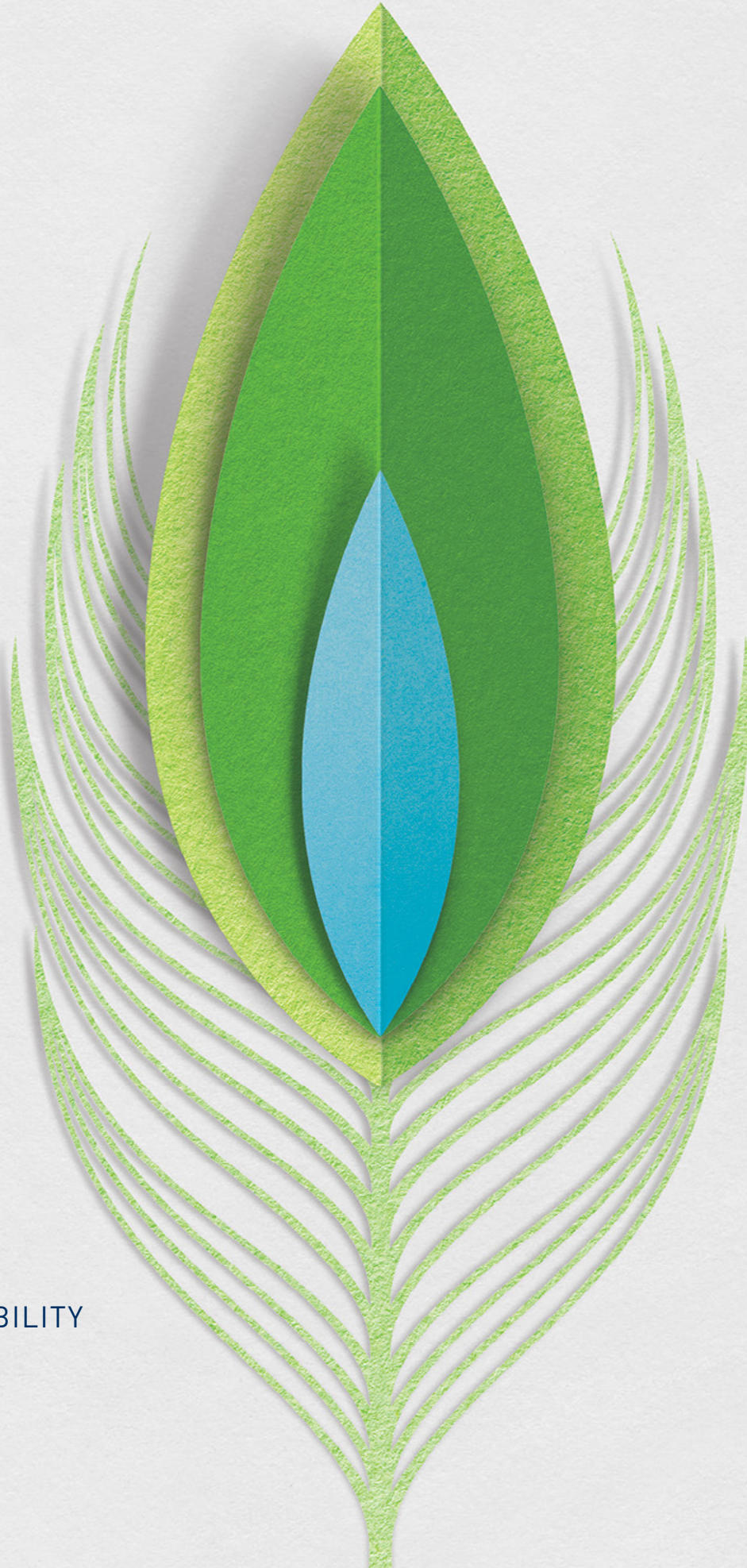




煤氣  
Towngas

Greening up your life

[Stock code: 3]



SUSTAINABILITY  
REPORT  
2017

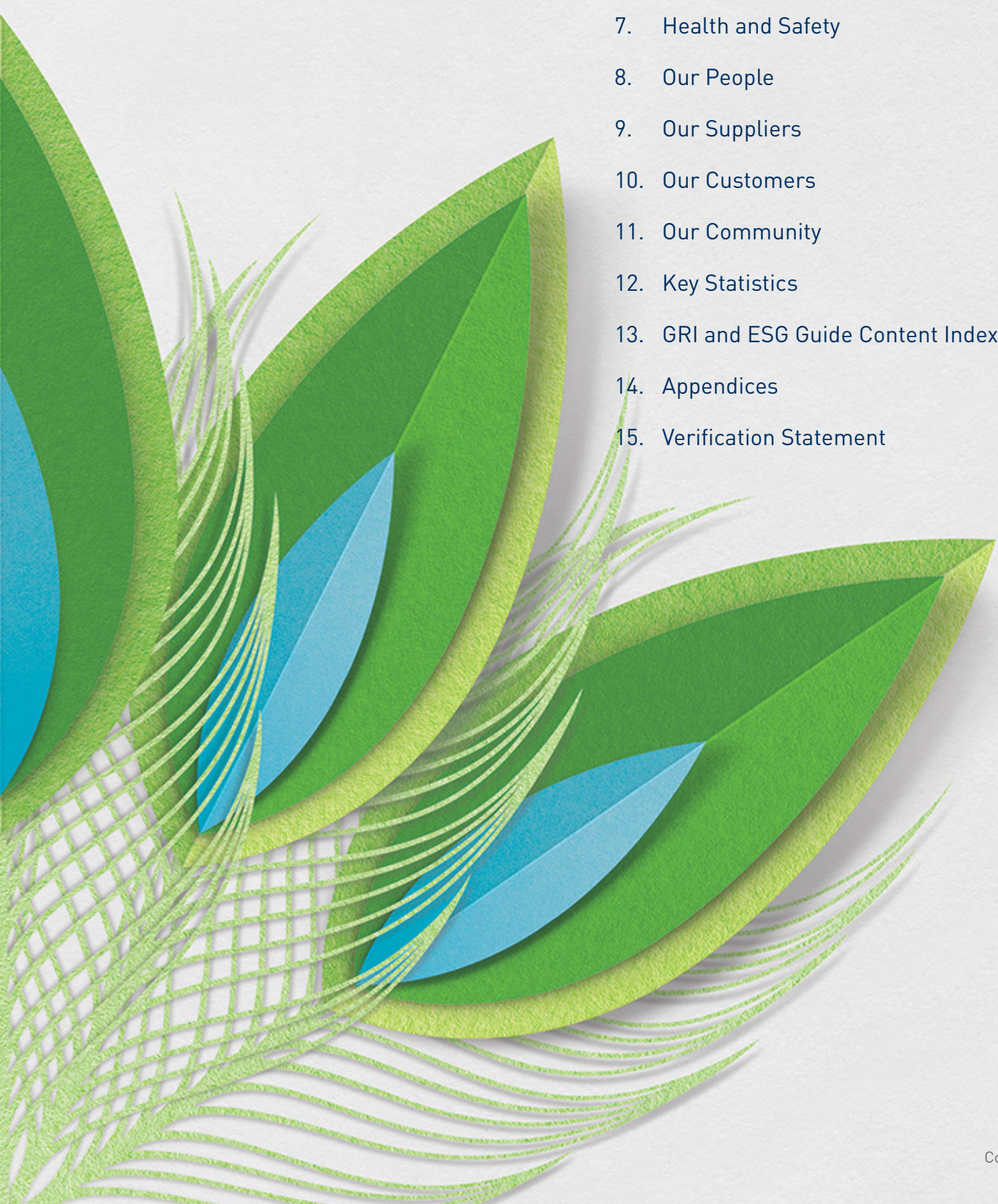
# VISION FOR A GREENER FUTURE



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# MANAGING DIRECTOR'S MESSAGE

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🗨️ We approach social and environmental issues as business opportunities. Creating values for our stakeholders unlocks opportunities for innovation within the Group and nurtures long-term sustainable growth. 🗨️

Alfred Chan Wing Kin  
Managing Director





# Towngas Hall of Innovation



In 2017, the Group's overall business operations made notable improvements with encouraging results, especially in mainland China, the positive situation has been bolstered further by the government's pledge to tackle climate change by shifting from coal to natural gas, leading to strong growth in the demand for the latter.

These factors give us a positive outlook for a future built on sustainable growth. In Hong Kong, one of the ways we are embracing this is by extending our pipeline network to service the expected increase in housing stock over the next decade. Mainland China also offers huge market potential due to its portfolio of large cities and range of heavy industries. Furthermore, the government's continued efforts to improve quality of the environment will lead to an even brighter future for natural gas and new energy businesses. As a sustainable business, we shall not focus

solely on economic returns. Towngas is dedicated to creating values for both the environment and our stakeholders, so everyone benefits from our operations. To achieve this, we have integrated sustainability into our business – an action that chimes with our latest Company vision:

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

In one respect, we have succeeded in delivering a safe and reliable gas supply, and quality services, to our customers every day. Simultaneously, we have actively created new forms of energy and associated businesses so that we can reduce our impact on the environment and sustain our future growth. To this end, we have ensured that innovation is embedded into our organisational culture. With this as our guiding light, we strive to become the greenest company in Hong Kong.

This year, we gained recognition for our dedication to green business when we were honoured with the Business for Social Good Award. This is the first award of its kind in Hong Kong, so it was a valuable accolade for Towngas to win it for our leadership in creating social and environmental benefits as business opportunities.

## Customer-centric Innovation

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We have been running our Superior Quality Service (SQS) programme for the last 25 years. It has played a pivotal role in how we have enhanced service quality, and has contributed to our research into, and development of, innovative products, services and processes. The programme has also helped to create an atmosphere of excellence where continuous innovation can thrive, both in Hong Kong and mainland China. In 2017, the Master Craftsmanship Team from our joint venture, the Shaoguan Towngas, took the top award at the 2017 National QC Teams Presentation Competition. Accolades such as this are made possible because of our unswerving dedication to our philosophy of **Growth = Innovation x Implementation**. It empowers our people so they can contribute to the ongoing growth and development of Towngas.

## Safety First

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Our top priority has always been safety. Over the years, we have put in substantial effort towards achieving zero-accident status. In 2017, we recorded our lowest number of industrial accidents in 36 years, with only six registered. In our mainland China operations, major gas-related accidents have dropped by 33% over the past five years. In addition, we consistently employ innovative thinking, which helps improve our existing process and related equipment and tools. An example of this in action was the installation of LED warning lights to lorry tail-lifts, which helps reduce the risk of road work and traffic accidents.

## Responding to Climate Change: the Future of Waste-based Energy

---

As a responsible supplier of energy, Towngas' duty towards protecting the environment is not simply limited to our own activities. Since 2000, we have cultivated new energy businesses which address the environmental needs of society and help us cope with climate change. To show our commitment, we pledged that by 2020 we would have reduced the carbon intensity of our Hong Kong gas production operations by 30% against that of 2005.

Another initiative was the issuance of green bond – the first energy-related green bond in the city. It was established to finance environmentally-friendly waste-to-energy investments, such as our third landfill gas treatment plant located at the South East New Territories (SENT) landfill site in Hong Kong. The bond also helps to support our cleaner fuel mix and sustainable sources of renewable energy.

In mainland China, there is continuous investment in new projects. These include a food waste processing plant in Suzhou, a facility in Zhangjiagang to convert low-grade inedible bio-oil into hydro-treated vegetable oil (HVO), and a project that convert agricultural waste into chemical raw materials in mainland China. These new businesses can be multiplied in various locations in mainland China as well as in other countries.

## Building the Next Generation

Without question, our most important assets are the talented individuals who make up our Towngas teams. We strive to attract the right people and nurture our current employees, these provide real value to society through giving opportunities to the next generation, and contribute to our business value from enhancing productivity. This year marks the golden jubilee anniversary of the Towngas Apprenticeship Training Scheme. In the last 50 years, more than a thousand young apprentices have taken part, and they have contributed directly to the gas industries in Hong Kong and mainland China. We also launched the new Young Towngas Leadership Competence Accelerated Programme, which will cultivate future leaders selected from our in-house talents.

## Extending Care to Communities

Caring for our employees has been a long-standing tenet of Towngas' corporate culture, but we also extend this caring attitude to the communities in which we operate. Aside from charity work and volunteering, we aim to generate social benefits within our communities by hosting various activities. One example is the Chef Anchor cooking programme, Hong Kong's first procedural learning cooking method developed to alleviate the symptoms of mild cognitive impairment among the elderly. Similarly, the Gentle Breeze Movement helps improve living conditions and educational facilities for children living in rural areas of mainland China.

## Looking to the Future

It is no secret that the energy industry is transforming at a rapid pace. We expect this change to bring challenges and uncertainties in the years ahead. Nevertheless, we will maintain our high standards and continue to explore new opportunity for clean energy to serve our customers in Hong Kong and mainland China. The future looks exciting, and we will endeavour to create commercial success while, at the same time, ensure that we protect the environment and the communities in which we operate. We are determined to help shape the energy market and provide a better tomorrow for the next generation.

**Alfred Chan Wing Kin**  
Managing Director





## 2017 HIGHLIGHTS



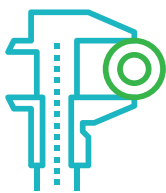
The Hong Kong and China Gas Company Limited and Towngas China Company Limited have been included as constituent companies of the Hang Seng Corporate Sustainability Index Series for **7 consecutive years since 2011**



Implemented **15 carbon reduction projects, reduced 140,400 tonnes carbon emissions** in both Hong Kong and Mainland China operations in 2017



### Mainland China Operations



**Promote artisanship in gas installation through the Towngas MasterCraft programme**



**8,013 mainland utility businesses employees participated in voluntary services,** which is an increase of 30% since 2013



**Serious gas-related accidents have dropped by 33%** in the last five years





Launched the  
**first 10-year Green Bond**  
to fund environmentally-friendly waste-to-  
energy investments



Only **6** industrial accidents occurred  
**Our best performance for  
36 years**



Our **service quality  
score efficiency  
reached 8.91**, which  
exceeded the target score of 8



The carbon intensity of gas  
production was **0.592kg CO<sub>2</sub>e**  
per unit of town gas, and we achieved a  
**23% reduction**  
compared with the 2005 baseline



**Launched new young  
talent programmes**  
to accelerate the development of young  
employees into **future leaders**



Increased customer and employee  
**voluntary service hours  
by 77%** since 2010, to  
**a total of 86,455 hours**

# Major Corporate Awards and Recognition in 2017

A comprehensive list of our 2017 awards can be found on our [Corporate website](#).



## Governance

- Hong Kong Sustainability Award 2016/17**  
 - Certificate of Excellence  
 - Special Recognition for Creative Sustainability Idea  
 by The Hong Kong Management Association
- IFAPC Outstanding Listed Company Award 2017**  
 by The Hong Kong Institute of Financial Analysts and Professional Commentators Limited
- Constituent Companies of the Hang Seng Corporate Sustainability Index Series (Towngas and Towngas China)**  
 by Hang Seng Indexes Company Limited
- Quam Investor Relations Awards (QIRA) 2016 - HK Index Constituents (Hang Seng Index) Category**  
 by Quam IR Limited
- Top 100 Hong Kong Listed Companies 2016**  
 by Tencent and Finet Group Limited



## Business and Service

- Business for Social Good Award**  
 by Our Hong Kong Foundation
- Global 2000**  
 by Forbes
- Global Chinese Business 1000**  
 by Yazhou Zhoukan
- Customer Service Excellence Award 2017**  
 - Service Innovation Award (Gold Award)  
 - Team Award-Field and Special Service (Gold Award)  
 by Hong Kong Association for Customer Service Excellence
- Mystery Caller Assessment Award (Phone-in) - Gold Award**  
 by Hong Kong Call Centre Association
- GoHome Awards 2017**  
 - Best Kitchen Design  
 - Best Kitchen Appliance  
 by GoHome HK Company Limited
- HKIM Market Leadership Award - Public Services**  
 by Hong Kong Institute of Marketing
- Q-Mark Elite Brand**  
 by Federation of Hong Kong Industries
- 2016 Quality Sub - Contractor - Kitchen Cabinet**  
 by Hong Kong Professional Building Inspection Academy Ltd.
- Sing Tao Service Awards 2016 - After Sales Services**  
 by Sing Tao Daily
- Hong Kong Service Awards - Public Utilities**  
 by East Week





## Environment

- **2016 BOCHK Corporate Environmental Leadership Awards**  
- Gold Award (Manufacturing sector)  
- Belt and Road Environmental Leadership Recognition Award  
by The Federation of Hong Kong Industries and Bank of China (Hong Kong) Limited
- **2016 Hong Kong Awards for Environmental Excellence (Public Services - Silver Award)**  
by Environmental Campaign Committee



## Safety

- **The 16th Hong Kong Occupational Safety and Health Award**  
- Safety Management System (Other Industries) - Gold Award  
- Safety Enhancement Programme - Gold Award  
- Annual Report Award - Silver Award  
- Safety Performance Award  
→ Other Industries  
→ Construction Industry (U-Tech Engineering Company Limited)  
by Occupational Safety & Health Council



## Social

- **Champion of Highest Service Hour Award 2016 (Private Organisations - Best Customers Participation)**  
by Social Welfare Department
- **Award of 10,000 Hours for Volunteer Service**  
by Social Welfare Department
- **Employer of Choice Award 2017**  
- Employer of Choice Award  
- Corporate Social Responsibility Award  
- Leadership Development Award  
by Job Market Publishing Limited
- **Caring Company 15 Years+ Logo**  
by The Hong Kong Council of Social Service
- **List of Barrier-free Companies**  
by The Hong Kong Council of Social Service
- **HR Asia Best Companies To Work For in Asia 2017**  
by HR Asia
- **Partner Employer Award**  
by The Hong Kong General Chamber of Small and Medium Business
- **Talent-Wise Employment Charter and Inclusive Organisations Recognition Scheme 2016-2017**  
- Friendly Employment Award  
by Labour and Welfare Bureau
- **President's Award 2016/2017**  
by The Hong Kong Community Chest





## ABOUT THIS REPORT

The Hong Kong and China Gas Company Limited (Towngas) has led the way in the field of business sustainability reporting for more than a decade. Our Sustainability Report 2017 serves as an opportunity to engage our stakeholders on this vital topic, to identify areas for improvement and to reflect on the past year's successes.

Information on our financial performance, our operations and their impact can be found in Chapters 4 and 5. For additional financial data, and more on our business initiatives and operations, please refer to the [Towngas Annual Report 2017](#).

### 3.1 • Scope of the Report

The information in this report covers material issues that have arisen from Towngas and its subsidiaries (the Group), from the period 1 January 2017 to 31 December 2017, unless specified to the contrary.

The principal activities of the Group are the production, distribution and marketing of gas, water supply and emerging environmentally-friendly energy businesses in Hong Kong and mainland China. This report looks beyond Hong Kong to include our sustainability performance in the diverse, ever-changing landscape of mainland China. For more information on our mainland operations – including additional case studies and key performance indicators – please refer to the [2017 Towngas China Corporate Social Responsibility \(CSR\) Report](#) and the [2017 Hua Yan Water CSR Report](#).





## 3.2 • Reporting Guidelines

This report has been compiled in accordance with the Core Option of the Global Reporting Initiative (GRI) Sustainability Reporting Standards, and with reference to the GRI G4 Oil and Gas Sector Disclosures. The GRI Content Index can be found on [p.106](#).

In addition, the report fulfilled the “comply or explain” provisions and “recommended disclosures” of the Environmental, Social and Governance Reporting Guide (ESG Guide) under Appendix 27 to the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited. The ESG Guide Content Index can be found on [p.112](#).

## 3.3 • Independent Verification

This report has been verified by an independent third party to ensure its accuracy and completeness, and to confirm its adherence to the reporting guidelines. For the relevant verification statement, please see [p.118](#).

## 3.4 • Acknowledgement

This report was made possible by the endorsement of the Group’s senior management, and the unwavering support of many Towngas departments. We extend our sincere thanks to all those who contributed their time, and to everyone at Towngas sharing our vision of enhanced business sustainability.

## 3.5 • Feedback

The full version of this report is published on our website and the website of The Stock Exchange of Hong Kong Limited; printed copies of the report summary are available on request. To share your [feedback](#) on our sustainability performance or reporting methods, please complete the [\\_](#) or email us at [ccd@towngas.com](mailto:ccd@towngas.com).



## OUR COMPANY

🌱🌱 **Our vision statement – to be Asia’s leading clean energy supplier and quality service provider – reflects the fact that our performance not only impacts our shareholders, but also a wide range of stakeholders.** 🌱🌱

Towngas is a limited liability company incorporated and headquartered in Hong Kong and listed on The Stock Exchange of Hong Kong Limited (SEHK). As at 31 December 2017, the Group employed approximately 49,000 individuals in Hong Kong and mainland China. The year brought incremental changes to our portfolio of businesses; please refer to our [Annual Report 2017](#) for more details.

### 4.1 • Our Vision and Mission

Business sustainability is a key concern for organisations around the world. Towngas is committed to protecting the environment on an operational level, while maintaining our relationships with stakeholders and ensuring our long-term financial performance. Our vision and mission reflect this commitment, and provide a roadmap for our evolving sustainability strategy for the benefit of future generations.





### VISION

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



### COMMITMENT

To conduct ourselves in an ethical and transparent manner so that all stakeholders know that we are accountable to them for the decisions and actions we take to become a sustainable business.



### MISSION

To provide our customers with a safe, reliable supply of energy and the caring, competent and efficient service they expect, while working to preserve, protect and improve our environment.

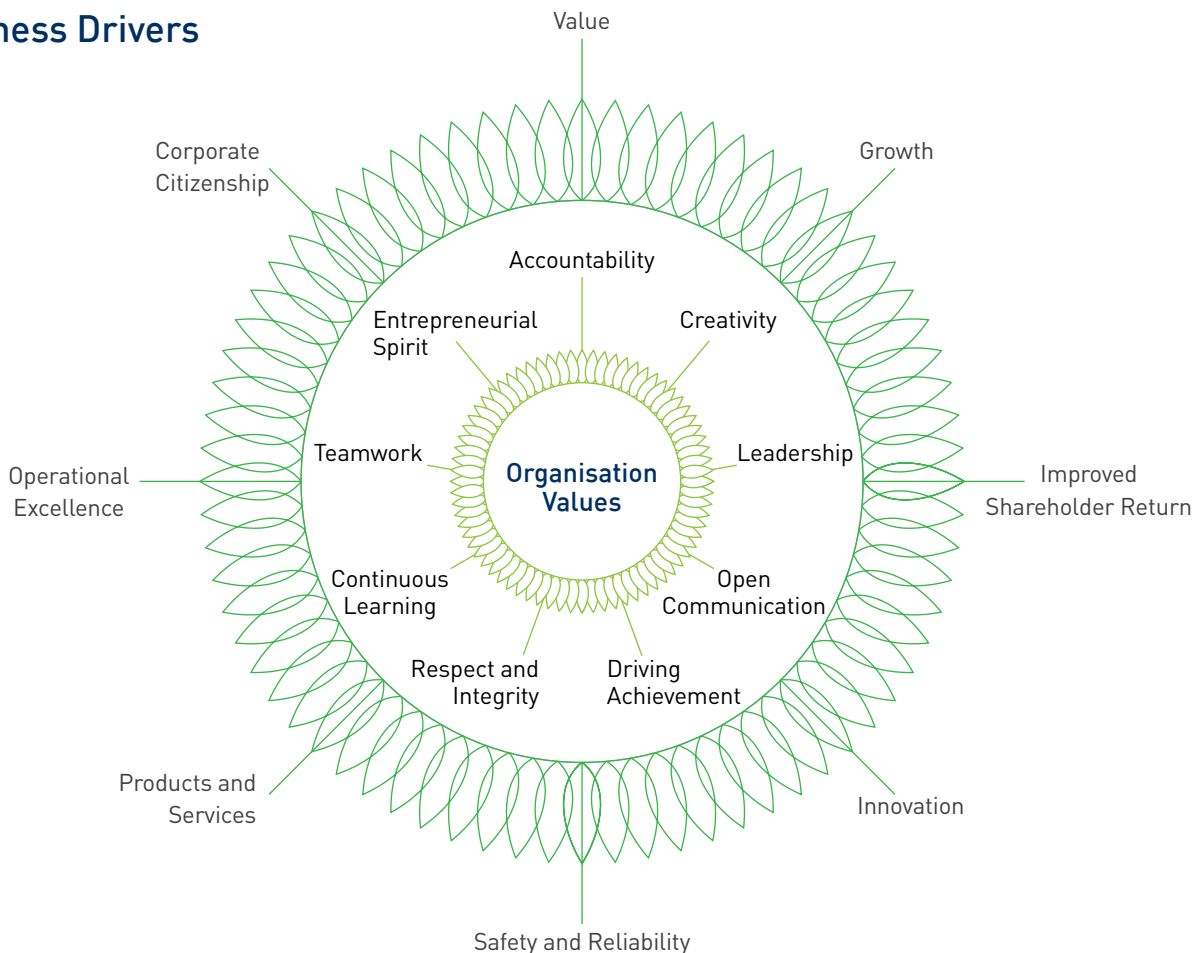


### RESPONSIBILITY

To recognise the importance of our employees and their contribution to the success of our business, and our responsibility to keep them safe, informed, engaged and equipped to undertake our mission.

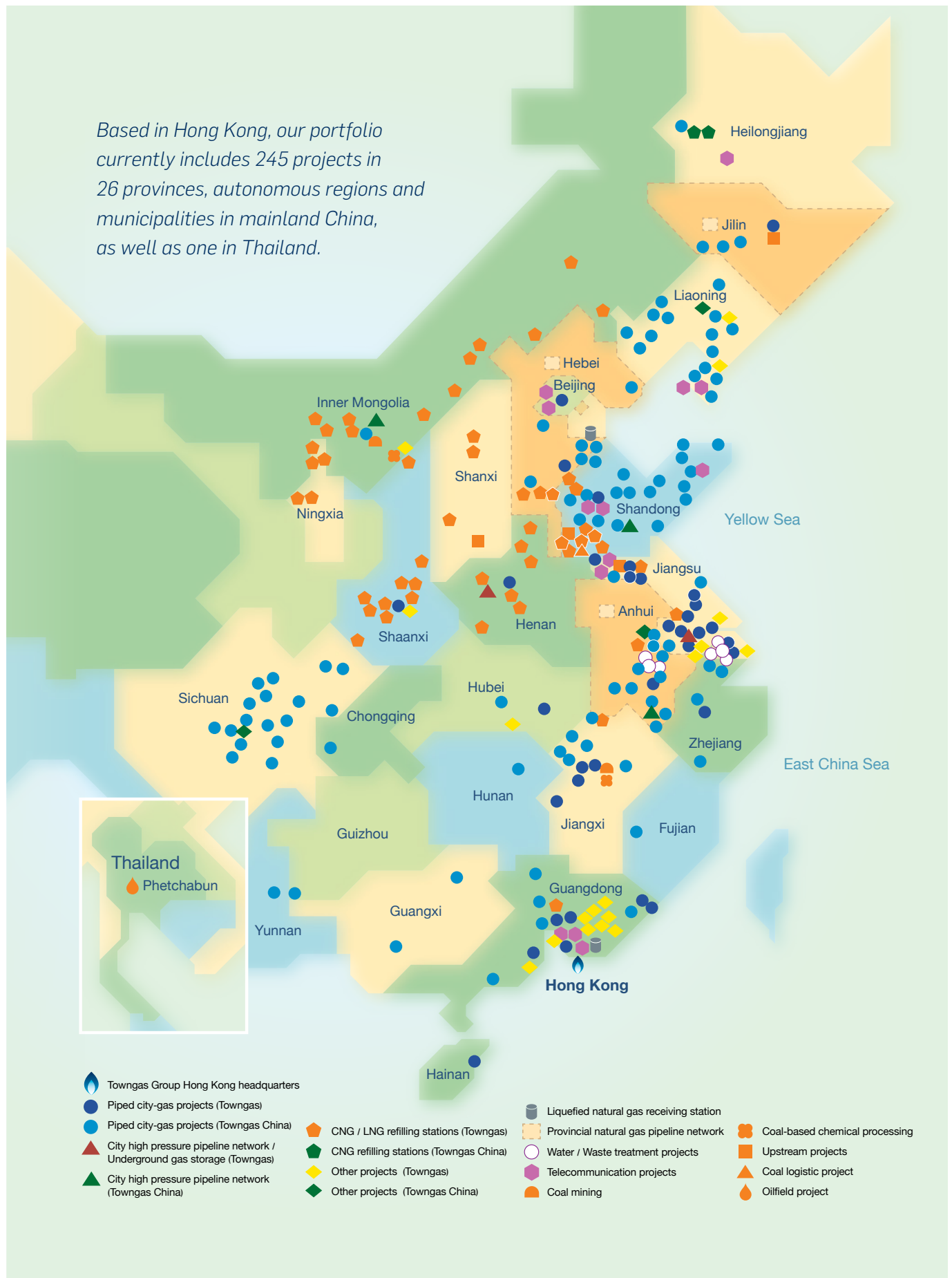


## Business Drivers



## 4.2 • Our Businesses

Based in Hong Kong, our portfolio currently includes 245 projects in 26 provinces, autonomous regions and municipalities in mainland China, as well as one in Thailand.





