce the risk of gas leakage.



“ We welcome and support Towngas in joining MGP as a signatory in 2022 to join hands with other global oil and gas companies and focus on quantifying, reporting and reducing methane emissions. ”

– MGP is a voluntary, international multi-stakeholder partnership to reduce global methane emissions from the natural gas supply chain.



**Chris Rathbun**  
Programme Manager,  
Methane Guiding Principles (MGP)



## Our Pledges to Reduce Methane Emissions

We became a signatory of the Methane Guiding Principles (MGP) partnership in 2022 to reduce methane emission across the production value chain. By joining the MGP, Towngas is committed to following and building on the five methane guiding principles to exchange methane-related information among industry peers and improve methane reduction efforts collectively.



At the national level of promoting methane emission reduction, Towngas has signed the “Chinese City-Gas Enterprise Methane Emission Control Proposal” to promote the inclusion of methane emissions control in the development plan of gas companies on the Chinese mainland to respond to the national dual carbon goals. The Group is committed to promoting the development and demonstration of methane emissions control technologies, and actively cooperating with the government to formulate and implement methane emissions control policies, in order to achieve methane emissions reduction.

On the other hand, Towngas Smart Energy Company Limited (Towngas Smart Energy) has joined the China Oil and Gas Methane Alliance. Our pledge includes taking a series of actions to comprehensively improve the standard of methane emissions control and strive to work towards the target of reducing the average methane intensity in natural gas production to below 0.25% by 2025, as proposed by the Alliance. Our goal is to strengthen the collaboration within the industry to promote methane emissions control actions along the industry value chain and work with other Alliance members to drive low-carbon development.

In 2022, the Group actively carried out the analysis and measurement of methane emissions for gas facilities and participated in the preparation of the national standard “Requirements of the Greenhouse Gas Emissions Accounting and Reporting: Urban Gas Supply Enterprises” to fulfil our methane emissions control commitments.

## Advanced Technologies on the Chinese Mainland

### LNG Station

Leakage detection alarms with laser or gas sensors have been installed to constantly monitor potential leakages in the facility. Combined with Artificial Intelligence (AI) technology, the sensors are able to distinguish between fugitive gas leakage, flares and smoke, allowing staff to gain better control.

### Pipeline Integrity

With our rich experience in pipeline operation, we concluded that one of the major causes of pipeline leakage is the defects of pipeline welding. We have therefore implemented the following measures:

#### For pipelines before operation:

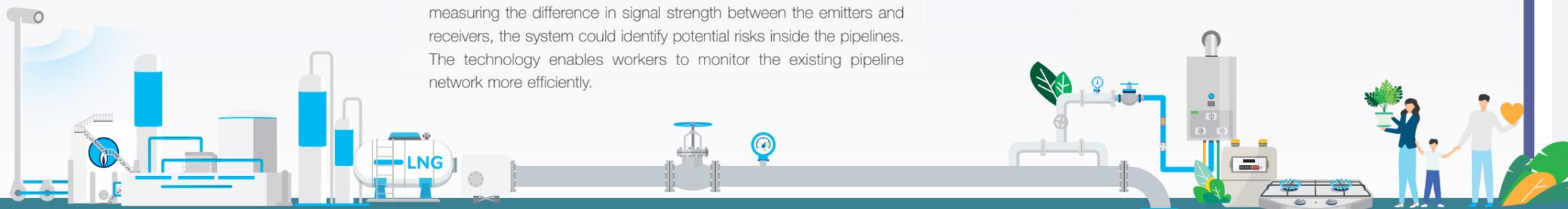
Apply AI smart review technology to control the quality of the welding process and use phased array ultrasonic technology to check the welding quality of PE pipelines.

#### For pipelines in operation:

An acoustic and pulsation system is used to monitor the pipelines. By measuring the difference in signal strength between the emitters and receivers, the system could identify potential risks inside the pipelines. The technology enables workers to monitor the existing pipeline network more efficiently.

### Smart Gas Meter

To monitor gas leakage on the customer side, we have cooperated with a gas meter provider to collaboratively design an innovative smart gas meter with safety features embedded. When suspicious gas flow or micro-leak is detected, an alarm will be triggered instantly, and the gas supply will be cut off automatically to ensure customers’ safety. The smart gas meter has been successfully introduced to the market since the fourth quarter of 2022 and is expected to reach a market share of over 1 million devices.



 **Reducing Emission for Value Chain and Our City**

Through various initiatives, we are working to reduce GHG emissions from our downstream operations, primarily from the use of town gas by our customers. These include improving the efficiency of gas appliances, generating renewable energy, implementing Combined Heat and Power (CHP), and exploring different waste-to-energy projects. For more details, please refer to the [Energy Transition](#) section.

In Hong Kong, we pioneered the idea of utilising waste heat from our town gas manufacturing process. Waste heat in the form of hot water will be sent to a nearby food factory to drive the desiccant dehumidifiers. The testing and commissioning commence of this project are underway, with an expected completion date in early 2023.

**Solar PV Systems in Hong Kong**

We installed PV systems at our Tai Po Gas Production Plant, North Point Headquarters and offtake & pigging stations in Hong Kong. The amount of renewable energy generated from solar panels in these facilities reached over 304,000 kWh in 2022. We are also expanding the PV systems at Tai Po Gas Production Plant and have commenced construction in 2022. Upon completion in 2023, we expect an additional 300,000 kWh of clean energy per annum to be generated.



**First Carbon Neutral Voyage of Naphtha**

In September 2022, Towngas had its first carbon-neutral voyage of naphtha arrive in Hong Kong. This voyage travelled over 6,000 nautical miles from Australia, and over 1,300 tCO<sub>2</sub>e has been offset by a Reducing Emissions from Deforestation and Forest Degradation (REDD+) project in Cambodia, verified under the Verified Carbon Standard. The REDD+ project focused on mitigating climate change, preserving biodiversity and generating positive impacts for both the community and biodiversity.



**Support Carbon Trading Market in Hong Kong**



To support the development of the voluntary carbon market, we joined the Hong Kong International Carbon Market Council under Hong Kong Exchanges and Clearing Limited (HKEX) in 2022. This will allow us to share useful insights on carbon trading in Hong Kong and international markets.

Towngas is one of the first users to complete a carbon trade transaction on the Core Climate platform launched by HKEX, demonstrating Towngas' commitment to promoting the development of a carbon trading market in Hong Kong.



 **Partnering for Carbon Neutrality**

We believe global partnership and cooperation are essential in the fight against climate change. Therefore, we are proactively engaging with both local and international parties to help mitigate climate impacts.



To demonstrate our commitment to transparency and sustainability, we became a supporter of the TCFD in 2022.



To support the drive for carbon neutrality by 2050, we have joined the HKSAR Government's Carbon Neutrality Partnership.



To further reinforce our commitment to reducing our carbon footprint, we once again signed the Low Carbon Charter of the Business Environment Council (BEC) in 2022. Towngas also participates in public consultations and advisory groups organised by BEC to contribute to the transition to a net-zero economy.

Towngas Smart Energy joined the Climate Governance Initiatives (CGI) in Hong Kong as one of the eight founding partners. CGI is a global initiative to mobilise boards of directors to address climate change in their businesses.

# ENGAGING WITH SOCIETY



Customer Experience

Community Engagement

Towngas acknowledges the significant impacts of our operations on society. In 2022, we navigated our business through COVID-19 while delivering a positive impact to our customers and community. As one of Asia's leading utilities, we strive to offer sustainable products and services to meet the changing needs of our customers. In addition, we place great emphasis on supporting our community, particularly caring for the health and wellness of our community, supporting youth development and promoting environmental awareness.

## 2022 Performance Highlights

-  Donated **HK\$10 million** worth of dining coupon
-  Completed **1.5km** gas pipeline to supply town gas to Lok Ma Chau Loop Makeshift Hospital
-  **>43,000 households** benefited from the Towngas Concession Schemes totalling **HK\$25 million**
-  Volunteered service hours:  
**9,239** (Hong Kong)  
**584,329** (mainland utility businesses)
-  Service quality - efficiency **9.00\***  
Service quality - courteous and friendly attitude **9.00\***  
\* Exceeded target score of 8.5 out of 10

## Future Actions and Targets

-  Provide **free installation** of smart controllers and smart meters for **10,000 households** in need
-  Study **social return on investment** to measure the positive impact of community investment programmes
-  Develop and launch **smart IoT products** to enhance home safety and user convenience

## Management Approach

For 160 years, Towngas has prided itself on being a socially responsible business that serves its community, provides efficient customer service, and creates long-term value for society. This commitment is outlined in our *Customer Service Code of Conduct Policy*, *Social Investment Policy* and *Stakeholder Engagement Policy*. To demonstrate this commitment, we strive to align our business activities with these policies and foster trusted relationships with customers and the community.

We maintain high standards for the safety and reliability of our gas supply as well as other products and services that we provide to our customers. Various internal policies, programmes and targets are in place to ensure customers receive excellent service. Our determination and commitment to providing friendly, competent and efficient service to our customers are outlined in the *Towngas Service Pledge*,

detailing the quality of service we are committed. We also provide various communication channels for customers to access information on our products and services and provide feedback to better understand their needs.

As a caring company, Towngas' corporate philosophy has always placed a strong focus on corporate social responsibility. We understand the needs of our community and create programmes accordingly. Our initiatives focus on three areas:

-  Community health and wellness
-  The environment
-  Youth development

For more information on our management approach and relevant policies, please refer to our [corporate website](#).

## Customer Experience

### Supplying Reliable Energy

In 2022, we continued to provide consistent town gas services and remained at the high level of 99.994% uninterrupted town gas supply. This was made possible by:

-  Efficient maintenance and emergency-handling system
-  Dual feedstock of natural gas and naphtha, which minimises the uncertainty associated with single-fuel sources
-  Installed the first subsidiary system at one of our eight gas production units in the Tai Po Gas Production Plant in 2021, which increased its capacity by 20%

To enhance our cyber security and the reliability of our Tai Po Gas Production Plant, we have successfully migrated the console to the new operating system for both Phase I and Phase II plants. Ongoing monitoring and system checks, as well as familiarisation training for plant operators, are being planned.

### Supporting the Battle Against COVID-19 – Lok Ma Chau Loop Makeshift Hospital



In support of the fight against the fifth wave of COVID-19 that hit Hong Kong, Towngas stepped up to the challenge of creating a gas pipeline for Lok Ma Chau Loop Makeshift Hospital.

Despite the ongoing pandemic, our team of 200 rose to the challenge and completed the 1.5km pipeline in just four days from scratch, while maintaining high standards and quality.

Their hard work ensured a safe and reliable supply that can be provided to approximately 10,000 patients and 4,000 workers. Our ability to deliver this critical infrastructure in such a short timeframe demonstrates our unwavering commitment to being a reliable partner in times of need.



### Reliable Gas Supply on the Chinese Mainland

On the Chinese mainland, the Group's strategy of providing a reliable and stable gas supply is to increase gas storage capacity and diversify gas sources.

Our natural gas storage facilities in underground salt caverns in Jintan district, Jiangsu province, increased the operating capacity to 277 million m<sup>3</sup>, and will ultimately reach a total storage capacity of 1.1 billion m<sup>3</sup>, to provide a reliable, stable and cost-efficient supply for our city-gas projects in eastern China.

To enhance the flexibility of gas sources, the liquefied natural gas (LNG) receiving terminal project in Caofeidian, Tangshan city, Hebei province, to provide gas storage and peak-shaving capacity in north and northeast China is expected to be commissioned in 2023, while part of the production capacity the shale gas liquefaction plant will also be commissioned in 2023 and used for peak-shaving as well as natural gas trading and sales in Sichuan province. In Shanxi province and Ningxia Hui autonomous region, we operate two sustainable gas-to-LNG projects using feedstock derived from coalbed methane and coke oven gas. These additional gas sources to our city-gas projects help ensure a stable supply.

### Serving Our Customers

At Towngas, we are dedicated to providing top-notch service to our customers. Our Superior Quality Service (SQS) programme and corporate philosophies of "Growth = innovation x implementation" (G = i x i) serve as the foundation of our ongoing efforts to enhance customer satisfaction. With over 1,900 projects completed in the past 30 years, we have boosted customer satisfaction and saved around HK\$648 million.

At Towngas, we take responsible business practices seriously and ensure our marketing materials are accurate, based on substantiated information, and compliant with all relevant government regulations and industry guidelines. In 2022, we had no incidents of non-compliance with respect to regulations and/or voluntary codes regarding our product and service information, labelling and marketing communications.

The Towngas Service Pledge is a statement of our commitment to providing friendly, competent and efficient service. We strive to continuously enhance our service. The pledge establishes targets in six key areas, which are updated annually, and we are proud to have achieved all targets in 2022. For more information, please refer to our [2023 Service Pledge](#).



Reliability



Safety



Appointments



Service quality



Handling suggestions



Speed and convenience

### Using AI and Big Data Analytics to Improve Customer Service



We continued utilising artificial intelligence (AI) speech analytics technology to explore insights from audio calls from our Customer Hotline Services to enhance customer experience. In 2022, we developed an in-house machine learning model to speed up the speech analytics process. With the use of speech to text transcription technologies and a machine learning model, we are able to identify customer concerns from audio calls and better help our customer to resolve their enquires via digital platforms efficiently.

