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I. Co-create Value for a Sustainable Future

Achieving a Low-Carbon/Carbon-Neutral Society



Recognition of External Environment

As the trend toward decarbonization accelerates even further, global economic stagnation and growing volatility in energy markets are becoming more apparent. From the perspective of S+3E,*1 the basic policy of the Japanese government's energy policy, we believe in the importance of achieving both the stable supply and securing security of energy and carbon neutralization of energy.

Review of FY2023.3 and Future Strategy

In FY2023.3, under the Carbon Neutral Vision announced in 2021, the Daigas Group strengthened its efforts to build a supply chain for e-methane^{*2} both in Japan and overseas, along with advancing the development of technologies and renewable energy, for the full-scale introduction of methanation^{*2} technologies in FY2031.3. With the recognition of the external environment as described above, we released Energy Transition 2030 (ET2030) in March 2023 that outlines the overall picture of the Group's transition to low-carbon and carbon-neutral energy.

*1 S+3E: Safety, Energy security, Economic efficiency, and Environment

*2 Methanation is a technology that synthesizes methane, the main component of city gas, from hydrogen and CO₂. "e-methane" refers to methane synthesized by methanation.

Carbon Neutral Vision and Energy Transition 2030



Materiality

Climate change

Indicators and FY2023.3 Results

CO₂ emissions across the Group ► 25.98 million tons*3 25.05 million tons*4

In ET2030, we declared CO₂ emissions reduction targets for FY2031.3 for the Daigas Group. To achieve these targets, we will promote initiatives aimed at net zero emissions from fleets, etc.

- *3 Please refer to P.62 for details of greenhouse gas (GHG) emissions from the Daigas Group's value chain (Scope 1, 2 & 3).
- *4 Emissions throughout the domestic supply chain (Scope 1, 2 & 3) (New targets for FY2031.3 set in ET2030)

Percentage of renewables in our power generation portfolio in Japan > **13.0**%

Renewables development contribution on a global basis > 2.11 GW

In FY2023.3, we promoted the more widespread use of renewable energy sources with various initiatives such as the joint development of solar power projects in Japan and overseas and the launch of commercial operation of new wind farms in Japan. In doing so, we have steadily increased our renewables development contribution toward our FY2024.3 target of 2.50 GW.

Avoided emissions^{*5} (baseline: FY2017.3) **3.86** million tons

We have taken several initiatives, which included cryogenic power generation at our LNG terminals, the introduction of renewable energy sources in Japan and high-efficiency thermal power generation both in Japan and overseas, the introduction of fuel cells and gaspowered air conditioning and high-efficiency hot-water heaters at customer sites, and conversion to the use of natural gas as a fuel in Japan and overseas.

*5 Please refer to \square P.35 for our approach to avoided emissions.

Achieving a low-carbon/carbon-neutral society

Energy Transition 2030

Under Energy Transition 2030 (ET2030), the Daigas Group outlines the overall picture of its transition to low-carbon and carbon-neutral energy.

In order to achieve carbon neutrality, a steady transition to low-carbon energy is crucial, as a great deal of time and social cost will be required for technological innovation and the building of new supply chains. It is also important to choose optimal energies and supply methods to suit the customer's energy use characteristics, such as the balance of electricity and heat use and their location. Focusing on the transition to low-carbon energy by 2030 through a shift from coal and oil to natural gas, and the seamless transition to carbon-neutral energy with the introduction of e-methane and biogas in the future, we will continue to pursue the decarbonization of power sources in ways that meet customer needs. This will include the use of hydrogen and ammonia, the decarbonisation of power sources, such as renewable energy generation and zero-emission thermal power plants. The following pages present the Daigas Group's roadmap for CO₂ reduction, along with the background and approach to our major initiatives for decarbonization through (1) Low carbon transition with the advanced utilization of natural gas, (2) Initiatives for the social implementation of e-methane, (3) Initiatives in the electricity business to achieve carbon neutrality, and (4) Initiatives concerning the capture, utilization, and storage of CO₂.





