

Paintings shown on the cover were drawn by children attending a design and painting class sponsored by “Children Design Education,” a nonprofit organization. Children Design Education has been established to support children who have to live separately from their parents for various reasons. The NPO provides them opportunities to produce paintings and design works repeatedly at a design and painting class, envisaging them to develop power to stand on their own in their infancy. Character designs created by the children through the class are sold to business corporations. Proceeds from the sales will be incorporated into a special fund set up to support the children’s education in the future.

NPO Children Design Education ▶ <http://c0d0e.com/english/index.html>



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# 2017

## OSAKA GAS GROUP

# CSR REPORT

Osaka Gas was included in the following socially responsible investment (SRI) indices and an investment universe as of the end of July 2017.

MEMBER OF  
**Dow Jones**  
**Sustainability Indices**  
In Collaboration with RobecoSAM



MSCI | 2017 Constituent  
MSCI Global  
Sustainability Indexes\*

MSCI | 2017 Constituent  
MSCI Global  
SRI Indexes

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<https://www.msci.com/esg-integration>



Notes about CSR Report 2017

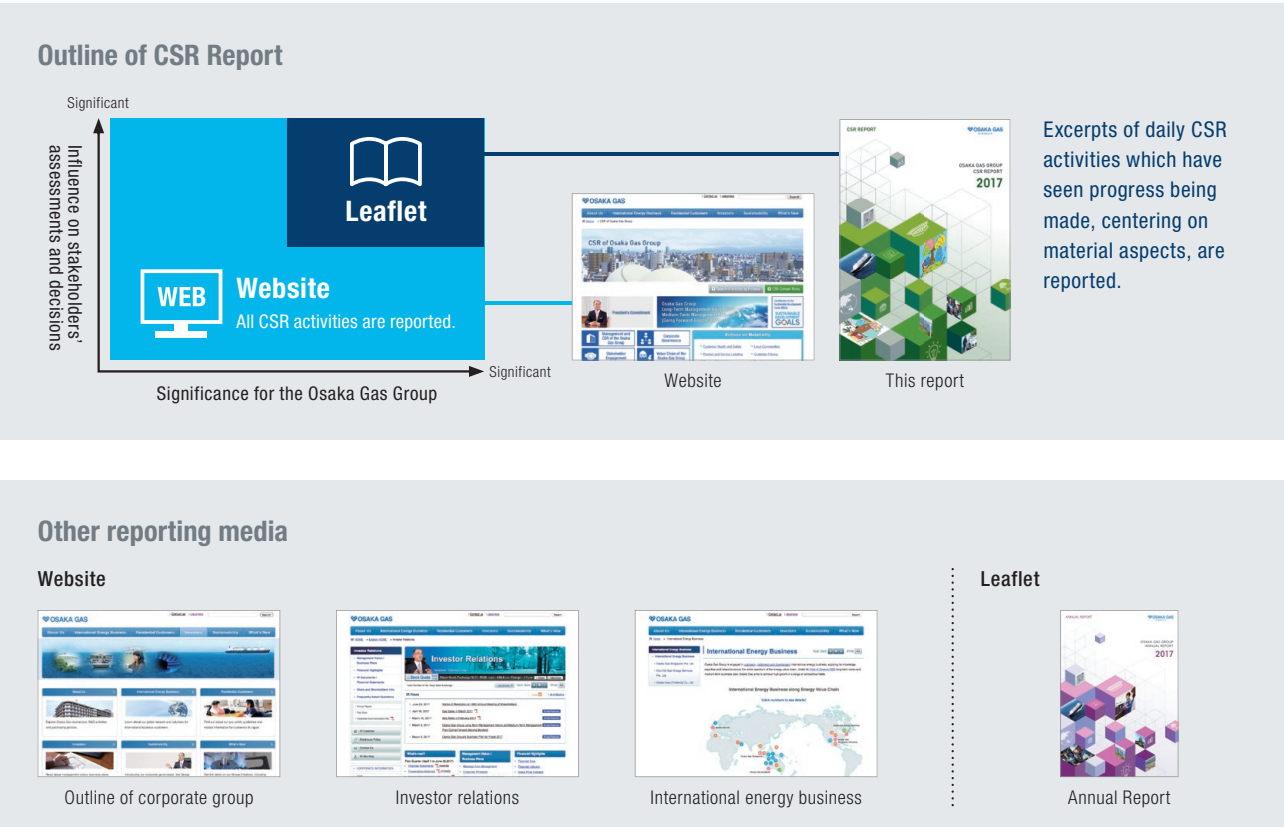
The Osaka Gas Group reports material aspects of its CSR and its management scheme as well as associated activities for improvement.