## Hong Kong Business



Serving both commercial and residential customers, our core businesses in Hong Kong comprise gas production and distribution, the marketing and sale of gas appliances, and the provision of after-sales services.

### In 2017



Our town gas sales reached **29,049** million MJ



Our pipeline network covered **3,632** km



Our customer base comprised about **1.88** million accounts



Our supply reliability rate exceeded **99.99%**



Sales of gas appliances, under our TGC, SIMPA and other brands, totalled **275,243** units

## Mainland China Businesses



As at the end of 2017, the Group possessed 131 piped city-gas projects in mainland China, spanning 23 provinces, autonomous regions and municipalities. Our activities also include water supply, waste-water and food-waste treatment, and the sale of appliances.

### In 2017

#### City-gas Operations



We supplied a network longer than **100,536** km

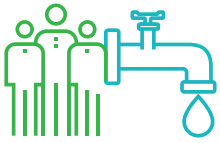


We served approximately **25.4** million city-gas customer accounts



Our gas sales reached **19.5** billion m<sup>3</sup>

## Water Supply and Waste-water Operations

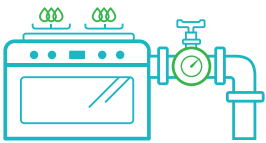


We served more than **1.2 million** water customer accounts



Our water sales amounted to **467 million tonnes**

## Extended Service Businesses



We sold about **750,000 units** of Bauhinia gas appliances



Our network included **255 Customer Service Centres**

## New Energy and Diversified Businesses

One of the Group's companies, ECO Environmental Investments Limited (ECO), focuses on identifying opportunities in clean energy and transforming them into viable businesses. For information on our clean energy projects, please see Chapter 6: Environment on [p.30](#). Our diversified businesses extend to telecommunications, civil and building services engineering, manufacturing operations and information technology.

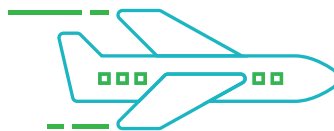


## In 2017

### New Energy Businesses



We had **54 gas-refilling stations** in operation and under construction in mainland China



We supplied approximately **6.55 million tonnes** of aviation fuel to Hong Kong International Airport

### Other Diversified Businesses



We had **7 data centres** across Hong Kong and mainland China, with a total capacity of **16,000 server racks**

For a full summary of Towngas' roles and services, please refer to Chapter 14: Appendix I on [p.115](#).

## 4.3 • Corporate Governance

A strong foundation of good corporate governance is vital to a company's long-term success. At Towngas, corporate governance safeguards our credibility and maintains our stakeholders' interests at the heart of operations, which are managed fairly and transparently. Our time-honoured policies, procedures and governance structure are central to the Group's activities at all levels and in all sectors. For more information on these principles and practices, please refer to our [Corporate website](#).

The Board of Directors (the Board), the Group's highest governing body, is committed to enforcing high standards of corporate governance and risk management. Such effective internal controls enhance transparency and accountability, while facilitating the Group's fulfillment of its social responsibilities.

The Board comprises nine members: two executive directors and seven non-executive directors, three of whom are independent. The Board is ultimately accountable for the Group's activities, strategies and financial performance. For more information about the Board, please refer to our [Corporate website](#). Information on the Board's composition, operation and committees can be found in our [Annual Report 2017](#).

During the year ended 31 December 2017, Towngas complied with all code provisions set out in the Corporate Governance Code contained in Appendix 14 to the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited.

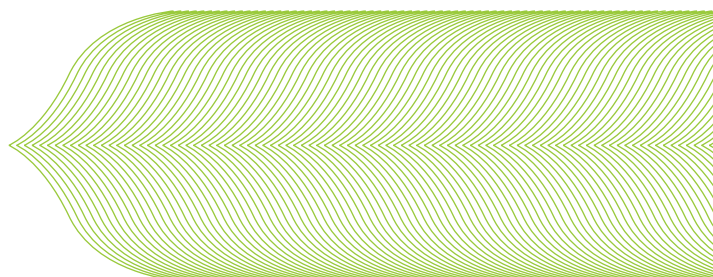
### Risk Management

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Towngas considers risk governance among its top priorities and is committed to establishing a robust system of risk management and internal control. Not only will this strengthen future success, it will also increase our value to key stakeholders over the long term.

Our risk management process covers all business units in the organisation, and concerns all our people. As an ongoing process, this has become an intrinsic aspect of our day-to-day operations and part of the culture at Towngas. The Board has the overall responsibility to oversee risk management and evaluate and determine the nature and extent of risks it is willing to take in a manner consistent with its strategic business drivers.

To ensure proper risk reporting channels, the Group Risk Management Committee (GRMC) recommends the risks and corresponding controls to the Executive Risk Management Committee (ERMC), which eventually reports to the Board for endorsement. For further information about risk management, please refer to our [Annual Report 2017](#).



## Code of Conduct

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Operating ethically and with integrity is our core value. Our Code of Conduct provides best practice guidelines for dealing with issues related to equal opportunities, fair practice, freedom of association, whistleblowing, conflicts of interest and corruption. We insist on complete vigilance when it comes to cases involving potential bribery or conflicts of interest.

We expect our people to fully adhere to the principles set out in the Code of Conduct. Anyone violating the Code of Conduct will be subject to disciplinary action. For more information, please refer to our [Corporate website](#).

## Whistleblowing and Anti-corruption Measures

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At Towngas, we believe that preserving our competitive advantage in the market depends on championing laws, honesty and fair competition. According to the Prevention of Bribery Ordinance (Cap. 201 of Laws of Hong Kong), Towngas is a public body, so our employees are subject to the Ordinance.

As such, all our employees are strictly forbidden from giving or accepting bribes. They must never, under any circumstances, offer an advantage to, or ask for an advantage from, our stakeholders, including customers, suppliers, contractors, regulators and legislators, authorities or other business partners. No one at Towngas is permitted to offer an advantage that could influence these stakeholders without prior approval from a supervisor, or the Company itself. Similarly, all employees are forbidden from giving or accepting illegal advantages to or from their co-workers and are asked to observe all relevant laws and regulations. To enforce this message, we provide anti-corruption and Code of Conduct training.

### In 2017

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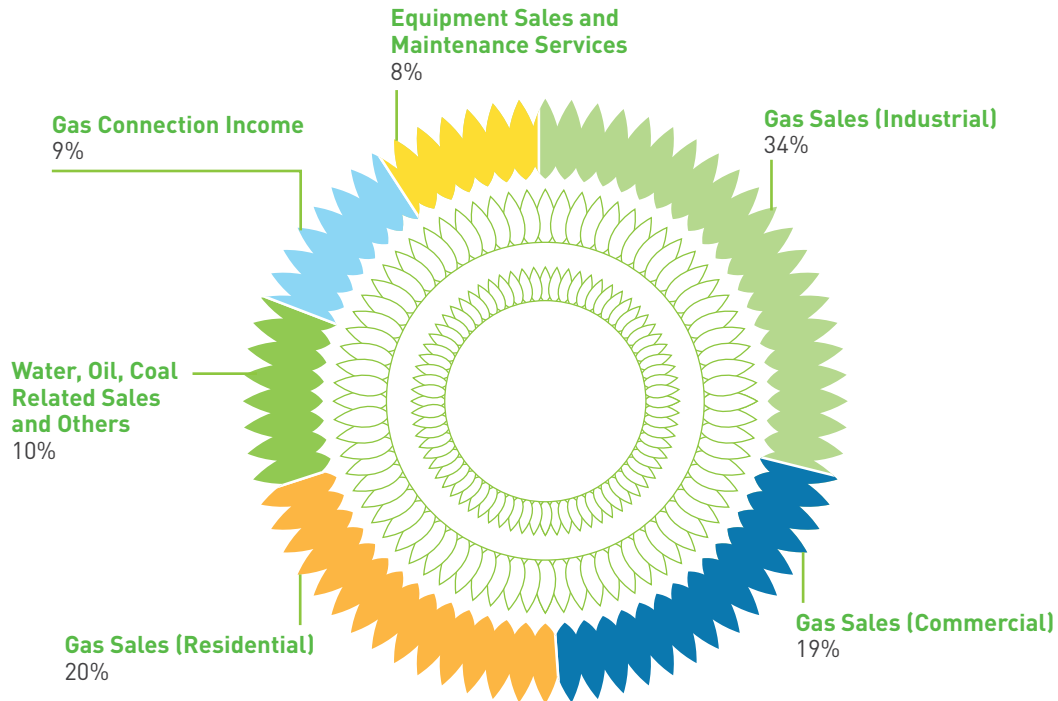
We provided **187.8 hours** of anti-corruption training for our employees.

Our Whistleblowing Policy is in place to encourage employees and stakeholders to raise concerns about any misconduct, malpractice or irregularity, particularly in relation to violations of our Code of Conduct or our business ethics and principles. The policy provides formal channels and guidance on reporting possible improprieties. A dedicated panel exists to deal with such cases, while staff grievances are handled by the Corporate Human Resources Department. In the event of any whistleblowing cases, a summary would be sent to the Board Audit and Risk Committee (BARC) twice annually. For more information, please see our [Corporate website](#).

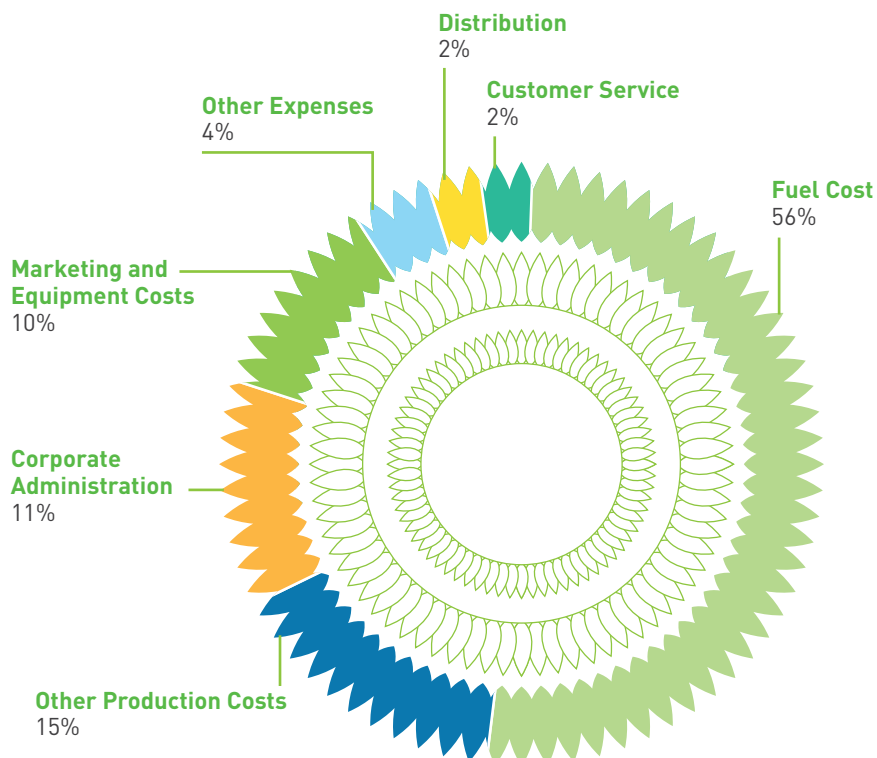
## 2017 Financial Analysis

Revenue	Capital Expenditure	Manpower Costs
HK\$32,477 million	HK\$6,141 million	HK\$3,035 million

### Analysis of Revenue



### Analysis of Expenditures





## SUSTAINABILITY AT TOWNGAS

🌱🌱 **As Hong Kong's oldest public utility company, Towngas has a distinguished history since its establishment in 1862. We are committed to continuing serving our communities in Hong Kong, mainland China and further afield, for many years into the future.** 🌱🌱

As the guiding pioneer of Hong Kong's energy sector, we prioritise meeting the needs of our customers through means that can be sustained for generations to come. We serve this imperative by balancing each business decision on its environmental, social and economic ramifications. In our quest for innovation and sustainable thinking, we successfully diversified our product portfolio and enhanced our services in 2017, driving business growth. Each breakthrough reinforces our vision: To be Asia's leading clean energy supplier and quality service provider, with a focus on innovation and environmental-friendliness. This vision is advanced by our subsidiaries through the implementation of sustainable operations that are good for people, for communities and for the environment. In 2017, Towngas was honoured with the Business for Social Good Award, the first such award in Hong Kong, launched by Our Hong Kong Foundation. The award recognises local businesses that are making contributions benefiting society and environment.

Stakeholder communication is another foundational pillar for the Group. Through an array of communication channels, we share our sustainability performance with our employees to bolster our sustainable thinking; with our business partners to ensure a unified approach to sustainability across all operational levels; and with our customers and the community to engender trust. These key messages come together in this Sustainability Report, which we have compiled for all our stakeholders.



## 5.1 • Governance and Management

A Sustainability Committee, headed by the Company's Managing Director, appointed by the Board was set up to oversee the Company's strategies, policies and practices on sustainability matters, as well as pursue innovative practices to promote the Company's sustainable growth. The Committee is responsible for identifying and reviewing sustainability issues, risks and opportunities; tracking sustainability performance and recommending strategies to improve it; reviewing and evaluating the annual Sustainability Report and recommending its endorsement by the Board / Executive Committee; and providing updates to the Board / Executive Committee on the latest relevant sustainability matters.

Beyond mandating compliance with all legislation, regulations and Codes of Practice, our principles of environmental management, quality control and safety are benchmarked against the highest international standards to protect our staff and customers, as well as the environment and the communities in which we operate. Our accomplishments have garnered global recognition and accreditation from the world's leading Quality, Environmental and Health & Safety Management Systems.

For details on the Management System Certification of our Hong Kong operations, please refer to our [Corporate website](#).

## 5.2 • Planning for the Future

Towngas is a utility company firmly rooted in Hong Kong, having served the local community for the last 155 years. Beginning as a gas company supplying fuel for street lamps, it has matured alongside the city, growing in size and scope to become a diversified conglomerate that now leads the energy industry across mainland China. This capacity for transformation has been critical to our success, carrying us from one breakthrough to the next in our products and services, giving us the flexibility to adapt to regulatory changes and the shifting economic landscape.

### Cultivating Our Existing Gas Market

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This year saw the continued growth of our gas infrastructure to meet burgeoning demand across the region. In Hong Kong, works were carried out at our Tai Po Plant to boost capacity by 20%, with the first phase due for completion by the end of 2018. Our pipeline network continued expanding to capture new markets in development areas including the Hong Kong International Airport's third runway, the Tung Chung Town Extension, Hung Shui Kiu and the North East New Territories, as well as housing developments including Fanling Queen's Hill, the Anderson Road Quarry Site and Wang Chau Development.

The growth of our city-gas business in mainland China has in large part been due to the government's new policies, as outlined in the Thirteenth Five-Year Plan. The switch to natural gas led to a total volume growth of 14% in gas consumption for the Group during the year. In 2017, we established Towngas Energy Investment (Shenzhen) Company for managing our distributed energy system and central heating projects. Seven direct investment projects started during the year, initially in regions of the east, north and northeast China.



## Investing in New Projects

---

On our journey to becoming Asia's foremost green energy supplier, we remain mindful of our mandate to seek out clean, renewable energy in the face of impending resource scarcity. Leading this charge is ECO Environmental Investments Limited (ECO), a company focused on exploring the viability of business opportunities in clean and efficient energy.

ECO discovered the key to transforming low-grade resources into high-value energy through radical innovation, thereby beginning an exciting new chapter in the provision of low-carbon, high-value energy. From the early days of our first green portfolio – which included fuels such as liquefied natural gas (LNG) and other gasoline substitutes – we have been laying the essential groundwork to meet the inevitable global demand for green chemicals and materials. Several of our most promising projects are now nearing completion, including a hydro-treated vegetable oil (HVO) plant in Zhangjiagang, which will be our first production plant for renewable fuel; an ethylene glycol plant in Inner Mongolia, which will be our first chemical production plant; a carbon material project in Inner Mongolia; and a biomass utilisation project in a straw-rich region.

## Communicating Our Strategic Direction

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Our employees represent the future of Towngas and the heart of our vision, making it essential for them to understand and endorse the Company's strategic direction. The Strategy Ambassador Club (The Club) was thus established to convey our ongoing strategy across every operational level, and to open channels through which employees could relay their thoughts in turn.

The Club is helmed by more than 70 representatives – from frontline staff to managers across various departments and businesses – and organises seminars, workshops and tours for all Towngas employees. Business in One Hour seminars spotlight various business units, outlining their latest developments and strategies, while Speaking Out Meetings provide an opportunity for employees to share their opinions and innovative ideas. Employees were invited to tour facilities such as our new landfill gas treatment site in the South East New Territories, as well as the Combined Heat and Power (CHP) System at the Alice Ho Miu Ling Nethersole Hospital. In addition, a tour to one of the energy operators in mainland China was organised to facilitate the exchange of ideas and knowledge.

## 5.3 • Defining Our Material Issues

To identify and prioritise the topics to be covered in this report, a materiality assessment was carried out in collaboration with an independent consultant. The independent consultant engaged seven groups of internal and external stakeholders: employees, investors, contractors, business partners, customers, non-governmental organisations (NGOs) and professional bodies. This initiative marked the first time we engaged our employees in mainland China via an online survey.



## The process for Identifying Material Aspects



### Preparation

- Compiled a list of issues that could potentially be considered material, with reference to international standards
- Identified key stakeholder groups in agreement with an independent consultant
- Designed a stakeholder engagement programme



### Stakeholder Engagement

- Engaged key internal and external stakeholder groups via a series of engagement sessions (including interviews, focus group discussions and prioritisation exercises), as well as an online survey
- Stakeholders were invited to rate the importance of sustainability aspects, covering a wide range of topics pertinent to sustainability reporting
- Stakeholders expressed their opinions on our existing sustainability strategy, current performance and reporting, as well as perceived risks faced by the Group



### Benchmarking Exercise

- Compiled and analysed stakeholder data against the disclosure practices of key peers based locally and overseas, for benchmarking purposes as well as to establish issues of greatest materiality to Towngas



### Aspect Identification

- Identified our lines of business, entities in our value chain, and other stakeholder groups that are directly and indirectly impacted by, or have impacts on the aspects
- Identified the material aspects and assessed the boundary of each aspect based on feedback received from stakeholder engagement, business knowledge, and management review
- Final review and endorsement by senior management

## Material Aspects at Towngas

By engaging our stakeholders, we are able to guarantee that the report focuses on sustainability issues pertinent to our operations – particularly the economic, environmental and social impact of these operations. More importantly, we are thus able to formulate a future strategic direction for realising our vision of greater sustainability. At the conclusion of the materiality analysis assessment, 22 material aspects were identified.

The following are the material aspects for 2017 and their corresponding boundaries, including any impacts through our value chain.

Material Topics	Outside Towngas		Within Towngas			Outside Towngas		
	Investors	Suppliers	Production and Processing	Transmission and Distribution	Marketing, Sales and Service	Contractors	Customers	Community
<b>Economic</b>								
Economic Performance	✓	✓	✓	✓	✓	✓		✓
Market Presence	✓		✓	✓	✓	✓		✓
Anti-corruption	✓	✓	✓	✓	✓	✓	✓	
<b>Environmental</b>								
Materials		✓	✓	✓	✓	✓	✓	✓
Energy			✓	✓	✓	✓	✓	
Water			✓	✓	✓			✓
Emissions	✓		✓	✓	✓	✓	✓	✓
Effluent and Waste			✓	✓	✓	✓		✓
Environmental Compliance	✓	✓	✓	✓	✓	✓	✓	✓
Supplier Environmental Assessment		✓	✓	✓	✓			
Products and Services		✓	✓				✓	✓
<b>Social</b>								
Employment			✓	✓	✓			✓
Occupational Health and Safety			✓	✓	✓	✓		
Training and Education			✓	✓	✓	✓		
Local Communities			✓	✓	✓	✓		✓
Customer Health and Safety	✓	✓	✓	✓	✓	✓	✓	
Marketing and Labelling					✓		✓	
Customer Privacy					✓	✓	✓	
Socioeconomic Compliance	✓	✓	✓	✓	✓	✓	✓	✓
Emergency Preparedness	✓		✓	✓	✓	✓	✓	✓
Asset Integrity and Process Safety	✓		✓	✓			✓	✓
Fossil Fuel Substitutes	✓	✓	✓				✓	

**Notes:**

“✓” above indicates the entities with the most significant impacts associated with each material topic.  
“Community” refers to the communities in the locations where Towngas operates.



**Staff:**



"Towngas sincerely cares for its employees."  
 "We ensure the preservation of valuable craftsmanship and tradition."

**Contractor:**



"For the past 20 years, Towngas has been minimising the impact of its product life cycle on the environment."  
 "Senior management of Towngas supports the promotion of Occupational Health and Safety."

**Business Partner:**



"The utilisation of landfill gas is a strategic decision to reduce our city's greenhouse gas emissions."

**Investor:**



"High-quality businesses care about their Environmental, Social and Governance performance. Towngas is one of them."

**NGO:**



"Towngas has encouraged us to propose creative and innovative Corporate Social Responsibility initiatives, aiming to maximise the positive social impact the programmes can bring."

**Professional Body:**



"Towngas employees are technically-trained, business-minded professionals with innovative spirit."

**Customer:**



"We chose Towngas for its stability, reliability and superior safety and environmental performance."

## 5.4 • Engaging Our Stakeholders

Driving business growth and securing long-term stakeholder value are key concerns for Towngas. As we heed our stakeholders' views and make every effort to act upon them, our engagement mechanisms help us assess our operations and pinpoint areas for continued improvement. We engage stakeholders through multiple communication channels, as outlined in the table below. The table also provides details of our stakeholders' key concerns and expectations, as well as our subsequent actions.

Communication Channels	Key Concerns / Expectations in 2017	Our Actions in Relation to the Key Concerns
<b>Contractors and Suppliers</b>		
<ul style="list-style-type: none"> <li>Green Ambassadors Club for dealers and contractors</li> <li>Seminars and workshops</li> <li>Audits</li> <li>Management meetings and supplier conferences</li> <li>Mass communication</li> <li>Whistleblowing system</li> </ul>	<ul style="list-style-type: none"> <li>Remuneration for craftsmen and technicians is less competitive compared to other industries, making it difficult to attract and retain junior craftsmen and technicians</li> </ul>	<ul style="list-style-type: none"> <li>We have established a Life Insurance Scheme for contractors' technicians</li> <li>Continuous training is provided for their personal development</li> </ul>

Communication Channels	Key Concerns / Expectations in 2017	Our Actions in Relation to the Key Concerns
<b>Employees</b>		
<ul style="list-style-type: none"> <li>Employee surveys and focus groups</li> <li>Suggestion boxes, bulletins, newsletters, intranet and employee meetings</li> <li>Issue-specific consultative sessions</li> <li>Superior Quality Service Programme</li> <li>Strategy Ambassadors Club</li> <li>Green Ambassadors Club</li> <li>Fun Living Series in 2017</li> <li>iCandy Corner</li> <li>Social media platforms, such as Yammer in Hong Kong, WeChat and Weibo in mainland China</li> <li>Whistleblowing system</li> </ul>	<ul style="list-style-type: none"> <li>Cultural differences in relation to Hong Kong's and mainland China's environmental, safety and labour standards</li> </ul>	<ul style="list-style-type: none"> <li>Established regular learning trips to Hong Kong for mainland Chinese employees, focusing on best practices in (but not limited to) six main topics: safety inspection, installation, maintenance, quality control, warehouse management and the tendering process</li> <li>Issued in-house corporate safety standards and guidelines to all joint ventures (JVs) in mainland China and held regional workshops to communicate our requirements and expectations</li> <li>Conducted safety and risk management audits to ensure that all JVs in mainland China comply with our corporate standards and guidelines</li> </ul>
<b>Local Communities</b>		
<ul style="list-style-type: none"> <li>District Council Focus Team</li> <li>Community programmes, such as Towngas Volunteer Service Team, festive food delivery campaigns, etc.</li> <li>District Fire Safety Committees</li> </ul>	<ul style="list-style-type: none"> <li>Sustainability information on the Towngas website and social media platforms</li> <li>Gas-related safety education catering to domestic helpers</li> </ul>	<ul style="list-style-type: none"> <li>In addition to the sustainability section on our website, we created a Low Carbon Action! <a href="#">mini website</a> and a <a href="#">Facebook page</a> dedicated to environmental sustainability. These highlight our initiatives and provide green living tips, with interactive games and quizzes to boost online engagement</li> <li>Catering to the needs of multicultural domestic helpers in Hong Kong, our customer service hotline is offered in Tagalog and Indonesian, and our safety booklets are published in Tagalog, Thai and Indonesian</li> </ul>
<b>Investors</b>		
<ul style="list-style-type: none"> <li>Annual General Meeting</li> <li>Investor and Securities Analyst Briefings post annual and interim results</li> <li>Interim and Annual Reports</li> <li>Sustainability Reports</li> <li>Company website (especially the Investor Relations Section)</li> <li>'Newsflash' via email and the Towngas website</li> <li>Non-deal roadshows</li> <li>Investment conferences</li> <li>Investor meetings</li> <li>Telephone conference with investors, securities analysts and credit rating agencies</li> <li>Annual review with credit rating agencies</li> </ul>	<ul style="list-style-type: none"> <li>Impact of China's tightening control on gas relevant infrastructure is well developed in the future</li> <li>Returns on new energy investments in mainland China have yet to meet expectations</li> </ul>	<ul style="list-style-type: none"> <li>China's reforms are set to transform the natural gas industry into a market-oriented one; the recent National Development and Reform Commission announcement on regulated returns for gas distribution is beneficial to the city-gas business as: <ul style="list-style-type: none"> <li>Gas pricing mechanisms become more transparent, stable and predictable</li> <li>Connection fees are not included in the return calculation</li> <li>A good balance is achieved between affordable gas supply and the city-gas price formula</li> </ul> </li> <li>The new energy business is focused on projects that use proprietary and patented technologies for converting waste or low-value feedstock into clean energy or eco-materials, which have a high return of at least 25% internal rate of return</li> </ul>

Communication Channels	Key Concerns / Expectations in 2017	Our Actions in Relation to the Key Concerns
Professional Bodies and Regulators		
<ul style="list-style-type: none"> <li>• Joint Utilities Safety and Occupational Health Policy Group</li> <li>• Joint Utilities Policy Group</li> <li>• Business Environment Council</li> <li>• China Gas Association</li> <li>• Gas Authority of Electrical and Mechanical Services Department (EMSD)</li> <li>• The Hong Kong Institution of Engineers</li> <li>• Polyethylene (PE) piping coalitions and the International Organisation for Standardisation (ISO) Technical Committees on PE pipes and fittings</li> </ul>	<ul style="list-style-type: none"> <li>• Safety should be especially highlighted in mainland China, where safety risks seem higher, and where robust control and good management are important to ensure safety</li> </ul>	<ul style="list-style-type: none"> <li>• To ensure safe gas operations, our mainland JVs implemented safety programmes including safety supervision in plants and stations, quality control for engineering projects, gas pipeline network rehabilitation, optimisation of prefabricated engineering products, monthly safety inspections by general managers, pipeline network inspections, indoor safety inspections, safety and risk management audits, etc.</li> <li>• Our mainland chemical plants implemented Process Safety Management and developed various measures to control or mitigate major risks</li> </ul>
Customers		
<ul style="list-style-type: none"> <li>• Newsletters and leaflets</li> <li>• Bimonthly bill inserts – ‘Newsflash’</li> <li>• Company websites, social media platforms, mobile phone networks and the Towngas app</li> <li>• Regular maintenance visits, safety inspections and safety talks</li> <li>• Visits to residential customers by Customer Focus Team</li> <li>• Monthly surveys and focus group research on specific programmes</li> <li>• Year-round publicity and community campaigns</li> <li>• Management offices and owners’ corporations</li> <li>• 24-hour customer service hotline</li> <li>• Customer centres</li> <li>• 24-hour emergency hotline</li> <li>• Reporting channels for possible improprieties, misconduct, malpractice or irregularities</li> </ul>	<ul style="list-style-type: none"> <li>• The growing market among young couples, and incorporating parent-child interactions into product design and promotions</li> <li>• Online customer service</li> </ul>	<ul style="list-style-type: none"> <li>• To elevate living standards among customers, we launched a broad range of premium appliances under our Mia Cucina brand, along with our Total Kitchen Solution service</li> <li>• Enhanced eServices on the Towngas website for a better customer experience: <ul style="list-style-type: none"> <li>- Real-time integration with Customer Relationship Management Applications</li> <li>- Customers can reserve a one-hour time slot for maintenance services</li> <li>- Customers can view, change or cancel their maintenance appointment</li> </ul> </li> </ul>
NGOs		
<ul style="list-style-type: none"> <li>• Green partnership programmes and community programmes</li> <li>• Meetings with green groups</li> <li>• Questionnaires</li> </ul>	<ul style="list-style-type: none"> <li>• Informal annual meetings should be held to connect NGOs with Towngas employees for networking</li> <li>• Feedback and evaluation forms should be collected from NGO partners upon the completion of each programme to enhance communication</li> </ul>	<ul style="list-style-type: none"> <li>• We hold meetings with NGOs to discuss plans for the coming year</li> <li>• We connect closely with NGOs to understand the impacts of the programme. Feedback and evaluation forms will be considered in the future</li> </ul>



## ENVIRONMENT

🌱🌱 We strive to become the greenest company in Hong Kong. 🌱🌱



Over the last decade, public awareness about the importance of environmental protection has risen tremendously. At Towngas, environmental considerations are central to our decision-making and management processes. We aim to inspire the society a high environmental standard and create a better and cleaner world that is a more enjoyable place to live.