*1 CN-LNG: Carbon Neutral LNG, which is considered to produce no CO₂ on a global basis when greenhouse gases emitted in the supply chain from natural gas production to combustion are offset by CO₂ absorbed and reduced in a separate process from the value chain. *2 CCUS: Carbon dioxide Capture, Utilization and Storage

Energy Transition 2030

Daigas Group's CO₂ Emissions Reduction Roadmap

In Energy Transition 2030, we have declared targets for 2030 and 2050 regarding CO₂ emissions in our domestic supply chain and avoided emissions in the whole society, and presented a CO₂ emissions reduction roadmap. Through such measures as the 1% introduction of e-methane into existing infrastructure, we will aim to reduce the CO₂ emissions of the Daigas Group's supply chain in Japan by 5 million tons, and 10 million tons of avoided emissions in society as a whole in FY2031.3 through the Group's activities. After the introduction of e-methane in FY2031.3, we will pursue decarbonization through its wider use.



Introduction of ICP

Osaka Gas introduced the concept of "Environmental Management Efficiency" in 2003, which is used to quantify the environmental impact of business activities by converting environmental impacts per volume of gas produced into monetary values.

In addition, from FY2022.3, we have adopted internal carbon pricing (ICP) to identify the carbon impact of our invested projects.

From FY2024.3, we also reference ICP when making decisions on new investments in business fields that have a large carbon impact.

Joint investment in forest fund established by Sumitomo Forestry Group

In July 2023, Osaka Gas announced its joint investment, along with nine other Japanese companies, in the Eastwood Climate Smart Forestry Fund I ("the Fund") established by the Sumitomo Forestry Group.

The pooled capital amounts to approximately ¥60.0 billion and will be invested over 15 years. By 2027, the pooled capital will have been invested in the acquisition and management of 130 thousand hectares of forest, primarily in North America. With a target of sequestering an additional 1 million tons of carbon dioxide a year, the Fund will promote the production and trading of high-integrity carbon credits, which will contribute to the realization of a decarbonized society.

The Fund will deliver global climate benefits by supporting responsible forest management at a spatial and financial scale beyond that which individual companies could achieve on their own.

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Energy Transition 2030

Low Carbon Transition with the Advanced Utilization of Natural Gas

The Daigas Group is proceeding with fuel conversion from coal and oil, etc. to natural gas, which emits less CO₂, and with the introduction of energy-saving technologies (cogeneration, etc.). The Group is thus contributing to CO₂ reduction in society as a whole. We are undertaking the fuel conversion not only in the Kansai area, but throughout other parts of Japan and in the Asian region, and will expand this activity even further going forward.

Contribution to low carbon transition with the introduction of gas cogeneration systems

The Group is contributing to low carbon transition through the introduction of gas cogeneration systems to customers. Cogeneration systems generate power with city gas and use the waste heat generated for other applications such as cooling and heating, hot water supply, and steam, thus realizing high overall energy efficiency of 70-90%. Since the initial introduction in 1982, we have installed systems totaling 1.50 GW. In March 2022, we developed a new and improved gas cogeneration system that offers even higher power generation efficiency. This new system will also contribute to power security because gas can be used to generate power during blackout.

Approach to Avoided Emissions in Society

The following sums up our approach to avoided emissions in society. For example, we can reduce approximately 45% of CO₂ emissions with the switch from coal to natural gas. However, if we have supplied the natural gas, our gas sales volumes increase, which means an increase in Scope 3 CO₂ emissions according to the GHG Protocol^{*1} that is commonly used by companies to calculate their CO₂ emissions. For this reason, in the transition phase until 2030, our CO₂ emissions will increase by promoting fuel conversion from oil and coal to natural gas. On the other hand, by switching to natural gas, CO₂ emissions per the same calorific value will be reduced, which means that we can contribute to CO₂ emissions reduction in the whole society. However, under the current GHG Protocol, there is no way of evaluating the CO₂ reduction effect on society as a whole through contributions to other parties.

To steadily promote the transition to low-carbon/decarbonization together with our many customers, we believe that it is important to understand our progress with an indicator that shows the effect of CO₂ emissions reduction in the whole society (avoided emissions) and to obtain the understanding of our stakeholders.



What is "avoided emissions"?

Quantified CO₂ emissions reduction through products and services provided to others

Calculated based on the "Guidelines for Quantifying GHG emission reductions of goods or services through Global Value Chain" (Ministry of Economy, Trade and Industry, March 2018)

Indicator of society-wide avoided emissions through contribution to other companies' emissions reduction

*1 International standard for calculating and reporting GHG emissions

*2 Prepared based on the "Ordinance Concerning Calculation of GHG Emissions from Business Activities of Specified Emitters" issued by METI and the Ministry of the Environment

Avoided emissions calculation example



Energy Transition 2030

Initiatives for the Social Implementation of e-methane – Efforts for Transition toward 2030 –

The Daigas Group believes that e-methane, which is synthesized from hydrogen produced with renewable energy and CO₂, will be the key to realizing the carbon neutralization of city gas. The value offered by e-methane includes reducing additional social costs. The Group is implementing various initiatives^{*1} toward the social implementation of e-methane.