We also added more functions to our AI Chatbot and Towngas eService, including meter reading and customer enquiry category identification to allow a better one-stop service experience for our customers. With the improvement, both AI Chatbot and e-Service saw increased usage in 2022.

To further improve our offerings, we developed an Appliance Quality Information Portal to collect data on appliance defects, share of defect information among departments and improve future product quality. Big data analytics are used for emergency monitoring and appliance defect analysis to identify high-risk estates and appliance models for preventive inspection and maintenance to ensure customer safety. We also organised special appliance replacement programmes to minimise potential risks.

### Towngas Lifestyle for Customers

To provide customers with one-stop quality services, we have extended our businesses beyond gas into home and health services and products. On the Chinese mainland, we are building smart kitchens that utilise the latest Internet of Things (IoT) technology and providing value-added services that enable our customers to enjoy a safer, healthier and more comfortable home. We also developed a brand, "Moment+", to promote a healthy lifestyle through an online and offline integrated operating model.

In 2022, we continued to enhance the Towngas Lifestyle Cloud Platform. The integrated platform will be compatible with the back-end systems for smart kitchens, Moment App, our insurance business, hotline centres and other business operations. As such, we will be able to increase our customer service efficiency, reduce manpower costs and create a better customer experience while accelerating the digital transformation of the Group.

### Breakthrough in Cybersecurity – TGSE CHIP

Towngas Lifestyle has formed a new partnership with StarFive and China Five to develop smart chips. In 2022, we launched a new IoT chip and security platform based on a high-performance RISC-V core, the first product of its kind in the industry. Initially, the new IoT security chip will be applied in our gas meters, making them safer, smarter, more energy efficient and more capable of defending against cybersecurity threats. We will continue to expand its application in our smart kitchen platforms and gas network systems.

### Improving Accessibility for All

We aim to make our services accessible to everyone, including those with disabilities and disadvantages. Our new generation of Wi-Fi smart metering system and automated Easy Metering service improve accessibility for the visually impaired, the disabled and disadvantaged group who may have difficulties obtaining gas meter readings and reporting to us. The smart meter automatically communicates readings to us, providing barrier-free meter reporting for visually impaired and wheelchair users.



#### Ethnic Minorities

Our customer service hotline is available in English, Cantonese, Putonghua, Tagalog and Bahasa Indonesia



#### Visually Impaired

Bills and gas appliance instructions are available in Braille instructions to those who are visually impaired



#### Disabled

Wheelchair access is provided at customer centres



#### Disadvantaged Groups

Towngas Concession Schemes are available to people in need

In 2022, over **43,000** households benefited from concessions totalling **HK\$25 million**

## Community Engagement

Health and wellness, the environment, and youth development are key factors in our relationship with our community. We collaborate with associations and institutions to build trust and support social initiatives. In 2022, Towngas donated HK\$8.6 million towards community activities. We dedicated over 9,000 volunteer hours to assist approximately 385,000 beneficiaries in Hong Kong. On the Chinese mainland, we dedicated over 580,000 volunteer hours with over 13,000 employees participating in voluntary services from our mainland utility businesses.

We contribute to public policy developments relevant to the utility industry by providing responses to major consultations to support the Government's decision-making process. However, Towngas did not make any monetary contributions to political campaigns, political organisations, lobbyists or lobbying organisations in 2022.

### Community Health and Wellness

In 2022, Towngas continued its programmes to support the elderly and those in need.

Our Mooncakes for the Community initiative has distributed over 2.96 million mooncakes since 2001. This year, nearly 200 charities and local organisations benefited from the initiative. Additionally, we co-organised the Celebrating Mid-Autumn with Your Neighbours event with the Hong Kong Housing Society Caring Engaging Smart, celebrating the Festival with over 250 elderly participants online and offline. With the Christian Family Service Centre (CFSC), we co-organised the Love on Delivery: Mid-Autumn Edition programme benefitting 500 families with HK\$300,000 worth of food and beverage vouchers. During the Christmas season, we collaborated with St. James' Settlement and The Spastics Association of Hong Kong (SAHK) to distribute a further HK\$176,000 worth of food and beverage vouchers to 220 needy families with children.



On the Chinese mainland, over 100 of our project companies wrapped and distributed over 45,000 rice dumplings for welfare groups and people in need in 2022.

### Chef Anchor 2.0

At Towngas, we are committed to promoting the physical and mental health of dementia patients and their caregivers. In partnership with the Hong Kong Sheng Kung Hui Welfare Council and the CUHK Jockey Club Institute of Ageing, we released a report on the effectiveness of the Chef Anchor 2.0 programme. The report showed that the programme effectively improves the physical, mental and social health of elderly people with subjective memory impairment.

The programme combined elements of occupational therapy with the professionalism of culinary instructors to integrate "procedural memory" into recipes, enabling patients with subjective memory impairment to undergo cognitive training during the cooking process. This allowed patients to regain their confidence by demonstrating their ability to cook for themselves.



### Continuing the Fight Against COVID-19

In the face of ongoing COVID-19 challenges, Towngas remains committed to fulfilling its corporate social responsibility:

-  HK\$10 million Dining Coupon Scheme benefited approximately 50,000 households in Hong Kong
-  HK\$3 million worth of anti-pandemic items were donated to disadvantaged groups
-  Credit Period Extension Scheme for the Catering Industry so that approved applicants can join the plan for three months and postpone their gas bill payments



### The Environment

We remain dedicated to supporting green groups and government-led environmental protection programmes. In 2022, we continued our sponsorship of The Green Earth's Plantation Enrichment Project to build native tree woodland. Additionally, we sponsored and participated in Earth Hour by the WWF and the Eco-model Tournament by the Green Council.

#### Green Flame Project – Smart Energy Competition

To educate students on smart energy and to nurture environmental consciousness among the next generation from an early age, Towngas collaborated with the Hong Kong Education City to organise the Green Flame Project – Smart Energy Competition.



The Competition encourages students to create innovative smart energy solutions based on one of the three themes: integration of multiple energy sources, digitalisation, and decarbonisation. Over 139 teams from 66 schools participated in 2022. The results have been announced in 2023 with a scholarship of HK\$100,000 as the top reward.

#### Lighting Up the Green City with Young Hearts Drawing Competition

Towngas partnered with Ohpama to organise the Lighting Up the Green City with Young Hearts drawing competition. The competition encourages students to learn about environmental protection concepts and knowledge through daily life, practice a sustainable lifestyle, and visualise a green future in their minds with their paintbrushes. Over 13,000 pictures were received in 2022, and winning pictures were selected to decorate our gas facilities in 17 districts.



### Social Media to Promote Green Projects

Together with The Hong Kong Polytechnic University and the Hong Kong Design Institute, an animation that teaches children about environmental protection in a fun way was created (on [Towngas YouTube channel](#)). The themes include renewable energy, low-carbon living, and waste-into-energy. It helps cultivate students' awareness of environmental protection and develop a low-carbon lifestyle from an early age.

### Green Nature Environmental Programme

On the Chinese mainland, the Group organised different low-carbon and environmental programmes under the theme of "Green Nature". Over 130 of our project companies joined the campaign and planted over 10,000 saplings in 2022.

### Youth Development

#### Fostering Inclusion and Harmony



To foster social cohesion and inclusion, we teamed up with the Diversity and Inclusion Office of the Chinese University of Hong Kong to create the Towngas Co • Uni Inclusion Programme for students and colleagues. Its three main activities are:

-  **Cooking with inclusion** Learning about different food cultures in a cooking class
-  **Experiencing audio description** Learning about the challenges faced by the visually impaired
-  **Sustainable beer workshop** Learning about sustainable beer, the brewing process, and the experiences of ethnic minority students who started their own businesses in Hong Kong

The programme enables students to explore the cultures of other ethnic groups and people from different backgrounds. We believe that, with effort and support from all stakeholders of our community, Hong Kong will become more socially inclusive and harmonious.



#### Gentle Breeze Movement

The Gentle Breeze Movement, aimed at improving the learning environment in schools across the country, was launched in 2013 on the Chinese mainland. In 2022, this programme extended to Pingnan county, Guangxi Zhuang autonomous region and Pengxi county, Sichuan province. To date, we have donated educational materials worth over RMB4.9 million to 46 schools in the provinces and autonomous regions of Jiangxi, Anhui, Jiangsu, Shandong, Guizhou, Shaanxi, Liaoning, Guangdong, Hubei, Fujian, Inner Mongolia, Sichuan, Heilongjiang and Chongqing.



#### Horticultural Therapy Programme

Under the guidance of Towngas volunteers, four primary school students participated in a series of workshops led by professional therapists. Through various activities, students improved their execution capability, social skills and fostered a harmonious bond between the parents and children. They also learnt and honed their horticultural knowledge and skills.

# REVITALISING OUR STRENGTHS



Corporate Governance

Business Integrity

Risk Management

Data Privacy and Cyber Security

Towngas upholds accountable and transparent standards and practices of governance. Our commitment to strong corporate governance, risk management, business integrity, data privacy and cyber security has helped us sustain long-standing trustful relationships with stakeholders and contributed to our success for 160 years.

## 2022 Performance Highlights

-  **Variable compensations** of the Managing Director and senior executives are **linked to material ESG issues**
-  Provided **anti-corruption training** to the Board
-  **100%** of data centre services in Hong Kong obtained **ISO 27001** certification
-  Ensured the **effectiveness of our risk management system** in accordance with the relevant framework by continuously mitigating risks that may have a significant impact on our business
-  Conducted **regular internal audits** to maintain the awareness of ethics and compliance

## Future Actions and Targets

-  Review relevant policies, guidelines and **effectiveness of our risk management system** regularly amid a dynamic business environment
-  Promote our **corporate culture and Code of Conduct** through e-learning programmes
-  Coordinate with **law enforcement** to exchange knowledge and guard against **cyber threats**

## Management Approach

The Board of Directors (the Board), our highest governance body, at Towngas, is committed to accountable and transparent standards and practices of governance. Our [Board Diversity Policy](#) and [Nomination Policy](#) mandate the Board to maintain a balanced and diverse mix of skills, professional experience and diversity of perspectives of its members appropriate to the requirement of the Company's businesses.

Risk governance is a top priority at Towngas. We have a robust system of risk management and internal control covering all business units in the organisation. For more details, please refer to our [Risk Management Framework](#).

We maintain our business integrity by operating with ethical standards and expect our employees and suppliers to do the same, in accordance with the [Code of Conduct](#) and [Code of Practice for Suppliers](#), respectively. We also have an [Anti-Fraud Policy](#) to promote integrity as a core company

value and have put in place a [Whistleblowing Policy](#) that encourages employees and stakeholders to report suspected misconduct, malpractice or irregularities.

We build trust with stakeholders by taking necessary measures to prevent data leakage. The [Personal Data Privacy Policy](#) provides guidelines for processing personal data, and the [Information Security Policy](#) mandates the protection of confidentiality, integrity and accessibility of our information and technology assets. With the implementation of a holistic Privacy Management Programme, Towngas has uplifted its data protection strategy from striving to meet regulatory requirements to one that includes and emphasises the accountability of Towngas in order to manifest the elevated expectation of customers on data privacy.

For more information on our management approach and relevant policies, please refer to our [corporate website](#).

## Corporate Governance

The variable compensations of the Managing Director and senior executives are linked to a broad range of financial returns (including return on assets, equity and capital) and environmental, social and governance (ESG) material issues (including climate change, health and safety, workplace diversity), while additional performance bonuses are provided to encourage employees to implement ESG excellence projects and initiatives. This affirmed the Group's commitment integrating ESG for driving performance improvement.

As of 31 December 2022, the Board comprises nine directors:

<b>Non-executive Directors:</b>	Dr. Lee Ka-kit (Chairman), Dr. Lee Ka-shing (Chairman), Dr. Colin Lam Ko-yin and Mr. Andrew Fung Hau-chung
<b>Independent Non-executive Directors:</b>	Dr. the Hon. Sir David Li Kwok-po, Prof. Poon Chung-kwong and Dr. the Hon. Moses Cheng Mo-chi
<b>Executive Directors:</b>	Mr. Peter Wong Wai-yee and Mr. John Ho Hon-ming

To enhance diversity of the Board, at least one female board member will be appointed to the Board on or before 31 December 2024.

For further information on the Board, its composition, biographical details, remuneration, operation and committees, please refer to our [corporate website](#) or our [Annual Report 2022](#).

## Risk Management

As one of our ongoing risk management efforts, the Board reviewed the effectiveness of our risk management system, as well as key risks impacting our business and their corresponding controls, during the bi-annual risk assessment. For further information about risk management at Towngas, please refer to our [Annual Report 2022](#).

## Business Integrity

Anti-corruption and Code of Conduct training is mandatory for all existing employees, including new joiners. In 2022, a total of 1,101 hours of anti-corruption-related training was conducted for employees in Hong Kong.

Additionally, anti-corruption training was provided to the Board in 2022.