Innovation is among our highest priorities. We proactively invest in technology and businesses that reduce our environmental impact. We also engage our stakeholders in a joint effort in the service of positive environmental action. In 2017, we were honoured to garner recognition for our environmental efforts, including a Gold Award (Manufacturing Sector) at the BOCHK Corporate Environmental Leadership Award.

Towngas complies fully with all applicable environmental laws and regulations, and in many instances, works beyond compliant standards. In 2017, no critical non-compliance cases were reported.

## Key Performance in 2017

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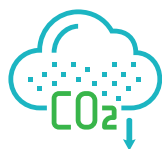
Total greenhouse gas (GHG) emissions  
**1,274,000 tonnes** of carbon  
dioxide equivalent (tCO<sub>2</sub>e)



**2,700 tonnes of carbon emissions**  
reduced by heat recovery system at our  
Tai Po Plant

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**↓ 23% reduction** in GHG emissions  
from our gas production in Hong Kong  
compared with 2005



**15 projects** received from operations  
in Hong Kong and mainland China for our  
eighth **carbon reduction competition**



**1% reduction** in water consumption  
and **2% reduction** in electrical power  
consumption at Towngas Headquarters  
compared with 2016

## Achievements and Targets

Goals	Achievements / Progress in 2017	Future Actions and Targets
Climate Change Mitigation	<ul style="list-style-type: none"> <li>● The Eighth Carbon Reduction Competition was held</li> <li>● The 2020 carbon reduction target was set</li> <li>● An external consultant was engaged to study the feasibility of using carbon offset from green projects for the Chinese Certified Emission Reduction</li> <li>● The third landfill gas site in South East New Territories (SENT) was launched in Q4 2017</li> </ul>	<ul style="list-style-type: none"> <li>● To organise the Ninth Carbon Reduction Competition</li> <li>● To perform in-depth study on selected Hong Kong and mainland China projects for application of the Chinese Certified Emission Reduction</li> <li>● To increase the proportion of biogas usage for town gas production</li> <li>● To keep abreast of the latest developments in carbon reduction policies in Hong Kong and mainland China</li> <li>● To identify and explore new initiatives relating to emissions reduction</li> <li>● To study the feasibility of increasing the greening of off-take stations and gas production plants</li> </ul>
Strengthen Climate Change Resilience and Adaptive Capacity	<ul style="list-style-type: none"> <li>● The climate change risk assessment was extended to three more Chinese provinces through visits to Hubei, Anhui and Sichuan</li> <li>● The progress of climate change adaptation measures across different departments were regularly updated and monitored</li> </ul>	<ul style="list-style-type: none"> <li>● To extend the climate change risk assessment to joint ventures (JVs) in other parts of China, and to monitor the effectiveness of the climate change adaptation measures in mainland JVs</li> <li>● To continue monitoring various departments' progress in implementing the climate change adaptation measures</li> </ul>
Improve Resources Management Practices	<ul style="list-style-type: none"> <li>● Completed water saving projects in Tai Po Plant with an estimated saving of over 20,000 cubic metres in 2017</li> <li>● Replaced fluorescent lighting with energy efficient LED lighting in various operations, e.g. Sha Tin warehouse</li> <li>● The chilled water supply temperature and chiller operation parameters of North Point Headquarters were adjusted to optimise the chiller operation to save energy</li> </ul>	<ul style="list-style-type: none"> <li>● To obtain ISO 50001 Energy Management System certification</li> <li>● To implement an energy management cloud platform system</li> <li>● To identify and implement measures in reducing energy and water consumption, for example freight lift system modernisation at North Point Headquarters, reduction of air conditioning use at our data centres</li> </ul>



Goals	Achievements / Progress in 2017	Future Actions and Targets
Enhance Waste Management Practices	<ul style="list-style-type: none"> <li>Wastewi\$e Certificate was achieved for the 16th consecutive year</li> <li>Installed more than 36 jet-type hand dryers in toilets at North Point Headquarters</li> <li>Waste was collected for recycling. For example, we collected over 2,000 obsolete office electronic products, over 1,000 kg of appliances, printed circuit boards and components, and 33 kg of glass</li> </ul>	<ul style="list-style-type: none"> <li>To obtain Wastewi\$e Certificate for the 17th consecutive year</li> <li>To centralise and streamline the recycling efforts of our colleagues, for example, set up collection points for recycling materials at North Point Headquarters and carry out related promotions</li> <li>To identify potential waste streams to reduce and/or recycle waste generated from our operation, such as recycle used lead acid batteries and obsolete office consumables, for example, electronic products, cartons and calenders</li> </ul>
Obtain Green Building Certifications	<ul style="list-style-type: none"> <li>Towngas Telecommunications Company Limited (TGT) Dongguan Data Centre 1 attained Leadership in Energy and Environmental Design (LEED) Core and Shell Gold Level Certification</li> </ul>	<ul style="list-style-type: none"> <li>To prepare gap analysis of the Building Environmental Assessment Method (BEAM) Plus new version and North Point Headquarters for renewal in 2020</li> </ul>
Enhance Carbon, Environment, Social and Governance (ESG) Data Management and Reporting	<ul style="list-style-type: none"> <li>The corporate ESG data management system was successfully upgraded to cater for the increasing demand for ESG data and information disclosure</li> </ul>	<ul style="list-style-type: none"> <li>To explore ways to improve transparency on carbon reporting</li> <li>To improve the ESG data management system in mainland China</li> </ul>
Promote Environmental Awareness to Our Stakeholder, Including Employees, Contractors and Customers	<ul style="list-style-type: none"> <li>A wide range of awareness enhancement activities was conducted, including eco tours, seminars and workshops</li> <li>Waste collection competitions were conducted among contractors</li> <li>A Green and Healthy Cooking Tips leaflet was published</li> </ul>	<ul style="list-style-type: none"> <li>To study and develop environmental best practice guidelines for Towngas' cooking centre, restaurant and gas refilling stations</li> <li>To develop internal guidelines on organising green events</li> <li>To continuously organise environmental visits, seminars, training programmes and activities for employees, contractors and their family members</li> </ul>

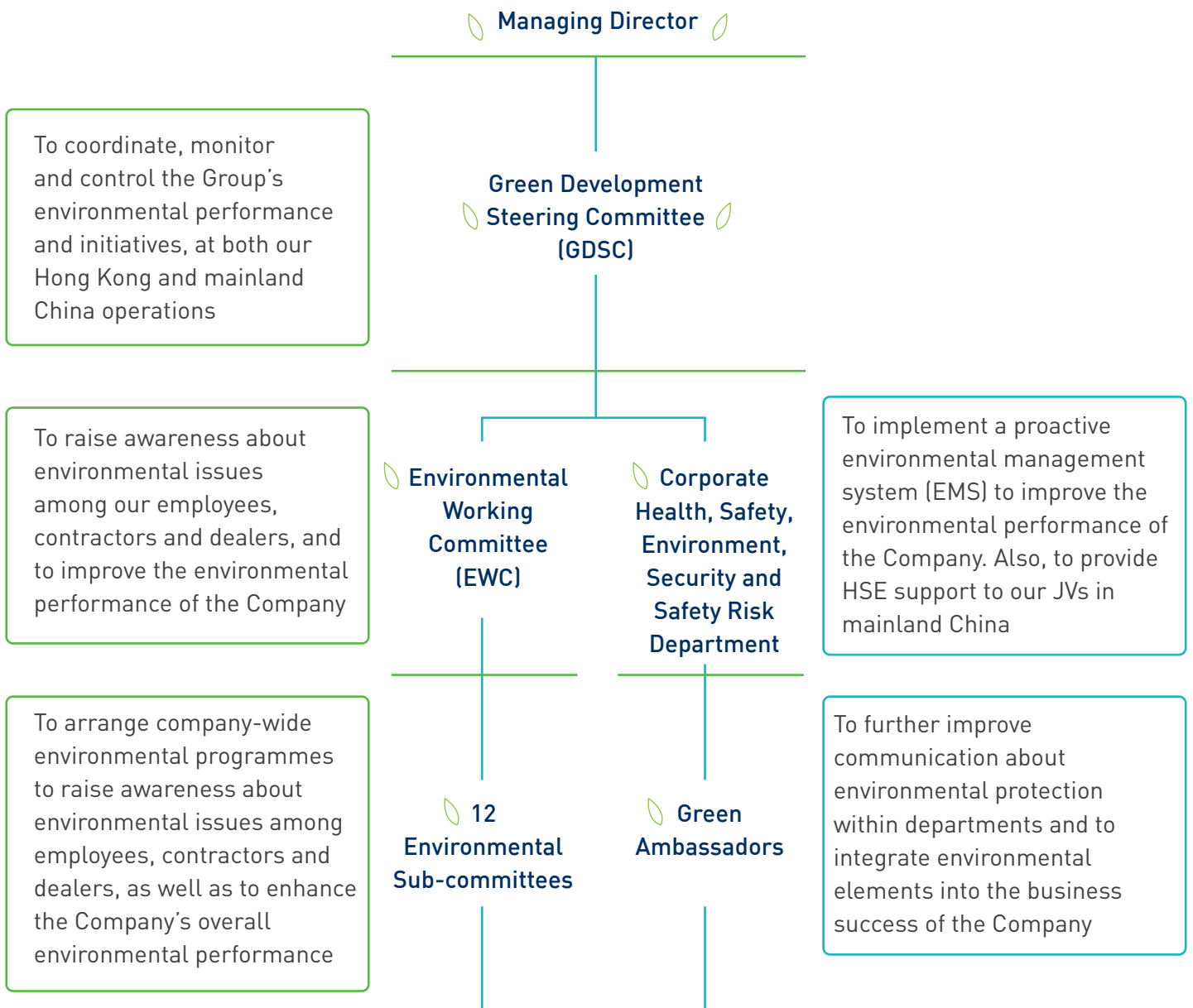
## 6.1 • Our Approach

The Towngas [Corporate Health, Safety and Environment \(HSE\) Policy](#) contributes to our framework for identifying environmental impact, and developing green objectives and key performance indicators. These insights clarify our approach when it comes to responsibly managing the impact of our operations.

Our Corporate Environmental Manual sets out the relevant legislation, policies, internal standards, procedures, guidelines and methods for protecting the environment. The manual describes how all concerned parties can contribute to protecting the environment and minimise our impact on it.

### Governance

Our environmental performance and initiatives are coordinated, monitored and controlled by the Green Development Steering Committee with the support of the Environmental Working Committee and Corporate Health, Safety, Environment, Security and Safety Risk Department.





In 2017, around 40 environmental objectives were met by the environmental sub-committees of the EWC. The winner of the 2017 Outstanding Environmental Working Sub-committee Award was the Environmental Technology Services Sub-committee. The sub-committee was recognised for its implementation of the regenerative electric energy module (REEM) in gas appliances. The module saves energy by using the remaining heat from the cooking stove and converts it into electrical energy, so that the ignition battery can recharge. This removes the need to replace batteries in the future.

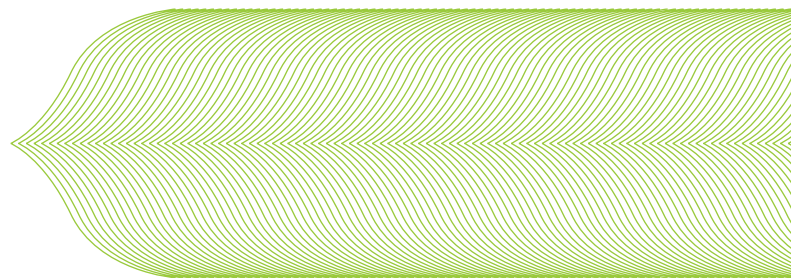
Our mainland JVs established their own EWC which is led by the senior management. Apart from ensuring compliance with the appropriate legislation and standards, the committee is tasked with formulating environmental policies and implementing corresponding measures, as well as reviewing the management system regularly to enhance environmental performance. Regular employee training programmes are also hosted to promote the importance of environmental protection work.

## Environmental Management Systems (EMS) and Project Management

At Towngas, all our activities follow the most stringent regulatory requirements, and are benchmarked against the highest international standards and Codes of Practice. Prior to developing any new projects in Hong Kong or mainland China, Towngas carries out an environmental impact assessment (EIA) according to local governmental requirements.

Our gas production plant in Tai Po has been certified to ISO 14001 standard since 1999 and some of our mainland China JVs have also obtained the certification to the same standard. Regular audits and inspections verify the soundness of the Company's EMS – a key factor in achieving our environmental objectives. These checks also ensure that all relevant environmental legislation is complied with, and all relevant environmental standards are conformed to. In the event of any environmental deficiency, recommendations for improvements will be provided.

Since 2011, we have actively launched environmental audits across our JVs in mainland China. In 2017, 55 audits were carried out, focusing on energy conservation, waste and wastewater management, and noise control. The results were satisfactory.



## Towngas Inaugural Green Bond

Towngas keeps abreast of the latest development of green financial instruments to fund the Group's environmental innovative technology projects. Such investments align with the Group's long-term goals of promoting sustainable development and fighting climate change.

In 2017, Towngas established its [Green Bond Framework](#), which is prepared in accordance with the International Capital Market Association's Green Bond Principles (GBP) 2017. This has been reviewed in an independent [Second-Party Opinion Report](#) by Sustainalytics, a global ESG and corporate governance research and rating provider. According to the report, the framework is transparent and credible, and aligns with the four pillars of the GBP: that is, the Use of Proceeds, Process for Project Evaluation and Selection, Management of Proceeds, and Reporting.

In November 2017, Towngas issued its inaugural green bond, based on its Green Bond Framework, through a 10-year HK\$600 million and a 10-year JPY2 billion transaction, attracting significant investor interest. Towngas is the first and only energy utility company in Hong Kong to have issued a green bond.

### Use of Proceeds and Green Bond Project Update

The net proceeds from the above green bond, HK\$734.4 million, have been fully allocated to the following four green projects as of 31 December 2017, as follows:

Project Category	Location	Estimated Project Cost (million)	Amount and ratio of the Green Bond allocated (HK\$ million)	Estimated Starting Date of Operation	Estimated GHG Reduction (tCO <sub>2</sub> e/year)
Landfill Gas Utilisation	Tseung Kwan O, Hong Kong	HK\$350	180.0 (24.5%)	Feb 2018	56,000
Kitchen Waste Processing (Waste to Energy)	Suzhou, Jiangsu Province, PRC	RMB220	47.0 (6.4%)	Q4 2018	16,000
Hydro-treated Vegetable Oil (Waste to Energy)	Zhangjiagang, Jiangsu Province, PRC	RMB610	456.0 (62.1%)	Q2 2018	350,000
Agricultural Waste to Green Chemicals and Paper Pulp	Hubei Province, PRC	RMB170	51.4 (7.0%)	Q2 2019	278,000

## 6.2 • Climate Change

Climate change is a global issue, as seen in the tremendous increase in international legislation over the past decade. With the coming into force of the Paris Agreement in 2016, China set clean energy policies and formulated determined action to reduce carbon emissions. Hong Kong also acceded to the Paris Agreement, publishing its Climate Action Plan 2030+ report in early 2017.

Towngas is committed to complying with the Chinese government’s environmental policy and to supporting Hong Kong’s Climate Action Plan 2030+ report. To this end, a dual approach – involving mitigation and adaptation – is required to combat climate change effectively.

We are tireless in our efforts to reduce GHG emissions while becoming more resilient against their impact

### Mitigation



### Adaptation



Through conducting climate change risk assessments, we have identified risks and opportunities, leading us in turn to develop and implement targets for adaptation

## Climate Change Risk Assessment

We commissioned a comprehensive climate change risk assessment for our Hong Kong operations back in 2015. Since then, we have begun extending the risk assessment’s reach to our JVs in mainland China.

In Hong Kong, the assessment identified several potential areas of direct impact that could lead to work delays or affect the stability of our transmission and operations. The Company’s existing measures were also examined with a view to establishing short and long-term strategies. In addition, we have developed an adverse weather preparedness plan, and have incorporated potential climate change scenarios affecting the gas industry into our corporate emergency table-top exercise.

In mainland China, the climate change risk assessment was extended to three additional provinces in 2017. Towngas visited JVs in Hubei, Anhui and Sichuan to perform the assessments and deliver climate change awareness workshops.

### Case Study



### City Gas Project Climate Adaptation in Wuhan

In 2017, we visited a JV in Wuhan, which had previously experienced torrential downpours leading to serious flooding. The flood caused a minor slope collapse within a housing estate and left a gas pipe exposed to potential damage. Our JV immediately investigated, checked and rectified all its similarly appointed pipes. Together with our JVs, we will continue monitoring the condition of our infrastructure during extreme weather phenomena, while strengthening our capacity to cope with the challenging environments in which we operate.

# Greenhouse Gas Emissions

By understanding our direct and indirect GHG emissions, we are able to prioritise improvement measures to strategically reduce these emissions.

Towngas is committed to monitoring the Company’s GHG emissions and has devised strategies for supporting an overall reduction. We monitor Scope 1 and 2 GHG emissions in accordance with the international standard Greenhouse Gas Protocol, and also make reference to guidelines published by Hong Kong’s Environmental Protection Department and Electrical and Mechanical Services Department. In Hong Kong, we also conducted a company-wide carbon audit aligned to ISO 14064-1 standard, to quantify and accurately report our GHG emissions.

Group GHG Emissions	2017	2016	2015	2014	2013
Scope 1: Direct GHG Emissions (tonnes CO <sub>2e</sub> )	851,000	857,000	925,000	725,000	801,000
Scope 2: Energy-Related Indirect GHG Emissions (tonnes CO <sub>2e</sub> )	423,000	399,000	378,000	300,000	284,000

**Remarks:**

- Scope 1 – Fuel consumption of production plants, vehicles fleets etc. Carbon emissions from landfill gas in general are excluded from the GHG inventory, hence, Scope 1 emissions for the past 4 years have been adjusted.
- Scope 2 – Electricity consumption of production plants, offices, customer centres, gas refilling stations, data centres, etc.
- Reported GHG emissions data covers Towngas operations within and outside Hong Kong. Data is consolidated on an equity basis.

As part of our continuous efforts to reduce our carbon footprint, Towngas has, since 2010, held an annual Carbon Reduction Competition in mainland China, mainly aimed at our JVs. In 2016, we expanded the competition to our operations in Hong Kong. Since 2010, 209 submissions have been received, resulting in a total annual saving of 299,200 tonnes of carbon emissions.

## Case Study Eighth Carbon Reduction Competition

This competition is one of our major initiatives to improve the Company’s environmental performance in mainland China. In 2017, we welcomed a total of 15 entrants, which resulted in annual savings of 140,400 tonnes of carbon emissions.

One of our projects came from The Shanxi ECO Coalbed Methane Co., Ltd. (Shanxi ECO). With the world’s latest cryogenic technology, the business liquefies extracted coalbed methane, an associated gas that exists in coal mines, to produce liquefied coalbed methane (LCBM). During the pre-treatment, water has to be removed from the feedstock to ensure process safety along the production line. Through process re-designing and gas pipe re-routing, Shanxi ECO was able to prevent the use of a high-power air compressor. This optimisation did not only save a large amount of energy, but also prevent the impurities (e.g. lubricating oil and long-chained hydrocarbons) from entering the gas stream and bring benefits to the safety and efficiency of the plant operation.

Annual carbon reduction of this project: 314 tonnes  
 Annual economic benefits of this project: RMB140,000

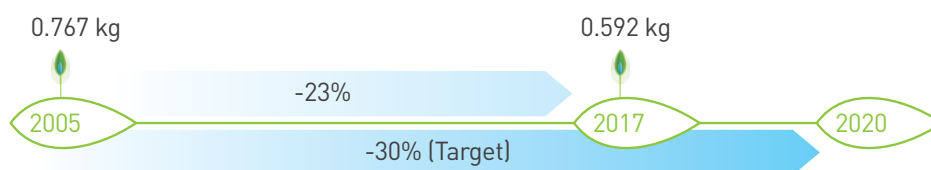
## Hong Kong Carbon Intensity

As an energy supplier, apart from reducing our own carbon emissions, we believe it is important to reduce our customers' emissions.

In 2017, the carbon intensity of town gas used by our customers in Hong Kong was 0.592 kg of CO<sub>2e</sub> per unit of town gas. This was 23% lower than our 2005 baseline 0.767 kg CO<sub>2e</sub> per gas unit. The reduction can be attributed to our use of natural gas and landfill gas for town gas production, as well as energy efficiency enhancements implemented at our Tai Po Plant. For more details, please refer to [Section 6.3 Sustainable Operations](#).

To strengthen our commitment to cutting our carbon emissions, we have set a target of a 30% reduction in the carbon intensity of our Hong Kong gas production by 2020, as compared with 2005 baseline.

### CO<sub>2</sub> Emissions Per Unit of Town Gas in Hong Kong



**Remarks:** The carbon intensity was adjusted to align with the updated GHG emissions which excluded the CO<sub>2</sub> emissions from the use of landfill site

## Green Business

As part of the fight against climate change, we proactively seek alternative sources of clean, renewable energy in order to reduce our customers' carbon emissions.

### Clean Gas Supplier

The widespread use of clean gas to replace diesel or coal is helping us build greener cities. In Hong Kong, we have been working with our commercial and industrial (C&I) customers, such as hotels and hospitals, to reduce carbon emissions by switching from diesel burners to gas boilers.

In mainland China, in 2017, our piped city-gas businesses extended to 23 provinces, autonomous regions and municipalities, and served over 25 million customers accounts. Our expanding city-gas network offers cleaner fuel options with lower carbon emissions. We also offer comprehensive energy solutions via Combined Cooling, Heating and Power (CCHP) systems for industrial parks, commercial buildings, and other C&I customers. Through strategic market research, we have gained a thorough understanding of our customers' needs when it comes to boiler conversion. With these insights, we can help our customers switch to natural gas, while offering them energy-saving solutions.

### New Energy Developments and Unconventional Energy

In addition to using clean gas to fuel our operations, we have been developing new energy projects in mainland China that are low in emissions and pollution.

### Clean Vehicular Fuel

In support of the Hong Kong government's initiatives to improve urban air quality, we have designed, constructed and operated liquefied petroleum gas (LPG) refilling stations in Hong Kong since 2000. During 2017, our five LPG refilling stations in Hong Kong together sold over 60,000 tonnes of fuel, and served more than 18,000 LPG taxis and minibuses. These figures account for approximately 30% of the city's auto LPG market share. In mainland China, we continued to promote liquefied natural gas (LNG) as an alternative to diesel for heavy-duty trucks. We now have 54 LNG refilling stations in operation and under construction across the country.

## Coalbed Methane and Coke Oven Gas

A by-product of coal mining, coalbed methane (CBM) is a relatively unconventional source of natural gas. The methane is harnessed, instead of being flared off as waste, by extracting it before coal-mining operations commence. Our liquefied CBM plant in Shanxi province has a designed production capacity of 250 million cubic metres of liquefied CBM per year. Around 390,000 tonnes of carbon emissions will be offset per year. Furthermore, by 2016, we had largely completed the construction of a project in Xuzhou, Jiangsu province, to produce LNG by the methanation of coke oven gas. The facility is expected to start operating at the beginning of 2018, and is expected to produce 60,000 tonnes of LNG per year.

## Methanol and Gasoline

In 2017, our coal-based methanol production plant in Inner Mongolia produced more than 282,000 tonnes of methanol. We plan to begin converting methanol to natural gasoline at the plant, which in turn will facilitate upgrades to other areas of our methanol business.

In addition, ECO Environmental Investments Limited (ECO) has launched a project to convert 40% of our coal-based synthesis gas (syngas) into 120,000 tonnes of higher-valued ethylene glycol with trial production targeted to start at the beginning of 2018. This will lay the foundation for ECO to further expand its syngas utilisation and methanol upgrading operations.



## Biomass into Energy

Biomass can be a valuable resource for the production of energy and chemicals. We have developed new technologies for converting agricultural waste to chemical raw materials such as furfural and planning to launch a trial project in a region abundant in straw. The construction of a plant for upgrading inedible waste oil to hydro-treated vegetable oil (HVO) in Zhangjiagang, Jiangsu province had been completed. It is applying ECO's proprietary technology and the designed production capacity is 120,000 tonnes of bio-oil, of which around 90% is HVO, per year. The plant was certified by International Sustainability & Carbon Certification (ISCC) and its products have almost 90% GHG saving against traditional fossil diesel. The plant was commissioned in November 2017 and the HVO will be sold to European markets.

Food waste processing and utilisation is also a sizeable environmentally-friendly industry. The Group is therefore constructing a plant at Suzhou Industrial Park, to handle 500 tonnes of food waste, green waste and landfill leachate daily, for conversion to natural gas, oil products, solid fuel and fertilisers. Commissioning is expected in 2018.



## 6.3 • Sustainable Operations

At Towngas, we are dedicated to reducing our environmental footprint, to managing our operations with efficiency and to searching for cleaner fuels.

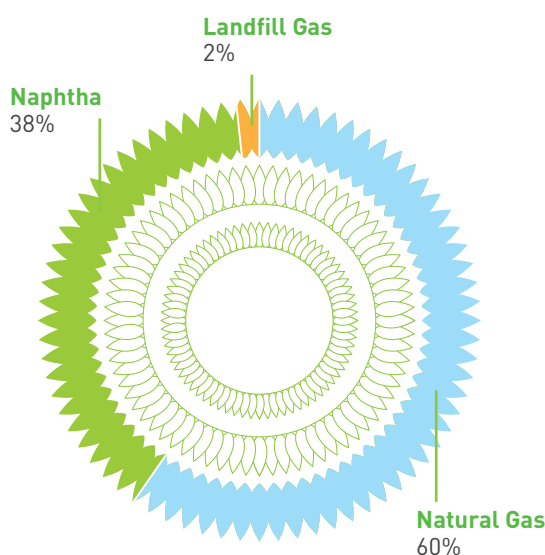
### Clean Production

Because Towngas is a gas supplier, how we select our energy resources and operate our production facilities is innately important to the protection and improvement of our environmental performance.

#### Fuel Mix for Town Gas Production

In 1973, we changed our production feedstock from coal and heavy oil to naphtha and, since 1999, we have added landfill gas to the fuel mix. In 2006, we harnessed natural gas as an effective town gas feedstock option for households in the city. This has reduced air pollutants and GHG emissions significantly.

Towngas was the first organisation in Hong Kong to use landfill gas for commercial applications. The first were the Shuen Wan and the North East New Territories (NENT) landfill sites, in 1999 and 2007 respectively. By generating energy in this way, we have helped reduce our customers' and operations' carbon footprints. With the launching of the SENT Landfill Project, we expect the use of landfill gas will be boosted from 2% to 5% of the fuel mix.