*1 Please see the next page for details of our initiatives toward the social implementation of e-methane.

Supply Chain and Cost Benefits of the Social Implementation of e-methane

"e-methane" is considered as a carbon-neutral energy because it is produced by recycling CO₂ emitted into the atmosphere and synthesizing it with hydrogen, and does not increase atmospheric CO₂ even when combusted.

Furthermore, since "e-methane" has almost the same composition as city gas, existing city gas infrastructure and customers' combustion equipment can be used without modification, enabling seamless decarbonization from the transition period. This has the advantage of reducing social implementation costs.



Four Value Propositions of e-methane

"e-methane" offers four value propositions that contribute to customers and society. Based on these values, the Group aims to introduce "e-methane" accounting for 1% of the Group's gas sales as of FY2031.3.

Four value propositions

Value proposition ① Decarbonized heat demand	Decarbonizing heat demand, which accounts for 60% of the energy including high-temperature heat that cannot be generated by electricity
Value proposition ② Lower social costs	Significantly reducing social costs by using the existing gas infrastructure and customers' equipment without replacement
Value proposition ③ Enhanced energy security	Mitigating geopolitical risks through diversified sources of e-methane produced in various locations in Japan and overseas
Value proposition ④ Carbon neutral Asia	Exporting competitive Japanese industries and contributing to environment conservation and economic growth in Asia and Japan

*2 Biogenic CO₂ and possibly CO₂ derived from DAC (Direct Air Capture: a technology used to capture and remove CO₂ directly from the atmosphere) might be utilized in the future

*3 Carbon dioxide Capture and Utilization

Value Creation Stories

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Energy Transition 2030

2 Initiatives for the Social Implementation of e-methane – Efforts for Transition toward 2030 –

e-methane Supply Chain Development in Japan and Overseas

For the full-scale introduction of e-methane in 2030, the Daigas Group will consider establishing diverse methanation technologies, developing renewable energy sources, and building a supply chain both in Japan and overseas, including the procurement of hydrogen and CO₂ in collaboration with customers.

We will study the introduction of e-methane primarily in the city gas supply area in the Kansai region and comprehensively verify necessary elemental technologies and feasibility of the supply chain, in our aim to establish the optimal supply model for e-methane. In addition to supply chain development in Japan, we view the building of a supply chain overseas as another promising option for the introduction of e-methane. In collaboration with business operators both in Japan and overseas, we are conducting several feasibility studies and basic design work regarding the building of such a global supply chain. For stable procurement in the future, we are identifying locations suitable for e-methane production, focusing our consideration on North America, South America, Australia, the Middle East, and Southeast Asia, where existing natural gas and LNG facilities can be used. We will also promote more widespread use of e-methane in Asia as a new location of use.

e-methane Supply Chain Development

Methanation technology development

- Sabatier methanation^{*1} (existing technology) Scaled up and implemented in society at an early stage
- Biomethanation² (innovative technology) Produce and use energy locally for local consumption
- **3** SOEC methanation^{*3} (Innovative technology) Reduce cost by enhancing energy efficiency

Supply Chain Development Overseas

- A joint study is underway on the production of e-methane using biomass-derived CO₂ from a bioethanol plant and blue hydrogen derived from natural gas through the reforming process. (Main operators: Osaka Gas USA Corporation, Tallgrass MLP Operations, LLC, Green Plains Inc.)
- •A joint study is underway on the production of e-methane near the Cameron LNG facility. (Main operator: Osaka Gas, Tokyo Gas Co., Ltd., Toho Gas Co., Ltd., Mitsubishi Corporation)

Australia

 A joint study is underway on the production of e-methane using CO₂ captured from exhaust gas in industrial areas and natural gas liquefaction plants and green hydrogen generated through water electrolysis powered by renewable energy.
 (Main operator: Osaka Gas Australia Pty. Ltd., Santos Ltd)

Southeast Asia

- A joint study is underway in Malaysia on the production of e-methane that is not affected by renewable electricity prices, using methanation by converting biomass, such as unutilized forest resources, into gas.
- (Main operator: Osaka Gas, IHI Corporation, PETRONAS Global Technical Solutions Sdn. Bhd.)