The Osaka Gas Group deems that it is necessary for the Group to listen to people's voices sincerely and conduct its business activities based on such voices, if it is to fulfill its corporate social responsibility (CSR).

The Osaka Gas Group identified important aspects for the Group's CSR, which we call "materiality," or "material aspect" by referring to the fourth edition of the Sustainability Reporting Guidelines (G4) while taking into account the current social issues

and continuing dialog with stakeholders and experts in relevant fields.

In this report, the Group explains the management situation regarding each material aspects and the degree of implementation of relevant measures. The Group discloses, as much as possible about activities other than those related to the material aspects so that a full picture of the Group's CSR is made known to parties outside and inside the Group.



Scope of This Report

This report covers the Osaka Gas Group, consisting of Osaka Gas Co., Ltd. and its affiliated companies. Some information, as noted in this report by phrases such as "Osaka Gas" or "the Company," refers exclusively to Osaka Gas Co., Ltd.

Sixty-five companies—Osaka Gas and its consolidated subsidiaries—are subject to compilation of environmental performance data. Excluded are companies housed in office buildings as tenants and whose environmental performance data are difficult to grasp and whose environmental effects are minimal. Also excluded are overseas companies whose environmental impacts are negligible small.

While the most recent data covered in this report represents those for fiscal 2017 (from April 1, 2016 to March 31, 2017), some refer to activities for fiscal 2018.

- Guidelines referred to**
- ISO 26000
  - Sustainability Reporting Guidelines of the Global Reporting Initiative (G4)  
The website includes information in accordance with the G4.
  - Environmental Reporting Guidelines 2012 of the Ministry of the Environment
  - The United Nations Global Compact COP\* Policy
- \* COP...Communication on Progress

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Coverage and Materiality

We selected topics to be covered in the report and prioritized them taking into consideration what is most important both for our company group and stakeholders (society). Our dedicated website for CSR includes further comprehensive and detailed our efforts.

Readability and Ease of Understanding

To ensure that a wide range of readers can understand the information provided in this report, careful consideration is given to visual design, including the text size, use of colors, pictures and diagrams, and explanatory notes are provided for technical terms.

**For words with this mark, refer to a terminology list.**

Taking readability for people with color vision deficiency into consideration, the colors and designs of this report were examined and certified by the Color Universal Design Organization. (Refer P.41 for more information.)

Reliability

We asked for third-party verification to ensure the reliability of the content and data presented in our CSR report.

The environmental performance data in this report underwent third-party verification by Bureau Veritas Japan Co., Ltd. We also received verification from Bureau Veritas regarding greenhouse gas emissions. The overall report underwent third party-review on assessment and recommendations, including simple audits, a task consigned to the Institute for Environmental Management Accounting (IEMA).

## President's Commitment

## The Osaka Gas Group Aims to Become an Innovative Energy Service Provider That Continues to Be Chosen by Customers Through Successive Generations —by Contributing to Society, Local Community and Customers.



本庄武宏

Takehiro Honjo  
President

### Social Issues and Changes in Business Environment

The year 2016 will be remembered as a year during which the international community moved ahead in its efforts to solve global issues, as characterized by the coming into force in November of the Paris Agreement, a U.N. accord on climate change signed at the 21st session of the Conference of the Parties (COP) to the 1992 United Nations Framework Convention on Climate Change, and the formulation in December by the Japanese government of implementation guidelines following the adoption in the previous year by the United Nations General Assembly of the Sustainable Development Goals (SDGs). Efforts to establish a framework for creating a sustainable society gathered impetus across the world, although the international situation has become opaque and uncertain following Britain's decision to leave the European Union (EU) and the United States' announcement that it would withdraw from the Paris Agreement.

Competition has been intensified in the domestic energy market in view of complete liberalization of retail sales of electricity in 2016 and the complete opening of the retail gas market in April 2017.

Since its founding in 1905, the Osaka Gas Group has faced a large number of difficulties. However, the Group has overcome each of them with an undaunted and challenging spirit, while recognizing them as providing opportunities for growth. The Osaka Gas Group aims to become a corporate group that continues to be chosen by customers—by further enhancing the Group's overall CSR standard, promoting fair and transparent business operations and contributing to the development of a sustainable society—at a time when the business environment facing the Group has been changing dramatically.