#### Case Study

#### Commissioning the SENT Landfill Project

The new SENT landfill project is one of Hong Kong's largest environmental projects. There, landfill gas is converted to synthetic natural gas by removing impurities and adjusting the quality. It is then sent to our regulating station in Tseng Lan Shue where it is carefully blended into our town gas supply network.

At this project's design capacity, the environmental benefits include the reduction of naphtha consumption by 13,000 tonnes a year. In addition, it is projected to offset 56,000 tonnes of carbon emissions each year, which is equivalent to the amount of CO<sub>2</sub> that would be absorbed by 2.4 million trees over the same period.



## Gas Production Plant Modifications

To further reduce our impact to the environment during our gas production processes, we have implemented several initiatives to reduce energy and water consumption.



Energy

- To recover and reuse waste heat generated by the gas-production process. Waste Heat Recovery System helps cut carbon emissions by 2,700 tonnes in 2017.



Water

- To use treated rainwater in our gas production, saving an estimated 3,805 cubic metres in 2017.
- To recirculate water used for warming ammonia drums and transfer blow-down water from air compressor station cooling towers to the make-up water for the phase 2 cooling tower. These projects save an estimation of over 20,000 cubic metres of water in 2017.

## Greening our Offices

Our offices contribute a relatively small amount of our overall carbon footprint. Nevertheless, it is still important that we minimise this impact on the environment. Therefore, we shall continue to “green” our offices by implementing reduction initiatives and promoting green culture.

### North Point Headquarters

Our Headquarters in Hong Kong is housed in the first non-residential building in the city to be awarded the Final Platinum rating under the BEAM Plus Existing Building Version 1.2. Major green initiatives include the replacement of chillers with a high-energy efficiency, oil-free, variable-speed, water-cooled chiller and installation of a rainwater harvesting tank and a condensate water collection tank.

We also have in place the Green Office Practice Guidelines and conduct internal audits to improve our employees’ environmental awareness and ensure appropriate actions are being implemented properly.

### Data Centres

By their very nature, data centres consume a large amount of energy, which is necessary to run and maintain their computer systems, servers and other high-performance components. To aid in the reduction of our impact on the environment, many of our data centres have been granted the world-renowned U.S. Green Building Council LEED certifications. In 2017, the TGT Dongguan Data Centre 1 was awarded the Core and Shell Gold Level Certification. In addition, we also monitor the energy efficiency of our data centres through the use of the Data Centre Infrastructure Efficiency (DCiE).



## Waste Management

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Our approach to waste management is underpinned by the “5R” principle – Replace, Reduce, Reuse, Recover and Recycle. For the last 16 consecutive years, we have received a WasteWise Certificate at Excellence Level and have finished more than 30 waste reduction and recycling targets to date. In addition, we have collected and sorted approximately 18 types of material, either for recycling or reuse, in our business operations.

### Case Study



### Hand Dryer Installation

Using disposable paper towels creates a lot of daily waste. To improve how we manage waste and prepare for the upcoming municipal solid waste charging, we installed more than 36 jet-type hand dryers in toilets at our Headquarters in North Point in 2017. We therefore save more than 2,880 rolls of centre pull paper towels each year, which is equivalent to reducing 14.7 tCO<sub>2</sub>e.



At Towngas, our approach to waste management is not limited to our operations. Since 2003, we have run the Used Gas Appliance Recycling Programme which creates a triple win for our customers, our contractors and the environment. Unwanted appliances are delivered to recycling contractors, with all proceeds being allocated to supporting environmental activities within the Company, our contractors and other green partners. In 2017, we collected over 85,000 used appliances, with over 1,800 tonnes of metal recovered.

### Waste Management at Gas Production Plants

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All effluent created at our gas production plants is processed in compliance with existing regulatory effluent discharge standards. We did not record any reportable effluent spills in 2017. For other types of generated waste, strict handling procedures are in place so that regulatory requirements are communicated to individuals responsible for the operations. We also monitor waste produced by tracking how much hazardous and non-hazardous material is generated and recycled.

Our chemical waste is dealt by a waste collector licensed by the Environmental Protection Department in accordance with regulatory requirements. We also recycle and reuse other material, such as metal chemical drums, spent catalysts, plastic chemical drums and used polyethylene pipes.

## 6.4 • Nurturing a Green Culture

Towngas is a responsible corporation with a duty to protect the environment that is not just limited to our operations. We promote environmental awareness amongst our stakeholders and contribute to improving people's understanding of global environmental issues, which leads to better environmental protection in general.

### Employees

We communicate our environmental message to our people using various channels, including publications, such as HSE bulletins and newsletters, and green promotional messages over email and the intranet. The Green Ambassadors also spread environmental awareness messages across the Group and amongst employees.

We also put into practice a broad range of awareness enhancement programmes and activities, including HSE Month, eco tours to Tai Sang Wai Fish Pond and Mai Po Nature Reserve, seminars about green building, carbon trading and biodiversity, workshops on Daffodil planting and glass bottle upcycling, and visit to the T-Park Environmental Education Centre.



In 2017, **657 hours** of internal and external environmental training were provided for our employees.

### Case Study



### Sustainable Activities for Sustainable Green Living

We organised various activities to promote sustainable green living for our staff and their family members in 2017. For example, the Farm to Table Cooking Class to inspire participants to eat more healthily and care for the environment, Flower Recycling Class to make personalised environmental tea sets from old leaves and flowers, and the Handmade Paper Workshop, which reused and recycled material that is usually discarded, to make beautiful, artistic paper decorations. Over 80 people participated in the activities and enhanced their awareness on environmental protection.



In addition, we have implemented a number of incentive programmes, such as the HSE Suggestion Scheme and the Green Creativity Fund. These were in place to encourage the development of environmental initiatives amongst our employees, and ensure they are kept in place. In 2017, the Green Creativity Fund received a total of nine applications, and around HK\$110,000 was allocated to support these environmental projects.

## Suppliers and Contractors

To promote corporate responsibility, we have established long-lasting relationships with our suppliers and contractors. In order to support these activities, we have implemented the Corporate Social Responsibility (CSR) Code of Practice for Suppliers, which helps to encourage CSR initiatives and reminds them to follow the CSR Code of Practice for Suppliers. We also publish an environmental handbook about our environmental practices, which is distributed to all contractors. In addition, we provide training for our contractors on issues such as correct waste collection and disposal, and invite them to various activities, such as HSE Day.

To further engage our contractors, we hold waste collection competitions among contractors and dealers. In 2017, we launched a waste collection contest that covered electronic products. The contest was held successfully with 16 contractors and dealers participated, and 174 old electronic products were collected for the purpose of recycling.

## Customers and Community

At Towngas, we take our environmental responsibilities with the utmost seriousness. Our obligations are not simply limited to employees, suppliers and contractors, but also lie with the general public – in particular, promoting environmental awareness and the importance of adopting a low-carbon lifestyle.

We achieve this through a variety of channels, including by encouraging customers to use our eBilling and eAccount services, which save paper and are more convenient. We also offer green tips on our Low Carbon Action! [Facebook page](#) and our mini [website](#), which features a carbon footprint calculator. In 2017, we worked with Sun Ya Publications to produce four educational books for children called BiB BiB Family. The series promotes health, environmental concepts and family warmth through home cooking.

### Case Study



### Green and Healthy Cooking Tips

Reducing energy usage and carbon emission as much as possible is of paramount importance. In 2017, Towngas took a step further, by combining experience in environmental protection and health care to develop the Green and Healthy Cooking Tips for our customers and the general public. Based on a series of comprehensive research and laboratory tests conducted by our commissioned university, the [Green and Healthy Cooking Tips](#) were developed to guide members of the public on environmental-friendly and healthy cooking methods, and selection of ingredients and cooking oil.



Another activity was to share our best-practice knowledge with our stakeholders, based on our own experience of demonstrating excellence in environmental leadership. We welcomed guests from corporations, professional associations, green groups and other organisations, to our Headquarters, where we promoted the message of environmental protection. In 2017, we also organised technical visits to the Combined Heat and Power (CHP) System at the Alice Ho Miu Ling Nethersole Hospital to promote renewable energy applications.



## HEALTH AND SAFETY

🗨️🗨️ Safety culture is deeply ingrained at Towngas, and we strive for continuous improvement in our safety performance so that it encompasses our employees, contractors, customers and the public. 🗨️🗨️



As a leading energy company, we understand that the nature of our business presents numerous safety challenges. All people associated with our operations – whether employees or contractors – are entitled to the same protection, no matter where they work. Towngas aims for a record of zero accidents and fully complies with all relevant health and safety legislation.

In recognition of our dedication to health and safety in 2017, we garnered various awards, including two gold awards and one silver award at the 16th Hong Kong Occupational Health and Safety Award.

## Key Performance in 2017

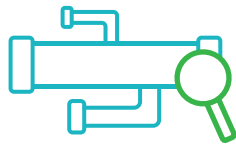
### Hong Kong:



**26,413**  
safety training hours



**6** industrial accidents (Towngas) and  
**4** industrial accidents (Towngas' subsidiaries)



**10,897**  
sites of trench inspections



**152,241**  
network inspections

### Mainland China:



**979,628**  
safety training hours



**55** city-gas business joint ventures (JVs) **completed safety audits and scored “Excellent”** on average



**8** serious gas-related incidents

## Achievements and Targets

Goals	Achievement / Progress in 2017	Future Actions and Targets
<p>Ensure Safe and Secure Operations</p>	<ul style="list-style-type: none"> <li>● Conducted 113 safety/loss prevention inspections</li> <li>● Inspected 28 ECO Environmental Investments Limited (ECO) mainland gas refilling stations</li> <li>● Reviewed the safety audit scheme and conducted follow-up audits at the ECO Shanxi liquefied coalbed methane (LCBM) plant and the ECO Inner Mongolia Methanol plant</li> <li>● Conducted 12 security risk assessments at JVs in mainland China</li> <li>● Conducted 191 and 27 security surveys in Hong Kong and JVs in mainland China respectively</li> </ul>	<ul style="list-style-type: none"> <li>● To conduct safety/loss prevention inspection at premises of and assets belonging to Towngas</li> <li>● To conduct safety inspections of ECO mainland gas refilling stations and safety audits of ECO mainland chemical plants</li> <li>● To conduct internal safety audits for Towngas Telecommunications Company Limited (TGT) and further improve their safety performance</li> <li>● To conduct security risk assessments, security surveys and security checks in Hong Kong and mainland China</li> <li>● To support new security projects for JVs in mainland China</li> </ul>
<p>Improve Occupational Safety and Health (OSH) Awareness of Employees and Contractors to Mitigate OSH Risks and Incidents</p>	<ul style="list-style-type: none"> <li>● Organised quarterly OSH campaigns: Q1 – Instant messaging Health, Safety and Environmental(HSE) reporting channel Q2 – Prevention of Musculoskeletal Disorders promotion programme Q3 – Heat stress promotion programme Q4 – 2017 HSE Month</li> <li>● Conducted three two-day firefighting training courses for 69 staff from various divisions</li> <li>● Organised Bomb Threat and Evacuation Drills at our North Point Headquarters, Tai Po Plant and Ma Tau Kok Plant</li> </ul>	<ul style="list-style-type: none"> <li>● To organise both occupational safety and occupational health promotional activities in regular occasions, such as HSE Quiz, Contractor OSH Forum</li> <li>● To organise training and issue security alert messages about different security aspects</li> <li>● To organise firefighting training, exercises and drills, as well as training and exercise about handling bomb threat calls and suspicious objects to ensure our staff can respond effectively and promptly to emergency situations</li> <li>● To develop OSH innovation to improve safety performance</li> </ul>



Goals	Achievement / Progress in 2017	Future Actions and Targets
Enhance Management's Ability to Handle Emergency Situations	<ul style="list-style-type: none"> <li>Table-top exercises were organised for Towngas and Dalian TGT Data Centre</li> </ul>	<ul style="list-style-type: none"> <li>To organise table-top exercises in various premises throughout Hong Kong and mainland China</li> </ul>
Promote Safety Awareness and Culture Among Mainland Employees	<ul style="list-style-type: none"> <li>Arranged two safety and risk management experience-sharing visits for 39 JV personnel from mainland China</li> <li>Organised three process safety training courses for ECO mainland employees</li> </ul>	<ul style="list-style-type: none"> <li>To provide education, training and experience-sharing visits for our mainland employees</li> <li>For all managerial staff in our mainland JVs' risk management departments to earn the Safety Engineer Certificate</li> </ul>
Improve Safety Management System	<ul style="list-style-type: none"> <li>Conducted the study and preparation for the migration of the ISO 45001 standard</li> <li>Developed new internal OSH guidelines on work above ground and revised the accident reporting procedure</li> <li>Updated the Corporate Emergency Plan</li> <li>Conducted OHSAS18001 and F&amp;IU Safety Audits</li> </ul>	<ul style="list-style-type: none"> <li>To transfer the OSH management system from OHSAS 18001 to ISO 45001 standard</li> <li>To review and develop/update procedures and guidelines</li> <li>To conduct safety audit to ensure the integrity of safety management system</li> </ul>
Improve Performance Tracking	<ul style="list-style-type: none"> <li>OSH key performance indicator (KPI) was added into the Corporate HSE Award as marking criterion</li> <li>Established and implemented process safety KPIs at our ECO mainland chemical plants and a process safety enhancement programme is in place for continuous improvement</li> </ul>	<ul style="list-style-type: none"> <li>To monitor the implementation of OSH KPI and further develop OSH KPIs in normal operation</li> <li>To enhance ECO mainland chemical plants' safety performance by implementing an effective Process Safety Management (PSM) system and monitoring process safety KPIs</li> <li>To apply the Industry 4.0 to improve efficiency, data management and safety management in gas production plants</li> </ul>

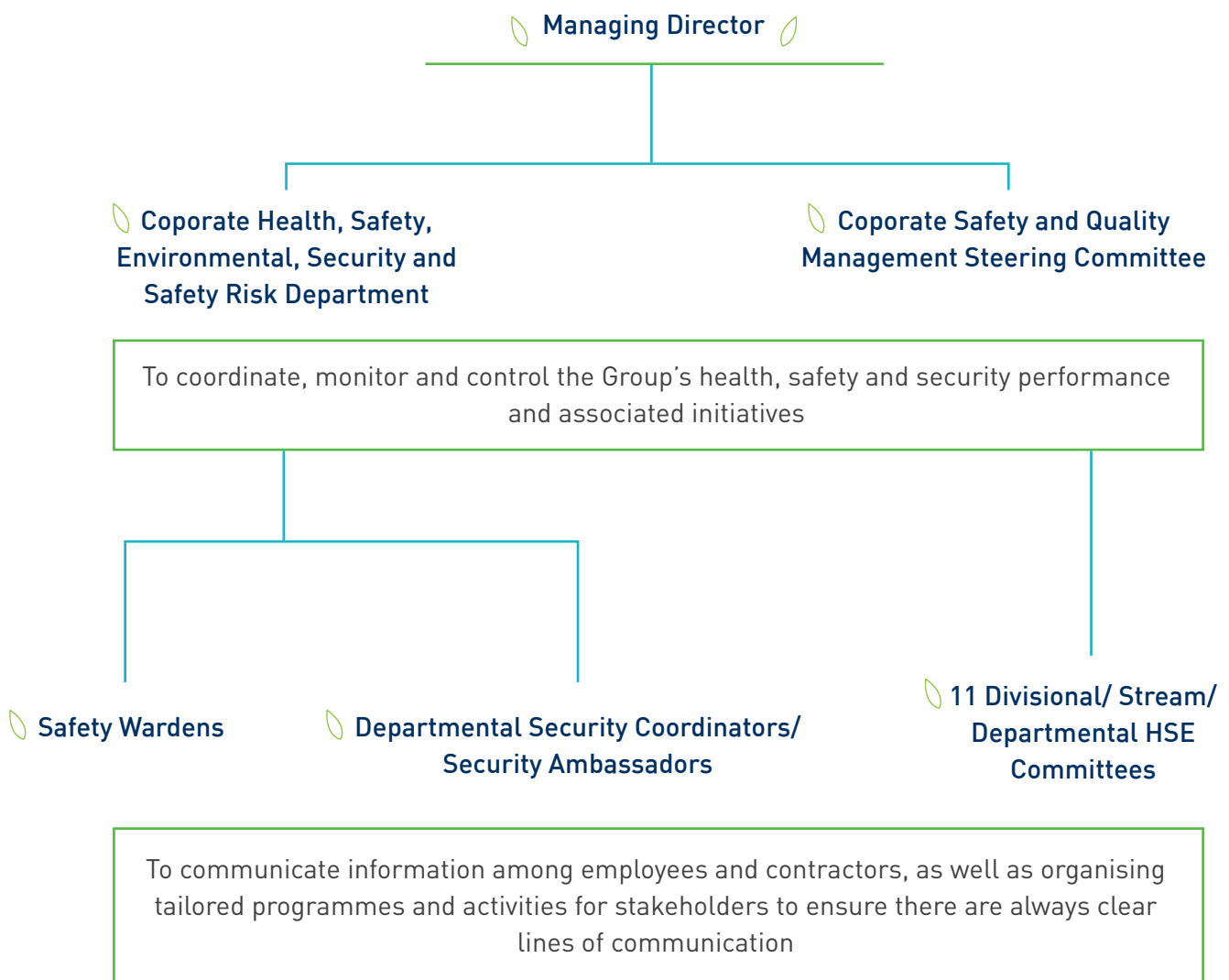
## 7.1 • Our Approach

The Towngas' Corporate HSE Policy and Corporate Security Policy provide the structure for the development of guidelines around health, safety and security. As a result, we can develop guidelines and manuals to ensure our operations do not risk the health, well-being and safety of our employees, contractors, customers and the general public, as well as negate potential security threats to our facilities, our employees and our contractors.

### Governance

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Our health, safety and security performance and associated initiatives are coordinated, monitored and controlled by the Corporate Health, Safety, Environment, Security and Safety Risk Department, and the Corporate Safety and Quality Management Steering Committee.



## Total Safety Management Approach

Our approach to safety management indicates what is required to ensure optimal safety performance across our range of businesses. By taking a holistic approach, we are able to align our safety management with Towngas values, standards and guidelines, while placing an emphasis on strategic, long-term planning. It also provides a framework to plan and execute various events and activities for employees and contractors. In doing so, it enhances their knowledge and awareness of related issues.

Our high standards apply to our operations in both Hong Kong and mainland China. This has been achieved by implementing our corporate safety and risk management system across the Group.



## 7.2 • Production and Network Safety

Towngas is a major public utility company in Hong Kong and a leading energy supplier in mainland China. As such, it is essential to prevent major leaks and explosions at our production and storage facilities, in our pipelines and across our networks.

### Hong Kong

The Electrical and Mechanical Services Department (EMSD) regulates our equipment, networks and processes. We collaborate with EMSD to create strategic plans containing a facilities utilisation framework and a preventative maintenance index to ensure optimum safety standards.



### Process Safety and Asset Management

Protecting people's lives by maintaining the safety of our gas supply is one of our highest priorities. This is achieved by adhering to long-established design and engineering principles, and combining these with our operating and maintenance principles, so our processes and assets are effective and efficient.

In turn, this is supported by our PSM system. As large-scale projects and modifications pose risks, it is essential that we have the capacity to manage them effectively. We can do this because we ran a Process Hazard Analysis that established what the potential causes and results of incidents would be, and what critical controls were necessary to prevent them from happening. Our six-stage Hazard Studies approach is an example of this in action. It has been adopted by our Gas Production Department to identify and record critical hazards, and develop measures to manage and avoid critical risks.

Process safety is enhanced by an effective asset management system. Towngas has been certified to ISO 55001 standard across our gas production plants, and our transmission and distribution network. Our assets are managed systematically to achieve the Group's mission, including our production plants, gasholders, gas transmission and distributions systems, and service risers and meters.

Enhancing our assets maintains and improves our safety performance. This includes replacing vital equipment and investing in technology. In 2017, we further reduced the risk of fire by introducing an additional naphtha cooler at our naphtha pumping system, and installing a retractable grounding assembly at our naphtha tanks.

## Network Safety

The Towngas gas supply network stretches for 3,600 km across Hong Kong. Our responsibilities are to ensure that our gas pipeline network is maintained to the highest standards, to uphold public safety and to provide a reliable supply of gas to our customers.

### Network Safety Performance 2017

Area	Achievement	Target
Gas Supply Reliability	99.991%	>99.99%
Gas Incidents Reported by the Public per 10 km of Gas Pipes	0.165	<=0.15
Third-party-damage Incidents	13	<=7
Emergency Team Average Arrival Time within 25 Minutes	Achieved	-

Towngas practises continuous monitoring to detect and rectify problems before they develop into reportable seepage incidents. To ensure this, we have equipped our 24-hour Grid Control Centre with a sophisticated Supervisory Control and Data Acquisition System (SCADA) and a Geographic Information System (GIS). SCADA monitors and controls more than 4,000 real-time telemetry and data points across our network and all our strategic pressure-regulating stations, while GIS provides detailed, computerised images of all our pipelines, allowing us to handle gas emergencies swiftly and efficiently. These measures enhance operational safety and allow us to offer high-quality, efficient gas services to our customers.

Aside from detecting abnormalities in our remote control system, qualified Towngas technicians go on site to conduct regular trench inspections of gas pipes and other facilities using rigorous survey programmes. In 2017, we carried out 152,241 inspections across 10,897 sites, and surveyed 6,785 km of pipeline.

Type of Pipeline	Frequency of Leakage Surveys
All HP & IPB Mains	At least once a year
Medium-pressure Ductile Iron Pipes or All-galvanised Iron Pipes	At least six times a year
Low-pressure Ductile Iron Pipes	At least three times a year
PE or Steel Pipes Over or Enclosed within Structures	At least twice a year
Others	At least once a year

To prevent gas leakages, we completed a substantial portion of our 450-km medium-pressure ductile iron pipes replacement programme in 2017. Due to roadwork restrictions or sites being occupied by other parties, certain sections remain, however, these were inspected with CCTV and treated with internal patching technology to ensure they are fit for future service. Free safety briefings are provided to contractors and companies intending to excavate near our gas pipelines. We also operate our Pay For Safety, Quality and Environmental Appraisal System to encourage employees and contractors to demonstrate responsibility and awareness during pipe laying operations.

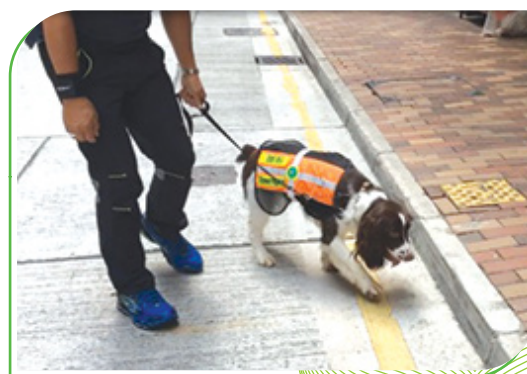
Towngas continuously develops innovative tools and technologies to help in our inspection and maintenance work. In doing so, we demonstrate our philosophy of Growth = Innovation x Implementation. It also limits the potential exposure to potential hazards of our employees and contractors, and increases our overall efficiency.

## Case Study



## Sniffer Dog Pipe Leak Detection

Dogs' noses are extremely sensitive, and because of this, often they can detect leaks more quickly and accurately than some of our equipment. Our dogs, X and Golo, underwent training to detect TetraHydroThiophen (THT), a special odour added to our town gas, to pinpoint small leaks even in busy locations and challenging environments. This helps our engineers speed up the repair process and reduces the extent of road excavations and disturbance to the public.



## Mainland China

The scope of our operations in mainland China covers various projects in 26 provinces, municipalities and autonomous regions. We are responsible for making safety a top priority by continually improving our standards.



### Utility Businesses

All our operations take place under strict standards of safety. Projects are supervised by experienced professionals and are subject to a series of inspections and quality assurance procedures. We also conduct onsite safety and risk management audits on selected JVs across the region to ensure that our mainland gas projects comply with corporate standards and guidelines. In 2017, we conducted 55 audits.

Furthermore, the general manager of each JV conducts a safety inspection of their operational gas networks every month to identify and address any issues that arise, and two cross-examinations among JVs are carried out every year. To further emphasise the importance of safe operations and enhance the management quality of work safety, the Annual Regional Safety Patrol, led by our Managing Director, was conducted in Northeast China and North China in 2017.

Due to our outstanding safety performance and our influential position within our industry, we have complied and assessed national or industry standards. This allows Towngas to contribute directly to raising industry safety standards in mainland China.



### New Energy Businesses

At ECO, we have implemented the PSM system and various measures have been developed to control or mitigate major risks. For continuous improvement, we have established KPIs to monitor the process safety of our plants, and our process safety enhancement programme is in place.

We carry out safety inspections or audits at our ECO mainland gas refilling stations and chemical plants to gauge the safety performance of each business. The aim is to ensure better results in the future. In 2017, we inspected 28 ECO mainland gas refilling stations, and all achieved satisfactory results. We also reviewed the safety audit scheme in place for ECO mainland chemical plants, after which we launched a post-audit enhancement programme. In 2017, two further follow-up audits were carried out. Bowtie analysis has been adopted to pinpoint potential risks at both design and operational stages in our chemical plants. We have set up barriers to prevent these risks by managing processes, procedures and behaviours systematically.

In 2017, we conducted a comprehensive safety risk workshop and Layer of Protection Analysis (LOPA) training for all safety managers at our ECO mainland projects.

## 7.3 • Occupational Safety and Health

### Hong Kong



The safety and health of our employees and contractors is paramount. Our safety management system, developed under the framework of the legislative requirement and OHSAS 18001 standard, is regularly reviewed and updated so that relevant issues are managed properly and the well-being of our people is assured.

We implement comprehensive guidelines and establish measures so that Towngas' safety performance is in line with the highest industry and international standards. These guidelines are reviewed and updated regularly to ensure the latest industrial practices and government requirements are being followed. Furthermore, in 2017, new internal OSH guideline on work above ground was developed, and accident reporting procedures were revised to protect our workers and enhance integrity.

Our industrial safety performance was satisfactory in recent years:

Key Safety Statistics (Hong Kong)	2017	2016	2015	2014	2013
Number of Accidents – all industrial injuries	10	13	19	14	15
Accident Frequency Rate	0.15	0.19	0.29	0.22	0.24
Number of Reportable Accidents	10	12	15	12	12
Accident Incidence Rate	3.4	4.1	5.3	4.4	4.9
Fatal Accidents	0	0	0	0	1
Number of Industrial Injury Person – days lost	496	576	596	132	194

#### Remarks:

- Accident – an accident that results in injury for one or more days
- Accident Frequency Rate – the number of accidents per 100,000 person-hours worked
- Reportable Accident – an accident that results in incapacity for more than three days
- Accident Incidence Rate – the number of reportable accidents per 1,000 employees
- Towngas employees and the employees of its subsidiaries only

### Creating a Safe and Healthy Workplace

We put great effort into creating a healthy and safe working environment where the number of accidents involving employees and contractors is kept to a minimum level. We focus on improving health and safety through innovation. In 2017, we enhanced roadwork safety through innovation and modification, thus, the pneumatic soil remover, easy-controlled electric trolley, self-assembled mechanical arm and automatic LED warning system of vehicles were developed. These measures not only improved the health and safety standard, they also received the Safety Enhancement Programme–Gold Award at the 16th Hong Kong Occupational Safety and Health Award.

## Case Study

### Automatic LED Warning System of Vehicles

Towngas is the first organisation in Hong Kong to adopt LED technology for enhancing tail-lifts and rear-door safety on light goods vehicles (LGV) to increase visual awareness among other road users and reduce the risk of road work and traffic accidents. All of Towngas' company LGV tail-lifts, and those of our contractors' LGVs in Hong Kong, had these LED lights installed in 2017.



## Promoting Health and Safety Awareness

To raise the health and safety awareness of employees and contractors, a series of OSH training and promotion programmes are arranged every year. The Towngas HSE and Caring Programme is also in place to provide mentorship and HSE training for new joiners. To further engage our employees and contractors in reducing OSH risks, HSE reporting channels and the latest safety information, such as safety alerts were provided.

HSE reporting enhances safety culture, and we encourage employees and contractors to submit HSE Suggestions and Near Miss Reporting, and incentives are given to employees who submit valuable cases. In order to make HSE reporting more convenient, the Instant Messaging HSE Reporting Channel for mobile phones was developed in 2017. We encourage employees to report examples of both good practices and malpractices to us for continual improvement. To make the programme more interesting, a seasonal reporting theme was established.