South America

 A joint study is underway at PERU LNG's plant on the production of e-methane using green hydrogen produced through water electrolysis using renewable energy and CO₂.
 (Main operator: Osaka Gas, Marubeni Corporation, PERU LNG S.R.L.)

Roadmap for Social Implementation of Methanation Technology



*1 CO2 conversion by a catalytic reaction with hydrogen derived from renewable energy, etc. to synthesize methane.

*2 Technology that uses biological reactions to synthesize methane from CO2 and hydrogen

*3 Use of SOEC equipment to electrolyze water and CO₂ into hydrogen and carbon monoxide using renewable energy, etc., and then synthesize methane by catalytic reaction of the hydrogen and carbon monoxide.

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Energy Transition 2030

3 Carbon Neutral Initiatives in the Electricity Business

- Efforts for Energy Transition toward 2030 -

Low-Carbon/Carbon-Neutral Transition of Power Sources

We are promoting the development of a wide range of renewable energy sources such as wind, solar, and biomass together with various partners nationwide, aiming for 5 GW of renewable energy development contribution,^{*1} one of our targets for FY2031.3.

We are also working on initiatives for storage batteries and VPP utilization, as well as the low-carbon/carbon-neutral transition of thermal power plants needed as dispatchable sources.

*1 Including power sources under the feed-in tariff (FIT) system.

Energy conservation and grid stabilization with VPP

A VPP is a system that uses IoT-based energy management technology to control distributed energy resources remotely and in an integrated manner, thereby adjusting the supply-demand balance of electricity like a single virtual power plant.

The Daigas Group is pursuing initiatives to contribute to gird stabilization in a society with the mass introduction of renewable energy. In June 2022, we launched a verification project to build a VPP using our residential fuel cell, ENE-FARM.



4 Initiatives Concerning CO2 Capture, Utilization, and Storage

The Daigas Group aims at contributing to a circular society that reduces customers' CO₂ emissions and environmental burdens by reusing emitted CO₂ in the atmosphere (CCU^{*2}) and supplying e-methane produced by methanation. We are also pursuing initiatives such as joint studies in Japan and overseas on establishing a CO₂ value chain and injecting and storing surplus CO₂ deep underground by CCS.^{*3}

*2 CCU: Carbon dioxide Capture and Utilization *3 CCS: Carbon dioxide Capture and Storage

Conceptual Diagram of CO2 Value Chain



*4 H-to-A industries: Industries. where CO2 emissions reduction is difficult (hard-to-abate)

Initiatives for CO2 Value Chain Development

To develop a CO_2 value chain, Daigas Group commenced a joint study on the capture, transport, utilization, and storage of CO_2 emitted from domestic plants and factories in hard-to-abate industries, such as steel, cement, and chemicals.

A joint study on CO₂ value chain development

Osaka Gas and Mitsubishi Heavy Industries, Ltd. (MHI) have entered into an agreement to conduct a feasibility study on the development of an efficient CO₂ value chain, leveraging Osaka Gas's expertise in e-methane production and CO₂ storage and MHI's expertise in CO₂ capture, vessel transport of liquefied CO₂, and CO₂ management.

A joint study on CCS value chain development with Shell

Osaka Gas and Shell Singapore Pte. Ltd. have commenced a joint study on the development of a CCS value chain, in which CO₂ is captured from emissions by industrial facilities in Japan and injected into underground storage overseas.

A joint study on the capture and utilization of CO₂ emissions from the Senboku Industrial Complex

Osaka Gas and Mitsui Chemicals, Inc. have commenced a joint study on a project to capture and utilize CO_2 emitted from the Senboku Industrial Complex.



I. Co-create Value for a Sustainable Future

Establishing Lifestyles and Businesses Adjusted to the New Normal



Recognition of External Environment

Japan is facing a declining population and other social structure changes. In addition, there have been dramatic changes in the premises for business activities, such as the advancement of technological innovation and digitalization and diversification of values. In times of dramatic changes and uncertainty, we are expected to embrace changes of the times and continue creating and providing advanced and diverse value that meets customers' needs.

Review of FY2023.3 and Future Strategy

To meet the diverse needs of our customers, we launched new services, such as a life service platform, fixed-line telecommunications, and home renovation. We also deepened initiatives in the Life & Business Solutions (LBS) Business.