### What the Group Aims to Realize Under the Long-Term Management Vision and Medium-Term Management Plan

In March 2017, the Osaka Group formulated a four-year medium-term management plan through fiscal 2021, which we call "Going

Forward Beyond Borders." The management plan is part of our efforts to realize our long-term management vision toward fiscal 2031. By going beyond three "boundaries," we aim to become an innovative energy service provider that continues to be chosen by customers through successive generations.

The first boundary we will go beyond is expectations of customers. By further improving our service know-how and expertise, which we have accumulated through our operations in the Kansai region in the past 110 years, we will continuously provide services that exceed the expectations of customers—a task that all of our employees have joined hands with each other to achieve.

The second boundary to be overcome is "business boundaries." We will not limit our operations to existing business fields. Instead, we are ready to branch out into any promising fields where we are competitive—in order to contribute to the development of society, local communities and customers.

The third boundary we are to transcend is "corporate boundaries." We are always receptive of potentially innovative ideas and are ready to team up with other promising companies for business collaboration. We are also prepared to embark on domestic and overseas projects that are even more challenging.

By overcoming these boundaries, we will work on tripling our consolidated ordinary income in fiscal 2031 from the fiscal 2018 plan. On the domestic front, we will step up peripheral energy-related businesses in broader regions while expanding the electricity generation business, life & business solution (LBS) business and new businesses. In overseas markets, we aim to establish a business structure in which we can expect profitability from operations in strategically important regions. Based on this policy, we intend to raise the share of income from overseas operations to 50% of the income from domestic operations in fiscal 2031. Our major business fields are domestic energy service, overseas energy service and the LBS business. These three fields are subdivided into nine areas. By helping each of the nine areas to grow significantly, we will build a portfolio management system, believed to be effective in dealing with unexpected situations in the future.

### Aimed at Contributing to the Sustainable Development of Society and the Sustainable Growth of the Osaka Gas Group

In recent years, increased attention is given to the aspects of ESG (environment, society and governance) from the viewpoint of enhancing corporate values in a sustainable manner. The move has resulted in establishing corporate governance codes and stewardship codes. Furthermore, moves to use ESG performance in investment judgments and monitoring have gathered momentum among global institutional investors. In formulating our long-term management

vision and medium-term management plan, "Going Forward Beyond Borders," we committed to improve our ESG aspects to meet the global standards.

In addition, we will raise further the CSR level of the entire Osaka Gas Group while abiding by rules set under the Osaka Gas Group Corporate Principles, the Osaka Gas Group CSR Charter, the Osaka Gas Group Code of Conduct and the Osaka Gas Group Environmental Activities Policy. By doing so, we will carry out ESG-oriented management. Furthermore, we will undertake CSR activities in collaboration with companies that constitute the entire value chain [\(21\)](#) network of the Osaka Gas Group—an action we are taking to enhance trust and confidence in us by customers and the general public at a time when we are operating in wider business fields.

On the environmental front, we will further strengthen our efforts to reduce CO<sub>2</sub> emissions both from our business activities and at our clients—by diffusing the use of environment-friendly natural gas, installing highly energy-efficient facilities and turning more to renewable energy sources.

On the social front, we will strengthen activities in areas of human rights, labor and occupational health and safety throughout our value chain, in line with international norms and goals, such as the United Nations Global Compact, ISO 26000, Global Reporting Initiative (GRI) standards and Sustainable Development Goals (SDGs). We will also work with local communities to create mutual values.

On the governance front, we will further strengthen the Group's control and supervisory functions both in Japan and overseas including compliance and information security.

We are also promoting diversity [\(21\)](#) under the Osaka Gas Group Diversity Policy. Specifically, we are supporting female workers in developing and achieving their career goals while making further efforts to enable employees to work flexibly and efficiently.

The Osaka Gas Group has set indexes of materiality (important aspects of CSR) to evaluate its major CSR activities. Responding to changes in the business environment and social trends, the Group plans to review such indexes in the course of establishing a management framework that gives consideration to ESG.

### Closing Comments

By strengthening our existing CSR measures based on the Osaka Gas Group CSR Charter, the Group is committed to creating value primarily for customers, as well as for society, shareholders and employees. We will further promote ESG-oriented management to help create a sustainable society and attain the Group's sustainable growth. By doing so, we aim to become a corporate group that continues to be chosen by customers.

