

## Global Warming Countermeasures

### Basic Concept

Global Warming Countermeasures are an important management issue for the Toho Gas Group. As an energy business operator, Toho Gas Group is implementing countermeasures against global warming taking into consideration the value chain.

Toho Gas not only aims to reduce our own CO<sub>2</sub> emission factor but also sets environmental action goals aimed at restraining CO<sub>2</sub> emissions at customer locations. We promote a wide range of initiatives, including supplying environmentally friendly energy, switchover from other fuels to natural gas or LPG, promoting the adoption of advanced and highly efficient devices such as fuel cells, fostering the utilization of renewable energy in collaboration with local communities, as well as pursuing technological development and testing such as methanation and CO<sub>2</sub> separation, capture, and utilization, all in the pursuit of achieving carbon neutrality by 2050.

### Global Warming Countermeasures at Customer Locations

We are promoting initiatives to contribute to CO<sub>2</sub> reduction through our business activities. The actual contribution to CO<sub>2</sub> reduction volume for FY2023 amounted to 390 thousand tonnes-CO<sub>2</sub>.

#### Switching to natural gas

Natural gas is an environmentally friendly fossil fuel that produces low levels of CO<sub>2</sub> and NO<sub>x</sub> and no SO<sub>x</sub> when combusted. By switching the fuel used at customer sites from oil and other fuels to natural gas, we are contributing to reducing CO<sub>2</sub> emissions.

#### Expanded use of high-efficiency gas equipment and systems

In addition to switching fuels, we are introducing high-performance burners to facilities at customer locations to further reduce CO<sub>2</sub> emissions.

We are also promoting expanded use of energy-efficient equipment and systems, such as the ENE FARM residential fuel cell system as well as gas

cogeneration systems, high-efficiency boilers, and gas heat pump air conditioning for commercial use.



Gas engine  
cogeneration system

Flow-through boiler

#### Reducing fluorocarbon emissions

Fluorocarbons used in air conditioning systems and other equipment have an extremely high global warming potential, and reducing their emissions has become a concern.

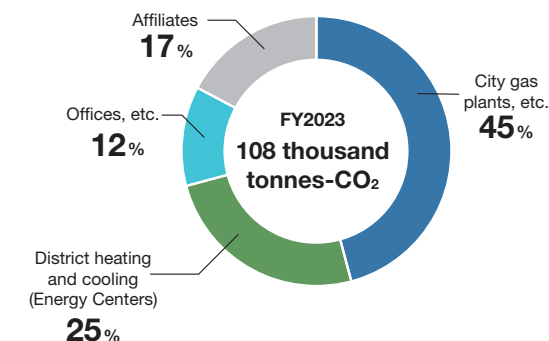
We recover refrigerants generated during maintenance and upgrades to commercial air conditioning equipment, and in FY2023, we recovered and properly processed all fluorocarbons from such equipment (1,347 units and 14.5 tonnes of captured fluorocarbon).

### Reduction of CO<sub>2</sub> Emissions in Business Activities

The Toho Gas Group promotes initiatives to conserve energy in various facets of our business activities as an energy provider. In FY2023, our business activities across the entire Group generated 108 thousand tonnes-CO<sub>2</sub> of CO<sub>2</sub> emissions.

We are promoting energy conservation by setting targets in each business sector to prevent global warming as well as investing in energy-saving equipment and ensuring thorough operational management to achieve those targets.

#### CO<sub>2</sub> emissions from business activities (consolidated)



#### Initiatives at city gas plants

At city gas plants, we use a highly energy efficient method to produce gas by vaporizing liquefied natural gas (LNG) at around -160°C through heat exchange with seawater.

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We make efficient use of the cold energy of LNG for cryogenic power generation, manufacturing dry ice and liquid nitrogen at adjacent plants, and in advanced energy-saving equipment used to reliquefy boil-off gas (BOG) produced in LNG tanks.