We will continue to develop the LBS Business, as well as offer new services for residential customers that are suited to diverse lifestyles and advanced total solutions for commercial and industrial customers that go beyond the framework of energy. We thus aim to achieve sustainable growth by contributing to the advancement of lifestyles and businesses as a company that continues to be the first choice of customers.

Provide solutions globally

Achieve 10 million customer accounts



Materiality

Maintain and expand customer base/ Improvement of customer satisfaction and quality of services

Indicators and FY2023.3 Results

Number of customer accounts > 10.02 million

The Daigas Group's business started more than 100 years ago from lighting (gas lamps). We have been expanding the applications of gas ever since to kitchens, hot-water supply, heating, and power generation, responding to various requests from customers. In addition, we have broadened the scope of our business to include industrial gas, real estate, telecommunications, new materials, and life-related fields, based on the relationships with a large number of customers. The Group's corporate purpose is to strive to make a multitude of customers' businesses and lifestyles better.

Setting the number of customer accounts, which represents contracts for gas and power supply, safety and warranty services, etc., as the indicator, we are working to establish their lifestyles and businesses adjusted to the new normal.

In FY2023.3, we launched a new electricity rate and service "Support Plans" and expanded services offered by our life service platform "Sumai LINK," thereby working to roll out optimal services and solutions for each customer.

In the International Energy Business, we increased the number of new contracts through gas supply contracts, energy service contracts, rooftop solar power generation projects, and other initiatives.

As a result of developing these new services and taking other measures, the number of customer accounts reached 10.02 million, topping the 10 million target for 2030 set in the Long-Term Management Vision.

Customer satisfaction rate **90**%

For our customers to be able to use our products and services more safely and comfortably, the Daigas Group strives to ensure security and improve service quality. We also consider it important to appropriately provide information on safe use.

Since FY1989.3. Osaka Gas has conducted Customer Satisfaction Survey to improve customer satisfaction. The survey covers five areas of operation that have direct interaction with customers (opening gas valves, appliance repairs, appliance sales with installation, periodic safety inspections [gas facility surveys], and telephone support [customer center]). After each interaction, customers evaluate their levels of satisfaction in the survey, and the results are aggregated. Overall satisfaction represents the percentage of evaluations in the highest two ranks of a six-rank scale regarding customer satisfaction levels.

To achieve higher service standards, we have created a shared manual for each area of operation. We also raise awareness through training for managers and employees in charge.

We received 33,400 survey responses in FY2023.3, and the overall satisfaction level for the five areas of operation stood at 90%. This was lower than the result for the previous fiscal year, which was 92%. We consider that the prolonged delay in the delivery of some products to customers, mainly due to the spread of COVID-19 and the global supply shortage of electronic components, affected the satisfaction level. In addition to improving the supply, we strived to improve the touch point operation based on customer opinions. We will make improvements to collect feedback from a wider range of customers and increase response rates.

Based on customer feedback, we will continue to offer services from the customer's perspective.

Key Initiatives

Launch of Home Renovation and Other New Services

Refrigerate foods

home delivery service

"FitDish"

The Daigas Group rolls out a variety of services, with the aim of offering optimal customer experience for each customer. Since 2022, we have expanded services offered by our life service platform "Sumai LINK" and launched "Support Plans" and other services and rates that are attentive to customers' lifestyles and business styles. In addition, Osaka Gas subsidiaries Osaka Gas Marketing Co., Ltd. and Global Base Corporation launched a joint business "MyRENO,*" which satisfies a wide range of requests from customers, from property search targeting pre-owned collective housing to renovation. "MyRENO" materializes ideal renovation for customers by offering a one-stop service that covers property search, financial planning, design, and construction.

Corporate Governance

In FY2024.3, we also plan to launch a refrigerated food delivery service, utilizing our culinary business expertise. With refrigerated foods that are easy to prepare in the microwave oven, we will create satisfying meals and time for customers who have little time to think of menus.

Taking advantage of these new services as well as digital capabilities and in-person responsiveness the Daigas Group has cultivated, we aim to support customers' comfortable living by responding to their diverse needs appropriately.

Life service platform

1[°] Sumai LINK"

Services that provide convenience

in everyday shopping and daily life Creating satisfying meals and time, utilizing experience in スマイLINK cooking equipment development and operation of cooking schools Contribute to low carbon Tailored renovation (3)**"M**vRENO" Rate options for different lifestyles 2 Gas and electricity rates RENO Rate option examples Gas rates Electricity rates **GASH2**353

* The name and logo of "MyRENO" is a registered trademark or trademark of Global Base Corporation in Japan and other countries.