## Case Study

### HSE Month



HSE Month is an annual event to bring health and safety awareness to new heights. During the month, HSE experience sharing, benchmarking visits, and seminars were organised to enhance engagement of employees. HSE Day was the highlight activity for the month, and gathered employees, contractors and their families together to share the joy and obtain HSE knowledge through games and activities. Apart from games, an OSH innovation and demonstration area was set up to introduce and promote innovative equipment to the guests and participants.



## Case Study

### Enhancement of Work Above Ground Safety

Unsafe actions and environments during work-above-ground operations pose a significant risk. In view of this, we issued the Work Above Ground Safety Guidelines to provide guidance and enhance safety measures. In order to improve the understanding of employees and contractors, we arranged our Train-the-trainer course and organised mass communications for all departments concerned.



## 📍 Mainland China

We have been working great strides in aligning our operations in mainland China with the standards set out in our corporate safety management system. Some of our JVs have made efforts to obtain the internationally recognised OHSAS 18001 standard certification. This will increase their ability to manage safety and risk. To strengthen this, we also established in-house corporate safety standards and guidelines for our JVs.

Towngas organises regular safety training courses and workshops for our mainland employees to raise their awareness of safety and promote a safe working culture. In 2017, we organised various operational safety workshops which included introducing new standards and guidelines and experiences sharing with more than 700 people participated. We also arranged two experience-sharing visits to Hong Kong for 39 mainland safety and risk management personnel from our JVs.

We provide a range of communication channels to promote workplace safety, including WeChat, eLearning platforms and our corporate social media network. Using these channels, we can share the latest HSE best practice guidelines, as well as incident alerts across our operations, so employees have access to HSE information and can take part in different activities, such as quizzes and competitions.

## Case Study

### WeChat Best Practice of Safety and Environmental Photo Contest



We held a photo contest to enhance HSE knowledge among employees. More than 140 entries were submitted through our WeChat platform, and 9,765 people voted for the winner. This high turnout indicated the level of enthusiasm for sound safety and environmental practices within our operations.

## 7.4 • Security

Towngas has deployed a 24/7 in-house security force to ensure a safe working environment for our employees, contractors and visitors. This force also guards three critical facilities in Hong Kong: our Headquarters in North Point, our Tai Po Plant and the Ma Tau Kok Plant. Our unguarded premises, including offtake stations and customer centres, are equipped with a range of security systems which were monitored 24 hours. We also conduct regular security surveys. In 2017, we improved the physical security measures at our facilities by installing a walk-through metal detector and fortified gate at the Tai Po Plant, and an infra-red intruder alarm system at our Natural Gas Receiving Station.

In mainland China, we carried out security surveys and audits to ensure appropriate security measures are in place and functioning properly. To reduce the operating risk of physical security at major facilities and abide by the Counter Terrorism Act security requirements, a total of 12 security risk assessments on major facilities were conducted with recommendations for better protection and security management. We also supported major projects including Hong Kong and China Gas Investment Limited (HCIL), ECO and TGT, with security design, installation, commissioning, systems upgrade and tenders.

Briefings and training sessions were provided for management, employees and contractors to bolster their understanding of security issues. Talks were also delivered to the management and out-sourced guards of the JVs in mainland China to update them on new legal requirements, security issues, security standards and technology for security. Communications covering security knowledge and crime prevention were sent to employees through various channels, and a WeChat group was also set up in 2017 for disseminating of this information to our Security Ambassadors.

## 7.5 • Emergency Preparedness

Being prepared for emergencies is an integral part of the Towngas Total Safety Management Approach. It plays a vital role in ensuring the safety of employers and employees when an incident occurs. At Towngas, we take a three-tiered approach and allocate sufficient resources to prepare for emergency situations.

### Corporate Emergency Plan

Senior management commands the deployment of company resources, seeks assistance from government authorities and handles the media

### Departmental Emergency Plan

Plant managers and key emergency personnel outline general actions to take during emergency situations

### Specific Emergency Procedures

Frontline actions tackle specific incidents

We conduct training and drills so all staff can respond effectively and quickly to emergencies. These take place at gas production plants, liquefied petroleum gas refilling stations and at our North Point Headquarters.

## Case Study



### Firefighting Training Course



With help from the Fire Services Department, we arranged three two-day firefighting training courses to reinforce employees' awareness of fire safety. These sessions took place at the new Fire and Ambulance Services Academy in Tseung Kwan O. The course covered general knowledge about fire safety, the use of firefighting tools and techniques for finding an escape route in dark conditions. In total, 69 employees from various divisions attended, and they mentioned how beneficial content from the course will be for protecting themselves and their colleagues in the future.

## Case Study



### Bomb Threat and Evacuation Drill at the Tai Po Plant

To help increase our employees' ability to cope with suspicious objects and bomb scares, we hold an annual bomb threat and evacuation drill. In 2017, police officers from the Tai Po District also took part. During the drill, our security team followed emergency procedures to respond to the case and implemented the evacuation plan after receiving a report of a bomb threat, and worked with staff at our Tai Po Plant to begin the search. Once the suspicious device was located, we cordoned off the affected area and reported the case to the police for their handling. The drill provided an opportunity to fortify coordination and communication with Tai Po District police in case emergency occurring at Tai Po Plant.



During the year, we held various table-top exercises in Hong Kong and mainland China. These were designed to improve our management teams' skills in handling emergency situations, as well as to encourage cooperation among colleagues when coping with real-life disasters.

## Case Study



### Corporate Emergency Table-top Exercise



In 2017, more than 30 personnel took part in the Corporate Emergency Table-top Exercise that simulated what would happen if a lorry crashed into our Sai Wan Ho Offtake Station, causing explosions and fires. Simultaneously, we ran a simulation in which hackers attacked our central computer system and locked down critical information. Afterwards, we held a mock press conference to test management's media handling skills. Overall, the exercise was an excellent way for our management team to practise their ability to cope with corporate emergencies.

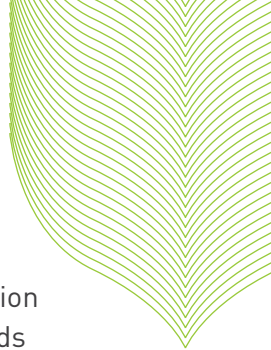
We also review our emergency plans regularly to ensure they are efficient and practical for when serious situations occur. In 2017, we issued manuals on terrorism prevention to HCIL, ECO and TGT in mainland China, so employees could handle such situations while abiding by the law.



## OUR PEOPLE

🌱🌱 We inspire, engage and develop our employees to create long-term continuity for our business. 🌱🌱





At Towngas, we foster equality and diversity in the workplace, encourage employee participation and professional development, and ensure the well-being of our employees in working towards the fulfilment of our company vision and business goals.

In 2017, Towngas was the first Hong Kong energy company to receive the HR Asia Best Companies to Work for in Asia 2017, recognising our outstanding performance in creating a family-friendly, fun-filled workplace for employees.

Towngas is fully compliant with local laws and regulations wherever it operates. Child labour and forced labour are strictly prohibited in our operations. In 2017, there were no substantial cases of non-compliance in relation to our employment practices.

## Key Performance in 2017



Number of employees:

**2,388**  
(Hong Kong)

**46,772**  
(outside Hong Kong)

### Employment Practices



Average turnover rate

**6.4%** (Hong Kong)  
**4.1%** (outside Hong Kong)



Male: female ratio

**3.7:1** (Hong Kong)  
**2.0:1** (outside Hong Kong)

### Staff Development



**1,030** Continuous Professional Development (CPD) seminar hours delivered

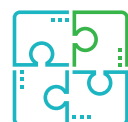


**50,418** (Hong Kong)  
**142,020** (outside Hong Kong) technical training hours delivered

### Well-being



**19** Fun Living Series activities were organised with **800** employees participated (Hong Kong)



**244** activities organised (Hong Kong)

## Achievements and Targets

Goals	Achievements / Progress in 2017	Future Actions and Targets
<p>Attract and Retain Talent</p>	<ul style="list-style-type: none"> <li>● Collaborated with educational institutions in strengthening Towngas' employer branding among the younger generation</li> <li>● Organised events to attract more youngsters to join the industry</li> <li>● Continued building engagement with employees by reinforcing an inclusive, family-friendly culture, winning seven workplace and employment awards in 2017</li> <li>● Expanded career opportunities to employees in new businesses in both Hong Kong and mainland China</li> </ul>	<ul style="list-style-type: none"> <li>● To continue strengthening initiatives conducive to talent attraction, retention and engagement</li> <li>● To strengthen our employer brand further and to become the employer of choice for new talent who wish to join our diversified business portfolio</li> </ul>
<p>Manage Change and the Transformation of the Group's Businesses</p>	<ul style="list-style-type: none"> <li>● Revamped a series of core programmes at different levels to make employees aware of our new business direction, and equip them with competencies in management, teamwork and personal effectiveness, thereby driving performance</li> <li>● Offered a series of ongoing programmes on change management to enable staff to understand the changing business landscape and our new business direction, and to prepare them to proactively lead or manage change</li> <li>● Delivered training, produced a publication and held a photo contest to promote MasterCraft culture to all levels of the workforce</li> </ul>	<ul style="list-style-type: none"> <li>● To organise learning and development activities that reinforce change awareness and the mindset to prepare for the transformation and re-engineering of our business processes</li> <li>● To develop a competent workforce with the right mindset to manage change and the transformation of the Group's businesses</li> <li>● To cultivate an entrepreneurial spirit among employees and their passion for creating a better world through powering business growth</li> <li>● To empower our team leaders with the courage and skills to further unleash the potential of employees at various levels</li> <li>● To nurture the MasterCraft spirit among all employees</li> </ul>
<p>Foster Youth Development</p>	<ul style="list-style-type: none"> <li>● Launched two new talent development ventures: Young Towngas Leadership Competence Accelerated Programme (Young TLC+ Programme) and Network Supervisor Trainee Programme</li> <li>● Provided recognised apprentice programme and Graduate Trainee Programme to foster the development of young talent in the gas industry</li> </ul>	<ul style="list-style-type: none"> <li>● To continue launching high-potential talent programmes to prepare young managers for future leadership roles, thereby strengthening our talent pipeline and the Company's talent succession planning</li> <li>● To expedite career progression for high-performing staff and to revamp our existing talent programmes to further strengthen retention and engagement</li> <li>● To continue enriching our apprentice programme and Graduate Trainee Programme for developing a competent workforce</li> </ul>

## 8.1 • Our Approach

Our Corporate Human Resources Department oversees all matters relating to staff relations and talent management. As set out in the Towngas Human Resources Policy Manual and Employee Handbook, we are committed to complying with local laws and regulations in relation to recruitment and promotion, compensation and dismissal, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare. These publications also communicate the Company's expectations with our employees, while supporting fair treatment of staff through transparency.

Our [Code of Conduct](#) further communicates the Company's expectations, acquainting our employees with their responsibilities as well as all relevant policies and procedures. With regard to offering or giving gifts as well as any other obligation that may potentially constitute a conflict of interest at work, employees should be aware of the necessity for ethical decision making in the course of dismissal or legal action.

Established in 2009, the Towngas Engineering Academy (TEA) is responsible for developing a competent workforce, thereby ensuring that the Group excels in running safe operations, serving our customers and growing our business. The academy also helps employees advance their careers and acquire professional engineering qualifications. New training facilities and methodologies – such as augmented reality and virtual reality courseware – are continuously being explored and introduced, to keep pace with new technological developments and applications. With the professional training schemes and quality, TEA helps enhance the corporate image and technical competency which attract the best young talent to the Company.

## 8.2 • Responsible Employment Practices

Towngas seeks to improve our family-friendly employment policies and to invest in initiatives that foster employees' familial bonds. To manage change, including the transformation of the Group's businesses, we must attract talented and qualified individuals. Towngas offers competitive remuneration packages and invests in fostering an inclusive workplace to attract the best talent.

### Remuneration

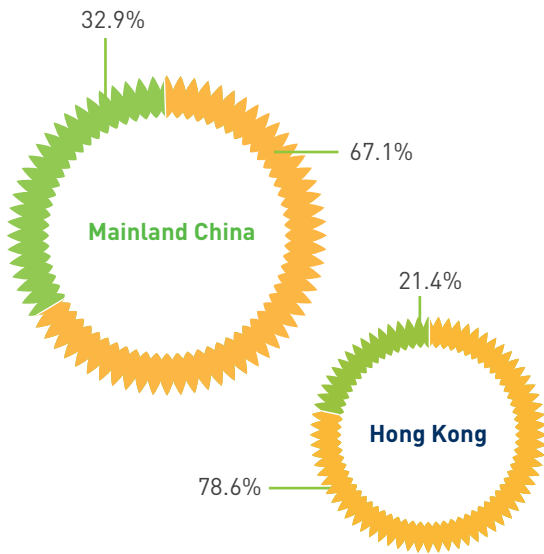
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Our remuneration packages are positioned well above the local minimum requirements, and we regularly review and upgrade our staff benefits. Benefits for full-time employees include maternity and paternity leave, medical and dental insurance, group life insurance, town gas allowances, educational allowances and performance-based bonuses. In Hong Kong, there is no regulatory requirement regarding collective bargaining. Instead, Towngas regularly engages in meaningful consultations with our employees using a range of internal communication channels.

## Inclusive Workplace Initiatives

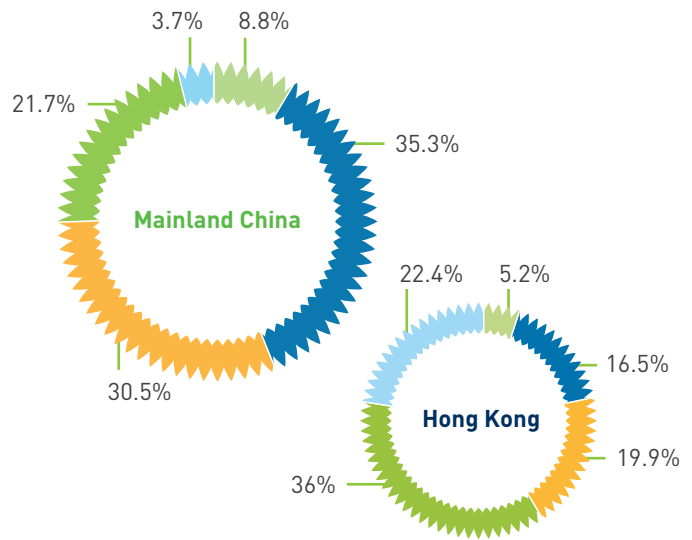
Towngas acknowledges the importance of embracing diversity and fostering inclusion in the workplace. We believe it is vital to make every employee feel valued, welcomed, integrated and included in the workforce. Our recruitment decisions are made without regard to gender, race, ethnicity, religion, marital status or any other aspect of diversity.

### Employee Gender Distribution



Male Female

### Employee Age Distribution



<26 26-35 36-45 46-55 >=56

We are proactive in advancing equal opportunities and operate a zero-tolerance policy with regard to employment discrimination. Towngas adheres strictly to human rights and equal opportunities policies and ordinances related to aspects of employment including recruitment, compensation and benefits, promotions, transfers, training and termination. Employees found to be in violation of the Towngas Code of Conduct, Equal Opportunities Policy or any of the relevant ordinances will be held responsible for all consequences of the violation and will be subject to disciplinary action.

Towngas engaged 13 people with disabilities to work in various departments in 2017. We provide enhanced, barrier-free facilities in the workplace, including automatic doors, accessible toilets and adjustable desks. We also organised workshops and activities to encourage greater communication between employees. In 2017, Towngas was included on The Hong Kong Council of Social Service's List of Barrier-free Companies.



## 8.3 • Staff Development

At Towngas, we believe that our long-term success depends on the professional development of our people. We offer our employees support and resources for achieving their career goals.

### Performance Appraisal

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Using a vigorous evaluation system, we conduct annual assessments of staff at various levels, including setting and reviewing targets. Besides strengthening communication and promoting understanding between staff and management, this process creates a framework for fair and objective performance appraisals, aimed at furthering growth and development.

Training is provided to ensure a clear understanding of the assessment process as well as to maintain consistent evaluation standards across sections and departments. Towngas has implemented an Assessment Criteria Moderation System to reduce the differences in scores and compensate for any overly rigorous or lenient grading. There is an appeal procedure in case employees do not agree with the results of their performance evaluation.

#### Case Study



#### Outstanding Employee Award 2017

The Outstanding Employee Award recognise employees who have contributed to the Company's business development and competitiveness in the market through outstanding leadership and innovative ideas. Held annually, the award criteria are based on six elements: Innovation, Execution, Leadership, Productivity, Customer-orientated and Participation. In 2017, we awarded seven employees working in various units of our operations.

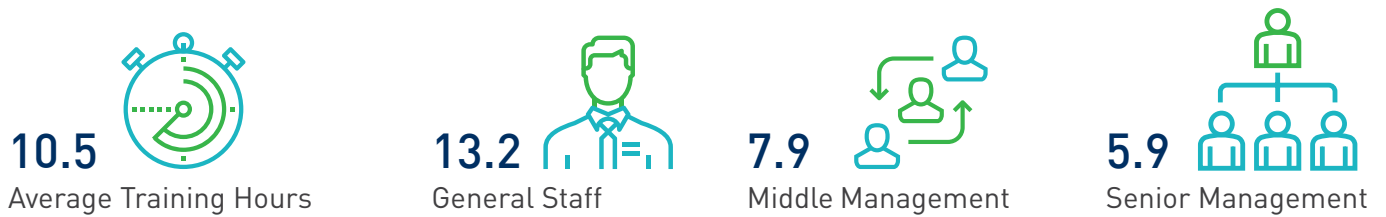


### Training and Development Programmes

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To support our diversified business portfolio and continuing business expansion, it is important that we strengthen and invest in the development of our own talent pool. Towngas organises a wide range of training and development programmes to help our staff grow both in professional expertise and managerial competency. The Company recently revamped its core programmes for staff at various levels to familiarise employees with the new business direction while teaching competencies in management, teamwork and personal effectiveness, thereby driving performance. We also encourage our employees to supplement in-house opportunities with external courses, seminars and conferences, in line with training needs that have been identified. The Company provides eligible employees with subsidies for educational courses, academic programmes and other external skills-development opportunities.

## Employee Training Hours by Employment Category (Hong Kong – HSE training excluded)



Towngas employees benefit from learning and development, which is delivered via multiple channels. Training sessions cover technical aspects as well as non-technical ones such as corporate culture, leadership development and interpersonal skills.

### In 2017



We launched over **140** programmes with over **8,000** participants on our **e-learning platform** in Hong Kong and mainland China

TEA offers structured technical training for those interested in obtaining further academic or professional qualifications. CPD seminars cover subjects ranging from matters of direct technical relevance, to broader studies selected as important for fostering professional advancement.

### TEA Training in 2017

	Training Man-hours	Employees Trained
CPD Seminars	1,030	1,008
Technical Training (Hong Kong)	50,418	4,782
Technical Training (Mainland China)	142,020	6,827

### Case Study

### Towngas MasterCraft Programme

In 2017, we continued to cultivate the Towngas MasterCraft culture among our frontline technicians. We launched a photo contest attracting more than 10,000 Group-wide submissions. To further promote awareness and understanding around maintaining high standards of craftsmanship, we published the Towngas MasterCraft Book in 2017 to instil our employees and contractors the characteristics of MasterCraft culture with real-life examples.



## Opportunities for Graduates and Young Professionals

At Towngas, we believe in the importance of cultivating future leaders as well as helping all our employees to shape their future career. This approach is also key to employee retention. Apart from our recurring Graduate Trainee Programme – with 12 intakes for Hong Kong’s core and new energy businesses in 2017 – we launched two new talent development ventures during the year: the Young TLC+ Programme and the Network Supervisor Trainee Programme.

### **Young TLC+ Programme**

Our new corporate talent development programme aims to build a cross-regional talent pool of young leaders for the Group. Lasting between 18 and 24 months, the programme focuses on developing the leadership skills of our high-potential young workforce. In 2017, 23 employees from various business segments and geographical locations were selected to participate in the programme.

### **Network Supervisor Trainee Programme**

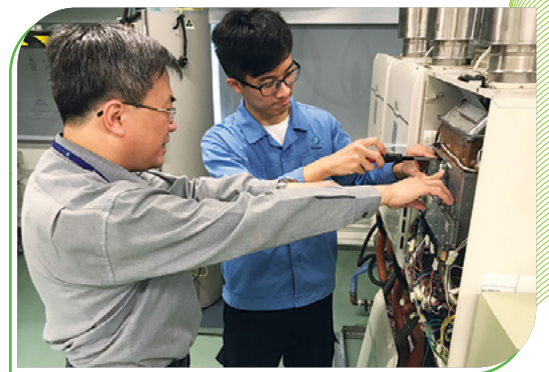
This part-time, Hong Kong-based programme is designed to develop the talents of young network fitters and prepare them for a future network supervisor career. Delivered over two years, the curriculum includes soft-skill training, technical supervisory training, team building, job attachment, job shadowing and mentoring.

### **Master of Engineering Management**

Held in collaboration with the University of Technology Sydney, this 15-month programme integrates theoretical coursework with practical projects. In 2017, the course attracted the enrolment of 25 employees in mainland China. Programme graduates are eligible to apply for professional membership of the Institution of Gas Engineers & Managers in the United Kingdom.

### Apprentice Programme

At Towngas, we believe in the importance of apprenticeships for passing on techniques and experience to the next generation. Our Gas Craft Apprentice Training Scheme is the longest-established gas training scheme in Hong Kong, and celebrated its 50th anniversary in 2017. To date, we have trained up more than 1,200 skilled staff to offer safe, high-quality products and services to our customers, ensuring a stable supply of technicians. Over the years, the programme has broadened its scope as the Group’s businesses have expanded, going beyond the training of Gas Craft Apprentices to include the electrical and mechanical fields. In 2017, we had 72 apprentices receiving technical and theoretical instruction as well as intensive, on-the-job training.



## **Management and Leadership Development**

Among our strategic human resource initiatives is the building of a sustainable leadership pipeline to cope with future business expansion. In 2017, our comprehensive curriculum – designed to enhance leadership and managerial competencies of our managers – was offered to various levels of management at different locations. Workshops focused on driving change, igniting team innovation and enhancing customer service were held in Suzhou, Taizhou, Taian, Zhangjiagang, Inner Mongolia, Wuhan and Shenzhen.

In 2017, 44 young leaders, from business sectors spanning Hong Kong and mainland China, completed our Tsing Hua Young Executive Development Programme. In the years ahead, people development will remain at the heart of our human resources strategy, with its focus on magnifying leadership capabilities across the Group's businesses.

## **Mobility Programme**

Facilitating knowledge transfer, sharing best practices, and creating group synergies are the goals of our Mobility Programme, which relocates Hong Kong-based employees to mainland China for short-term assignments. Programme participation has been increasing as a greater number of Hong Kong employees take up diverse assignments supporting new projects and initiatives in mainland China. Since July 2014, more than 40 employees have embarked on or completed short-term mobility assignments with durations ranging from six months to one year.

## **8.4 • Employee Well-being**

At Towngas, we promote a friendly, supportive work culture. We offer free clinical medical services, fitness facilities and a mother care room, which doubled in size during the year, at our Headquarters in Hong Kong. In mainland China, we continued to promote our caring culture in 2017 via activities under four themes: Living with Positive Energy, My Healthy Life, My Low Carbon Life and My Happiness.

## **Listening to Our Employees**

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We care about what our employees think and value their opinions. Not only does listening to our employees improve engagement, but their suggestions can lead to the creation and implementation of initiatives with positive impacts such as increasing employee motivation, enhancing customer satisfaction and improving brand image. We encourage dialogue with our employees through several channels. Under our Employee Suggestion Scheme, staff may propose means of improving the Company's services or work efficiency. We received over 100 submissions via this channel in 2017. Employees are also invited to share their opinions and suggestions directly with our Managing Director. All information received will be classified as confidential.

## Work-life Balance

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At Towngas, we are dedicated to promoting work-life balance through workshops and activities for our employees. We also welcome staff and their families to participate in a wide range of corporate events and community service activities.

### Fun Living Series

We held our Fun Living Series for the fifth consecutive year, providing our staff and their families with positive energy. In 2017, we arranged activities including appreciation sharing sessions, sign language learning, tips on marathon running, and lunchtime talks on health-based topics. There were approximately 800 participants in total.

### Sports and Recreation Activities

The Company organises activities and classes to encourage a healthy lifestyle and support employees' emotional and physical well-being. In 2017, these classes included yoga, Pilates, singing, dance and Wing Chun. Annual social events, such as the Towngas Annual Dinner, Rinnai Ocean Night and Halloween BBQ Carnival, were also held during the year. These occasions provided opportunities for staff and their families to enjoy themselves in a relaxing atmosphere.

#### Case Study

#### Yet More Success for the Towngas Dragon Boat Team

Established over three decades ago, the Towngas Dragon Boat Team has won numerous awards at local tournaments over the years. Between April and July 2017, the Team participated in eight such events. Towngas won the Industrial Champion race at the Tai Po District Dragon Boat Race, a major tournament of the year.





## OUR SUPPLIERS

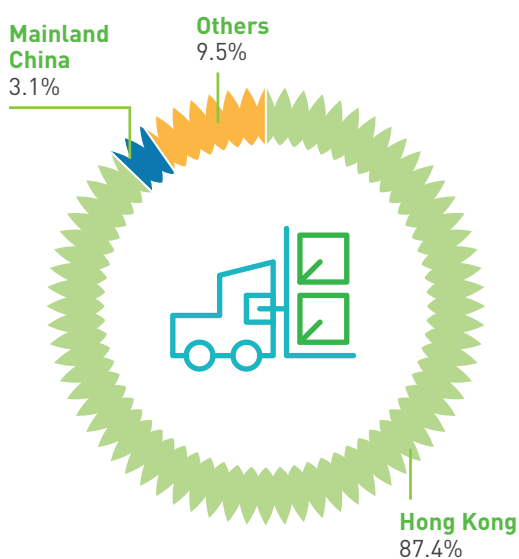
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🗨️ We harness our strength as a large group and the close relationships we have built with suppliers to best meet the needs of our customers. 🗨️



Managing an efficient and sustainable supply chain is one of the important ways in which we drive business growth and maintain our competitive edge. This involves choreographing key functions, such as purchasing, supply reliability, inventory management, cost management and internal customer servicing. Good rapport and long-standing relationships have been key in achieving synergy with our suppliers, allowing us to continue ensuring the safety, reliability and high quality of our products and services across the breadth of our portfolio.

## Key Performance in 2017



Over **87%** of suppliers for our Hong Kong operations were local



Over **150** suppliers were assessed on their Corporate Social Responsibility (CSR) performance



Over **100** suppliers in mainland China were making good progress towards the implementation of the 6S system

## Achievements and Targets

Goals	Achievement / Progress in 2017	Future Actions and Targets
Improve Green Procurement Practices	<ul style="list-style-type: none"> <li>Sourced anti-slip sheet which is made of 100% recycled materials</li> <li>Sourced Forest Stewardship Council (FSC) certified printing paper</li> </ul>	<ul style="list-style-type: none"> <li>To identify and procure environmentally-friendly office equipment, consumables and services</li> </ul>
Ensure Our Suppliers Meet All Our Environmental, Social and Governance Criteria	<ul style="list-style-type: none"> <li>Assessed over 150 major suppliers on their CSR performance in Hong Kong and mainland China</li> </ul>	<ul style="list-style-type: none"> <li>To request CSR self-assessment surveys and conduct CSR audits</li> </ul>
Improve the Supplier Management System in Mainland China	<ul style="list-style-type: none"> <li>132 joint ventures (JVs) and 142 suppliers made use of the e-commerce system for a wide variety of tendering processes and purchasing transactions</li> </ul>	<ul style="list-style-type: none"> <li>To promote the use of the e-commerce system for all major items</li> </ul>
Foster Better CSR Performance Among Suppliers	<ul style="list-style-type: none"> <li>Communicated 6S information to suppliers in mainland China through a 6S implementation manual and training videos</li> <li>Conducted 200 surveys, 44 onsite audits and 2 onsite support sessions related to 6S practices and awarded 8 suppliers as Best 6S Suppliers</li> <li>The online Excessive Material Exchange Platform was launched. 74 JVs have joined the platform</li> </ul>	<ul style="list-style-type: none"> <li>To continue to promote 6S practices among our suppliers in mainland China and conduct audits on 6S adoption</li> <li>To promote wider use of the Excessive Material Exchange Platform</li> </ul>



## 9.1 • Our Approach

By committing to responsible, fair and ethical purchasing practices, Towngas nurtures long-term business relationships with partners that are competent and reliable. We established five key principles for responsible supply chain management: offering equal opportunities to all suppliers; treating suppliers equally and fairly; promoting strong buyer-seller relationships; encouraging suppliers to contribute to continuous improvement; and supporting green procurement practices. These principles guide our [Towngas Purchasing Policy](#), which ensures that our suppliers participate in a fair and competitive market, as well as our [Towngas Environmental Purchasing Policy](#), which spells out the environmental considerations that must be accounted for in every purchasing decision.