In addition to these initiatives, we are working to further reduce energy consumption, such as by utilizing pipelines and other equipment built for mutual backup and inventory adjustment between plants to adjust the amount of gas sent between plants, and by reviewing operational methods to optimize the overall operational efficiency at all LNG plants.

### Initiatives for district heating and cooling

In district heating and cooling, we are optimizing equipment operation by collectively supplying thermal energy (cold and hot) for air conditioning and hot water for hot water supply to multiple buildings in the area, thereby providing a low-carbon solution.

#### ● List of district heating and cooling sites (Energy Centers)

City	Area operated by Toho Gas	Area operated by companies in which Toho Gas holds an equity stake
Nagoya	<ul style="list-style-type: none"> <li>• Imaike</li> <li>• Sakae 3-chome North</li> <li>• Nagoya Station South</li> <li>• Sakae 3-chome</li> <li>• Chiyoda</li> <li>• Higashisakura</li> <li>• Ikeshita</li> <li>• Johoku</li> <li>• Minato AQUUS</li> </ul>	<ul style="list-style-type: none"> <li>• JR Central Japan Nagoya Station area</li> <li>• Nagoya Station East</li> <li>• Quality Life 21 Johoku</li> <li>• Sasashima Live 24</li> <li>• JR Central Japan Nagoya Station North</li> </ul>
Komaki	<ul style="list-style-type: none"> <li>• Komaki Station West</li> </ul>	
Tokoname		<ul style="list-style-type: none"> <li>• Chubu Centrair International Airport</li> </ul>

We supply heat to ten areas operated by Toho Gas, mainly in Nagoya, and six areas where we are invested in operations.

At the Minato AQUUS Energy Center, which offers the latest in district heating and cooling technology, we are optimizing energy for the entire town through a Community Energy Management System (CEMS) that manages distributed power sources, such as gas cogeneration with high overall efficiency, renewable energy, and storage batteries, and utilizes waste heat from power generation and unused energy from canals. In addition, ENE FARM Type S residential fuel cells are standard equipped in all area condominiums and continuously operated 24 hours a day, with excess electricity shared throughout the town, thereby promoting the local production and local distribution of energy.

### Initiatives at business offices

At our offices, we are working to reduce CO<sub>2</sub> emissions through various energy-saving measures, such as by introducing high-efficiency gas-based air conditioning, LED lighting, and other energy-saving equipment, as well as low-emission vehicles.

To enhance employee awareness of energy conservation, we evaluate actual energy usage for each office building, raise awareness of the Office Energy-saving Manual, which provides guidelines for efficiently managing office equipment, and promote practices to encourage reducing energy consumption, such as by turning off unused lights, optimizing heating and cooling temperatures, and reducing elevator usage.

### Using internal carbon pricing

We are experimentally introducing internal carbon pricing as we consider investing in energy-saving equipment and upgrading existing equipment to high-efficiency models.

We are continuously evaluating capital investments to reduce CO<sub>2</sub> emissions in our business activities, and since FY2022, we have been identifying company-wide CO<sub>2</sub> reduction measures and evaluating the payback period of these investment, including their impact on CO<sub>2</sub> reduction. Using a carbon price range of 3,000 to 15,600 yen per tonne\* as a benchmark, we prioritize the evaluation of high-efficiency, cost-effective, and low-carbon initiatives, and we are taking measures to improve facilities such as by enhancing the efficiency of city gas production facilities and expanding LED lighting in office buildings.

\* Reference price based on the APS scenario for 2030 in the International Energy Agency (IEA) World Energy Outlook 2021

### Taking part in the GX League to reduce greenhouse gas emissions

Since FY2023, we have been part of the GX League, a voluntary framework for reducing greenhouse gas emissions, and in September of the same year, we registered emission reduction targets as part of the GX-ETS emission trading system.

By participating in the GX League, we are steadily promoting initiatives to reduce greenhouse gas emissions and collaborating with customers and partners to achieve a sustainable society.