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Corporate Data

Internet service

"Sasuga Net"

and decarbonization

Equipment sales

Storage

batterv

Please see the next page for the details of services 1 to 3.

Solar PV

Fuel cell

"ENE-FARM'



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Overview of Key Services

① Digital Service Platform "Sumai LINK"

In addition to online services, including shopping via the Internet, Sumai LINK will offer a wide variety of offline services that enrich customers' time spent at home, including medical care and housekeeping services. From FY 2023.3, we also started to offer a TV stick exclusively for Osaka Gas customers that allows the whole family to enjoy online shopping and entertainment content on large screens of their home TV or PC monitor, as well as digital tickets that can be used at member restaurants in the Kansai region.

2 New rate and service "Support Plans"

The environment surrounding customers has been changing dramatically, with fuel prices soaring and inflation accelerating. Considering that this has increased concerns about energy conservation and utility costs, we launched a new electricity rate and service "Support Plans" in October 2022, so that customers can enjoy a comfortable and eco-friendly lifestyle in accordance with life events that may cause significant changes in energy use.

③"MyRENO"

"MyRENO" is a one-stop renovation service that covers property search, financial planning, design, and construction.

Customers can search for information on pre-owned properties suitable for renovation. Based on the understanding of the current lifestyles of customers, the service takes a customized, customer-centric approach to come up with housing plans with an eye on the future.

In October 2022, we opened MYRENO OSAKA, one of the largest showrooms in the Kansai region* dedicated to collective housing renovation. MYRENO OSAKA is not just a showroom. It also hosts a variety of lifestyle-related events and consultation sessions. We will continue to work to expand the renovation market in the Kansai region.

Key Initiatives

New Initiatives in Life & Business Solutions (LBS) Business

Osaka Gas Urban Development Group

-Participating in the Private REIT Business of the Daigas Group-

In June 2023, Osaka Gas Urban Development Co., Ltd. established Osaka Gas Urban Development Private REIT, Inc., an unlisted open-ended REIT. By combining the Daigas Group's accumulated know-how in real estate development and expertise in real estate securitization and by expanding the private REIT business through strengthened partnerships with institutional investors, we will enhance asset efficiency over the medium to long term. We will thus evolve into an innovative energy and service company that continues to be the first choice of customers while striving to make contributions to realizing a sustainable society.

Osaka Gas Chemicals Group

-Making Chuo Silika Co., Ltd. a Group Company for Further Growth of the Silica- and Alumina-Based Materials Business-

In March 2023, Mizusawa Industrial Chemicals, Ltd. made Chuo Silika Co., Ltd. a group company for the further growth of its silica- and alumina-based materials business. Chuo Silica manufactures and sells diatomaceous earth, a natural porous silica material.

By taking advantage of Mizusawa Industrial Chemicals' technological capabilities, the Group will continue to pursue synergy and aim for further growth.

OGIS-RI Group

-Starting to Offer Electricity Risk Management Solutions-

OGIS-RI Co., Ltd. started to offer electricity risk management solutions. The solutions apply business knowledge and know-how in finance, energy, AI, data analysis, and other fields, which OGIS-RI has accumulated over the years, to electricity transactions. Customers can measure their company's risk quantity by merely entering such information as transaction and market data and clicking the screen, without any particular knowledge of financial engineering. By offering these solutions, the Group strongly supports the visualization of risks in the electricity business and decision making in electricity transactions, and helps stabilize customers' businesses.

^{*} One of the largest showrooms in the Kansai region that is specialized in collective housing renovation and is run by a one-stop service operator covering from pre-owned collective housing search to renovation (as of October 2022, based on research by Osaka Gas)

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I . Co-create Value for a Sustainable Future

Enhancing Resilience of Customers and Society



Recognition of External Environment

Heightened global geopolitical risks, changes in the global situation, and accelerating decarbonization trend have resulted in an unstable energy demand-supply balance, making the world reaffirm the importance of a stable energy supply.

As the Daigas Group is responsible for social infrastructure essential to people's life and industry, a stable supply of energy and maintenance of safety are our most critical missions. To keep supplying energy in a safe and stable manner, we need to respond promptly and appropriately to incessant changes in the business environment.

Review of FY2023.3 and Future Strategy

In FY2023.3, we worked on further enhancement of safety and stability in securing LNG and electricity, as well as in each part of the energy supply chain.