To ensure our suppliers follow these standards, we have developed the [CSR Code of Practice for Suppliers](#), which sets out a basic compulsory framework for ethical and responsible operations. The code of practice focuses on five key areas:



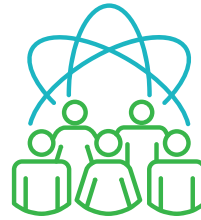
Maintain a high standard of ethics

### **Business Ethics**



Be a responsible employer

### **Workplace Operations**



Create sustainable relationships with its partners and users, as well as others in its sphere of influence

### **Marketplace Activities**



Find opportunities to serve the community proactively

### **Community Contact**



Conserve natural resources and improve the environment

### **Environment Undertakings**

## 9.2 • Supply Chain Management

Given that other conditions of the vendors are the same, we prioritise suppliers who offer green products, as well as local vendors that conduct themselves with social and environmental accountability. A vendor selection process ensures that only approved suppliers may submit quotations or tenders, and those that are approved need to be reviewed at least once a year.

### Supply Chain Assessment

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Throughout our operations in Hong Kong and mainland China, we select our vendors according to specific criteria. To ensure our standards continue to be met after vendors are approved, we monitor their performance through regular meetings and audits. In addition to examining their background, product quality, cost, delivery time and value-added services, we also consider our vendors' CSR performance.

To make sure suppliers adhere to our CSR Code of Practice for Suppliers, a self-assessment survey specifically designed to check suppliers' CSR performance is sent to all our major suppliers in Hong Kong and mainland China. Our procurement team also conducts onsite audits that include CSR performance measures for selected suppliers.

As with other important aspects of our operations, innovation has played a key role in enhancing our supplier assessment. We took tendering and purchasing online through our newly launched e-commerce system, which connects our JVs and suppliers digitally. In addition to enhancing transaction efficiency, the system also allows for more effective supply chain management. By leveraging our group-wide synergy, our JVs can also share unused materials through our new online Excessive Material Exchange Platform, which serves to reduce wastage and conserve storage space. To date, over 1,500 items have passed through this platform.

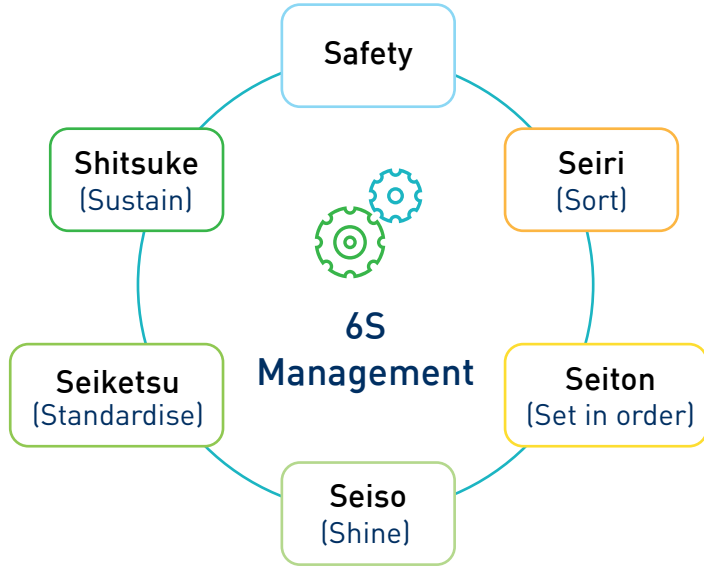
### Green Procurement

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At Towngas, procurement decisions are guided by our Towngas Environmental Purchasing Policy, which spells out our commitment to conserving resources, promoting economic recycling and prioritising environmentally-friendly products and services. As a founding member of the Hong Kong Green Purchasing Charter, we are continually seeking opportunities to expand our green procurement practices, preferring energy efficient equipment like LED lighting and products certified by the FSC. In 2017, we trialled an exciting new green product – an anti-slip sheet made completely from recycled materials.

### 9.3 • Supplier Engagement

As a socially responsible business, we go beyond our contractual obligations to promote a favourable working environment – not just within Towngas, but among our suppliers as well. Throughout our operations, we are committed to following 6S management to promote a safe and efficient workplace, as well as improved performance, self-discipline and team morale.



We extended this methodology to our suppliers with the aim of improving efficiency, productivity and product quality, as well as reducing the risk of industrial accidents. Implementation guidelines and training videos were issued, and workshops were held to share our experience with this methodology and promote best practice. To assess their implementation of 6S management, in 2017, we surveyed 200 of our suppliers. On-site audits were carried out on 44 of our suppliers, covering their production sites, laboratories, warehouses and integrated management practices. Those who showed outstanding performance were awarded accordingly.

#### Case Study





#### Annual Supplier Meeting

We maintain close partnerships throughout our supply chain by sharing information about our business and celebrating successes with our suppliers. One of the ways we achieve this is by inviting our strategic partners to Annual Supplier Meeting. In 2017, the meeting took place in Kunming and we welcomed over 300 participants, comprising representatives from Towngas and our suppliers in mainland China. This year's theme was "Encourage Innovation, Improve Quality", emphasising the Group's standards and spurring our suppliers towards continued innovation in product quality and service standards. Awards for 2014-2016 Best Supplier were given to 19 suppliers this year, while another eight were awarded with Best 6S Supplier.



## OUR CUSTOMERS

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  We aim to develop and deliver products and services that are safe, reliable and innovative to meet customers' needs in the most effective way possible.  





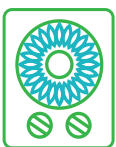
Beyond providing a safe and reliable energy supply, our goal is to help our customers live easier with the help of our integrated suite of lifestyle solutions. These encompass our innovative gas appliances, kitchen furnishings and other products, as well as the user-friendly and efficient accounts and maintenance servicing that Towngas is known for.

Our popular gas-powered domestic appliances, ranging from built-in hobs and cookers to water heaters and dryers, are sold under our own brands, which include TGC and SIMPA in Hong Kong, and Bauhinia in mainland China. Our premium Mia Cucina brand, which was launched in Hong Kong and is gaining traction in mainland China, offers designer kitchen cabinets as well as upscale design consultation services. Mia Cucina's popularity led to our Total Kitchen Solution, which packages our cabinets and appliances together with other branded appliances to create a convenient one-stop solution for retail consumers and commercial developers.

To promote gas-powered applications among the general public, our [Towngas Cooking Centre](#) embraces flame cooking as a platform for cookery lovers, while [Towngas Avenue](#) combines gourmet dining with comprehensive customer services. Both have been widely praised by our customers.

In 2017, Towngas was honoured to receive numerous awards recognising the excellence of our products and services, including the Sing Tao Service Awards – After Sales Service from Sing Tao Daily for the ninth consecutive year, as well as East Week's Hong Kong Service Awards – Public Utilities for the seventh year running. These accolades affirm our heartfelt services and demonstrate the support we enjoy from the public. In 2017, there was no substantial legal recourse regarding customer complaints.

## Key Performance in 2017



Our gas supply reliability rate exceeded **99.99%** in Hong Kong



**6,017** customer compliments were received in Hong Kong



The service quality efficiency score was **8.91**, exceeding the target score of 8



More than **330** employees in Hong Kong and mainland China participated in our Three Courtesies Programme

## Achievements and Targets

Goals	Achievements / Progress in 2017	Future Actions and Targets
Enhance Gas Reliability	<ul style="list-style-type: none"> <li>● Commenced fabrication of the pipe rack for the backup export gas line extension project</li> <li>● Continued linking up the high-pressure network between Tuen Mun and Tai Lam to enhance gas supply stability in the North West New Territories</li> </ul>	<ul style="list-style-type: none"> <li>● Modifications of gas production plants to cope with increasing gas demand and improve gas supply reliability in Hong Kong, including               <ul style="list-style-type: none"> <li>(i) The installation of the backup export gas line</li> <li>(ii) Work at the Tai Po Plant to increase capacity by 20% to meet future gas demand</li> </ul> </li> <li>● To expand our piped gas network to ensure our capacity keeps pace with growing demand and to enhance supply reliability, for example further connections between the existing medium-pressure networks in Tsuen Wan and Tuen Mun to enhance network security in the Western New Territories and Tsuen Wan</li> </ul>
Improve Customer Services	<ul style="list-style-type: none"> <li>● Used virtual reality technology to create a 360-degree interactive online shopping experience. Customers can now explore our Towngas Customer Centres anytime, anywhere through the <a href="#">Towngas Appliance website</a></li> </ul>	<ul style="list-style-type: none"> <li>● To enhance customer engagement and drive online transactions</li> <li>● To enhance the <a href="#">Towngas Appliances website</a></li> </ul>
Explore the Needs of Our Customers and Launch New Products to Cater their Needs	<ul style="list-style-type: none"> <li>● The followings were launched in 2017:               <ul style="list-style-type: none"> <li>(i) Compact Superslim Water Heater designed for small flue apertures in old apartments, providing a broader range of choice in water heater replacements</li> <li>(ii) Hello Kitty Built-in Hob to match dream kitchens</li> <li>(iii) Multifunctional Angelina 8 Stove Top Oven for small kitchens</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● To schedule for launch in 2018:               <ul style="list-style-type: none"> <li>(i) Regenerative Electric Energy Module (REEM) for cooking stoves, which uses residual cooking heat to power flame ignition</li> <li>(ii) Automatic gas supply shut-off system for build-in hob, which will cut the gas supply when abnormally high cooking utensil temperatures are detected</li> </ul> </li> </ul>

## 10.1 • Our Approach

We continued to promote Total Quality Management (TQM) at the corporate level as a means of integrated quality and risk management across the Group, with initiatives rolled out at every organisational level. In 2015, we launched the TQM programme in mainland China to enhance operational excellence across our operations there.

### Superior Quality Service Programme

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First launched in 1992, our Superior Quality Service (SQS) programme has been vital to building our customer-centric culture and sparking innovative design ideas across Hong Kong and mainland China. The programme is supported by over 20 departmental committees, who are in charge of maintaining open communication channels and promoting the programme within the Company.

SQS embraces a different theme each year. “Boosting Innovation and Optimising Business Processes” was the theme for 2017, which focused on enhancing operational efficiency to provide even better services.



Training programmes and creative activities were organised to encourage employees to help drive business growth by enhancing customer service quality. These included visits to companies in Hong Kong and overseas, giving participants the opportunity to find new inspiration through the exchange of ideas and experiences.

We honour employees who are proactive about business development through awards and competitions such as the Managing Director’s Award and SQS Best Team Competition. Over the last 25 years, our employees have completed over 1,500 SQS projects, which not only enhanced customer satisfaction levels, but also helped us save hundreds of millions of dollars. In 2017, we also launched a forum which provides a platform for colleagues to pitch ideas, brainstorm and identify opportunities under various innovation topics.

### Customer Service Pledge

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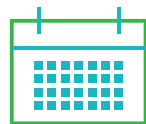
Our Customer Service Pledge spells out our commitment to providing exemplary customer service, establishing the ambitious standards that our employees are constantly striving towards. It contains quantitative targets across six key areas of performance, which are updated annually and are always available through our [Corporate website](#).



Reliability



Safety



Appointments



Speed and Convenience



Service Quality



Handling Suggestions

## 10.2 • Refining our Customer Service

Towngas is guided by a steadfast commitment to customer safety and satisfaction. We are privileged to manage more than 27 million customer accounts across Hong Kong and mainland China, including industrial and commercial, and residential households.

### Hong Kong

Customers are our top priority. We always seek ways to make our services more convenient and user friendly. Our revamped [eService platform](#) makes it simple for customers to get in touch, make enquiries and manage their accounts. We deliver attentive services through 21 customer service centres across Hong Kong, as well as our 24-hour Customer Service Hotline which is also available in Tagalog and Indonesian to cater to foreign domestic helpers. Our one-stop eServices portal also allows customers to access up-to-date account information, manage billing and payment, and make service appointments. Our maintenance and installation services are delivered within two working days to minimise waiting times, within a wide range of timeslots catering to different schedules. We also offer a three-year warranty on all our appliances, as well as complimentary disposal services for old appliances.

To ensure that we continue to exceed expectations, we proactively solicit customer feedback, which helps us fine-tune our products and services. We engage an external research consultant that conducts bi-monthly customer satisfaction surveys on our behalf. We also have a Customer Focus Team (CFT) to visit public housing estates or private residential developments to mitigate potential issues relating to Towngas services—such as gas safety, bill payment and gas appliances—as well as to collect comments from customers.

### Case Study

### Towngas Smart Metering

Innovation plays an important part in enhancing the customer experience. Meter reading has traditionally been carried out by our meter readers during their regular visits and customers themselves who report their readings through various channels. To enhance efficiency and accuracy, we developed Smart Metering, which involves a Bluetooth device that is connected to gas meters and a mobile app. Currently in testing among 1,100 households, the mobile app delivers notifications to the users on a “need” basis while the Bluetooth device enable the users to wirelessly report readings, ensuring that billing is as accurate as possible.







Our operations in mainland China are customer-focused, professional and efficient. Following these principles, we established a range of convenient service channels for customers to choose from, including as many as 255 customer centres across mainland China. These centres offer Towngas appliances for purchase, including our popular clothes dryers. Testing can be carried out onsite for extra peace of mind, and customers can also schedule appointments for installation, installation design and other personalised services.

Round-the-clock service is offered through our 24-hour Customer Service Hotline. Alternatively, customers can manage their accounts anytime and anywhere through our one-stop online platform, where they can review their personal account, make appointments and settle their bills. To facilitate direct customer engagement, we also introduced a “Towngas Lifestyle” WeChat account, which allows us to collect customer feedback and redirect queries to the correct service channel. Concerns and opinions are addressed directly by our CFT, which is dedicated to strengthening our relationship with customers and enhancing their experience with us.

## Training and Education

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Our customers can count on the professional services that we provide - attentive, efficient and safe - thanks to the systematic professional and technical training provided to Towngas employees and contractors. To be qualified as a Towngas gas technician in charge of carrying out installation and maintenance work, personnel are required to undergo rigorous training programmes and accumulate technical experience.

Training and cultural activities also play an important role in maintaining the friendly demeanour of our staff. Towngas employees in Hong Kong and mainland China are committed to maintaining the Three Courtesies—namely politeness, caring and a courteous etiquette—in their interactions with colleagues and customers alike. Since the launch of this successful initiative, we have observed a marked improvement in work attitudes, service delivery and internal comradery.

The Masters of the Three Courtesies Campaign was kicked off in mainland China, with over 40,000 members of staff participating in 2017. The campaign provided the opportunity for participants to share outstanding stories of the Three Courtesies demonstrated at work. In addition, to keep up the momentum after the exciting initial launch of the Three Courtesies programme in 2016, 14 programme training sessions were conducted in 2017, engaging 330 employees and contractors across Hong Kong and mainland China.

In mainland China, our Dandelion Scheme continues to equip internal customer service trainers with knowledge and skills to pass on to their teams, addressing topics such as service technique, etiquette and customer service management.

## 10.3 • Safeguarding Customers

### Gas Reliability

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The safety and reliability of our gas supply is always one of our highest priorities. With 1.88 million customers in Hong Kong alone, we are mindful of the impact a supply interruption can have. We always find ways to enhance our supply, and one important step was the introduction of natural gas as a feedstock in 2006. Not only did this reduce our reliance on a single fuel to make town gas, it also facilitated cleaner production methods that resulted in reduced carbon emissions. Another breakthrough was our new Daily Demand Forecast Model, which improved the accuracy of our demand projections and allowed for better resource allocation.

Apart from monitoring our piped-gas networks for potential leakage risks (for details, please refer to [Section 7.2 Production and Network Safety](#)), we have continued to upgrade our production plants, expand our networks, enhance reliability and ensure sufficient capacity to meet growing demand. The installation of a 9-kilometre looped intermediate-pressure pipeline along Castle Peak Road continues to progress well, along with the modification of our adjoining stations in Tai Lam and Tuen Mun North. After completion, these enhancements will boost supply security for more than 230,000 customers in the North West New Territories, as well as critical facilities in Lantau. Another upcoming project is a new backup export gas line that will be installed at the Phase 2 Tai Po Plant, which will serve to improve reliability even further.

### Customer Safety

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From product development to comprehensive after-sales servicing and consumer education, Towngas prioritises customer safety above all throughout the lifecycle of its appliances.

#### Product Quality

Towngas appliances are all tested under our rigorous quality control systems to ensure they are safe for customers to use, and compliance checks are conducted to ensure consistently high standards across all our product lines. To make our appliances easier and safer to use at home, we also equip them with innovative safety features such as timer control and flame failure devices.

In Hong Kong, all our gas appliances are tested in a professional-grade laboratory, which is accredited under the Hong Kong Laboratory Accreditation Scheme, and bears a GU mark, meaning it meets government approval for gas safety. All eligible water heaters and cooking appliances bear the Electrical and Mechanical Services Department's Voluntary Energy Labelling Scheme label.

#### After-sales Services

We strive to ensure our products to remain in good working condition long after purchase through our comprehensive after-sales services. These include on-demand maintenance services as well as regular safety inspections (RSIs) for domestic gas appliances, which are carried out every 18 months in Hong Kong and every 12-24 months in mainland China. These inspections are also an excellent opportunity to educate customers on the latest safety issues and recommend gas appliances that fit their needs. Mobile devices, which are carried by our gas technicians and other frontline staff during inspections, are used to provide better service our customers, and allow our technicians to analyse data more efficiently, diagnose problems and identify preventative solutions.



Understanding that customers are not always at home for our regular inspections, we extended our service hours in 2017 and enhanced our appointment system to make the process more convenient for customers. To enhance access rates, we also utilised posters and banners to promote our regular inspection services.

These efforts have led to a steady decline in customer-related emergency reports over recent years. In 2017, the number of customer-related emergency incidents dropped by around 20% compared with 2016.

### Promotion and Awareness

Promotion and education is another important element of customer safety. We strive to promote safety awareness through our website, as well as booklets, pamphlets and bill inserts that are freely distributed. In 2017, we conducted 19 community safety exhibitions and seminars, delivering our safety message to the public. Face-to-face interactions with customers during RSIs or CFT visits also give us the privilege of conversing with our customers on safety topics and their concerns.

### Customer Data and Privacy

In our communications with customers, we follow all regulatory requirements protecting their privacy and other legal rights. Our [Privacy Policy Statement](#) sets out our standards for handling customer information. The Company has established the Data Privacy Standing Committee and the Data Privacy Departmental Committee, and assigned a Data Protection Officer to handle personal data related issues. The strategies for handling personal data are reviewed by the Standing Committee, who can make recommendations to the Executive Committee in the event of a significant breach. Each year, all departments are required to make a declaration to the Company in relation to data protection.

Following the amendment of the privacy laws on direct marketing, we upgraded our system to bring our operations in line. Regular training and seminars are also held for employees to keep them up-to-date on personal data protection. In 2017, there were no substantiated customer complaints about data loss or breaches of privacy in Hong Kong.

### Customer Communication

Customers are welcome to access information across a range of platforms, including the company website, leaflets and publications. Platforms such as our hotline, email and social media platforms also play important roles in our communication strategy, enabling us to relay important information regarding our products and services. To protect our customers, we are committed to ensuring that our marketing and communication materials comply with the relevant government regulations and industry guidelines. In 2017, there are no incidents of non-compliance with regulations and/or voluntary codes concerning product and service information and labelling, as well as marketing communications.

## 10.4 • Creating a Culture of Innovation

Innovation and creativity are embedded in our corporate DNA, and we are strongly focused on research and development. We are always encouraging employees to explore new ideas, and our product development teams keep a close eye on market needs, along with the latest advances in technology. Our innovations have given our products and services an extra competitive edge, making real contributions to the Company's growth.

Within the Company, various platforms are in place to spur creativity and the exchange of knowledge. These include our *Innovation Headlines* publication, which details interesting projects within and outside the Group. Employees can also join seminars and company tours to find inspiration and share their ideas through dedicated social platforms such as Yammer, WeChat and Facebook.

To make these ideas a reality, we allocate Innovation Funding to our employees' research and development projects. If these achieve commercial success, the inventors are rewarded. We also created a 3D printing studio named the  $G = i \times i$  Laboratory, which helps employees bring their concepts to life through 3D modelling. Our employees' projects are proudly displayed in our Hall of Innovation, which recognises the efforts of our teams and inspires others to be equally resourceful.

### Innovative Solutions

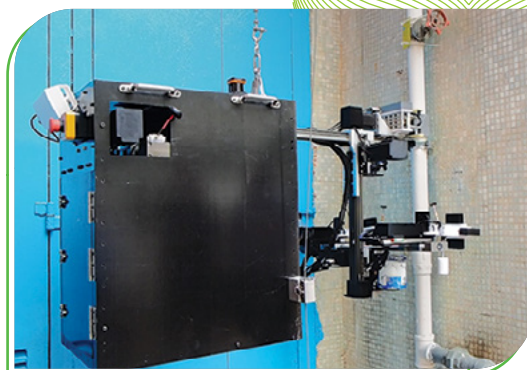
Over the years, our talented teams have developed many ground-breaking tools and technologies to help us with inspection and maintenance work. These include a Durable Gas Riser to prevent corrosion, Smart Riser Jacket to stop gas leaks, Riser Inspection Quadcopter to evaluate riser conditions and detect gas leakages, and the Aquashield to keep water out of the gas pipes. These echo our philosophy of  $G = i \times i$ , which encourages our teams to use their creativity to improve the efficiency of our operations and reduce inconvenience for customers.

#### Case Study



#### Gas Service Riser Repair Robot

We replace a great number of corroded gas service risers each year. In the past, this involved erecting scaffolding and working at height, which was inconvenient for our customers and increased the risk to our technicians. Through a collaboration with City University of Hong Kong, we came up with a solution in the form of our Gas Service Riser Repair Robot, which remotely repairs corroded pipes rather than replacing them, thereby removing the need to interrupt the gas supply. The pipes are treated with surface polishing and a coating of special paint that inhibits rust. The robot effectively shortens riser repair times, reduces customer inconvenience and minimises the risk of working at height to our technicians.



## Case Study

## Development of New Pipe Wrench

To further extend the lifetime of our gas risers, our Master Craftsmanship Team in Shaoguan, China developed specialised pipe wrenches that do not require excessive strength. They are precisely calibrated to provide enough torque to protect the coating on pipes during installation, unlike normal pipe wrenches. This keeps the coating intact and reduces corrosion, extending the service lifetime of the coated pipe and reducing safety risks.



## New Product Ideas

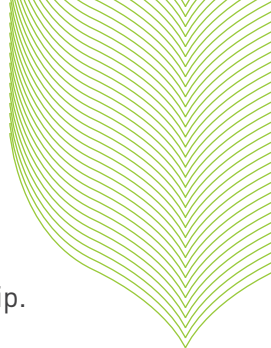
Our creative development teams are always expanding our portfolio with new products designed to address unmet needs, introducing real lifestyle improvements for more of our customers. In 2017, we launched our Compact Superslim Water Heater and the Angelina 8 Stove Top Oven. Not only do they make the most of Hong Kong's limited living space, they also provide extra options for customers. We also launched a series of cookware and utensils specially designed for flame cooking—such as our energy-saving multi-steamer—encouraging our customers to live greener by using town gas.

The innovative Towngas spirit is also apparent in our energy-saving commercial and industrial gas appliances, which are specially designed to give our business customers an extra competitive edge. These include automated cookers such as our Auto-Tossing Gas Wok Range, Auto Gas Deep Fryer and much more, which are designed to free up manpower for more important tasks and limit the risk of injuries in industrial kitchens. To facilitate a more comfortable working environment for kitchen staff, we also introduced low-noise appliances such as our High Efficient Cool Kitchen Stockpot and High Efficient Low Noise Wok Range, which incorporate special features that maximise energy utilisation to lower operating costs.

## OUR COMMUNITY

👂👂 We care about the well-being of our communities and the environment in which enables us to improve people's quality of life and support youth development. 🌱🌱





Our business is rooted in our communities, and Towngas is committed to corporate citizenship. Aside from operating responsibly in both Hong Kong and mainland China, we work closely with government officials in different regions, as well as with non-governmental organisations (NGOs), to create sustainable benefits for both the Group and society.

We are honoured to have had our dedication to the community recognised by various organisations over the years. The Towngas Volunteer Service Team has won the Champion of the Highest Service Hour Award in the Private Organisations – Best Customers Participation category, for ten consecutive years.

## Key Performance in 2017

### Group



Donated **HK\$5.1 million** to community activities

### Hong Kong



**282** voluntary activities in which Towngas volunteers participated



**86,455** voluntary service hours (including employees and customers)



**655,876** people who benefited from our volunteer services

### Mainland China



More than **135,000** voluntary service hours serving local communities



**RMB3.2** million donated through our Gentle Breeze Movement since 2013



More than **9,600** saplings were planted

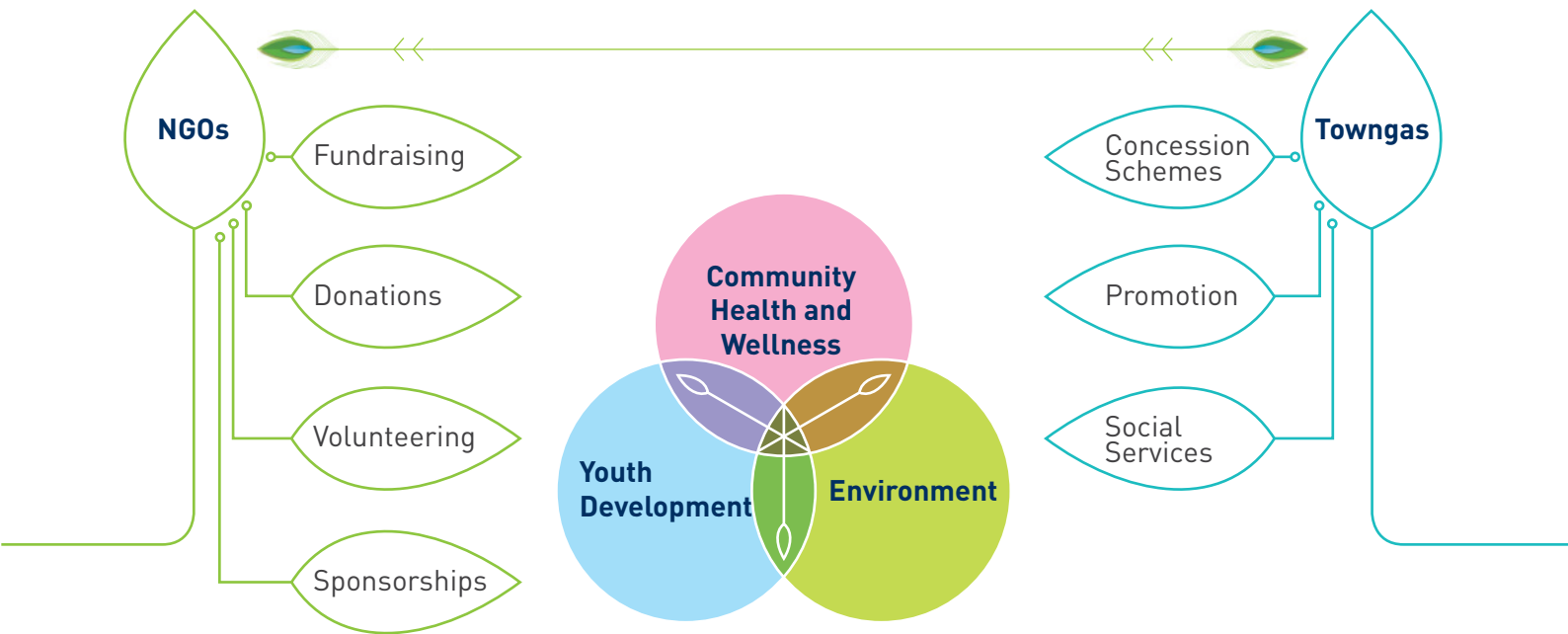
## Achievements and Targets

Goals	Achievements / Progress in 2017	Future Actions and Targets
Improve Community Health and Wellness	<ul style="list-style-type: none"> <li>Raised HK\$340,000 through the Mad Dog Café internal fundraiser. Until 2017, we installed more than 260 toilet washlets in over 60 elderly care centres</li> <li>Provided <a href="#">Towngas Concession Schemes</a> to four disadvantaged groups and free checkup service for elderly Personal Emergency (PE) Link users</li> </ul>	<ul style="list-style-type: none"> <li>To continue installing toilet washlets in elderly care centres</li> <li>To maintain <a href="#">Towngas Concession Schemes</a> to help disadvantaged groups</li> <li>To utilise our resources and expertise in helping disadvantaged groups in society</li> <li>To install heater in care centres for the elderly using donations raised by Mad Dog Café charity programme</li> </ul>
Encourage Participation of Employees and Customers in Volunteer Work	<ul style="list-style-type: none"> <li>Annual activities held in 2017 included Soup to Warm the Heart Campaign, Rice Dumplings for the Community, and Mooncakes for the Community</li> <li>Established the Little Orchestra in 2017, which is undergoing training and will soon take part in volunteer programmes</li> </ul>	<ul style="list-style-type: none"> <li>To develop new volunteer programmes for people with disabilities</li> <li>To train the child volunteer team to perform during variety shows for the elderly or needy</li> <li>To explore community programmes for young people</li> </ul>
Partner with Non-governmental Organisations (NGOs) and Green Groups to Carry out Community Activities	<p>We regularly review sponsorship programmes submitted by NGOs. In 2017, we collaborated with Hong Kong Sheng Kung Hui Welfare Council Limited (Welfare Council) to launch new programmes:</p> <ul style="list-style-type: none"> <li>(i) Chef Anchor cooking programme: a systematic programme created by occupational therapists to alleviate symptoms of mild cognitive impairment</li> <li>(ii) We Can Cook cooking workshop: a course to promote lifelong learning for young retirees</li> </ul>	<ul style="list-style-type: none"> <li>To work with NGOs to identify impactful community programmes that benefit society</li> <li>To explore new partnership programmes with green groups</li> <li>To continue supporting NGOs with donations, fundraising, sponsorship and volunteering</li> </ul>



## 11.1 • Our Approach

By supporting NGOs' public programmes through fundraising, donations, sponsorship and volunteering – together with our concession schemes, social services and promotions – our intention is to enhance quality of life and create a sustainable environment in which future generations can do business and thrive.