## Legal Compliance

The Group complies with all relevant laws and regulations in all material respects in both Hong Kong and the Chinese mainland that have a significant impact on the businesses or operations of the Group's core business segments, including those related to business ethics, health and safety, employees, customers, and the environment, which are the basic requirements of how we operate.



<b>Business Ethics</b>	Anti-corruption	no reported cases
	Anti-competitive behaviour	no reported cases
	Labour standards (child and forced labour)	no reported cases
<b>Health and Safety</b>	Occupational health and safety	no reportable <sup>1</sup> cases <sup>2</sup>
	Customers and the public	no reportable <sup>1</sup> cases
<b>Employees</b>	Employment practices <sup>3</sup>	no reportable <sup>1</sup> cases
<b>Customers</b>	Customer privacy	no reported cases
	Product and service information and labelling, and marketing information	no reported cases
<b>The Environment</b>	–	no reportable <sup>1</sup> cases

<sup>1</sup> These include material violations that resulted in fines of greater than HK\$1 million or non-monetary sanctions.

<sup>2</sup> For work-related injury cases, please refer to the [Occupational Safety and Health](#) section.

<sup>3</sup> Employment practices related to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, anti-discrimination, and other benefits and welfare.

## Data Privacy and Cyber Security

This year, the Group continued to enhance the online platform of the Privacy Management Programme in order to protect personal data privacy. With the wider use of information and communication technology nowadays, such as cloud computing and data analytics, we have developed templates in 2022 incorporating the existing contractual clauses for regulating data processors and some new clauses catering for the cross-border transfer of personal data.

In 2022, the Group was in compliance with all regulatory requirements and did not receive any customer complaints regarding data loss or breaches of data privacy in Hong Kong.

On the other hand, we held our annual Information Security Week this year under the theme of "Do Your Part – Be Cyber Smart", where security experts were invited to share information on current cyber security risks, breach cases and prevention strategies.



**100%** of our data centre services in Hong Kong are certified to **ISO 27001**.

# GREENING THE FUTURE



Energy Transition

Business Innovation

This year, we celebrated our 160th anniversary, commemorating an enduring commitment to providing safe, reliable, clean and smart energy to our customers. Guided by our Vision to be a leading clean and smart energy supplier, Towngas is determined to harness innovation and share technical expertise through collaborations and partnerships to complement our growth in the business ecosystem so as to address climate change and to attain carbon neutrality. We strive to encourage open innovation, utilise green and sustainable finance and invest in smart and clean energy to grow our business.

## 2022 Performance Highlights

-  **183** renewable energy projects spread across 24 provincial regions
-  **First hydrogen extraction** pilot project commissioned (Hong Kong)
-  Launched the Chinese mainland's **first RMB10 billion** Zero-carbon Technology Investment Fund with IDG Capital
-  Issued **US\$200 million** Sustainability-Linked Bond and arranged **RMB500 million** green loan
-  Launched **the first** Towngas Smart Energy ecological platform, Tera Planet, with Tencent Cloud

## Future Actions and Targets

-  Invest in **200** zero-carbon smart industrial parks with a total solar-powered capacity of **8GW** by 2025
-  Incorporate **ESG evaluation** and **internal carbon pricing** in new project investment
-  Explore sustainability-linked financing initiatives
-  Further explore the possibility to **commercialise hydrogen supply** in Hong Kong

## Management Approach

To be in line with our Vision, we aim to grow in a sustainable manner through the adoption of clean and smart energy and the utilisation of green and sustainable finance.

We are dedicated to providing a safe, reliable, clean and smart energy to our customers. Our focus is on exploring and utilising fossil fuel alternatives and promoting innovation to enhance the economic and social wellbeing of our ecosystem.

To thrive in the ever-changing global business environment whilst being a leading sustainable energy supplier, we have long embedded the **“Growth = innovation x implementation” (G = i x i)** concept into our corporate culture and business operation.

This concept motivates and empowers our employees to pursue new and innovative ideas. We encourage our employees and the wider community to bring forward innovative concepts that drive our growth and support a low-carbon future.

For more information on our management approach, please refer to our [corporate website](#).

## Business Innovation

Towngas is committed to driving transformation in our business by fostering open innovation to advance the transition to clean and smart energy. We encourage internal innovation in products and services from our employees, and explore new opportunities and partnerships with cutting-edge technologies that can be implemented into our business. By embracing open innovation, we believe we can create a lucrative and growing business.

### Innovation in Action

In 2016, Towngas established an Innovation Funding programme to encourage our employees to submit proposals for growth. The Funding was extended to the Chinese mainland in 2019. As of 2022, the Company has awarded a total of HK\$1.8 million to 28 projects in Hong Kong and on the Chinese mainland for research and development.

#### The TERA-Award Smart Energy Innovation Competition

To promote innovation in smart energy technology development and support the Chinese mainland's carbon neutrality goal, Towngas, together with the State Power Investment Corporation Limited (SPIC), hosted the second TERA-Award Smart Energy Innovation Competition in 2022.

The competition sought creative ideas internationally in the field of zero-carbon innovations, with categories including renewable energy, hydrogen and fuel cell, energy storage and conversion, digitalisation and energy saving.

The second edition of TERA-Award received 275 submissions from 41 countries and regions, and results have already been announced in 2023. The prize-winning projects have the opportunity to receive funding and resources to bring their ideas to life.

Top winners of the first TERA-Award:

<p><b>Gold</b> </p> <p><b>Liquid Sunshine Methanol</b></p> <p>by Dalian Institute of Chemical Physics (Chinese mainland)</p>	<p><b>Silver</b> </p> <p><b>Highly efficient and low-cost H2 production using Anion Exchange Membrane (AEM) Water Electrolysers</b></p> <p>by Greendrogen (United States)</p>
<p><b>Bronze</b> </p> <p><b>Safe and Low-cost Flow Battery</b></p> <p>by Luquos Energy (Hong Kong)</p>	<p><b>Copper-HeteroJunction with Intrinsic Thinlayer (C-HJT) Battery</b></p> <p>by SPIC New Energy Science and Technology Co., Ltd. (Chinese mainland)</p>

Towngas has invested in Luquos Energy to further explore business opportunities in their safe and low-cost flow battery. Such technology can be used in renewable energy projects and electric vehicle solar charging stations. It offers a reliable and uninterrupted power supply, and various off-grid applications.

For more details on TERA-Award, please refer to the [TERA-Award website](#).



### Towngas Energy Academy

In 2022, Towngas established the first Hong Kong-funded clean energy application research institute, the Towngas Energy Academy (TEA), in Shenzhen. With over 1,800 square metres of space in the Shenzhen-Hong Kong Innovation and Technology Co-operation Zone, TEA serves as a hub for the Group to communicate and commercialise scientific research results in the field of smart green energy. The areas of focus include energy conservation, renewable energy, energy storage, green energy such as hydrogen, carbon capture, energy digitalisation and municipal waste and wastewater treatment. By fostering collaboration between government, industrial experts, and science and technology institutions, TEA aims to create a zero-carbon smart energy ecosystem and to be the incubator of a core clean energy technology research and development platform. The ultimate goal is to support the Group's transformation from a traditional utility company into a leading integrated clean energy supplier.

In 2023, our research and development efforts will focus on energy storage, hydrogen and smart energy. We will research and develop new energy storage battery technologies, pilot the application of Luquos liquid flow batteries, and promote the nickel-hydrogen battery industry. We will also investigate low-cost green hydrogen and hydrogen blending in the natural gas pipelines, as well as promote zero-carbon smart industrial parks with a virtual power plants.

With support from government funding, we will use our existing business platform to turn research results into practical, innovative applications. Our goal is to establish TEA as a first-class application-oriented research institution in the Guangdong-Hong Kong-Macao Greater Bay Area by 2025.

## Energy Transition

To transform our business into a low-carbon energy provider, we are focusing on natural gas and renewables. We have set our sights on gas in Distributed Energy System (DES), coal-to-gas conversion and hydrogen development (the possibility of extracting hydrogen from town gas or injecting it into natural gas pipeline). We also invest in renewable energy, including the establishment of zero-carbon smart industrial parks and waste-to-energy innovations. Our strategy and technology will enable Towngas to transit smoothly towards a low-carbon future.

Our transition plan aims to make our business more sustainable:



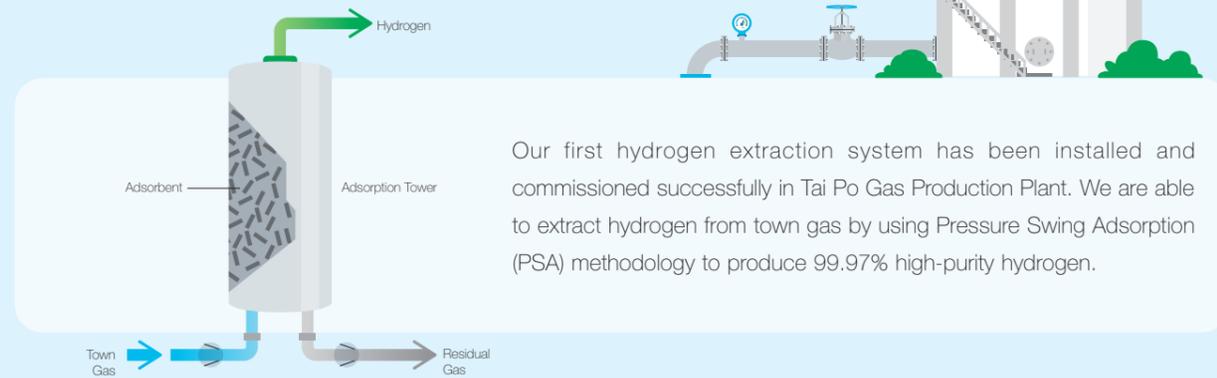
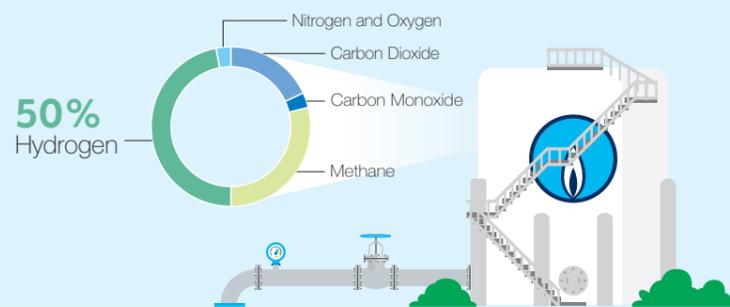
## Driving Hydrogen Economy

Clean energy, such as hydrogen, has the potential to play an important role in helping the world achieve carbon neutrality. According to the International Energy Agency (IEA)'s Global Hydrogen Review 2021, hydrogen and its derivatives will make up 10% of total energy consumption by 2050.

To support businesses in Hong Kong and the Chinese mainland in their journey towards decarbonisation, it is crucial to increase investment and accelerate the research and development of hydrogen.

### Hydrogen Piloting and Opportunities in Hong Kong

Our town gas contains approximately 50% hydrogen, making us one of the two companies in the world with extensive experience in handling piped manufactured gases with a high percentage of hydrogen.



Our first hydrogen extraction system has been installed and commissioned successfully in Tai Po Gas Production Plant. We are able to extract hydrogen from town gas by using Pressure Swing Adsorption (PSA) methodology to produce 99.97% high-purity hydrogen.

We are working with a local bus company and a fuel station operating company to assess the feasibility of hydrogen fuel cell buses/heavy cargo trucks and explore the possibility of building hydrogen supply facilities in Hong Kong in the near future. The high-purity hydrogen will be extracted from nearby town gas pipelines and supplied to buses at a refuelling station. We expect to have annual hydrogen gas sales of 120TJ from 2026.

In addition, we are exploring the feasibility of piloting hydrogen fuel cell vehicles with the Hong Kong Airport Authority, as well as the potential of partnering with two energy companies to build hydrogen refuelling stations in Hong Kong for heavy vehicles.

Alongside the network development for the Northern Metropolis area and the Artificial Islands in the Central Waters in Hong Kong, we are working with the government and stakeholders to explore the potential hydrogen applications.

“The use of hydrogen fuel cells will be crucial to decarbonise the transport sector in Hong Kong, specifically for Heavy-Duty Vehicles (HDVs). We recognise Towngas efforts to pilot hydrogen extraction from pipelines and accelerate the development and adoption of hydrogen technology, which serves as a good showcase for the industry.”

- Civic Exchange is an independent Hong Kong public-policy think tank on addressing environmental and development challenges



Lawrence Iu  
Executive Director,  
Civic Exchange



As a leading supplier with expertise in handling hydrogen, and an extensive distribution network across Hong Kong, Towngas is well-positioned to provide safe, efficient and low-cost hydrogen. We promote the use of hydrogen by inviting government officials and Legislative Council members to visit our hydrogen extraction system and exchange ideas on hydrogen development in Hong Kong. We will also actively work with the Government to formulate regulations and standards for the hydrogen industry to ensure a safe and reliable hydrogen supply in Hong Kong.



