



METHANE
GUIDING
PRINCIPLES

Methane Guiding Principles Signatory Reporting

The Hong Kong and China Gas Company Limited
(Towngas)

April 2023





COMPANY: **The Hong Kong and China Gas Company Limited**

YEAR OF JOINING METHANE GUIDING PRINCIPLES: **2022**



Principle One: Continually reduce methane emissions

- Please state what specific activities or projects your company has undertaken to reduce methane emissions. Please refer to the previous year's annual MGP reporting where applicable to refer to intended activity. Link to sustainability report where relevant to provide further detail.
- Describe how the reduction was achieved including description of the asset type, technology type, timeframe. What was the end result?
- Provide data to support your description e.g. the actual amount of emissions reduction achieved, or the reduction in methane intensity.

2022 completed activity	2023 intended activity
<ul style="list-style-type: none"> • We continue to monitor and enhance our pipeline infrastructure. As most of our pipeline networks are located in cities and areas with road access, which makes monitoring and leakage detection relatively straightforward. Gas detectors, sniffer dogs and vehicles equipped with sensitive laser methane detectors are used for more comprehensive and precise leakage detection. In Hong Kong, we conduct comprehensive leakage surveys one to six times every year based on the risk level. On the Chinese mainland, pipelines in rural areas may require extra manpower and effort to detect leakage. To enhance the efficiency and safety of detecting leakage in these areas, we have deployed drones with methane sensors for broader coverage and more comprehensive monitoring. • We also upgrade and repair ageing pipes to ensure the pipelines are in good condition and to reduce leakage. As at 2022, over RMB 4.5 billion has been invested in replacing the old pipelines and purchasing advanced equipment. The vast majority of our pipelines, 98%, are made of steel or PE, and the pipelines are mainly interconnected through welding to effectively reduce the risk of gas leakage. 	<ul style="list-style-type: none"> • Our target is to achieve carbon neutrality by 2050, with interim targets in 2025 to monitor our decarbonization progress. The interim targets include: <ul style="list-style-type: none"> • Reduce group operational GHG emissions by 10%, according to 2020 baseline • Reduce 10 million tonnes of GHG emission in the environment per year • In order to achieve the above targets, we would improve our methane emission monitoring and control works to reduce methane emissions continuously.



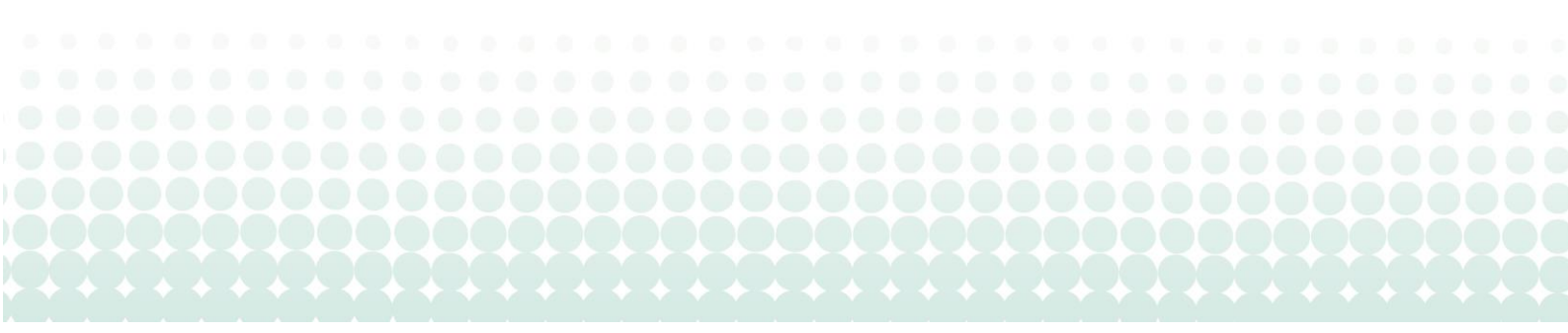
Principle Two:

Advance strong performance across the gas supply chain

Please include answers to the following questions:

1. Did you participate in any methane research or plan to do so?
2. Did you conduct any outreach on methane management?
 - Describe what action you have taken to engage industry players across the value chain to better understand how to achieve robust methane emissions management. Outreach activity could include training sessions, participation in webinars, influencing of NOJV partners, or publication of guidance. Activity could also include commercial incentives or engagement with investors to drive better performance by others.
 - Provide details of any outcomes that resulted from your action.