Besides holding and supporting various community programmes, we also set up different volunteer teams to carry out services for society, as well as the District Council Focus Team to forge stronger links with communities.

### Towngas Volunteer Service Team

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In line with our corporate culture, we encourage our employees to get involved in volunteer community work by providing them with funding, materials and training support. These initiatives not only make a difference in the lives of the needy, but can also foster care and harmony within the community. As at 31 December 2017, 852 employees were registered for voluntary services.

### Towngas Customer Volunteer Team

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By strengthening additional connections with the community, the Towngas Customer Volunteer Team offers opportunities for our volunteers to get together with their friends and families to participate in meaningful community activities, which will, in turn, create stronger bonds between one another. As of this year, 199 individuals registered for the Towngas Customer Volunteer Team.

### District Council Focus Team

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Established to promote stronger links with the community, our District Council Focus Team liaises directly with the 18 District Councils of Hong Kong. By working in direct partnership with district councillors and local representatives, we are able to identify needs on the ground and design logical, efficient solutions to community issues. Activities have included charity drives, diversified services for the elderly, and campaigns covering household safety and environmental protection.

## 11.2 • Community Health and Wellness

With our *wenxin* “warmth and caring” culture extending to the community, we implemented a series of charity programmes to help people in need. In 2017, we continue to support community activities, such as Skip Lunch Day, Chest Green Day and Dress Casual Day, and encouraged our people to participate in activities that help those in need. Our employees endeavoured to show their dedication to social service and actively took part in activities which included the Soup to Warm the Heart Campaign, Rice Dumplings for the Community, Mooncakes for the Community, the Electrical Toilet Washlet Donation Programme and the Mad Dog Café charity programme. This year, we also organised nine Elderly Variety Shows for more than 3,000 participants, with a health talk delivered at each show.

### Hong Kong



**57,190** servings  
of soup distributed



**345,000**  
rice dumplings  
ingredients given out



**242,000**  
mooncakes  
delivered



More than **HK\$340,000**  
raised under **Mad Dog Café**  
charity programme



More than **260** electrical toilet  
washlets installed since the  
programme was launched

Similar to our programmes in Hong Kong, the Rice Dumplings for the Community in mainland China attracted over 80 project companies within the Group to participate in 2017. In total, we have wrapped and distributed more than 44,500 rice dumplings for welfare groups and people in need. Festival gifts worth more than RMB0.47 million were handed out at the same time, benefiting nearly 13,000 people.



## Case Study



## Warming Mooncakes

In 2017 Mid-Autumn Festival, we partnered with the St. James' Settlement to create a mooncake specially designed for the elderly suffering from dysphagia, a condition that cause difficulties in swallowing. Thanks to the expertise of a registered dietician and chef, we created the first series of Warming Mooncakes in Hong Kong with four enticing flavours. The mooncakes were delivered to the needy and available for public sales and all proceeds were donated to the St. James' Settlement.



## Case Study



## Wrapping with Little Hands Workshop



Towngas also collaborated with Little People of Hong Kong (LPHK) to hold the first Wrapping with Little Hands rice dumpling workshop for members of the community with skeletal dysplasia – often known as Dwarfism. More than 40 members of LPHK, and their families, attended the workshop, and the message of harmony and social inclusion was promoted by organisers and participants alike.

Throughout the year, we also launched new community programmes to engage further with society and help those in need. These new programmes were developed to create societal value, as well as raise public's concern and commitment to voluntary work.

## Case Study

### Chef Anchor Cooking Programme

In 2017, Towngas teamed with the Welfare Council, to launch the Chef Anchor cooking programme. The programme is designed to help alleviate the symptoms of mild cognitive impairment in elderly people. The collaborative cooking classes were designed by occupational therapists and Towngas cooking instructors. After phase one of the programme, a survey revealed that 90% of the participants showed improvements in their self-confidence, cooking skills and cognitive abilities.



## Case Study

### We Can Cook Cooking Workshop

Also in collaboration with the Welfare Council was the We Can Cook cooking workshop, which targeted younger retirees to promote lifelong learning. Under the watchful eyes of professional chefs from the catering industry, this course was held at the fully equipped Towngas Cooking Centre. This one-year programme consisted of 12 classes, and the sessions introduced participants to a range of international cuisines.



To help senior citizens and families in need, we offer [Towngas Concession Schemes](#) to four groups of customers. We also provide free checkups to elderly PE Link users, and run a safety-rail installation programme to benefit the elderly.

## Hong Kong



over **45,000** households benefited from Towngas Concession Schemes



**3,477** PE Link users received free checkups



**61** safety rails were installed

In recognition of these services benefiting the elderly, in particular, for offering a free checkup service for PE Link users, the Senior Citizen Home Safety Association named Towngas the recipient of an Outstanding Partnership Award, as well as a Community Engagement Crystal Award.

## 11.3 • The Environment

At Towngas, we believe that public engagement is essential to creating a sustainable environment. In 2017, the Group continued to promote environmental protection and sustainable development through partnerships with green groups in Hong Kong.



Collaborated with over **15** green groups and sponsored over **25** activities in Hong Kong



### Case Study

### Farming for Fun

As part of our green culture with an emphasis on experiential learning, our volunteers have, since 2014, been working on an organic farm. In 2017, in partnership with local NGOs, we harvested and donated 1,075 kg of vegetables to 4,300 needy individuals in Hong Kong. This also helped participants learn about how precious food actually is.



## Case Study



## Low-carbon Cooking Micro Film Competition

This initiative was organised in conjunction with the Business Environment Council to enhance public awareness of the benefits of leading a low-carbon lifestyle. Teams from secondary schools produced micro films about environmental protection, low-carbon and healthy cooking techniques. The competition was an excellent opportunity to promote low-carbon, healthy lifestyle and for students to showcase their creativity.



## Case Study



## Plantation Enrichment Programme

To combat global warming and contribute to the biodiversity of Hong Kong's country parks, Towngas sponsored The Green Earth's five-year Plantation Enrichment Project. A tree-planting day drew together 100 employees and customers to plant seedlings at Tiu Yue Country Trail in Clearwater Bay Country Park.



On the mainland, as part of the Towngas China Environmental Protection campaign, around 60 joint ventures actively carried out various low-carbon environmental promotion activities, such as Plantation Day, Earth Hour, Green Walkathon in 2017, and encouraged our employees and their family members, customers and the public to take part in these activities. Over the year, more than 9,600 saplings were planted. To date, Towngas and its project companies in mainland China have planted around 89,000 saplings across the country, greening an area of over 400,000 square metres.

## 11.4 • Youth Development

To ensure the future of our communities, we are committed to investing a portion of our resources and expertise in the next generation. The Cooking for Fun English cooking classes have taken place for more than 10 years to boost the self-confidence and language capabilities of primary school students, especially new immigrants from the mainland, and help them adapt to new situations more quickly. We also welcome student tours visiting our operations in educating younger generation about the gas industry, as well as other areas such as innovation, climate change and customer services to help nurturing the next generation. Through these visits, young people get to understand their interests for future development and career planning.

The Group also continued its work with social welfare associations in 2017, providing aid to students in economically disadvantaged regions of China. Since the inception of our Gentle Breeze Movement in 2013, Towngas has donated materials worth over RMB3.2 million to improve the learning environment at nearly 40 schools, in the provinces of Jiangxi, Anhui, Jiangsu, Shandong, Guizhou, Shaanxi, Liaoning, Sichuan and Guangdong. In 2017, we extended our reach to Yangjiang in Guangdong province and Binzhou in Shandong province, set up Towngas China Charity Libraries and donated desks, chairs, teaching equipment and school uniforms to the schools in the two cities. In addition, we continue to support the Firefly Project which is run by the Shanghai Soong Ching Ling Foundation – BEA Charity Fund. In 2017, the Firefly Project was located in a school in Anqing, Anhui province. We donated books and stationeries, as well as a range of equipments such as computers, for 420 students, which improved the teaching quality.



## KEY STATISTICS

This section presents an overview of our 2017 key performance of the Group, with a focus on economic, safety, environmental, employee and social aspects. This quantitative data has been selected from the Global Reporting Initiative (GRI) Sustainability Reporting Standards, the Environmental, Social and Governance Reporting Guide of The Stock Exchange of Hong Kong Limited, and other key performance indicators.

### Economic Performance

	Unit	2017	2016	2015	2014	2013
<b>Operating</b>						
Customers (Hong Kong gas business)	Million	1.88	1.86	1.84	1.82	1.80
Customers (City-gas business)	Million	25.4	23.1	20.9	19.0	17.3
Customers (Water business)	Million households	1.24	1.19	1.12	1.04	0.97
Town Gas Sales (Hong Kong)	Million MJ	29,049	28,814	28,404	28,835	28,556
Gas Sales (Mainland China)	Billion cubic metres	19.5	17.1	15.5	15.2	13.4
Water Sales (Mainland China)	Million tonnes	467	455	433	424	414
<b>Financial</b>						
Revenue	HK\$ million	32,477	28,557	29,591	31,615	28,246
Manpower costs	HK\$ million	3,035	2,955	2,844	2,706	2,282
Capital Expenditure	HK\$ million	6,141	6,257	6,356	6,365	5,984
Taxation	HK\$ million	1,750	1,576	1,727	1,771	1,655
Dividends	HK\$ million	4,896	4,451	4,047	3,680	3,346
Profit attributable to shareholders	HK\$ million	8,225	7,341	7,302	7,109	6,854



# Hong Kong

## Safety Performance

	Unit	2017	2016	2015	2014	2013
<b>Inspection and Training</b>						
Trench inspections	Number (sites)	10,897	12,606	14,044	16,390	13,675
Regular safety inspections – home visits	Number	1,391,156	1,312,275	1,236,796	1,247,727	1,021,089
Community safety exhibitions	Number	12	12	13	12	12
Community safety talks	Number	7	10	14	10	5
In-house safety training	Number of man-hours	20,208	19,482	17,558	19,726	17,822
External staff safety training	Number of man-hours	6,205	4,612	4,991	6,385	6,181
<b>Occupational Safety and Health<sup>1</sup></b>						
Accidents – all industrial injuries	Number	10	13	19	14	15
Reportable accidents	Number	10	12	15	12	12
Accident frequency rate	Number of accidents per 100,000 man-hours	0.15	0.19	0.29	0.22	0.24
Occupational diseases rate	Number of incidents per 100,000 man-hours	0	0	0	0	N/A
Accident incidence rate	Number of reportable accidents per 1,000 employees	3.4	4.1	5.3	4.4	4.9
Traffic accident injury rate	Number of traffic accident injuries per 100 vehicles	2.31	3.36	1.68	1.68	1.47
Industrial injury man-days lost	Number of man-days	496	576	596	132	194
Fatal accidents	Number	0	0	0	0	1

## Employees

	Unit	2017	2016	2015	2014	2013
<b>Total Headcount</b>						
Hong Kong gas business	Number	2,022	2,019	1,999	1,972	1,966
<b>All Hong Kong staff<sup>2</sup></b>						
Full-time	Number	2,388	2,392	2,380	2,331	2,310
Part-time	Number	94	116	110	79	61
<b>By gender</b>						
Male	Number	1,877	1,887	1,882	1,847	1,825
Female	Number	511	505	498	484	485
Ratio of Male to Female – Senior management	Ratio	3.4	3.4	3.2	3.5	3.5
Ratio of Male to Female – Middle management	Ratio	3.0	3.2	3.3	3.6	3.7
Ratio of Male to Female – General staff	Ratio	4.4	4.3	4.3	4.0	3.9
<b>By age group</b>						
<26	Number	123	126	118	106	116
26-35	Number	395	372	385	388	364
36-45	Number	475	487	491	499	563
46-55	Number	861	909	940	947	915
>=56	Number	534	498	446	391	352
<b>By employee category</b>						
Senior management	Number	236	239	239	230	225
Middle management	Number	843	831	820	768	744
General staff	Number	1,309	1,322	1,321	1,333	1,341
<b>Turnover Rate</b>						
Average turnover of workforce (Hong Kong gas business)	%	5.7	5.8	4.8	6.4	5.1
Average turnover of workforce (all Hong Kong staff)	%	6.4	6.7	5.8	7.5	6.0
<b>By gender</b>						
Male	%	5.6	6.0	4.9	6.6	4.6
Female	%	9.3	9.0	9.4	10.9	11.4
<b>By age group</b>						
<26	%	19.3	21.3	26.8	22.5	33.8
26-35	%	13.0	14.8	14	18.6	10.4
36-45	%	7.1	6.1	3.6	6.6	4.5
46-55	%	2.6	3.4	2.4	3.4	2.7
>=56	%	4.1	3.4	2.9	3.2	3.6

	Unit	2017	2016	2015	2014	2013
<b>New Recruitment</b>						
Total	Number	198	200	203	182	174
<b>By gender</b>						
Male	Number	148	144	145	140	111
Female	Number	50	56	58	42	63
<b>By age group</b>						
<26	Number	53	56	48	37	50
26-35	Number	74	71	64	73	70
36-45	Number	42	34	36	37	22
46-55	Number	15	22	21	25	26
>=56	Number	14	17	34	10	6
<b>Employee Performance and Career Reviews<sup>2</sup></b>						
Total	%	85.2	85.6	85.8	85.5	86.1
<b>By gender</b>						
Male	%	86.4	87.1	88.8	87.1	89.0
Female	%	80.8	79.8	74.5	79.8	75.3
<b>By employee category</b>						
Senior management	%	85.2	82.0	82.8	83.9	85.3
Middle management	%	82.9	92.4	90.1	91.8	93.4
General staff	%	80.2	81.9	83.6	82.2	82.2
<b>Training Hours (HSE training excluded)<sup>2</sup></b>						
Total training hour	Hours	27,907 <sup>#</sup>	15,753	19,069	22,611	32,186
Average training hour	Hours	10.5 <sup>#</sup>	6.6	8	9.7	13.9
Anti-corruption training hour	Hours	187.8	200	300	155	128.75
<b>By gender (Average training hours and percentage of employees received training)</b>						
Male	Hours (%)	11.2 (53.3) <sup>#</sup>	5.8 (43.3)	7.6 (40.3)	8.4 (65.7)	13.4 (66.0)
Female	Hours (%)	7.8 (61.5) <sup>#</sup>	9.6 (70.3)	9.4 (44.6)	14.7 (67.9)	15.8 (63.1)
<b>By employee category (Average training hours and percentage of employees received training)</b>						
Senior management	Hours (%)	5.9 (50.0) <sup>#</sup>	9.5 (73.2)	12.6 (75.1)	14.1 (87.5)	32.6 (96.4)
Middle management	Hours (%)	7.9 (60.1) <sup>#</sup>	10.7 (63.4)	8.7 (53.7)	12.8 (67.6)	21.9 (75.4)
General staff	Hours (%)	13.2 (53.0) <sup>#</sup>	3.5 (35.6)	6.8 (27.7)	7.1 (62.1)	6.4 (54.2)

**Remarks:**

# Included trainings conducted by both internal departments and external organisations.

## Environmental Performance

### Resource Consumption<sup>3</sup>

	Unit	2017	2016	2015	2014	2013
<b>Towngas Headquarters</b>						
Electricity	GJ	20,921	21,383	21,277	21,696	22,934
Town gas	GJ	2,020	2,217	1,477	1,353	1,586
Water <sup>4</sup>	Cubic metres	15,411	15,631	15,791	16,735	14,006
<b>Gas Production Process (Heating fuel, electricity and water used)</b>						
Electricity	GJ	137,142	150,251	145,797	141,937	132,257
Naphtha	GJ	628,760	616,538	598,935	602,016	785,476
Natural gas	GJ	5,033,398	5,069,673	4,934,059	4,973,358	4,862,842
Synthetic natural gas and landfill gas	GJ	584,126	481,963	550,926	527,790	519,401
Town gas	GJ	160,011	168,086	156,196	164,020	168,868
Diesel	GJ	1,373	1,365	1,452	1,458	1,304
Water <sup>4</sup>	Cubic metres	1,094,363	1,162,611	1,091,897	1,041,582	1,058,641
<b>Vehicle Fleet<sup>5</sup></b>						
Unleaded petrol	GJ	12,679	14,518	15,662	17,254	17,569
Diesel	GJ	11,316	10,172	9,420	8,144	7,003
<b>Packaging Material Use</b>						
Carton	Tonnes	889	822	866	824	798
Wood	Tonnes	18	29	25	24	23
Plastic	Tonnes	0.7	0.9	1.0	1.0	1.0

### Resource Conservation

	Unit	2017	2016	2015	2014	2013
Naphtha saved (Gas production) <sup>6</sup>	GJ	552,251	449,349	519,160	492,844	477,459
Town gas saved (Gas production) <sup>6</sup>	GJ	31,875	32,614	31,766	34,945	41,942
Effluent water saved (Gas production) <sup>7</sup>	Cubic metres	117,090	118,187	112,159	121,504	127,379
Amount of raw water collected by the rainwater harvesting system (Tai Po Plant)	Cubic metres	3,805	4,125	3,663	N/A	N/A
Grid electricity saved through PV Panels	GJ	313	311	312	313	312
Electricity saved (Towngas Headquarters and Ma Tau Kok office) <sup>6</sup>	GJ	20,080	19,919	19,557	18,581	17,396

## Emissions

	Unit	2017	2016	2015	2014	2013
Carbon Dioxide (CO <sub>2</sub> )	Daily average in metric tonnes (Metric tonnes per million MJ of town gas)	915 (11.64)	907 (11.55)	898 (11.82)	904 (11.70)	931 (12.09)
Nitrogen Oxides (NO <sub>x</sub> )	Daily average in kg (Kg per million MJ of town gas)	311 (4.00)	314 (4.00)	292 (3.84)	310 (4.02)	353 (4.59)
Sulphur Oxides (SO <sub>x</sub> )	Daily average in kg (Kg per million MJ of town gas)	1.9 (0.02)	1.4 (0.02)	1.3 (0.02)	1.4 (0.02)	1.2 (0.02)
Greenhouse gases (Production equipment) <sup>8</sup>	Tonnes CO <sub>2</sub> e	358,417	356,871	355,428	355,880	364,800
CO <sub>2</sub> reduction equivalent to electricity saved (Towngas Headquarters and Ma Tau Kok office) <sup>9</sup>	Tonnes CO <sub>2</sub> e	3,904	3,873	3,803	3,613	3,376

## Effluent and Waste

	Unit	2017	2016	2015	2014	2013
Treated wastewater discharged to marine water bodies	Daily average in cubic metres	62	79	47	N/A	N/A
Wastewater discharged to sewage	Daily average in cubic metres	258	241	239	N/A	N/A
Total wastewater discharged	Daily average in cubic metres (Cubic metres per million MJ of town gas)	319 (4.10)	321 (4.10)	287 (3.77)	307 (3.97)	323 (4.2)
Non-hazardous waste landfilled <sup>10</sup>	Tonnes	176.9	150.4	123.6	129.5	126.7
Non-hazardous waste recycled <sup>11</sup>	Tonnes	199.4	125.7	210.0	N/A	N/A
<b>Hazardous Waste<sup>12</sup></b>						
Chemical waste generated	Daily average in kg (kg per million MJ of town gas)	193 (2.50)	167 (2.10)	49 (0.64)	83 (1.07)	150 (1.94)
Spent catalyst collected for metal recovery	Tonnes	11.4	18.5	11.7	23.6	39.7
Spent lube oil recycled	Tonnes	44.8	45.6	13.2	25.2	46.7
<b>Others</b>						
Metal chemical drums reused	Number	59	41	18	15	90
Plastic chemical drums reused	Number	649	1,021	1,927	1,030	914

	Unit	2017	2016	2015	2014	2013
Scrap metal recycled – old gas appliances	Tonnes	1,803	1,218	1,265	1,229	1,278
Scrap metal recycled – from construction and maintenance of plant and pipelines	Tonnes	92	34	77	23	28
PE pipe recycled	Tonnes	24.8	30.9	23.6	17.8	12.6
Gas appliances polyfoam packaging materials avoided	Tonnes	1.46	1.56	1.56	1.29	1.31

## Social Performance

### Customer Service

	Unit	2017	2016	2015	2014	2013
Customer compliments	Number	6,017	6,930	6,766	5,894	6,026
Customer complaints	Number	10	13	6	8	16

### Community Involvement

	Unit	2017	2016	2015	2014	2013
Employees participating in voluntary services	Number	852	830	859	994	918
Voluntary service hours (including employees and customers)	Hours	86,455	75,588	75,369	79,551	72,025
Charitable donations made by the Group	HK\$ million	5.1	7.1	7.1	34.2	58.6

#### Remarks:

- 1) Towngas' employees and the employees of its subsidiaries only.
- 2) A revised scope was adopted in 2016. The scope includes the hired employees of companies with business in Hong Kong (i.e. Towngas, Towngas Enterprise Limited, ECO Stations, TGT and U-Tech). The figures have been adjusted accordingly.
- 3) The following conversion factors are used to standardise the units to gigajoules (GJ): Town gas (0.048GJ/unit), electricity (0.0036GJ/kWh), petrol (0.033GJ/L), diesel (0.036GJ/L). For the conversion of naphtha and landfill gas to energy term, they are calculated by multiplying individual monthly fuel volumetric data by their corresponding monthly average calorific value.
- 4) All water is purchased and distributed by the HKSAR Water Supplies Department.
- 5) Tankers and ECO Aviation Fuel Services (EAFS) vehicles are excluded.
- 6) These figures are the savings achieved compared with the data of a reference year before implementing the respective environmental initiative.
- 7) The indicator 'Water saved' was replaced by 'Effluent water saved' in 2016. The figures have been adjusted accordingly.
- 8) The emission factors of greenhouse gas emissions due to electricity consumption are obtained from the sustainability reports of the two local electricity companies, which are released one year prior to our reporting year. The emissions were adjusted to exclude the CO<sub>2</sub> emissions from the use of landfill gas.
- 9) The default value to account for the GHG Emission Factor of electricity sold to customers in Hong Kong is 0.7kg/kWh. Reference: Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings of Commercial, Residential or Institutional Purposes in Hong Kong (by EPD & EMSD).
- 10) Non-hazardous waste landfilled refers to the refuse, wood pallets and construction waste collected from Towngas Headquarters and the Tai Po Plant.
- 11) Non-hazardous waste recycled refers to the plastics, papers, paper cartons and metals collected to recycling contractors. Apart from these waste categories, we also recycle other non-hazardous waste, such as used red packets and cartridges, on a regular basis.
- 12) All chemical waste handling procedures comply with the [Waste Disposal Ordinance \(Cap. 354\)](#). We also collect other hazardous waste, such as rechargeable batteries, fluorescent tubes and obsolete electronic products to licensed recyclers on a regular basis.

## Outside Hong Kong

### Safety Performance<sup>1</sup>

	Unit	2017	2016	2015	2014	2013
Safety training	Hours	979,628	906,691	904,211	N/A	N/A
Serious gas-related accidents	Number	8	13	14	14	12
Fatal accidents	Number	2 <sup>#</sup>	2	0	1	N/A
Industrial injury man-days lost	Number of man-days	2,153	3,654	1,676	N/A	N/A

<sup>#</sup> One employee passed away during work due to personal health problem, while another employee encountered a traffic accident.

### Environmental Performance<sup>2</sup>

#### Energy and Water Consumption<sup>3</sup>

	Unit	2017	2016	2015	2014	2013
Diesel	GJ	71,848	82,204	N/A	N/A	N/A
Natural Gas	GJ	324,522	465,110	N/A	N/A	N/A
Unleaded petrol	GJ	74,936	68,430	N/A	N/A	N/A
Electricity	GJ	1,600,126	1,567,187	N/A	N/A	N/A
Others	GJ	9,104,091	9,737,518	N/A	N/A	N/A
Water	Cubic metres	4,078,327	3,731,565	N/A	N/A	N/A

#### Emissions

	Unit	2017	2016	2015	2014	2013
Greenhouse gases (GHG) <sup>#</sup>	Tonnes CO <sub>2</sub> e	1,274,000	1,256,000	1,303,000	1,025,000	1,085,000
Nitrogen Oxides (NO <sub>x</sub> ) <sup>4</sup>	Tonnes	123.7	149.8	N/A	N/A	N/A
Sulphur Dioxides (SO <sub>2</sub> ) <sup>4</sup>	Tonnes	89.2	98.4	N/A	N/A	N/A
Respirable Suspended Particulates (PM10) <sup>5</sup>	Tonnes	0.31	0.27	N/A	N/A	N/A

<sup>#</sup> The reported GHG emission data covers the operations within and outside Hong Kong. The percentage of GHG emissions arising from Hong Kong operations is around 30%. The emissions were adjusted to exclude the CO<sub>2</sub> emissions from the use of landfill gas.