### Chinese Mainland Hydrogen Development Strategy

With the implementation of the dual carbon goals, replacing natural gas with green gas is one of the key options to support the energy transition on the Chinese mainland. Mixing hydrogen with natural gas and delivering it to end-users can effectively help reduce carbon emissions from natural gas pipelines. With extensive experience delivering hydrogen-rich gas in Hong Kong, we have collaborated with the local government, other energy companies, and research institutions to study the feasibility of blending hydrogen into the natural gas pipeline network.

Meanwhile, to promote pilot projects and applications of natural gas blending with hydrogen, we are actively participating in the development of multiple hydrogen energy utilisation standards. During the year, we launched the Group's first natural gas pipeline hydrogen-blending demonstration project in Weifang city, Shandong province. Currently, the "Key Special Project on Hydrogen Energy Technology" has been submitted to the Ministry of Science and Technology of the People's Republic of China and has passed expert review.

In addition, we are also exploring the feasibility of transforming existing natural gas stations into hydrogen refuelling stations in regions including Guangdong province and Jiangsu province, as well as the potential of using underground gas storage facilities to store hydrogen. We will also focus on researching the hydrogen supply from renewable energy (i.e. green hydrogen) to further reduce carbon emissions from natural gas pipelines and help achieve the dual carbon goals.



## The Role of Gas in Energy Transition

In Hong Kong, town gas sales were approximately 27,398 million MJ in 2022. We have been working closely with commercial and industrial customers, such as hotels, hospitals and commercial laundries, to reduce carbon emissions.

We have developed the Integrated Primary Air-handling Unit with desiccant wheel (Integrated D-PAU) with proven indoor air quality improvement and carbon reduction capabilities. Various projects have been engaged, including 31 Integrated D-PAUs to be installed at the wet laboratory buildings of the Hong Kong-Shenzhen Innovation and Technology Park in the Lok Ma Chau Loop area. We also plan to kick off the design of a new landfill gas-powered Combined Cooling, Heating & Power system (CCHP) in the North District Hospital in early 2023. This project will use flue gas to drive an adsorption chiller and provide chilled water, with an expected annual carbon reduction of 5,268 tonnes.

On the Chinese mainland, we served 24 provincial regions and had approximately 37.29 million city-gas customers by the end of 2022. Despite the epidemic, the total gas sales on the Chinese mainland increased by 3% to approximately 32.1 billion m<sup>3</sup>. With the support of the Chinese government on natural gas that contributes to the security and stability of the new energy supply system, we made a concerted effort to promote coal-to-gas especially for high energy-consumption industries, to reduce emissions.

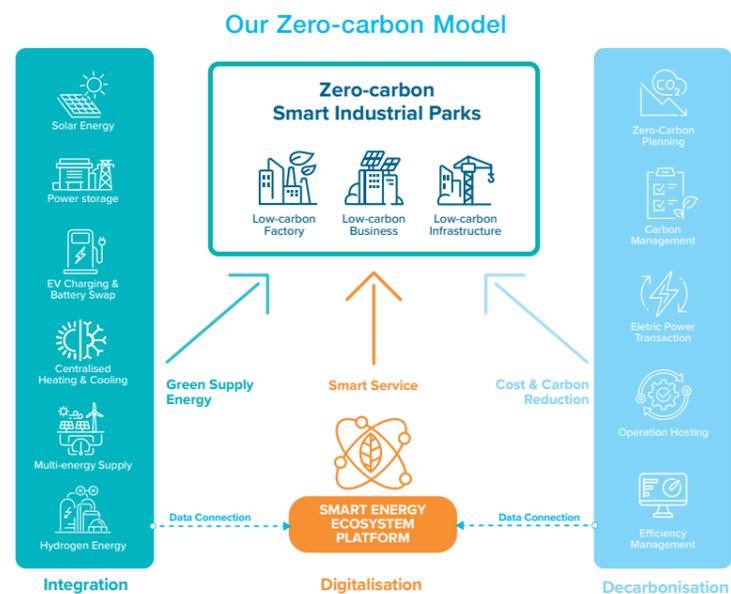
During the year, we made a tremendous effort on our “Gas + Thermal Energy” services. These include CCHP solutions with individual power and district power stations to bring heating, hot water supply, cooling and steam to residential, commercial and industrial customers.

To ensure a stable gas supply on the Chinese mainland, we have diversified gas sources and increased our gas storage capacity. For more information, please refer to the [Supplying Reliable Energy](#) section.

## Developing Smart Energy Business

Building on the foundation of a reliable and safe energy supply, we are moving towards developing our smart energy business.

Our goal to create an integrated, sustainable and tangible smart energy business is built on three core pillars: Integration, Digitalisation, Decarbonisation.



We are taking our focus on smart energy to the next level by launching zero-carbon smart industrial park projects in cities across the Chinese mainland. Our goal is to develop 200 zero-carbon smart industrial parks by 2025. At the end of 2022, we had 80 zero-carbon smart industrial parks, and 183 renewable energy projects spread across 24 provincial regions.

During the year, we created several showcase projects in zero-carbon smart industrial parks, low-carbon factories and other customer facilities that demonstrate our capabilities in providing a comprehensive smart energy ecosystem.

<b>Taizhou city,</b> Jiangsu province	Launched the first commercial application of Towngas Smart Energy ecological platform, Tera Planet, jointly developed with Tencent Cloud. Based on the IoT capabilities, the platform helps customers realise intelligent management, analysis, prediction and optimisation of energy data.
<b>Tangshan city,</b> Hebei province	Served high energy-consuming industries by installing distributed photovoltaic (PV) systems, EV charging stations, and centralised space heating facilities utilising waste heat. Equipped with a cloud-based SaaS system, this can effectively manage its carbon emissions and energy use.
<b>Futian district,</b> Shenzhen city	Acquired a project to offer low-carbon solutions for a public building complex. Our services include PV systems, integrated storage and charging stations, high-efficiency air-conditioning system and smart energy management platform.
<b>Guangzhou city,</b> Guangdong province	Provided an integrated smart energy solution to a manufacturing factory based on the four-pronged approach of Green Power + Energy Saving + Intelligence + Offsetting. We have assisted our customer in obtaining the carbon neutral certificate issued by the Guangzhou Emissions Exchange.

The success of this model can be rapidly replicated to meet customer demand for clean energy solutions.



## The Chinese Mainland's First Zero-carbon Technology Investment Fund



Towngas and IDG Capital have launched the Chinese mainland's first Zero-carbon Technology Investment Fund (Fund) with a focus on technology investment and business applications. The Fund, worth RMB10 billion (RMB5 billion in the first phase of fundraising), will provide financial support to start-up firms and invest in innovative solutions in the energy field, such as solar and wind energy, powered battery, energy reserve, smart energy grids, hydrogen energy, carbon exchange and management projects.

The Fund will leverage Towngas' extensive experience and knowledge in energy applications, which will be used to accelerate the testing and implementation of new technologies. The Fund will follow closely on the technological change of energy transformation, and also drive systematical developments in areas of “regeneration in energy source”, “electricity in energy application” and “smart electricity system”.

The Fund will benefit from the strengths of both Towngas and IDG Capital, which aims to find solutions for technical issues and bottlenecks in energy transformation. With the aim of achieving the dual-carbon goals, we will continue to deploy energy application scenarios and accelerate zero-carbon technology development.

## Urban Waste Utilisation

Under our subsidiary Hua Yan Environmental, we are developing different urban waste utilisation projects. Both projects at Suzhou city, Jiangsu province, and Tongling city, Anhui province, are in operation. Our first organic waste resource utilisation project at Suzhou Industrial, has cumulatively processed approximately 500,000 tonnes of organic waste to produce 22 million m<sup>3</sup> of bio-natural gas. This project is part of the country's efforts to build zero-waste cities and reduce the burial of solid waste.

We have integrated our environmental sanitation business in Changzhou city, Jiangsu province, by providing one-stop services in waste collection, transportation and waste treatment. Projects underway include a sewage treatment project in Wujin High-Tech Industry Development Zone, which will be commissioned in 2023. Moreover, the preliminary work has also commenced for the construction of two projects in Changzhou, including a domestic waste incineration treatment facility for power generation in Jiashan and a domestic waste transfer station in Wujin district.

## Utilisation of Biomass

In 2021, we set up EcoCeres, Inc (EcoCeres) to develop businesses using waste-based biomass as feedstock. It established a hydrotreated vegetable oil (HVO) plant in Zhangjiagang city, Jiangsu province, which transforms inedible bio-grease feedstock into advanced biofuel.

In 2022, the plant also produced sustainable aviation fuel (SAF). The SAF production facility was among the first in this industry to receive the certification of the International Sustainability and Carbon Certification (ISCC) Carbon Offsetting and Reduction Scheme for International Aviation (CORSA Plus). In 2022, the plant produced approximately 231,500 tonnes of HVO and SAF, resulting in an estimated carbon reduction totalling 861,700 tonnes. To further our decarbonisation efforts, EcoCeres began the construction of a new HVO/SAF facility in Malaysia.

## Green and Sustainable Finance

Since 2017, Towngas has launched several green and sustainable financing mechanisms that provide funding for low-carbon projects and other environmental, social and governance (ESG) initiatives. The total amount of green and sustainable finance for the Group has exceeded HK\$4.5 billion.



### Green Bond

In 2017, Towngas became the first company in the energy utility sector in Hong Kong to issue green bond to finance its green initiatives. In 2022, Towngas once again obtained the post-issuance stage certification by the Hong Kong Quality Assurance Agency's Green and Sustainable Finance Certification Scheme.

The *Towngas Green Bond Framework* serves as the guiding principle for all of our green initiatives.

### Use of Proceeds

Project Category	Location	Equity Share	Estimated Project Cost (million)	Amount and Ratio Allocated (HK\$ million)	
				ISIN HK0000375300	ISIN XS1720566790
Landfill Gas Utilisation	Tseung Kwan O, Hong Kong	100%	HK\$350	145.0 (24.3%)	35.0 (25.4%)
Kitchen Waste Processing (Waste to Energy)	Suzhou city, Jiangsu province	55%	RMB443	23.0 (3.9%)	24.0 (17.5%)
Hydro-treated Vegetable Oil (Waste to Energy)	Zhangjiagang city, Jiangsu province	87.4%	RMB935	400.0 (67.0%)	56.0 (40.7%)
Agricultural Waste to Green Chemicals and Paper Pulp	Tangshan city, Hebei province	87.4%	RMB445	28.9 (4.8%)	22.5 (16.4%)

## Project Updates

Project Category	Estimated GHG Reduction (tCO <sub>2</sub> e/year)	Progress
Landfill Gas Utilisation	13,500	<ul style="list-style-type: none"> <li>Delivered 210TJ equivalent in synthetic natural gas to our town gas network in 2022</li> </ul>
Kitchen Waste Processing (Waste to Energy)	15,200	<ul style="list-style-type: none"> <li>Treated over 148,500 tonnes of waste in 2022</li> </ul>
Hydro-treated Vegetable Oil (Waste to Energy)	861,700	<ul style="list-style-type: none"> <li>Produced approximately 231,500 tonnes of HVO and SAF in 2022</li> <li>Received ISCC for the sixth year</li> <li>SAF production facility received ISCC CORSIA Plus certification</li> </ul>
Agricultural Waste to Green Chemicals and Paper Pulp	120,000	<ul style="list-style-type: none"> <li>Delayed due to COVID-19, further modification and fine-tuning</li> <li>Expected to be commissioned in mid-2023</li> </ul>

### ESG Loans

In 2021, we concluded ESG loans totalling HK\$2 billion with the support of banks that trusts our commitment to ESG excellence. The loans were based on six ESG key performance indicators (KPIs), including greenhouse gas (GHG) emissions reduction, renewable energy generation, scrap material recycling and safety:

ESG KPIs	2020	2021	2022
GHG reduction per year (tCO <sub>2</sub> e per year) contributed by the food waste processing projects on the Chinese mainland	5,903	16,900	15,200
GHG reduction per year (tCO <sub>2</sub> e/yr) contributed by HVO project on the Chinese mainland	259,000	596,000	861,700
GHG emissions per year (tCO <sub>2</sub> e/yr) of gas production in Hong Kong	344,549	339,068	329,052
Scrap metal recycled (tonnes) from used gas appliances in Hong Kong	1,626	1,607	1,521
Renewable energy (kWh) generated by photovoltaic systems installed at Towngas' premises in Hong Kong	180,392	306,589	304,254
Emergency team's average arrival time in Hong Kong	Within 21.57 minutes	Within 21.39 minutes	Within 20.87 minutes

### Sustainability-linked Bond and Green Loan

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 issued with reference to the *Sustainability-Linked Financing Framework*, which aligns with the Sustainability-Linked Bond Principles and Sustainability-Linked Loan Principles. The use of proceeds of this sustainability-linked bond is used to achieve Sustainability Performance Targets (SPTs).

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



## Health and Safety

### Occupational Safety and Health

#### Safety Performance

To manage and mitigate risks, Towngas and 43 of its project companies have obtained ISO 45001 Occupational Health and Safety certifications.

In Hong Kong, Towngas recertified the International Safe Workplace Programme (ISWP) in 2022 to apply the best proven injury prevention programmes to protect workers' safety and health.