August, 2017



## Outline of the Osaka Gas Group

### Corporate Profile of Osaka Gas (As of March 31, 2017)

**Head Office** : 4-1-2 Hiranomachi, Chuo-ku, Osaka 541-0046, Japan

**Establishment** : April 10, 1897

**Commencement of operations** : October 19, 1905

**Capital** : 132,166 million yen

**Number of employees** :



[Non-consolidated] 5,731

(including operating officers, directors and temporary employees, and

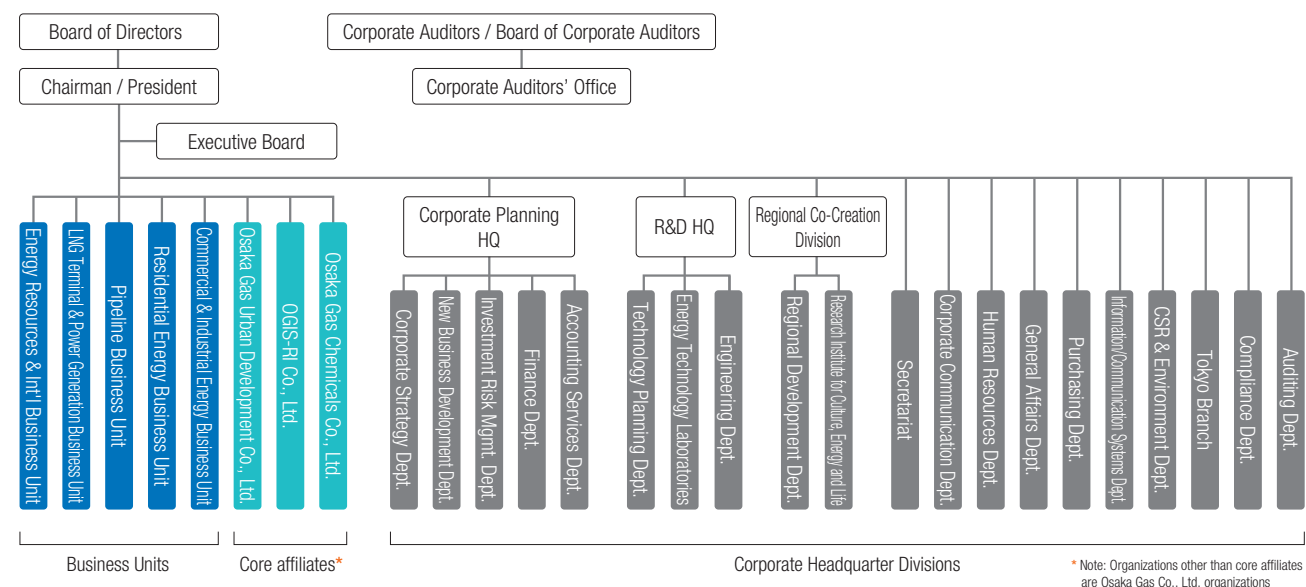
excluding employees temporarily transferred to affiliated companies)

[Consolidated] 20,762

### Main Business Lines of the Osaka Gas Group (As of March 31, 2017)

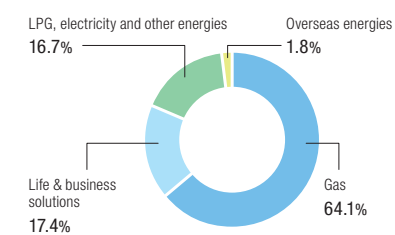
Business segments	Main business lines
Gas	Sale of gas and gas appliances, gas pipes installation, heat supply
LPG, electricity and other energies	Sale of LPG  , electricity supply, sale of LNG  , gas sale for industrial customers
Overseas energies	Overseas energy supply, leasing of LNG tankers, development and investment regarding oil and natural gas
Life & business solutions (Non-energy business)	Development and leasing of real estate properties, information-processing services, sale of fine materials and carbon material products