#### Effluent and Waste<sup>6</sup>

	Unit	2017	2016	2015	2014	2013
Hazardous waste (Solid)	Tonnes	1,026	1,134	N/A	N/A	N/A
Hazardous waste (Liquid)	Litres	92,857	28,600	N/A	N/A	N/A
Non-hazardous waste (Solid)	Tonnes	202,047	220,180	N/A	N/A	N/A
Non-hazardous waste (Liquid)	Litres	69,999	65,677	N/A	N/A	N/A
Wastewater discharged to sewage	Cubic metres	1,847,850	2,088,830	N/A	N/A	N/A

## Employees<sup>7</sup>

	Unit	2017	2016	2015	2014	2013
<b>Total Headcount</b>						
Employees	Number	46,772	46,803	45,292	44,257	42,294
<b>By employment types</b>						
Full-time	Number	46,758	46,789	N/A	N/A	N/A
Part-time	Number	14	14	N/A	N/A	N/A
<b>By gender</b>						
Male	Number	31,386	31,945	N/A	N/A	N/A
Female	Number	15,372	14,844	N/A	N/A	N/A
<b>By age group</b>						
<26	Number	4,114	4,656	N/A	N/A	N/A
26-35	Number	16,527	16,468	N/A	N/A	N/A
36-45	Number	14,249	13,964	N/A	N/A	N/A
46-55	Number	10,124	9,961	N/A	N/A	N/A
>=56	Number	1,744	1,740	N/A	N/A	N/A
<b>By employee category</b>						
Senior management	Number	971	929	N/A	N/A	N/A
Middle management	Number	4,506	4,485	N/A	N/A	N/A
General staff	Number	41,281	41,375	N/A	N/A	N/A
<b>Turnover Rate</b>						
Average turnover of workforce	%	4.1	2.3	N/A	N/A	N/A
<b>By gender</b>						
Male	%	4.7	2.5	N/A	N/A	N/A
Female	%	2.8	1.9	N/A	N/A	N/A
<b>By age group</b>						
<26	%	4.6	3.5	N/A	N/A	N/A
26-35	%	6.4	2.7	N/A	N/A	N/A
36-45	%	2.5	1.9	N/A	N/A	N/A
46-55	%	2.3	1.7	N/A	N/A	N/A
>=56	%	3.5	1.8	N/A	N/A	N/A
<b>New Recruitment</b>						
Total	Number	1,196	1,853	N/A	N/A	N/A
<b>By gender</b>						
Male	Number	910	1,352	N/A	N/A	N/A
Female	Number	286	501	N/A	N/A	N/A



	Unit	2017	2016	2015	2014	2013
By age group						
<26	Number	216	320	N/A	N/A	N/A
26-35	Number	513	766	N/A	N/A	N/A
36-45	Number	285	465	N/A	N/A	N/A
46-55	Number	155	260	N/A	N/A	N/A
>=56	Number	27	42	N/A	N/A	N/A

## Social Performance

### Community Involvement

	Unit	2017	2016	2015	2014	2013
Employees participating in voluntary services (Mainland utility business)	Number	8,013	9,016	8,341	7,240	6,150
Voluntary service hours (Mainland utility business)	Hours	135,154	93,701	82,280	103,875	505,722

#### Remarks:

- 1) Employees only. The scope includes mainland utility businesses, new energy and diversified businesses that are majority owned by Towngas.
- 2) The scope includes mainland utility businesses, new energy and diversified businesses that are majority owned by Towngas. The data is consolidated on an equity basis.
- 3) The following conversion factors are used to standardise the units to gigajoules (GJ): electricity (0.0036GJ/kWh), petrol (0.033GJ/L), diesel (0.036GJ/L) and natural gas (0.04GJ/m<sup>3</sup>).
- 4) From fuel combustion and vehicle emissions.
- 5) From vehicle emissions.
- 6) All hazardous waste and wastewater handling procedures comply with the national regulations.
- 7) Includes all people employed by the Group, its' subsidiaries, associates and joint ventures outside Hong Kong.

# GRI AND ESG GUIDE CONTENT INDEX

## Global Reporting Initiative (GRI) Content Index

This report was compiled in accordance with the Core Option of the GRI Sustainability Reporting Standards, and with reference to the GRI G4 Oil and Gas Sector Disclosures.

Disclosure Number	Details	Cross reference/Information	External Assurance
<b>102: General Disclosures 2016</b>			
<b>Organisational profile</b>			
101-1	Name of the organisation	The Hong Kong and China Gas Company Limited	•
102-2	Activities, brands, products and services	Appendices (P.115)	•
102-3	Location of headquarters	Hong Kong	•
102-4	Location of operations	Our Company (P.16)	•
102-5	Ownership and legal form	Limited Liability company	•
102-6	Markets served	Our Company (P.16)	•
102-7	Scale of the organisation	Our Company (P. 16-18, 21)	•
102-8	Information on employees and other workers	Key Statistics (P.98-99, 104-105)	•
102-9	Supply chain	Our Suppliers (P.71-75)	•
102-10	Significant changes to the organisation and its supply chain	Our Company (P.14)	•
102-11	Precautionary Principle or approach	Our Company (P.19), Sustainability at Towngas (P.22-24)	•
102-12	External initiatives	Appendices (P.117)	•
102-13	Membership of associations	Appendices (P.116)	•
<b>Strategy</b>			
102-14	Statement from senior decision-maker	Managing Director's Message (P.4-7)	•
<b>Ethics and integrity</b>			
102-16	Values, principles, standards and norms of behavior	Our Company (P.14-15)	•
<b>Governance</b>			
102-18	Governance structure	Our Company (P.19, 22-23)	•
<b>Stakeholder engagement</b>			
102-40	List of stakeholder groups	Sustainability at Towngas (P.27-29)	•
102-41	Collective bargaining agreements	Our People (P.63)	•
102-42	Identifying and selecting stakeholders	Sustainability at Towngas (P.22,27)	•
102-43	Approach to stakeholder engagement	Sustainability at Towngas (P.27-29)	•
102-44	Key topics and concerns raised	Sustainability at Towngas (P.27-29)	•

Disclosure Number	Details	Cross reference/Information	External Assurance
<b>Reporting practice</b>			
102-45	Entities included in the consolidated financial statements	About this Report (P.12) Annual Report: Independent Auditor's Report (P.85)	•
102-46	Defining report content and topic boundaries	Sustainability at Towngas (P.24-25)	•
102-47	List of material topics	Sustainability at Towngas (P.25-26)	•
102-48	Restatements of information	Environment (P.38-39) Key Statistics (P.99,101,103)	•
102-49	Changes in reporting	About this Report (P.12)	•
102-50	Reporting period	About this Report (P.12)	•
102-51	Date of most recent report	<a href="#">Our Sustainability Report 2016 was published in April 2017</a>	•
102-52	Reporting cycle	Annual	•
102-53	Contact point for questions regarding the report	About this Report (P.13)	•
102-54	Claims of reporting in accordance with the GRI Standards	This report has been prepared in accordance with GRI Sustainability Reporting Standards: Core option.	•
102-55	GRI content index	GRI Content Index (P.106-111)	•
102-56	External assurance	About this Report (P.13)	•
<b>200: Economic</b>			
<b>201: Economic Performance 2016</b>			
103	Management approach	Sustainability at Towngas (P.26) Our Company (P.16-18) Annual Report - Chairman's Statement (P.6)	•
201-1	Direct economic value generated and distributed	Our Company (P.21) Annual Report - Report of the Directors (P.66)	•
201-2	Financial implications and other risks and opportunities due to climate change	Environment (P.37) Annual Report - Risk Factors (P.60)	•
201-4	Financial assistance received from government	No financial assistance from HKSAR Government was received.	•
<b>202: Market Presence 2016</b>			
103	Management approach	Sustainability at Towngas (P.26) Our Company (P.16-18)	•
202-1	Ratios of standard entry level wage by gender compared to local minimum wage	In 2017, all standard entry level wages fulfilled the regulatory requirement.	•
<b>205: Anti-corruption 2016</b>			
103	Management approach	Sustainability at Towngas (P.26) Our Company (P.20) <a href="#">Corporate Governance</a>	•
205-3	Confirmed incidents of corruption and actions taken	In 2017, there were no confirmed incidents of corruption.	•

Disclosure Number	Details	Cross reference/Information	External Assurance
<b>300: Environmental</b>			
<b>301: Materials 2016</b>			
103	Management approach	Sustainability at Towngas (P.26) Environment (P.31-36) <a href="#">Towngas Environmental Purchasing Policy</a>	•
201-1	Materials used by weight or volume	Key Statistics (P.100-102)	•
201-2	Recycled input materials used	Key Statistics (P. 100-102)	•
<b>302: Energy 2016</b>			
103	Management approach	Sustainability at Towngas (P.26) Environment (P.31-36, 42)	•
302-1	Energy consumption within the organisation	Key Statistics (P.100, 103)	•
302-4	Reduction of energy consumption	Key Statistics (P.100)	•
302-5	Reductions in energy requirements of products and services	We acquired energy labels for all eligible models of domestic gas water heaters and cooking appliances covered by the Voluntary Energy Efficiency Labelling scheme.	•
G4-OG3	Total amount of renewable energy generated by source	Environment (P.40-41) Key Statistics (P.100) The SENT Landfill Gas Utilisation Project was commissioned in 2017.	•
<b>303: Water 2016</b>			
103	Management approach	Sustainability at Towngas (P.26) Environment (P.31-36, 42)	•
303-1	Water withdrawal by source	Key Statistics (P.100)	•
303-2	Water sources significantly affected by withdrawal of water	There is no withdrawal of surface or groundwater. All water consumed in Hong Kong is either collected through our rainwater harvesting system and purchased and distributed by the HKSAR Water Supplies Department.	•
303-3	Water recycled and reused	Key Statistics (P.100)	•
<b>305: Emissions 2016</b>			
103	Management approach	Sustainability at Towngas (P.26) Environment (P.31-39)	•
305-1	Direct (Scope 1) GHG emissions	Environment (P.38) Key Statistics (P.101, 103)	•
305-2	Energy indirect (Scope 2) GHG emissions	Environment (P.38) Key Statistics (P.101, 103)	•
305-4	GHG emissions intensity	Environment (P.39)	•
305-5	Reduction of GHG emissions	Key Statistics (P.101)	•
305-7	NO <sub>x</sub> , SO <sub>x</sub> , and other significant air emissions	Key Statistics (P.101, 103)	•

Disclosure Number	Details	Cross reference/Information	External Assurance
<b>306: Effluent and Waste 2016</b>			
103	Management approach	Sustainability at Towngas (P.26) Environment (P.31-36, 43)	•
306-1	Water discharge by quality and destination	Key Statistics (P.101, 103)	•
306-2	Waste by type and disposal method	Key Statistics (P.101-103)	•
306-3	Significant spills	No significant spill was recorded.	•
306-4	Transport of hazardous waste	Key Statistics (P.101, 103)	•
306-5	Waste bodies affected by water discharges and/or runoff	No water bodies are significantly affected by our Hong Kong operation.	•
G4-OG5	Volume and disposal of formation or produced water	In 2017, our Hong Kong operation does not involve formation or produced water, which is a byproduct that commonly brought to the surface during the production of hydrocarbons.	•
G4-OG7	Amount of drilling waste (drill mud and cuttings) and strategies for treatment and disposal	In 2017, our Hong Kong operation does not involve drilling waste.	•
<b>Products and Services</b>			
G4-OG8	Benzene, lead and sulfur content in fuels	The composition of town gas is regulated by the Environmental Protection Department, and the benzene, lead and sulfur contents did not exceed the permitted levels during the reporting period.	•
<b>307: Environmental Compliance 2016</b>			
103	Management approach	Sustainability at Towngas (P.26) Environment (P.31-36)	•
307-1	Non-compliance with environmental laws and regulations	In 2017, Towngas received no fines or non-monetary sanctions for incidences of non-compliance.	•
<b>308: Supplier Environmental Assessment 2016</b>			
103	Management approach	Sustainability at Towngas (P.26) Our Suppliers (P.71-75) <a href="#">CSR Code of Practice for Supplier</a>	•
308-2	Negative environmental impacts in the supply chain and actions taken	Our Suppliers (P.77)	•
<b>400: Social</b>			
<b>401: Employment 2016</b>			
103	Management approach	Sustainability at Towngas (P.26) Our People (P.61-63)	•
401-1	New employee hires and employee turnover	Key Statistics (P. 98-99, 103-104)	•
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	Our People (P.63-64)	•

Disclosure Number	Details	Cross reference/Information	External Assurance
<b>403: Occupational Health and Safety 2016</b>			
103	Management approach	Sustainability at Towngas (P.26) Health and Safety (P.47-51, 55-57) Our People (P.61-63, 68-69) <a href="#">HSE Policy</a>	•
403-1	Workers representation in formal joint management-worker health and safety committees	Health and Safety (P.50)	•
403-2	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	Health and Safety (P.55) Key Statistics (P.97, 103)	•
<b>404: Training and Education 2016</b>			
103	Management approach	Sustainability at Towngas (P.26) Our People (P.61-63, 65-68)	•
404-1	Average hours of training per year per employee	Our People (P.66)	•
404-2	Programmes for upgrading employee skills and transition assistance programmes	Our People (P. 65-68)	•
404-3	Percentage of employees receiving regular performance and career development reviews	Key Statistics (P.99)	•
<b>413: Local Communities 2016</b>			
103	Management approach	Sustainability at Towngas (P.26) Our Community (P. 87-95)	•
413-1	Operations with local community engagement, impact assessments and development programmes	Our Community (P. 87-95)	•
413-2	Operations with significant actual and potential negative impacts on local communities	Health and Safety (P.51-54)	•
G4-OG11	Number of sites that have been decommissioned and sites that are in the process of being decommissioned	In 2017, our Hong Kong operation does not involve such sites.	•
<b>416: Customer Health and Safety 2016</b>			
103	Management approach	Sustainability at Towngas (P.26) Health and Safety (P.51-54) Our Customers (P.77-79, 82-83)	•
416-1	Assessment of the health and safety impacts of product and service categories	Key Statistics (P.97)	•
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	In 2017, there were no recorded incidents of non-compliance.	•

Disclosure Number	Details	Cross reference/Information	External Assurance
<b>417: Marketing and Labelling</b>			
103	Management approach	Sustainability at Towngas (P.26) Our Customers (P.77-79, 83)	•
417-3	Incidents of non-compliance concerning marketing communications	In 2017, there were no recorded incidents of non-compliance.	•
<b>418: Customer Privacy 2016</b>			
103	Management approach	Sustainability at Towngas (P.26) Our Customers (P. 77-79, 83) <a href="#">Privacy Policy Statement</a>	•
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	In 2017, there were no recorded incidents of non-compliance.	•
<b>419: Socioeconomic Compliance 2016</b>			
103	Management approach	Sustainability at Towngas (P.26) Our Company (P.19-20)	•
419-1	Non-compliance with laws and regulations in the social and economic area	In 2017, there were no recorded incidents of non-compliance.	•
<b>Emergency Preparedness</b>			
103	Management approach	Sustainability at Towngas (P.26) Health and Safety (P.58-59)	•
<b>Asset Integrity and Process Safety</b>			
103	Management approach	Sustainability at Towngas (P.26) Health and Safety (P.51-54)	•
G4-OG13	Number of process safety events, by business activity	Sustainability at Towngas (P.26) Health and Safety (P.51-54)	•
<b>Fossil Fuel Substitutes</b>			
103	Management approach	Sustainability at Towngas (P.26) Environment (P.41)	•
G4-OG14	Volume of biofuels produced and purchased meeting sustainability criteria	Environment (P.41)	•

## Environmental, Social and Governance Reporting Guide (ESG Guide) of SEHK Content Index

This Report was in compliance with the “comply or explain” provisions and reported on the “recommended disclosures” of ESG Guide as detailed in Appendix 27 to the Listing Rule.

General Disclosures and KPIs		Cross reference/Information
<b>A. Environmental</b>		
<b>Aspect A1: Emissions</b>		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste	Environment (P.31-36)
KPI A1.1	The types of emissions and respective emissions data	Key Statistics (P.101, 103)
KPI A1.2	Greenhouse gas emissions in total (in tonnes) and, where appropriate intensity	Environment (P.31, 38) Key Statistics (P.101, 103)
KPI A1.3	Total hazardous waste produced (in tonnes) and, where appropriate intensity	Key Statistics (P.101, 103)
KPI A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate intensity	Key Statistics (P.101-103)
KPI A1.5	Description of measures to mitigate emissions and results achieved	Environment (P.31, 38-42)
KPI A1.6	Description of how hazardous and non-hazardous wastes are handled, reduction initiatives and results achieved	Environment (P.43)
<b>Aspect A2: Use of Resources</b>		
General Disclosure	Policies on the efficient use of resources, including energy, water and other raw materials	Environment (P.31,36)
KPI A2.1	Direct and/or indirect energy consumption by type in total and intensity	Key Statistics (P.100, 103)
KPI A2.2	Water consumption in total and intensity	Key Statistics (P.100, 103)
KPI A2.3	Description of energy use efficiency initiatives and results achieved	Environment (P.38-39, 42)
KPI A2.4	Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency initiatives and results achieved	Environment (P.42) There was no issue in sourcing water that is fit for purpose in our Hong Kong operations.
KPI A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced	Key Statistics (P.100)
<b>Aspect A3: The Environment and Natural Resources</b>		
General Disclosure	Policies on minimising the issuer’s significant impact on the environment and natural resources	Environment (P.31-36)
KPI A3.1	Description of the significant impacts of activities on the environment and natural resources and actions taken to manage them	Environment (P.31-45)



General Disclosures and KPIs		Cross reference/Information
<b>B. Social</b>		
<b>Employment and Labour Practices</b>		
<b>Aspect B1: Employment</b>		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare	Our People (P.61-64) <a href="#">Corporate Governance</a>
KPI B1.1	Total workforce by gender, employment type, age group and geographical region	Key Statistics (P.98, 103)
KPI B1.2	Employee turnover rate by gender, age group and geographical region	Key Statistics (P.98, 103)
<b>Aspect B2: Health and Safety</b>		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to providing a safe working environment and protecting employees from occupational hazards	Health and Safety (P.47-59) <a href="#">HSE Policy</a>
KPI B2.1	Number and rate of work-related fatalities	Health and Safety (P.55) Key Statistics (P.97, 103)
KPI B2.2	Lost days due to work injury	Health and Safety (P.55) Key Statistics (P.97, 103)
KPI B2.3	Description of occupational health and safety measures adopted, how they are implemented and monitored	Health and Safety (P.55-57) <a href="#">HSE Policy</a>
<b>Aspect B3: Development and Training</b>		
General Disclosure	Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities	Our People (P.61-63, 65-68)
KPI B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management)	Key Statistics (P.99)
KPI B3.2	The average training hours completed per employee by gender and employee category	Our People (P.66) Key Statistics (P.99)
<b>Aspect B4: Labour Standards</b>		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child and forced labour	Our People (P.61) We fully complied with local laws and regulations to avoid child and forced labour in locations where we operate. Our managers are entrusted to observe and practise in full compliance with matters related to these two areas. Ongoing monitoring and regular auditing are also in place.
KPI B4.1	Description of measures to review employment practices to avoid child and forced labour	
KPI B4.2	Description of steps taken to eliminate such practices when discovered	There has not been any single record of malpractice on child and forced labour across our operating locations due to strict compliance in these two areas.

General Disclosures and KPIs		Cross reference/Information
Operating Practices		
<b>Aspect B5: Supply Chain Management</b>		
General Disclosure	Policies on managing environmental and social risks of the supply chain	Our Suppliers (P.71-73) <a href="#">CSR Code of Practice for Suppliers</a>
KPI B5.1	Number of suppliers by geographical region	Our Suppliers (P.71)
KPI B5.2	Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, how they are implemented and monitored	Our Suppliers (P.74-75)
<b>Aspect B6: Product Responsibility</b>		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress	Our Customers (P.77-84) Health and Safety (P.47-54) <a href="#">Service Pledge</a> <a href="#">Privacy Policy Statement</a>
KPI B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons	No relevant case was recorded.
KPI B6.2	Number of products and service related complaints received and how they are dealt with	Key Statistics (P.102) <a href="#">Service Pledge</a>
KPI B6.3	Description of practices relating to observing and protecting intellectual property rights	<a href="#">Code of Conduct</a>
KPI B6.4	Description of quality assurance process and recall procedures	Health and Safety (P.51-52) <a href="#">Total Solution Services</a>
KPI B6.5	Description of consumer data protection and privacy policies, how they are implemented and monitored	Our Customers (P.83) <a href="#">Privacy Policy Statement</a>
<b>Aspect B7: Anti-corruption</b>		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to bribery, extortion, fraud and money laundering	Our Company (P.20) <a href="#">Corporate Governance</a>
KPI B7.1	Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases	In 2017, there were no concluded legal cases regarding corrupt practices.
KPI B7.2	Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored	Our Company (P.20) <a href="#">Whistleblowing Policy</a>
Community		
<b>Aspect B8: Community Investment</b>		
General Disclosure	Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests	Our Community (P.87-89)
KPI B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport)	Our Community (P.89)
KPI B8.2	Resources contributed to (e.g. money or time) the focus area	Our Community (P.90-95) Key Statistics (P.102, 105)

# APPENDICES

## Appendix I: Our Roles and Services

Hong Kong Gas Business	
The Hong Kong and China Gas Company Limited	<ul style="list-style-type: none"> <li>Gas production and distribution</li> <li>Marketing and sale of gas and gas appliances</li> <li>Comprehensive after-sales services</li> </ul>
Towngas Engineering Academy	<ul style="list-style-type: none"> <li>Technical and professional training</li> </ul>
Quality Testing Services Limited	<ul style="list-style-type: none"> <li>Appliance and PE joint testing and gas meter calibration</li> </ul>
Mainland Utilities Businesses	
Hong Kong & China Gas Investment Limited	<ul style="list-style-type: none"> <li>Management of Towngas investments in mainland China</li> </ul>
Hong Kong & China Water Limited	<ul style="list-style-type: none"> <li>Management of water business investments in mainland China</li> </ul>
Towngas China Company Limited	<ul style="list-style-type: none"> <li>Focus on piped city gas projects in mainland China</li> </ul>
Towngas Engineering Academy	<ul style="list-style-type: none"> <li>Technical and professional training</li> </ul>
New Energy Business	
ECO Environmental Investments Limited	<ul style="list-style-type: none"> <li>LPG, LNG and CNG filling stations in Hong Kong and mainland China</li> <li>Construction and operation of ECO Aviation Fuel Facility (EAFF) in Hong Kong</li> <li>Exploration, research, development and utilisation of new and environmentally-friendly energy sources, such as coalbed methane, coal-based chemical projects, tar oil and biomass activities</li> <li>Infrastructure and logistics projects in mainland China An oil exploration and production project in Thailand</li> </ul>
Diversified Businesses	
GH-Fusion Corporation Limited (a joint venture with British Fusion Group)	<ul style="list-style-type: none"> <li>Manufacture and supply of polyethylene products and equipment for gas and water piping systems</li> </ul>
卓通管道系統（中山）有限公司	<ul style="list-style-type: none"> <li>Manufacture of quality polyethylene piping</li> </ul>
Towngas Telecommunications Company Limited	<ul style="list-style-type: none"> <li>Provision of telecommunications infrastructure and quality network solutions in Hong Kong and mainland China</li> </ul>
U-Tech Engineering Company Limited	<ul style="list-style-type: none"> <li>Specialists in a variety of projects, including building services, liquefied petroleum gas projects, civil works, waterworks and other pipeline infrastructure projects</li> </ul>
P-Tech Engineering Company Limited	<ul style="list-style-type: none"> <li>Plant design and construction</li> <li>Planning and operation of landfill gas utilisation projects in Hong Kong</li> </ul>
卓度計量技術（深圳）有限公司	<ul style="list-style-type: none"> <li>Development and supply of smart metering solutions for the gas industry</li> </ul>
S-Tech Technology Holding Limited	<ul style="list-style-type: none"> <li>Product development, solution implementation and system integration</li> <li>Provides cloud computing solutions and other information technology products as well as consulting services to companies</li> </ul>

## Appendix II: Memberships in Associations

Below is a list of examples of the memberships held by Towngas.

### Hong Kong and mainland China

- Association of Engineering Professionals in Society Ltd.
- British Chamber of Commerce in Hong Kong
- Business Environment Council Ltd.
- China Gas Association (Beijing)
- China Association for Quality
- Employers' Federation of Hong Kong
- Federation of Hong Kong Industries
- Green Cross Group
- Hong Kong Association of Energy Engineers
- Hong Kong Bakery and Confectionery Association Ltd.
- Hong Kong Computer Society
- Hong Kong General Chamber of Commerce
- Hong Kong Green Building Council
- Hong Kong Institute of Human Resources Management
- Hong Kong Institute of Marketing
- Hong Kong Management Association
- Hong Kong Productivity Council
- Hong Kong Quality Management
- Hong Kong Retail Management Association
- Hong Kong Waste Management Association
- Institution of Fire Engineers (Hong Kong Branch)
- The Chamber of Hong Kong Listed Companies
- The Chinese General Chamber of Commerce
- The Chinese Manufacturers' Association of Hong Kong
- The Goods Vehicle Fleet Owners Association Ltd.
- The Hong Kong Advertisers' Association

### International

- Institution of Gas Engineers and Managers (IGEM)
- International Gas Union (IGU)
- World Energy Council
- World LP Gas Association

## Appendix III: External Environmental, Social and Governance Charters and Initiatives followed by Towngas

Charters and Initiatives	Issuing Bodies
<b>Corporate Governance</b>	
Companies Ordinance, Chapter 622 of the laws of Hong Kong	The Government of the Hong Kong Special Administrative Region
Securities and Futures Ordinance, Chapter 571 of the laws of Hong Kong	
Corporate Governance Code, Appendix 14 to the Listing Rules	The Stock Exchange of Hong Kong Limited
Environmental, Social and Governance Reporting Guide, Appendix 27 to the Listing Rules	
<b>Environment</b>	
Carbon Footprint Repository for Listed Company in Hong Kong	Environment Bureau
Carbon Reduction Charter: Carbon Audit•Green Partners	
Energy Saving Charter	Environment Bureau and Electrical and Mechanical Services Department
4Ts Charter	
Hong Kong Green Organisation	Environmental Campaign Committee
IAQwi\$e Label	
Wastewi\$e Label	
"Let's save 10L Water" Campaign	Water Supplies Department
CarbonCare® Action Label	Carbon Care Asia
Hong Kong Green Purchasing Charter	Green Council
Hong Kong Zero Carbon Partnership	The University of Hong Kong
Innovation Partner of CarbonCare Open Innovation Lab	CarbonCare InnoLab
Green Office Label (GOALS)	World Green Organisation
Green Bottle Charter	The Green Earth
Hong Kong Green Shop Alliance	The Hong Kong Green Building Council
<b>Occupational Health &amp; Safety</b>	
Safety Charter	Occupational Safety and Health Council
International Safe Workplace Program	
Charter on Preferential Appointment of OSH Star Enterprises	
Joyful@Healthy Workplace Charter	
<b>Social Responsibility</b>	
Barrier-free Company	The Hong Kong Council of Social Service
Talent-Wise Employment Charter and Inclusive Organisations Recognition Scheme	Labour and Welfare Bureau



# VERIFICATION STATEMENT

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## **Scope and Objective**

Hong Kong Quality Assurance Agency (HKQAA) has been commissioned by The Hong Kong and China Gas Company Limited (Towngas) to conduct an independent verification for its Sustainability Report 2017 (the Report). The Report outlines the economic, safety, environmental and social performance of Towngas in the period of 1st January 2017 to 31st December 2017 for its operations within Hong Kong and outside Hong Kong.

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 Core Option of the GRI Sustainability Reporting Standards (GRI Standards) and the GRI G4 Oil and Gas Sector Disclosures as well as the Environmental, Social and Governance Reporting Guide (ESG Guide) of The Stock Exchange of Hong Kong Limited.

## **Level of Assurance and Methodology**

The process applied in this verification was referenced to the International Standard on Assurance Engagement 3000 (ISAE 3000) – “Assurance Engagement Other Than Audits or Reviews of Historical Financial Information” issued by the International Auditing and Assurance Standards Board. Our verification process is designed to obtain a reasonable level of assurance for devising opinions and conclusions. The extent of this verification process undertaken covered the criteria set in the GRI Standards: Core Option and GRI G4 Oil and Gas Sector Disclosures, as well as the ESG Guide.

The verification process included verifying the systems and processes implemented for collecting, collating and reporting the sustainability performance data, reviewing relevant documentation, interviewing responsible personnel with accountability for preparing the reporting contents and verifying selected representative sample of data and information. Raw data and supporting evidence of the selected samples were also thoroughly examined during the verification process.

## **Independence**

Towngas was responsible for the collection and presentation of the information. HKQAA did not involve in the collection and calculation of data or the compilation of the reporting contents where HKQAA's verification activities were entirely independent from Towngas. There was no relationship between HKQAA and Towngas that would affect the independence of HKQAA for providing the verification service.

## Conclusion

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

- The Report has been prepared in accordance with the GRI Standards: Core Option, the GRI G4 Oil and Gas Sector Disclosures, as well as the ESG Guide;
- The Report illustrates the sustainability performance of Towngas, covering all material aspects, in a balanced, comparable, clear and timely manner; and
- The data and information disclosed in the Report are reliable and complete.

Towngas has been actively engaging its key stakeholders and continuously creating mutual trust in the society where it operates. In conclusion, the Report reflects appropriately the commitments and involvement of Towngas towards sustainable development.

Signed on behalf of Hong Kong Quality Assurance Agency



Connie Sham  
Head of Audit  
April 2018



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:

Corporate Health, Safety, Environment, Security & Safety Risk Department  
The Hong Kong and China Gas Company Limited

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