On the Chinese mainland, we promote an internal Safety Responsibility System. Key performance indicators (KPIs), such as third-party damage, regular safety inspection, incident rate, etc., have been set up for our project companies. These KPIs will be monitored and reported to senior executives.

In 2022, the main types of work-related injury and ill health included slip, trip or fall on the same level, striking against fixed or stationary object and traffic accident. To prevent similar types of work-related injuries from reoccurrence, we have organised various safety programmes. For example, we established a special safety inspection task force for high risk operations, organised contractor safety and provided online training and webinars which highlighted the lessons learnt from past incidents, traffic safety, etc., to enhance workers' safety and health knowledge and accident prevention awareness.



#### Group Lost-Time Injury Frequency Rate\*

  
**0.53**  
Employees

  
**0.14**  
Contractors

\* accidents per 1,000,000 work-hours

Tragically, two work-related fatality cases were recorded on the Chinese mainland during the Reporting Period. One employee and one contractor were involved in a traffic accident and a fire accident respectively.

We immediately investigated the accidents and provided comprehensive reports with root cause analysis, corrective actions and improvements to relevant parties. The associated operating procedures were reviewed, and corresponding improvement measures have been adopted to protect the safety of our workers associated with our business.

Safety management at construction units and workers' safety awareness were further improved by organising safety training, strengthening safety responsibilities, providing safety operational procedures and conducting surprise safety inspections. Trainings and information on safe driving skills, safety management and emergency response capability are also provided regularly to our workers. These measures have been taken to prevent similar accidents from happening in the future.

#### Safety Training

To minimise the risk of injury and ill-health and achieve our target of zero health and safety accidents, we provide regular trainings webinars and workshops to our workers.

In Hong Kong, a "pointing-and-calling" technique training was conducted to improve the state of mind and concentration of workers, in order to strengthen their awareness and accuracy in work and hence reduce negligence, error or misunderstanding-related accidents. The OSH Ambassador Programme has been introduced, and the Ambassadors promote various safety and health practices to the workers, such as heat stress management. We held our annual Health, Safety and Environment (HSE) month again to raise employees' and contractors' awareness. Events such as HSE Quiz, occupational health campaigns and OSH training and visits were organised.



Virtual reality (VR) technology was utilised to improve the effectiveness of our safety training with a VR self-development kit. Departments can autonomously design their own virtual training content for the specific operations on the frontline. VR training was developed for pre-operational machinery checks, standard operational procedures, and machinery safety.



On the Chinese mainland, safety training topics included gas safety, polyethylene (PE) pipe-cutting operation, confined space, fire and security management, etc. For our chemical plants, a Safety Risk Symposium was organised and covered topics such as safety leadership, safety culture, risk assessment techniques, and hazard identification technique.

#### Safety Training Hour

**6,350**  
(Hong Kong)

**615,101**  
(Chinese mainland)



#### Enhancing Employee Wellbeing

To support the health and wellbeing of employees, a variety of activities aimed at easing stress and maintaining good health were planned. We have been subsidising flu vaccinations for employees and their families for the past five years.

In light of the impact of remote work on employees' physical health due to irregular dieting and a lack of exercise, webinars were organised to promote healthy habits. In 2022, orthopaedic doctors were invited to provide guidance on avoiding muscle and bone discomfort, and share tips on maintaining good posture. We also offer free fitness classes, equipment and advice on healthy dieting and supplement choices to help employees achieve their personal fitness goals.

During the COVID-19 pandemic, preventive measures were taken, and caring bags with rapid antigen test kits, masks and medicine were distributed to employees in need during the fifth wave of the pandemic. As of 31 December 2022, the overall vaccination rate (at least two doses of vaccine) among employees in Hong Kong (including part-time and temporary employees) was approximately 98%.



## Customer Safety

To create long-term value for its customers, Towngas prioritises customer safety. We take a proactive approach to inform our customers of any potential gas safety issues.

In 2022, we conducted 834,799 regular safety inspections. Customer-related emergency reports maintained at low levels in the Reporting Period, with a total of 320 reports, representing an overall downward trend over a ten-year period.

Towngas' rapid emergency response continued to achieve a world-class standard of promptness:

### Emergency Team's Average Arrival Time

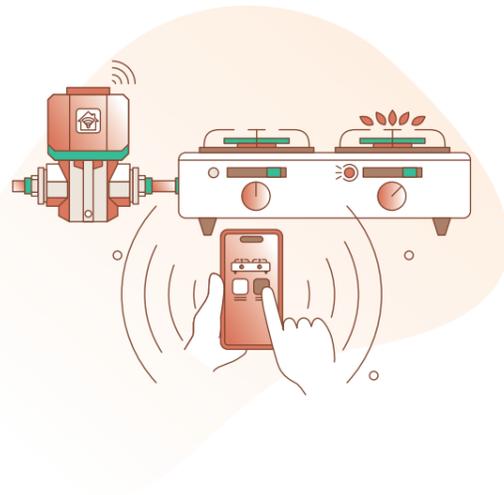


We have developed several smart products to help our customers enhance household safety.

### Smart Controller to Improve Customer Safety

Towngas has developed its own Smart Controllers, incorporating Internet of Things (IoT) technology to improve household safety. The Controller can be easily connected to a user's existing cooking appliance as an add-on device with smart features, without the need to replace the existing cooking appliance.

With the accompanying mobile app, customers can remotely monitor the appliance's status and control it using their mobile phones. The Controller can be connected to eight mobile phones simultaneously. Besides connecting to the elderly's phone, carers can also monitor and turn off the appliance in an emergency situation through their mobile devices, making it particularly handy for the elderly with mild cognitive impairment. Other safety features include a leave-home alert, a 30-minute in-use alert and a smart timer.



## Public Safety

Throughout the year, Towngas conducted 140,135 trench inspections at 8,916 active sites and surveyed 7,640 km of pipeline in Hong Kong to reduce the risk of gas incidents. In 2022, network leaks reported by the public per 10 km of gas pipes was 0.191, a 7% reduction over the last ten years.

The company also decommissioned 18 km of ageing medium- or low-pressure metal pipes and is in the process of replacing or reconditioning corroded riser bases.

On the Chinese mainland, a total of 133 internal HSE audits were conducted during the Reporting Period. We have seen continual improvement in safety performance of project companies through regular audits.

## Employee Engagement

### Attracting and Retaining Employees

We offer flexible working opportunities, such as part-time work, work-from-home and flexible hours, to support employees in achieving work-life balance. We also provide maternity and paternity benefits that exceed Hong Kong's Employment Ordinance requirement and time-off for employees to attend their children's school educational events. For the health of our employees and their immediate families, we offer group medical insurance, voluntary dental plans, subsidised seasonal influenza vaccinations and provide in-house clinical services. Additionally, we offer paid leave for employees to care for close family members who are in serious sickness.

### Employee Distribution, New Recruitment and Turnover Rate

		Hong Kong	Outside Hong Kong
Number of employees	Male	1,854	15,302
	Female	498	6,518
Total new recruitment		324	2,086
Average turnover rate (%)		11.0%	6.0%



### Developing a Sustainable Talent Pipeline

During the Reporting Period, Towngas continued to build a sustainable talent pipeline. From students to experienced employees, we provide internal programmes as well as external accredited courses, to ensure that our future talent has the knowledge and skills they need to excel.

In 2022, the Towngas Engineering Academy was renamed the Towngas Training Institute (TTI) to provide career-focused education and training in gas engineering to produce well-rounded professionals in the gas industry.

Average training hours per employee (Group)

**58.1 hours**



### Nurturing the Next Generation



Towngas is committed to attracting and developing young talent for the future of the gas industry and developing programmes to nurture our next generation. During the 2021/22 academic year, 85 students from nine secondary schools participated in the "Career in a Nutshell" programme which provided them with exposure to the gas industry and career-related activities. Additionally, we recruited 53 summer and winter interns as well as 11 one-year co-operative trainees in 2022. These interns worked on projects aligned with Towngas' ESG vision, including the themes of "Towngas in 2060 under the carbon neutral plan" and "new work mode for post-pandemic Towngas".

## Promoting Diversity and Inclusion

### Caring for People with Disabilities

At Towngas, we believe in equal opportunities and inclusiveness. We fully support disabled hiring and provide barrier-free facilities to improve accessibility for all employees, including ramps for wheelchair access.

We provide a "Buddy System" to welcome new employees with disabilities. The buddy is an existing employee who guides and helps disabled employees better integrate/adapt to our company culture.

We have organised sign language classes for 102 employees to enhance communication with our hearing-impaired colleagues. As a responsible organisation, we also share our experience with the public on hiring disabled talents, creating a caring culture with the aim of encouraging other organisations to embrace the disabled community.

Currently, we have 14 disabled employees.



### Racial Diversity

To promote diversity and inclusion in the workplace, Towngas became a signatory of "The Racial Diversity and Inclusion Charter for Employers" by the Equal Opportunity Commission in Hong Kong in 2022. We pledged to promote racial diversity in the workplace and work towards the nine charter goals. During the Reporting Period, we hired 17 non-local employees of diverse ethnicities, including employees from the Philippines and Pakistan.



**Hiring the disabled**  
14 people with disabilities



**Hiring non-locals**  
17 non-local employees



**Hiring Retired Employees**  
36 retired employees

“Traditionally, women are in the minority in the engineering industry. However, there are nowadays equal opportunities in Hong Kong offered to female engineers; and all engineers are competing on equal footing. Corporations shall support young female engineers to inject diverse perspectives that support business innovation and positive change.”

– HKIE is a professional body in Hong Kong to promote the advancement of engineering and to facilitate the exchange of knowledge and ideas.



Shelley Zhou (left)  
Chairlady,  
Environmental Division of The Hong Kong Institution of Engineers (HKIE)  
(photo taken with Ir Aaron Bok, President, HKIE)



### Women's Empowerment

We value diversity in our workforce and are committed to attracting, developing and retaining women.

To foster an inclusive work environment, we provide female-friendly amenities, such as lactation facilities at our headquarters, as well as flexible work arrangement to support working mothers with family needs in the workplace.



**Hiring more females**  
25% of managerial employees were female (Hong Kong), including the Head of Corporate Information Technology



**Gender ratio (male: female)**  
3.7:1 (Hong Kong)  
2.3:1 (Outside Hong Kong)  
**Gender pay ratio (basic salary)**  
1:1 (Hong Kong)

### Initiatives for Older Workers

Towngas values experienced and capable workers and provides job opportunities to older workers. To support the Employment Programme for the Elderly and Middle-aged by the Labour Department, we opened our doors to this demographic. Retirees are offered the option to continue working either full-time or part-time, allowing them to maintain a good work-life balance. In 2022, Towngas provided job opportunities to 36 retired employees. Additionally, we have hired seven short-term employees from underprivileged groups, including the unemployed, the elderly and single-parent families to sell Chinese New Year puddings.

### Internal Training Programme

To build a leadership talent pool, we have organised career advancement programmes for high-potential employees with different years of experience: the Towngas Leadership Competence Acceleration Programme (TLC+) and the Young Towngas Leadership Competence Acceleration Programme (YTLC+). This year, 23 people participated in the YTLC+. A blended learning approach was used by adopting the latest technologies (e.g., Metaverse) in young talent development. Moreover, we continued our Towngas Management Programme in 2022 under the series topic of "Managing Others". More than 230 supervisory employees attended the online courses. Another series of "Managing Managers" training was also kicked off in Hong Kong with around 40 managerial employees attending.



In order to nurture technical personnel, Towngas has developed the Technician Trainee Programme (TTP) as part of its long-term manpower succession planning. In 2022, 25 Technician Trainees were recruited and Towngas contributed to the Vocational Training Council's (VTC) Earn & Learn Scheme for trainees to increase their monthly income, acquire knowledge, and develop skills to pursue their careers.

### External Training and Development

To promote a culture of continuous learning and to develop a sustainable talent pipeline, Towngas partners with third parties to provide education opportunities and subsidise employees to undertake external courses. These opportunities enable our people to develop their talents and drive Towngas forward.



This year, Towngas has participated in the NewGen Programme again, and joined hands with partners from different industries, namely McDonald's Hong Kong, and new partners MTR Corporation and AXA Hong Kong. The programme aims to facilitate an innovative mindset among millennials, widen their industry knowledge, and network through cross-corporate engagement activities including training on business, technology, customer service transformation, innovation, organisational agility, and design thinking. Ten young talents from Towngas were nominated to join the programme.

In terms of gas engineering courses, Towngas has collaborated with universities in Hong Kong such as the City University of Hong Kong and The University of Hong Kong. In 2022, 88 students were enrolled in these programmes. We have also been collaborating with the VTC and launched the first Professional Diploma in Gas Engineering in 2018 to provide theoretical and practical training for potential personnel, with 31 students enrolled and 22 from Towngas. A new module on "Smart Energy and Application" was added to the course to equip students with forefront knowledge and skills in the gas industry.

### Instil Company Culture

At Towngas, we believe that a strong company culture is the foundation of a successful organisation. To that end, we focus on Total Quality Management with three key pillars: Courtesy, Integrity and Craftsmanship.