In LNG procurement, we will strive to secure LNG more flexibly to further enhance energy resilience. In electricity procurement, we will achieve stable power supply through in-house power generation and procurement, and establish a power source portfolio centered on highly efficient LNG thermal power plants and renewables. In addition, we will maintain a stable supply by taking advantage of AI and other digital transformation initiatives to upgrade conventional measures.



Materiality

Customer Health and Safety/ Stable Supply of Services

Indicators and FY2023.3 Results

Number of serious accidents > Zero serious accidents

Ensuring the safety of city gas, gas production, and power generation facilities is our top priority. We therefore consider it important to work toward better safety.

We achieved continued zero serious accidents for FY2023.3 by carrying out quality control of city gas in gas production facilities and safety inspection of gas pipelines and supply facilities in the gas supply business. The procedures were conducted based on guidelines in accordance with laws and regulations as well as in-house rules.

Although it did not lead to a serious accident, a fire broke out in a fuel storage silo at Sodegaura Biomass Power Plant, which an affiliate of Osaka Gas had built and was in the process of commissioning. The fire neither caused any injuries nor affected the gas supply.

Build resilient energy supply facilities Ratio of strengthening of earthquake resistance: Approx. 89% Number of block divisions of supply network: 713 blocks

For a stable gas supply, we consider it important to strive to conduct scheduled facility updates, extend the pipeline network, and take disaster prevention measures, thereby strengthening the base for better supply stability.

Based on the Gas Safety Enhancement Plan by the Ministry of Economy, Trade and Industry, we have been working to increase the ratio of strengthening of earthquake resistance, which is the percentage of earthquake-resistant pipelines. We have also been dividing supply blocks into smaller segments to minimize the scope of emergency gas suspension (measures to prevent secondary disasters).

We believe that we can improve energy resilience by enhancing earthquake resistance as precautionary measures, as well as by minimizing earthquake damage and achieving early recovery.

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Key Initiatives

Initiatives to Ensure Energy Security and Enhance Resilience

The Daigas Group has established the Safety and Disaster Prevention Committee to unify the management of events related to safety, disaster prevention, and stable gas supply and promote relevant measures. To fulfill our critical mission of safely and stably supplying energy to customers, we take measures at each stage of the process, from LNG procurement to use of gas by customers. We will ensure energy security and enhance the overall resilience of society by stably procuring and flexibly transporting LNG, taking countermeasures against typhoons, heavy rains, and other natural disasters to enhance the stability of production and supply, and promoting widespread use of products that can be used in times of disasters.

Safety Promotion System



Inspection of Operations and Maintenance Work

In the infrastructure business, one accident may affect stable supply in many ways and cause a substantial loss. We therefore conducted not only daily inspections but also an inspection of operations and maintenance work, led by the Safety Subcommittee.

In FY2023.3, we reviewed and improved initiatives and systems that prevent accidents and ensure stable supply in the energy business essential to people's life and industry, including gas, electricity, and heat supply.

We will constantly check the operational status of the work we inspected in FY2023.3. In FY2024.3., we will expand the scope to the renewable energy business and roll out good practices learned from inspection results to new businesses.

Initiatives at the Procurement and Transportation Stages

At the procurement stage, we make efforts to secure LNG, and achieve stable and flexible procurement in the volatile market by responding timely in trading.

In procuring LNG, Osaka Gas mainly signs long-term contracts and reduces procurement risks by diversifying sources (seven countries).

As for transportation, we started to own LNG tankers in 1993. We currently take advantage of a fleet of nine ships, which mainly consists of our own tankers. Using our own carriers for transportation enables a substantial reduction of transportation costs, timely response, and flexible scheduling.

In FY2023.3, we experienced a shortage of some LNG due to a fire at Freeport LNG, one of our suppliers. We, however, ensured stable supply by increasing the volume we procure from suppliers with long-term contracts and procuring from alternative suppliers. For FY2024.3, we are making room for flexibility in procurement to prepare for contingencies, thereby creating a system to address the risk of a decrease in procurement volume.

Initiatives at the Production Stage

To appropriately meet the demand for city gas, the gas production business processes LNG into city gas at Senboku LNG Terminal and Himeji LNG Terminal and strives to send the gas to customers in a stable manner. Advanced earthquake-proof technologies are adopted for LNG tanks. Measures are taken to ensure the safety of facilities, such as the installation of dikes to prevent leaked LNG from spilling out of the premises. Central control rooms at LNG terminals operate and monitor all facilities 24 hours a day, 365 days a year, from LNG receipt to production and sending of city gas. We thus make sure to prevent, detect early, and deter the spread of abnormalities and accidents.