2022 completed activity	2023 intended activity
<ul style="list-style-type: none"> • We are aware of the existing leakage detection studies in the academic field and within the gas industry globally. However, relevant local studies and data are limited. Data, such as emission factors, sourced from international research papers can be used to provide an overview of pipeline leakage scenarios which might not be applicable to the local situation. As such, to study the impact of methane leakage in a local context, we conducted an extensive pipeline leakage study in 2022, in collaboration with the City University of Hong Kong, to quantify various leakage sources from our gas pipelines in Hong Kong. • To account for our unique pipeline landscape in Hong Kong, a local methodology is developed for a more accurate and holistic estimation of pipeline leakage, including measurements were taken, various data was collected from our network operations, and site visits were conducted to study the leakage patterns. 	<ul style="list-style-type: none"> • Monitoring and measuring methane emission has been an emerging practice in the industry, with a lot of pioneering and impending technologies coming into place. In order to deliver a precise measurement of methane emission in the future, we intend to continue cooperation with the industry to exchange practices and strengthen our collaboration with our peers.



Principle Three: Improve accuracy of methane emissions data

- Describe action taken to improve methane emissions data collection methodologies. This could be application of new technology at an operated site(s), investment and participation in R&D initiatives, development of monitoring/modelling software, or support to research that improves the accuracy of the quantification of methane emissions.
- Where new technology /software has been piloted or adopted, it is helpful to describe how it works, the reasons it was selected, and how it was deployed. Any data that can be shared to demonstrate improvements is useful.
- How these new methods/technologies have been adopted into your accounting process if at all.

2022 completed activity	2023 intended activity
<ul style="list-style-type: none"> • We are aware of the existing leakage detection studies in the academic field and within the gas industry globally. However, relevant local studies and data are limited. Data, such as emission factors, sourced from international research papers can be used to provide an overview of pipeline leakage scenarios which might not be applicable to the local situation. As such, to study the impact of methane leakage in a local context, we conducted an extensive pipeline leakage study in 2022, in collaboration with the City University of Hong Kong, to quantify various leakage sources from our gas pipelines in Hong Kong. • To improve the detection accuracy of methane emissions, we have employed multiple practices utilizing technology to aid our monitoring and measurement process. Gas detectors, sniffer dogs and vehicles equipped with sensitive laser methane detectors are used for more comprehensive and precise leakage detection. For our gas business in the Chinese mainland, we deployed drones in rural areas that reduces effort to precisely measure methane and enable us to have broader coverage for our emission detection. 	<ul style="list-style-type: none"> • Monitoring and measuring methane emission has been an emerging practice in the industry, with a lot of pioneering and impending technologies coming into place. In order to deliver a precise measurement of methane emission in the future, we intend to continue cooperation with the industry to exchange practices and strengthen our collaboration with our peers.



Principle Four:

Advocate sound policy and regulations on methane emissions

Advocacy consists of active participation in legal consultation processes, external policy statements, and direct engagement with government

- Consider providing details on the region or regulation involved, how you undertook your advocacy, others involved, and the outcome.

2022 completed activity	2023 intended activity
<ul style="list-style-type: none"> • As one of the major gas suppliers in Hong Kong and China, Towngas is obligated to advocate policy and regulations transformation and updates on methane emissions. Towngas has signed the “Chinese City-Gas Enterprise Methane Emission Control Proposal” to promote the inclusion of methane emission control in the development plan of gas companies on the Chinese mainland to respond to the national dual carbon goals. The Group is committed to promoting the development and demonstration of methane emission control technologies, and actively cooperating with the government to formulate and implement methane emission control policies. • On the other hand, Towngas Smart Energy Company Limited (Towngas Smart Energy) has joined the China Oil and Gas Methane Alliance. Our pledge includes taking a series of actions to comprehensively improve the standard of methane emission control and strive to work towards the target of reducing the average methane intensity in natural gas production to below 0.25% by 2025. Our goal is to strengthen the collaboration within the industry to promote methane emission control actions along the industry value chain and work with other Alliance members to drive low-carbon development. 	<ul style="list-style-type: none"> • Towngas and its subsidiary, Towngas Smart Energy, are committed to working with local governments and international organizations to raise industrial effort to reduce methane emissions. We seek future opportunities to work with industrial partners inside and outside MGP to provide generous support in facilitating industrial development in methane control and monitoring.