We uphold the ingenuity of technical craftsmanship through the promotion of a MasterCraft culture. Since 2016, different activities have been held to promote the standards and cultural connotations of MasterCraft, cultivating the traits of "utilising tools, being meticulous, pursuing aesthetics, and dignifying know-how". The characteristics of MasterCraft have been successfully recognised by all employees which is extremely useful for their lifelong work ethic. The third MasterCraft Final Competition took place in Suzhou city, Jiangsu province, this year with our project companies. A total of 8 teams from 5 regions joined and invented a series of innovative tools to help them become real MasterCrafters.

## Supply Chain Resilience

In 2022, Towngas conducted a supply chain resilience assessment to understand and mitigate supply chain risks. We also supported a Master of Business Administration (MBA) business practicum project from The Chinese University of Hong Kong focusing on climate-related supply chain risks.

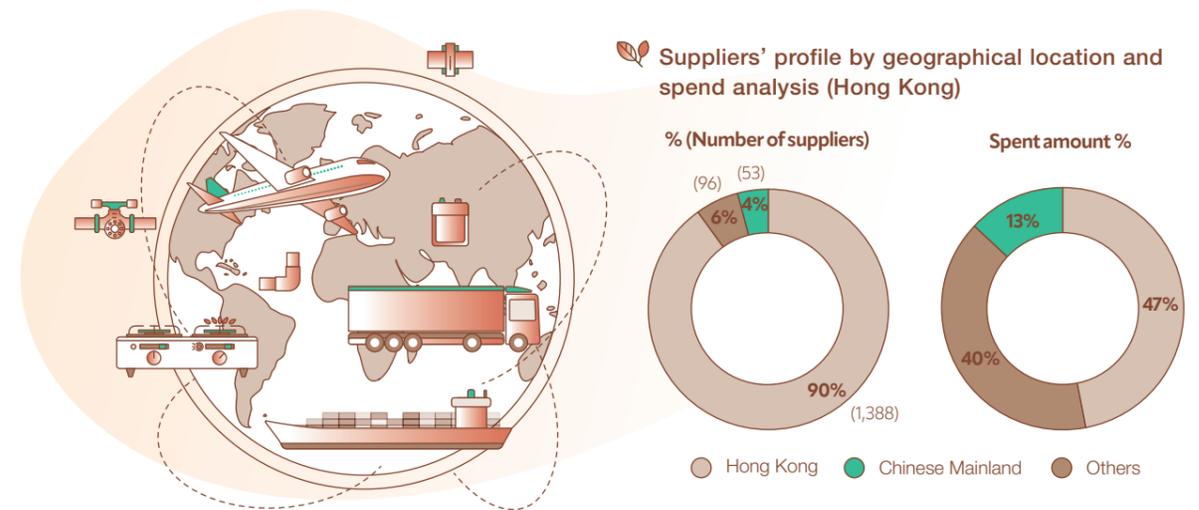
By combining desktop research results with our own supply chain management experiences, potential risks were identified, such as disruption of goods/raw materials supply, stricter regulations on environmental and emission control, change in customer behaviour leading to an increase in demand of renewable-related products, physical damage on supplier's assets, etc.

Through these risk assessments, we identified key measures to improve our supply chain resilience and mitigate these risks, including:

-  Diversifying the supply chain through multi-sourcing
-  Advancing digital technologies to improve efficiencies
-  Achieving full supply chain visibility
-  Monitoring suppliers' greenhouse gas (GHG) emissions

### Supply Chain Management

Our major procurement categories include natural gas, naphtha, gas appliances, piping and fittings.



### Sustainable Procurement

To equip our procurement employees' knowledge on sustainability, we provide training to better facilitate the sustainable procurement process. This includes topics such as carbon auditing on value-chain, quantifying GHG emissions and other environmental impacts of products through a life-cycle approach and incorporating green specifications.

We are proud to be Hong Kong's first public utility to complete the ISO 20400 Sustainable Procurement certification, conducted by the British Standards Institution (BSI).

To further our commitment to sustainability, we have expanded our Life-Cycle Costing to include vehicles and lighting, and increased the number of green-specified products in our sourcing list to over 30. Additionally, we have partnered with recyclers at EcoPark to recycle wooden pallets and vehicle batteries.

## Building a Sustainable Supply Chain

We prioritise the resilience of our supply chain as it is critical to the sustainability of our business. We actively identify and manage our suppliers based on their level of criticality and continuously engage with them to enhance their ESG performance and reduce associated risks.

In 2022, 100% of our new suppliers have acknowledged our *Code of Practice for Suppliers* and *Sustainable Purchasing Policy* and the process is ongoing for existing suppliers who have worked with us within the previous three years.

All suppliers must upload their relevant ISO certifications, such as ISO 9001 and ISO 14001, to our online Towngas e-Tendering System (eTS) during registration. Our plan is to encourage suppliers to conduct ISO 14064 assessment and obtain ISO 45001 certification, and both are included in our tender assessments.

For our tier 1 suppliers in Hong Kong operation, we have achieved:

100%

Acknowledged the Code of Practice for Suppliers and the Sustainable Purchasing Policy (new and active suppliers<sup>1</sup> in 2022)

>90%<sup>1</sup>

Completed the CSR self-assessment survey and no significant negative impacts were identified

>80%<sup>1</sup>

Obtained ISO 14001 certification

>70%<sup>1</sup>

Obtained ISO 45001 certification

>40%<sup>1</sup>

Accredited to the ISO 14064 Standard

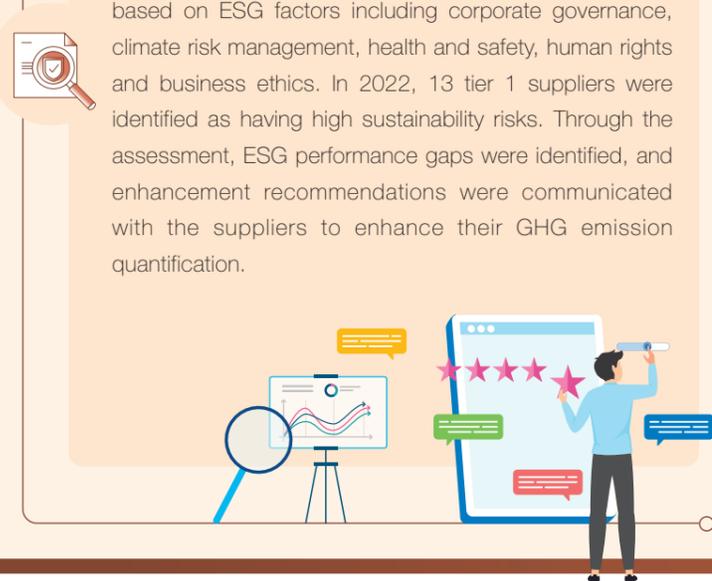
## 1 Critical Supplier Identification

Our critical tier 1 suppliers are identified as non-substitutable suppliers, as well as those who have a substantial impact on our business, i.e., those with an annual purchasing cost of over HK\$5 million, which in total account for over 90% of our suppliers<sup>1</sup>. Critical non-tier 1 suppliers are those supplying products and materials to our critical tier 1 suppliers, whose products and standards are tailor-made for us (i.e., non-substitutable suppliers).



## 2 Sustainability Risk Assessment

We have implemented a formal risk identification process to evaluate these critical tier 1 suppliers and identify those with high sustainability risks. We assess suppliers based on ESG factors including corporate governance, climate risk management, health and safety, human rights and business ethics. In 2022, 13 tier 1 suppliers were identified as having high sustainability risks. Through the assessment, ESG performance gaps were identified, and enhancement recommendations were communicated with the suppliers to enhance their GHG emission quantification.



<sup>1</sup> Based on the total purchase value of products and materials (Hong Kong operations).

“ The importance of building a sustainable supply chain is growing due to challenges such as climate change and the global pandemic that impose additional risks on business operations. We are pleased that BEC Council Member Towngas has led by example to accelerate positive change by engaging its stakeholders along the supply chain. ”

– BEC is an independent, charitable membership organisation with a vision to lead, enable and drive the business community to transform for a green, liveable and sustainable Hong Kong.

Simon Ng  
CEO,  
Business Environment Council (BEC)



## 3 Performance Improvement

With the gaps identified, we have further engaged with the suppliers to monitor and manage their GHG emissions. In order to do so, we formed a partnership with SGS and Microsoft Hong Kong to adopt a platform, namely the S-Carbon platform.



This platform enables the digitalisation of GHG emissions from our supply chain, and helps us better monitor and manage our scope 3 emissions. By encouraging suppliers to effectively reduce carbon emissions, we can improve our overall ESG performance and steer the industry chain towards sustainable development.

Towngas is the first public utility in Asia to implement the S-Carbon platform for supply chain management purposes. The trial run of the system started this year and focused on suppliers from the Chinese mainland and Japan. Suppliers who joined in the first phase included those providing underground pipes, pipe fittings, gas appliances etc., for Hong Kong operations, which account for around 20% of the purchase value of products and materials. The coverage of suppliers will be further increased to approximately 90% in the near future.

To further understand and improve suppliers' ESG performance, Towngas plans to conduct on-site audits for high sustainability risk suppliers. Additionally, we are in the process of incorporating climate-related requirements into supplier contracts.



### Sustainable Value Chain Commitments Programme

As our commitment to improve ESG performance of our suppliers, Towngas has joined and supported the Sustainable Value Chains Commitment under the Partnership for Sustainability Leadership in Business programme initiated by The University of Hong Kong. This programme aims to build a sustainable value chain in Hong Kong and the surrounding region by fostering close collaboration between large corporates and small and medium-sized enterprises (SMEs). Through the programme, we have shared our ESG best practices and experiences with the SMEs (i.e., our suppliers) in the form of workshops and coaching sessions, covering topics such as developing ESG policies and understanding their carbon emission inventories. In July 2022, Towngas was among the seven signatory companies recognised for their efforts with a Merit award.



# KEY STATISTICS

This section presents an overview of the 2022 key performance data (KPIs) of the Group, with a focus on economic, employee, environmental, safety and social aspects. These quantitative data have been selected in accordance with the Global Reporting Initiative Universal Standards 2021, the ESG Reporting Guide of The Stock Exchange of Hong Kong Limited, and other key performance indicators.

\* To improve the quality of data disclosure, Towngas has performed following updates on our non-financial KPIs from 2022, as below:

- ✓ Further aligned the reporting scope to cover Towngas and its subsidiaries, unless stated otherwise.
- ✓ Newly disclosed KPIs, such as contractor safety, gender pay ratio and parental leave, to enhance transparency and align with international best reporting practices.
- ✓ Revised calculation methodologies of selected KPIs, such as GHG emissions and work-related injury rates.

## Economic Performance

The scope of disclosures aligns with Towngas' financial reporting. More information is available in our [Annual Report 2022](#).

	Unit	2022	2021	2020	2019	2018
<b>Operation</b>						
Customers (Town gas business)	Million	2.00	1.96	1.94	1.93	1.91
Customers (City-gas business)	Million	37.3	35.0	31.8	29.8	27.5
Customers (Water business)	Million	2.77	2.62	2.53	2.38	2.24
Town gas sales (Hong Kong)	Million MJ	27,398	27,677	27,947	28,712	29,550
Gas sales (Chinese mainland)	Billion m <sup>3</sup>	32.1	31.1	26.9	25.6	23.0
Water sales (Chinese mainland)	Million tonnes	1,027	994	917	926	610
<b>Financial</b>						
Revenue	HK\$ million	60,953	53,564	40,927	40,628	39,073
Manpower costs	HK\$ million	3,741	3,624	3,284	3,485	3,295
Capital expenditure	HK\$ million	8,321	8,387	7,295	7,053	6,746
Taxation	HK\$ million	1,859	2,155	1,713	2,290	1,908
Dividends	HK\$ million	6,531	6,531	6,220	5,924	5,385
Profit attributable to shareholders	HK\$ million	5,248	5,017	6,007	6,966	9,313

## Hong Kong

### Employees

	Unit	2022*	2021	2020	2019	2018
<b>Total</b>						
Full-time	Number	2,352	2,442	2,495	2,474	2,418
Part-time	Number	156	113	140	118	112
Permanent	Number	2,226	–	–	–	–
Contract	Number	126	–	–	–	–
<b>By gender</b>						
Male	Number	1,854	1,900	1,950	1,943	1,908
Female	Number	498	542	545	531	510
<b>By age group <sup>1)</sup></b>						
≤35	Number	618	607	612	583	524
36-55	Number	1,081	1,141	1,230	1,273	1,319
≥56	Number	653	694	653	618	575
<b>By employee category <sup>2)</sup></b>						
Managerial employee	Number	267	271	267	265	251
Supervisory employee	Number	898	901	918	925	889
General employee	Number	1,187	1,270	1,310	1,285	1,278
<b>Voluntary Turnover (Number and Rate) <sup>3)</sup></b>						
Total	Number (%)	263 (11.0)	(8.9)	(5.0)	(5.7)	(8.7)
<b>By gender</b>						
Male	Number (%)	177 (9.4)	(7.7)	(4.2)	(4.6)	(7.0)
Female	Number (%)	86 (16.5)	(13.1)	(7.6)	(9.8)	(15.1)
<b>By age group <sup>1)</sup></b>						
≤35	Number (%)	124 (20.2)	(16.4)	(8.2)	(11.2)	(19.4)
36-55	Number (%)	104 (9.4)	(8.1)	(3.4)	(4.3)	(6.4)
≥56	Number (%)	35 (5.2)	(3.4)	(5.0)	(3.7)	(4.1)
<b>New Recruitment (Number and Rate) <sup>4)</sup></b>						
Total	Number (%)	324 (13.5)	235	203	250	270
<b>By gender</b>						
Male	Number (%)	239 (12.7)	158	141	173	194
Female	Number (%)	85 (16.3)	77	62	77	76
<b>By age group <sup>1)</sup></b>						
≤35	Number (%)	197 (32.2)	152	122	153	139
36-55	Number (%)	109 (9.8)	64	58	79	112
≥56	Number (%)	18 (2.7)	19	23	18	19