### Osaka Gas Group Management Structure (As of July 1, 2017)

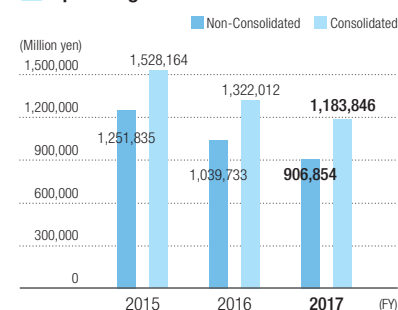


### Financial Data of the Osaka Gas Group

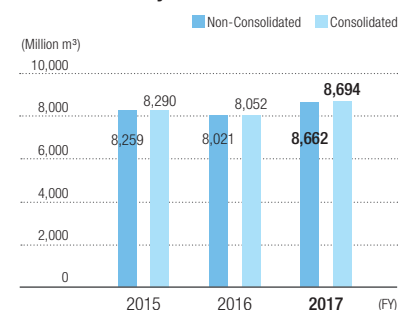
#### Sales by Segment of the Osaka Gas Group in FY2017



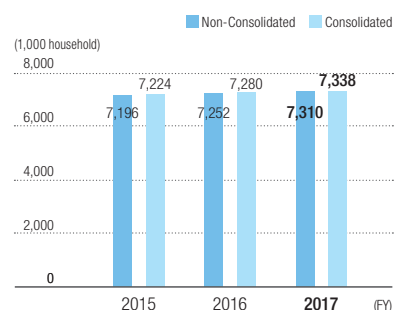
#### Operating Revenues



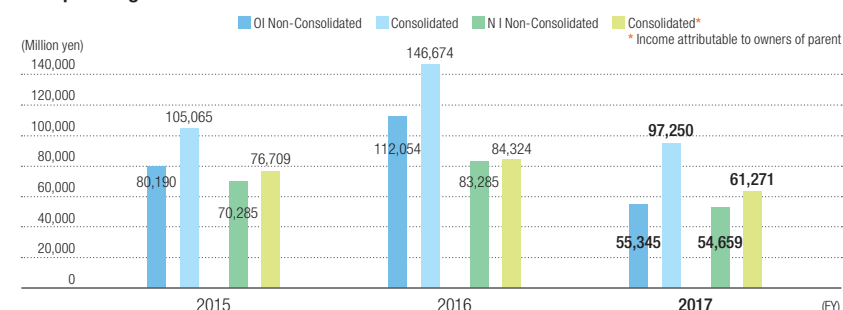