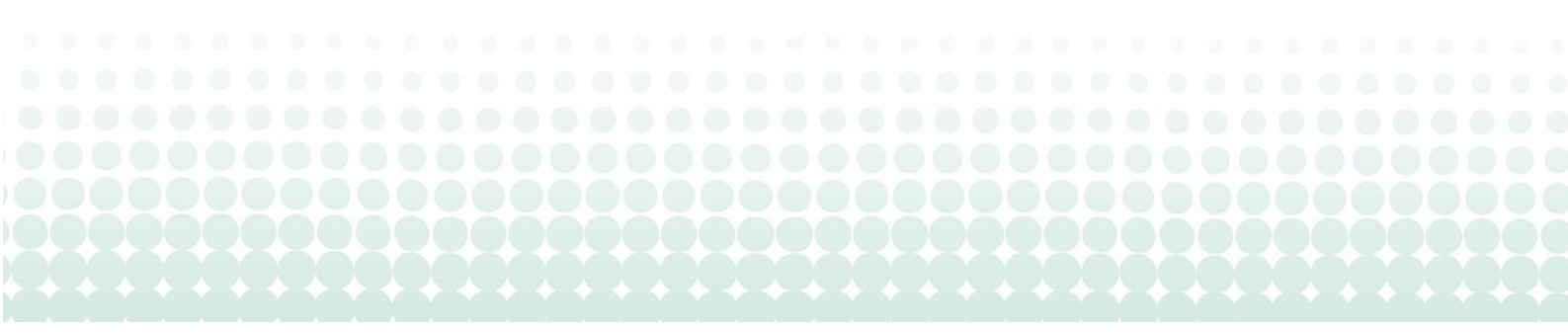


Principle Five: Increase transparency

Please include answers to the following question:

1. Are you participating in OGMP 2.0 or do you intend to do so? If you are participating in OGMP 2.0 you may provide a link to the website.
 - Describe what activity you have carried out e.g. providing information in relevant external reports on methane emissions data, methodologies, and progress and challenges in methane emissions management.
 - If you have contributed towards the standardisation of comparable external methane reporting describe the activity you have taken.

2022 completed activity	2023 intended activity
<ul style="list-style-type: none"> • Towngas supports the transparent disclosure of methane emission statistics throughout the industry. From our part, we carried out a local study on methane leakage at our pipelines and facilities to deliver clear pictures and numbers of our leakage scenarios to our clients and public. • In 2022, the Group actively carried out the analysis and measurement of methane emissions for gas facilities and participated in the preparation of the related national standard to fulfil our methane emission control commitments. • All materials and results have been publicly disclosed and can be referred to on our latest ESG Report. 	<ul style="list-style-type: none"> • Regarding the latest launch of OGMP 2.0, we are well aware of the established motives stated by OGMP 2.0 and we work towards being one of the members of OGMP 2.0.



Methane Emissions

<p>Do you report absolute methane emissions within your sustainability report?</p> <p><i>If so provide link.</i></p>	<p>Yes. Methane emission has been incorporated into the final Greenhouse gases emission balance.</p> <p>https://www.towngas.com/en/ESG</p>
<p>Do you report a methane intensity within your sustainability report?</p> <p><i>If so provide link.</i></p>	<p>Yes. Methane intensity is reported as a % of gas leaked from our total gas supplied.</p> <p>https://www.towngas.com/en/ESG</p>
<p>What are your organisation's total absolute methane emissions?</p> <p>Provide a figure in tonnes.</p> <p>Provide latest data publicly available.</p>	<p>The absolute methane emission of Towngas is approximately 250,000 tonnes.</p> <p>The above emission has been incorporated into the final Greenhouse gases emission balance.</p>
<p>State your methodology.</p>	<p>The calculation is made according to a methane leakage study conducted in 2022 by Towngas and City University of Hong Kong</p>
<p>State your reporting boundary.</p>	<p>The reporting boundary is all gas business units in our group</p>
<p>What are your organisation's methane intensity?</p> <p>Provide latest data publicly available.</p>	<p>The methane intensity is 0.045-0.13% of city gas supplied to the customer.</p> <p>https://www.towngas.com/en/ESG</p>
<p>State your methodology.</p>	<p>The calculation is made according to a methane leakage study conducted in 2022 by Towngas and City University of Hong Kong</p>
<p>State your reporting boundary.</p>	<p>The reporting boundary is all gas business units in our group</p>
<p>Do you have a methane emission target?</p> <p>If yes, please state what it is, including the boundaries and methodology.</p> <p>If no, are you developing such a target? Please state your intended timeline.</p>	<p>In the future, we target to maintain our group's methane emission to be lower or equal to the methane intensity of 0.045-0.13% of city gas supplied to the customer.</p>