	Unit	2022*	2021	2020	2019	2018
<b>Performance and Career Reviews</b>						
Total percentage	%	82.0	83.5	84.6	82.8	83.4
<b>By gender</b>						
Male	%	83.1	85.1	85.9	83.9	84.5
Female	%	78.1	78.2	80.0	78.9	79.0
<b>By employee category <sup>2)</sup></b>						
Managerial employee	%	77.5	81.9	83.1	79.6	80.5
Supervisory employee	%	86.5	90.7	91.4	89.4	89.8
General employee	%	79.6	78.8	80.2	78.7	79.4
<b>Training</b>						
Total	Hours	52,759	62,216	51,865	65,679	82,996
Average (per employee)	Hours	22.4	21.6	17.5	22.4	28.6
Anti-corruption	Hours	1,101	162	156	4,649	662
<b>By gender (Average training hours and percentage of employee who received training)</b>						
Male	Hours (%)	25.2 (95.5)	24.3 (78.6)	19.1 (63.4)	25.6 (93.7)	31.2 (88.9)
Female	Hours (%)	12.2 (94.4)	13.5 (68.2)	12.4 (58.0)	12.3 (87.1)	20.2 (82.3)
<b>By employee category <sup>2)</sup> (Average training hours and percentage of employee who received training)</b>						
Managerial employee	Hours (%)	12.1 (92.1)	11.2 (79.6)	7.4 (73.5)	9.8 (85.0)	17.1 (85.0)
Supervisory employee	Hours (%)	9.9 (95.7)	12.5 (81.6)	8.3 (70.4)	13.7 (96.8)	22.9 (89.8)
General employee	Hours (%)	34.2 (95.7)	29.7 (71.8)	25.3 (54.6)	30.5 (90.7)	34.3 (86.3)
<b>Diversity <sup>2)</sup> (Ratio of Male to Female)</b>						
Managerial employee	Ratio	2.9:1	2.9:1	3.1:1	3.3:1	3.4:1
Supervisory employee	Ratio	2.9:1	2.9:1	3.0:1	3.1:1	3.0:1
General employee	Ratio	4.9:1	4.3:1	4.2:1	4.3:1	4.5:1
Managerial employee – revenue-generating functions	Ratio	2.5:1	–	–	–	–
<b>Gender Pay Ratio (Male to Female)</b>						
Total – Basic Salary	Ratio	1.0:1	–	–	–	–
<b>By employee category – Basic Salary</b>						
Managerial employee	Ratio	1.1:1	–	–	–	–
Supervisory employee	Ratio	1.2:1	–	–	–	–
General employee	Ratio	1.0:1	–	–	–	–
<b>By employee category – Remuneration</b>						
Managerial employee	Ratio	1.1:1	–	–	–	–
Supervisory employee	Ratio	1.2:1	–	–	–	–
General employee	Ratio	1.1:1	–	–	–	–

	Unit	2022*	2021	2020	2019	2018
<b>Parental Leave</b>						
<b>Number of employees that were entitled to parental leave</b>						
Male	Number	20	–	–	–	–
Female	Number	8	–	–	–	–
<b>Number of employees who took parental leave</b>						
Male	Number	20	–	–	–	–
Female	Number	8	–	–	–	–
<b>Number of employees returned to work in the reporting period after parental leave ended</b>						
Male	Number	19	–	–	–	–
Female	Number	7	–	–	–	–
<b>Return to work rate</b>						
Male	%	95	–	–	–	–
Female	%	88	–	–	–	–

Note:

- 1) The historical numbers were restated to align the calculation methodology across years.
- 2) In 2022, to better reflect the employees' categories, we renamed the employee categories from "Senior management" to "Managerial employee", "Middle management" to "Supervisory employee" and "General staff" to "General employee". The definitions for these categories remain unchanged.
- 3) Starting from 2022, both "Number of Voluntary Turnover" and "Voluntary Turnover Rate" are disclosed. Numbers prior to 2022 are previously reported "Turnover Rate".
- 4) Starting from 2022, both "Number of New Recruitment" and "New Recruitment Rate" are disclosed. Numbers prior to 2022 are previously reported "Number of New Recruitment".

## Environmental

	Unit	2022*	2021	2020	2019	2018
<b>Energy Consumption <sup>1) 2)</sup></b>						
Electricity	GJ	<b>338,941</b>	353,681	477,749	464,158	407,086
Naphtha	GJ	<b>663,241</b>	671,774	665,811	720,641	671,808
Natural gas	GJ	<b>4,910,984</b>	5,219,173	5,178,927	5,383,668	5,287,475
Synthetic natural gas and landfill gas	GJ	<b>210,836</b>	135,146	124,985	42,038	325,950
Town gas	GJ	<b>222,818</b>	212,420	225,531	212,005	203,698
Diesel	GJ	<b>17,193</b>	19,494	18,527	19,906	19,404
Unleaded petrol	GJ	<b>7,032</b>	8,587	9,071	10,664	11,596
Total energy consumption	GJ	<b>6,371,045</b>	6,620,275	6,700,601	6,853,080	6,927,017
<b>Packaging Material Use</b>						
Carton	Tonnes	<b>920</b>	916	842	946	942
Wood	Tonnes	<b>14.7</b>	15.9	15.5	17.7	19.8
Plastic	Tonnes	<b>1.27</b>	1.38	1.41	0.88	0.45
<b>Emissions <sup>2)</sup></b>						
Nitrogen oxides (NO <sub>x</sub> )	Kg (Kg per million MJ of town gas)	<b>112,388</b> <b>(4.1)</b>	107,675 (4.0)	108,770 (4.0)	112,420 (4.0)	115,705 (4.0)
Sulphur oxides (SO <sub>x</sub> )	Kg (Kg per million MJ of town gas)	<b>499</b> <b>(0.02)</b>	402 (0.02)	365 (0.01)	365 (0.01)	511 (0.02)
Greenhouse gases <sup>3)</sup>	Tonnes CO <sub>2</sub> e	<b>329,052</b>	339,068	344,549	357,060	347,489
<b>Water Withdrawal/Discharge <sup>4)</sup></b>						
Water withdrawal <sup>5)</sup> – from municipal water supplies	m <sup>3</sup> (m <sup>3</sup> per million MJ of town gas)	<b>960,505</b> <b>(35.1)</b>	992,022 (35.8)	982,034 (35.9)	995,239 (35.3)	988,981 (34.0)
Wastewater discharged <sup>2)</sup> – total	m <sup>3</sup> (m <sup>3</sup> per million MJ of town gas)	<b>126,809</b> <b>(4.63)</b>	100,412 (3.60)	98,550 (3.50)	111,690 (3.90)	112,420 (3.90)
Wastewater discharged <sup>2)</sup> – to marine water bodies (treated)	m <sup>3</sup>	<b>28,184</b>	13,870	13,505	16,425	18,980
Wastewater discharged <sup>2)</sup> – to sewage	m <sup>3</sup>	<b>98,625</b>	86,505	84,680	95,265	93,805
<b>Waste Management</b>						
<b>Non-hazardous waste</b>						
Non-hazardous waste landfilled <sup>6)</sup>	Tonnes	<b>144.1</b>	160.3	169.0	179.4	173.2
Non-hazardous waste recycled <sup>7)</sup>	Tonnes	<b>143.8</b>	154.6	135.4	179.5	236.3
<b>Hazardous waste <sup>8)</sup></b>						
Chemical waste generated (process related)	Kg (Kg per million MJ of town gas)	<b>11,174</b> <b>(0.41)</b>	48,180 (1.80)	52,925 (2.00)	86,870 (3.10)	13,870 (0.50)
<b>Waste recycled</b>						
Metal – from old gas appliances	Tonnes	<b>1,521</b>	1,607	1,626	1,678	1,785
Metal – from construction and maintenance of plant and pipelines	Tonnes	<b>73</b>	68	62	82	153
Lead acid battery	Tonnes	<b>10.1</b>	23.5	16.8	24.8	–

Note:

- 1) The following conversion factors are used to standardise the units to gigajoules (GJ): diesel (0.036GJ/L), electricity (0.0036GJ/kWh), naphtha (0.042GJ/kg), natural gas (0.04GJ/m<sup>3</sup>), unleaded petrol (0.033GJ/L), and town gas (0.048GJ/unit). The conversion of landfill gas to energy is calculated by multiplying individual monthly fuel volumetric data by their corresponding monthly average calorific value.
- 2) The historical numbers were restated to align the calculation methodology across years.
- 3) For gas production only.  
  
GHG inventory covers seven types of GHGs specified in the Kyoto Protocol. The global warming potential rates were from the IPCC Fifth assessment report (2014).  
  
Emission factors of GHG emissions due to electricity consumption are obtained from two local electricity companies, while other emission factors were obtained from local governments and authorities, or other recognised sources.
- 4) For gas production only.  
  
All water is freshwater purchased from and distributed by the HKSAR Water Supplies Department. All wastewater handling procedures comply with the local regulations.
- 5) In 2022, we renamed "Water consumption" to "Water withdrawal", the definition remains unchanged.
- 6) "Non-hazardous waste landfilled" refers to the refuse and construction waste collected from Towngas Headquarters and Tai Po Gas Production Plant.
- 7) "Non-hazardous waste recycled" refers to the plastics, papers, paper cartons and metals collected and delivered to recycling contractors. Apart from these waste categories, we also recycle other non-hazardous waste, such as used printing cartridges, on a regular basis.
- 8) All chemical waste handling procedures comply with the Waste Disposal Ordinance (Cap. 354). We also collect other non-process related hazardous waste, such as rechargeable batteries, fluorescent tubes and obsolete electronic products, and deliver them to licensed recyclers on a regular basis.

## Safety

	Unit	2022*	2021	2020	2019	2018
<b>Employees</b>						
Recordable work-related injuries <sup>1) 2)</sup>	Number (per 1,000,000 work-hours)	<b>19 (4.0)</b>	15 (2.2)	21 (3.2)	12 (1.8)	10 (1.5)
Lost days due to work injuries <sup>3)</sup>	Number of work-days	<b>657</b>	1,013	386	244	201
High-consequence work-related injuries	Number (per 1,000,000 work-hours)	<b>0 (0)</b>	–	–	–	–
Recordable work-related ill health <sup>4)</sup>	Number (per 1,000,000 work-hours)	<b>0 (0)</b>	0 (0)	0 (0)	0 (0)	0 (0)
Fatalities <sup>5)</sup>	Number (per 1,000,000 work-hours)	<b>0 (0)</b>	0 (0)	0 (0)	0 (0)	0 (0)
<b>Contractors</b>						
Recordable work-related injuries <sup>1) 2)</sup>	Number (per 1,000,000 work-hours)	<b>5 (1.3)</b>	5 (1.2)	11 (2.5)	6 (1.4)	9 (2.2)
Lost days due to work injuries	Number of work-days	<b>103</b>	–	–	–	–
High-consequence work-related injuries	Number (per 1,000,000 work-hours)	<b>0 (0)</b>	–	–	–	–
Recordable work-related ill health	Number (per 1,000,000 work-hours)	<b>0 (0)</b>	–	–	–	–
Fatalities <sup>5)</sup>	Number (per 1,000,000 work-hours)	<b>0 (0)</b>	0 (0)	0 (0)	0 (0)	0 (0)

## Note:

- 1) Starting from 2022, "Recordable work-related injuries" replaces "Accident – all industrial injuries" to include traffic accidents. Numbers and rates prior to 2022 are referred to "Accident – all industrial injuries" and "Accident frequency rate".
- 2) The historical numbers were restated to align the calculation methodology across years.
- 3) Starting from 2022, "Lost days due to work injuries" replaces "Industrial injury man-days lost". Numbers prior to 2022 are referred to "Industrial injury man-days lost".
- 4) Starting from 2022, "Recordable work-related ill health" replaces "Occupational diseases". Numbers prior to 2022 are referred to numbers for "Occupational diseases".
- 5) Refers to the number of fatalities as a result of work-related injury.