In FY2023.3, comprehensive disaster-prevention drills for a Nankai Trough earthquake, as well as drills for addressing troubles in LNG terminals, took place. These practical drills aim to enhance capabilities for initial response to disasters, as well as to share the flow of response to disasters down to the completion of recovery.

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Initiatives at the Supply Stage

As preventive measures, Osaka Gas Network Co., Ltd. strives to enhance earthquake resistance of gas facilities by promoting the introduction of earthquake-proof gas pipes and taking other measures to promote the widespread use of earthquake resistant facilities. Aging gas pipelines are repaired in a planned manner and earthquake- and corrosion-proof polyethylene (PE) pipes are being introduced. We actively propose the repair of customers' old underground gas pipes that are at risk of corrosion. We took care of gray cast iron pipes that required action by FY2016.3, ahead of the planned FY2021.3. We are still working on gray cast iron pipes that need maintenance and pipes that need measures against corrosion and deterioration. As emergency measures to prevent secondary disasters, we have established a system that suspends gas in times of earthquakes and other natural disasters, preventing secondary disasters caused by gas leakage. In addition, the Central Control Office of Osaka Gas Network Co., Ltd. has a system in place for emergencies, accepting gas leakage and other alerts 24 hours a day, 365 days a year.

Initiatives at the Customer Consumption Stage

To have customers use gas safely, we not only conduct periodic facility investigations and inspections but also enhance safety to prepare for earthquakes and other disasters. We will develop and promote widespread use of "ENE-FARM", gas co-generation systems, and other equipment that allows continued energy use even in times of blackout. We are also taking measures to reduce risks in procuring components of and producing gas equipment, in response to a prolonged delay in the delivery of some products to customers. The delay happened from FY2022.3 to FY2023.3, caused mainly by the COVID-19 pandemic.

Business Continuity Plan (Measures Against Large-Scale Earthquakes, etc.)

In July 2013, the Daigas Group formulated a Business Continuity Plan (BCP) to be implemented in the event of a large-scale disaster or accident. This BCP aims to enhance the Group's capabilities to respond to disasters and accidents and has been disseminated throughout the Group. In principle, we review our BCP annually and implement BCP drills and earthquake drills. According to the terms of the "Act on Special Measures for Pandemic Influenza and New Infectious Diseases" (took effect in April 2013), the Group should respond promptly and appropriately to the outbreak of a new strain of influenza or other infectious diseases to prevent infection of employees and to protect public health. We have established company regulations "Pandemic Influenza and New Infectious Diseases Preparedness Action Plan" in order to ensure the stable supply of gas in such a situation.

Progress of Earthquake Countermeasures after the Great Hanshin-Awaji Earthquake

Focus	Main earthquake countermeasures	At the time of Great Hanshin-Awaji Earthquake (January 1995)	Present (April 2023)
Strengthen information gathering function	Install additional seismometers	Installed at 34 locations	 Installed at approx. 3,300 locations
	Introduce earthquake damage prediction system	_	• Introduced at the Central Control Office (head office, back-up center) and 5 areas
Establish supply suspension system	Subdivide supply blocks into smaller segments	55 middle blocks	87 middle blocks713 little blocks
	Introduce supply suspension equipment	Remote suspension equipment only for super blocks (dividing the supply area into 8)	 Remote suspension equipment at approx. 3,600 locations Earthquake-sensitive automatic suspension equipment at approx. 3,000 locations
Strengthen emergency communications	Strengthen wireless systems	_	 Head office and back-up center serve as two hubs 6 portable satellite communications facilities
Other	Ratio of strengthening of earthquake resistance	Percentage of earthquake resistant pipes: 68%	Percentage of earthquake resistant pipes: Approx. 89%
	Promote widespread use of polyethylene (PE) pipes	PE pipeline length: Approx. 1,200 km	 PE pipes used for basically all low-pressure pipelines PE pipeline length: Approx. 17,900 km
	Promote widespread use of microcomputer meters	Overall adoption rate: Approx. 75%	 Installation completed for residential sector Overall adoption rate including non-residential sector: Approx. 99%
	Back up important online information	_	Back-up center opened