## Social

	Unit	2022	2021	2020	2019	2018
<b>Customer Service</b>						
Customer compliments <sup>1)</sup>	Number	<b>5,932</b>	6,170	5,814	5,924	5,912
Customer complaints <sup>1)</sup>	Number	<b>3</b>	13	7	12	8
<b>Community Involvement</b>						
Charitable donations <sup>2)</sup>	HK\$ million	<b>8.6</b>	3.0	7.9	7.2	4.8
Employees participating in voluntary services	Number	<b>711</b>	768	785	799	909
Voluntary service hours <sup>3)</sup>	Hours	<b>9,329</b>	14,122	16,633	87,557	91,628
Beneficiaries	Number	<b>385,773</b>	299,828	347,526	593,131	709,766

## Note:

- 1) Includes compliments and complaints with written records.
- 2) Includes charitable donations from the Group.
- 3) Include service hours from Towngas Volunteer Service Team and Towngas Customer Volunteer Team.

## Outside Hong Kong

### Employees

	Unit	2022*	2021	2020	2019	2018
<b>Total</b>						
Full-time	Number	21,820	52,637	51,067	50,342	49,478
Part-time	Number	3	10	7	10	11
Permanent	Number	21,820	–	–	–	–
Contract	Number	0	–	–	–	–
<b>By gender</b>						
Male	Number	15,302	35,975	34,876	34,069	33,331
Female	Number	6,518	16,662	16,191	16,273	16,147
<b>By age group</b>						
≤35	Number	9,463	21,846	21,990	20,563	20,798
36-55	Number	11,382	28,064	26,734	27,376	26,596
≥56	Number	975	2,727	2,343	2,403	2,084
<b>By employee category <sup>1)</sup></b>						
Managerial employee	Number	691	1,149	1,082	1,003	1,002
Supervisory employee	Number	3,215	5,380	5,013	5,750	5,074
General employee	Number	17,914	46,108	44,972	43,589	43,402
<b>Turnover <sup>2)</sup> (Number and Rate)</b>						
Average turnover	Number (%)	1,308 (6.0)	(2.6)	(2.0)	(2.8)	(4.1)
<b>By gender</b>						
Male	Number (%)	1,036 (6.8)	(2.8)	(2.1)	(2.9)	(4.8)
Female	Number (%)	272 (4.2)	(2.1)	(1.7)	(2.6)	(2.5)
<b>By age group</b>						
≤35	Number (%)	943 (10.0)	(4.3)	(3.2)	(4.4)	(7.3)
36-55	Number (%)	1,036 (6.8)	(1.4)	(1.1)	(1.8)	(1.5)
≥56	Number (%)	272 (4.2)	(0.5)	(0.8)	(1.3)	(2.6)
<b>New Recruitment <sup>3)</sup> (Number and Rate)</b>						
Total	Number (%)	2,086 (9.6)	2,193	1,493	2,736	3,558
<b>By gender</b>						
Male	Number (%)	1,492 (9.8)	1,535	1,123	1,864	2,418
Female	Number (%)	594 (9.1)	658	370	872	1,140
<b>By age group</b>						
≤35	Number (%)	1,575 (16.6)	1,690	1,127	1,967	2,929
36-55	Number (%)	498 (4.4)	492	354	742	608
≥56	Number (%)	13 (1.3)	11	12	27	21

	Unit	2022*	2021	2020	2019	2018
<b>Performance and Career Reviews</b>						
Total percentage	%	96.0	–	–	–	–
<b>By gender</b>						
Male	%	95.9	–	–	–	–
Female	%	96.3	–	–	–	–
<b>By employee category</b>						
Managerial employee	%	97.0	–	–	–	–
Supervisory employee	%	93.3	–	–	–	–
General employee	%	96.4	–	–	–	–
<b>Training</b>						
Total	Hours	1,350,836	1,392,042	–	–	–
Average (per employee)	Hours	62	51.5	–	–	–
<b>By gender (Average training hours and percentage of employee who received training)</b>						
Male	Hours (%)	61.8 (97.6)	51.2 (96.6)	–	–	–
Female	Hours (%)	62.2 (96.6)	52.1 (95.8)	–	–	–
<b>By employee category <sup>1)</sup> (Average training hours and percentage of employee who received training)</b>						
Managerial employee	Hours (%)	39.8 (97.4)	45.7 (93.2)	–	–	–
Supervisory employee	Hours (%)	47.0 (93.9)	46.7 (91.2)	–	–	–
General employee	Hours (%)	65.4 (97.9)	52.4 (97.2)	–	–	–
<b>Diversity <sup>1)</sup> (Ratio of Male to Female)</b>						
Managerial employee	Ratio	5.6:1	–	–	–	–
Supervisory employee	Ratio	2.5:1	–	–	–	–
General employee	Ratio	2.3:1	–	–	–	–

Note:

- 1) In 2022, to better reflect the employee' category, we renamed the employee categories from "Senior management" to "Managerial employee", "Middle management" to "Supervisory employee" and "General staff" to "General employee". The definitions for these categories remain unchanged.
- 2) Starting from 2022, both "Number of Voluntary Turnover" and "Voluntary Turnover Rate" are disclosed. Numbers prior to 2022 are referred to "Turnover Rate".
- 3) Starting from 2022, both "Number of New Recruitment" and "New Recruitment Rate" are disclosed. Numbers prior to 2022 are referred to "Number of New Recruitment".

## Environmental

	Unit	2022*	2021	2020	2019	2018
<b>Energy Consumption <sup>1)</sup></b>						
Diesel	GJ	<b>98,121</b>	107,864	85,499	101,709	79,479
Natural gas	GJ	<b>1,194,172</b>	903,818	473,302	396,348	320,536
Unleaded petrol	GJ	<b>107,095</b>	110,901	101,924	105,700	103,980
Electricity	GJ	<b>2,822,163</b>	2,876,782	2,726,131	2,696,294	2,155,279
Others	GJ	<b>5,288,583</b>	11,027,861	10,464,435	10,590,575	9,591,164
<b>Emissions</b>						
Total greenhouse gases (GHG) <sup>2)</sup>	Tonnes CO <sub>2</sub> e	<b>2,503,000</b>	1,503,000	1,406,000	1,439,000	1,262,000
Scope 1 emissions <sup>3)</sup>	Tonnes CO <sub>2</sub> e	<b>1,830,000</b>	893,000	818,000	843,000	807,000
Scope 2 emissions <sup>4)</sup>	Tonnes CO <sub>2</sub> e	<b>673,000</b>	610,000	588,000	596,000	455,000
Nitrogen oxides (NO <sub>x</sub> ) <sup>5)</sup>	Tonnes	<b>175.9</b>	190.0	223.7	296.1	223.7
Sulphur dioxides (SO <sub>x</sub> ) <sup>5)</sup>	Tonnes	<b>133.6</b>	256.6	258.0	422.0	392.9
Respirable suspended particulates (PM10) <sup>6)</sup>	Tonnes	<b>4.56</b>	2.61	2.34	2.99	2.35
<b>Water Withdrawal/Discharge</b>						
Water withdrawal <sup>6)</sup> – from municipal water supplies	Million m <sup>3</sup>	<b>4.61</b>	5.09	5.23	4.83	4.20
Water withdrawal <sup>7)</sup> – from fresh surface water	Million m <sup>3</sup>	<b>469.39</b>	459.13	427.50	–	–
Wastewater discharged <sup>8)</sup> – to sewage	Million m <sup>3</sup>	<b>1.19</b>	1.24	1.20	1.36	1.09
<b>Waste Management <sup>9)</sup></b>						
Hazardous waste <sup>9)</sup>	Tonnes	<b>557,130</b>	462,119	72,488	39,207	33,408
Non-hazardous waste	Tonnes	<b>368,734</b>	359,085	294,114	284,939	265,395

Note:

- The following conversion factors are used to standardise the units to gigajoules (GJ): electricity (0.0036GJ/kWh), unleaded petrol (0.033GJ/L), diesel (0.036GJ/L) and natural gas (0.04GJ/m<sup>3</sup>).
- The reported GHG emission data cover the operations within and outside Hong Kong. 2022 data are consolidated on a control basis, while emissions prior to 2022 are consolidated on an equity basis.  
  
GHG emissions inventory covers seven types of GHGs specified in the Kyoto Protocol. The global warming potential rates were from the IPCC Fifth Assessment Report (2014).  
  
Regional grid emission factors were used for GHG emissions due to electricity consumption, while other emission factors were obtained from local government and authorities, or other recognised sources.
- Scope 1 emissions – Direct emissions from fuel consumption of production plants, vehicle fleets and methane leakage from our pipeline network, etc.
- Scope 2 emissions – Indirect emissions from electricity consumption of production plants, offices, customer centres, gas refilling stations, data centres, etc.
- From fuel combustion and vehicle emissions.
- In 2022, we renamed "Water consumption" to "Water withdrawal – from municipal water supplies", the definition remains unchanged.
- From water projects.
- All hazardous waste and wastewater discharged – to sewage handling procedures comply with the national regulations.
- Solid and liquid waste have been combined.

## Safety

	Unit	2022*	2021	2020	2019	2018
<b>Employees</b>						
Recordable work-related injuries	Number (per 1,000,000 work-hours)	<b>13 (0.3)</b>	–	–	–	–
Lost days due to work injuries <sup>1)</sup>	Number of work-days	<b>395</b>	1,072	955	1,265	1,667
High-consequence work-related injuries	Number (per 1,000,000 work-hours)	<b>0 (0)</b>	–	–	–	–
Recordable work-related ill health	Number (per 1,000,000 work-hours)	<b>0 (0)</b>	–	–	–	–
Fatalities <sup>2)</sup>	Number (per 1,000,000 work-hours)	<b>1 (0.02)</b>	0	0	0	0
<b>Contractors</b>						
Recordable work-related injuries	Number	<b>2</b>	–	–	–	–
Lost days due to work injuries	Number of work-days	<b>18</b>	–	–	–	–
High-consequence work-related injuries	Number	<b>0</b>	–	–	–	–
Recordable work-related ill health	Number	<b>0</b>	–	–	–	–
Fatalities <sup>2)</sup>	Number	<b>1</b>	–	–	–	–

Note:

- Starting from 2022, "Lost days due to work injuries" replaces "Industrial injury man-days lost". Numbers prior to 2022 are the previously reported as "Industrial injury man-days lost".
- Refers to the number of fatalities as a result of work-related injury.

## Social

	Unit	2022	2021	2020	2019	2018
<b>Community Involvement <sup>1)</sup></b>						
Employees participating in voluntary services	Number	<b>13,379</b>	12,923	11,176	11,487	11,154
Voluntary service hours	Hours	<b>584,329</b>	578,586	714,300	264,440	238,000

Note:

- Reporting scope includes all project companies in mainland utility businesses.

# VERIFICATION STATEMENT



## VERIFICATION STATEMENT

### Scope of Verification

Hong Kong Quality Assurance Agency (“HKQAA”) has been commissioned by The Hong Kong and China Gas Company Limited (“Towngas”) to undertake an independent verification for its Environmental, Social and Governance (“ESG”) Report 2022 (“the Report”). The scope of HKQAA’s verification covers the information on ESG performance of Towngas businesses both in Hong Kong and outside Hong Kong for the period from 1<sup>st</sup> January 2022 to 31<sup>st</sup> December 2022.

The aim of this verification is to provide a reasonable assurance on the reliability of the report contents. The Report has been prepared in accordance with the Global Reporting Initiative (“GRI”) Universal Standards 2021 and GRI 11 Oil and Gas Sector Disclosures 2021. The report also fulfils the mandatory disclosure requirements and “comply or explain” provisions of the latest ESG Reporting Guide (“ESG Guide”) under Appendix 27 to the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited (“SEHK”).

### Level of Assurance and Methodology

The process applied in this verification was referring to 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.

In order to understand the process that Towngas adopted to ascertain the key ESG topics and impacts, the Report compilation process was discussed including stakeholder engagement and double materiality assessment processes. Also, system and process for collecting, collating and reporting ESG performance data were verified. Our verification procedure covered reviewing relevant documentation, interviewing responsible personnel with accountability for preparing the Report and verifying the selected samples of data and information used for preparing the Report. Raw data and supporting evidence of the selected samples were also thoroughly examined during the verification process.

### Independence

Towngas is responsible for the information collection and presentation of the Report. HKQAA’s verification activities are independent and there is no relationship between HKQAA and Towngas that would affect the impartiality of the verification service.

### Conclusion

Based on the verification results, it is the opinion of the verification team that:

- The Report has been prepared in accordance with the GRI Universal Standards 2021 and G11 Oil and Gas Sector Disclosures 2021;
- The Report complies with all mandatory disclosure requirements and “comply or explain” provisions outlined in the ESG Guide;
- The Report illustrates Towngas ESG performance, 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.

To align with global reporting best practices and respond the issues having significant ESG impacts, Towngas has been putting genuine efforts to improve the quality of the Report, such include conducting double materiality assessment and reporting its climate-related and nature-related risk management approaches.

Signed on behalf of Hong Kong Quality Assurance Agency

Connie Sham  
Head of Audit  
March 2023



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The Hong Kong and China Gas Company Limited  
香港中華煤氣有限公司

### YOUR FEEDBACK

If you have any questions or feedback, we would very much like to hear from you. Please fill in the [online questionnaire](#) or contact us:

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