#### Gas Sales by Volume



#### Number of Customers

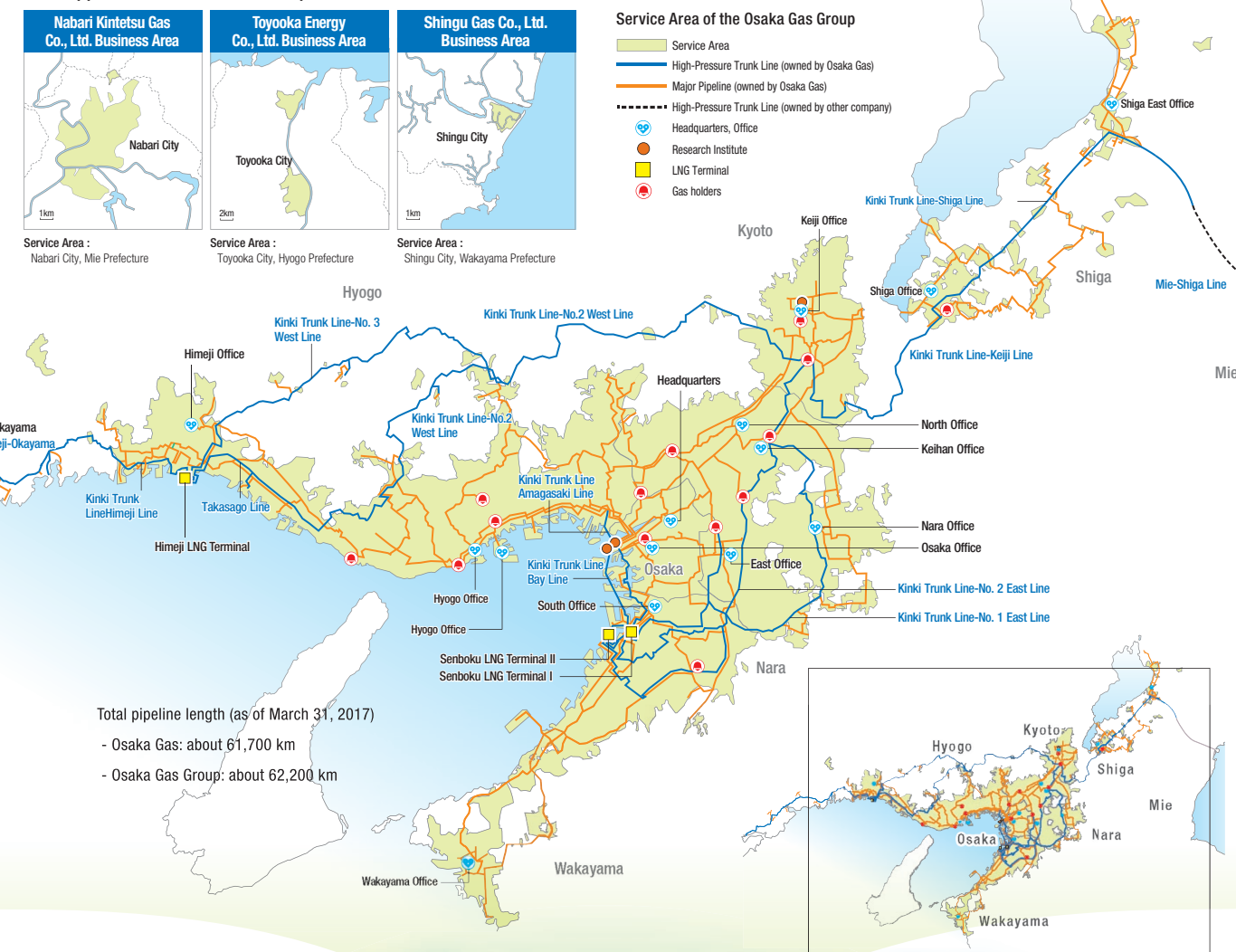


#### Operating Income and Net Income

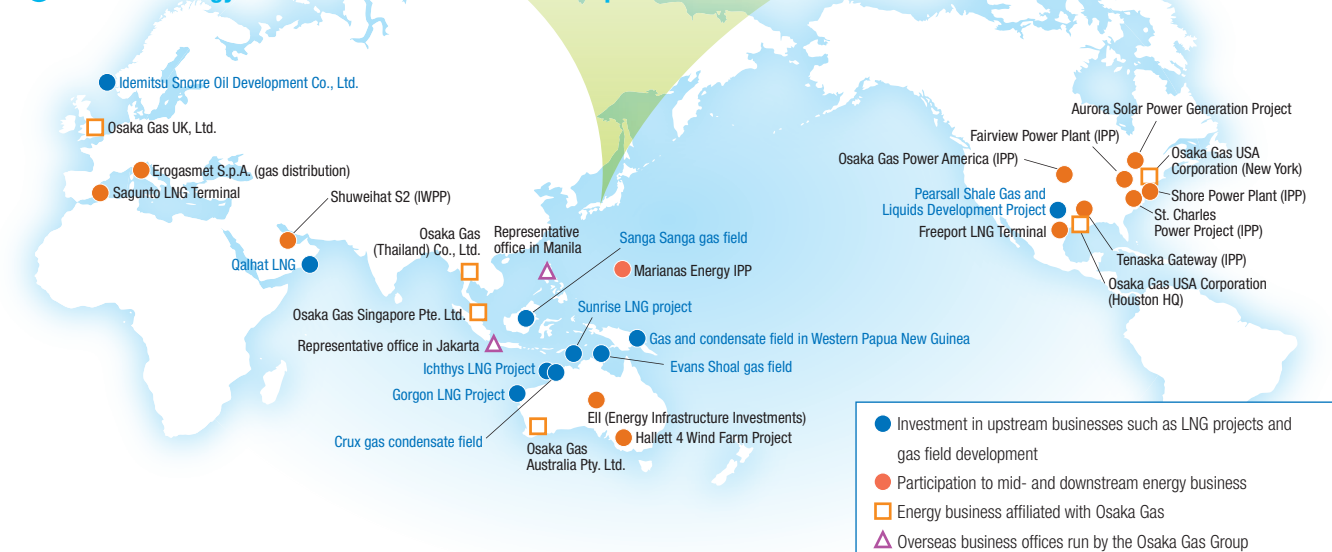


### Osaka Gas Group Business Area

#### Gas Supplier of the Osaka Gas Group (As of March 31, 2017)



### Overseas Energy Businesses of the Osaka Gas Group



(As of March 31, 2017)

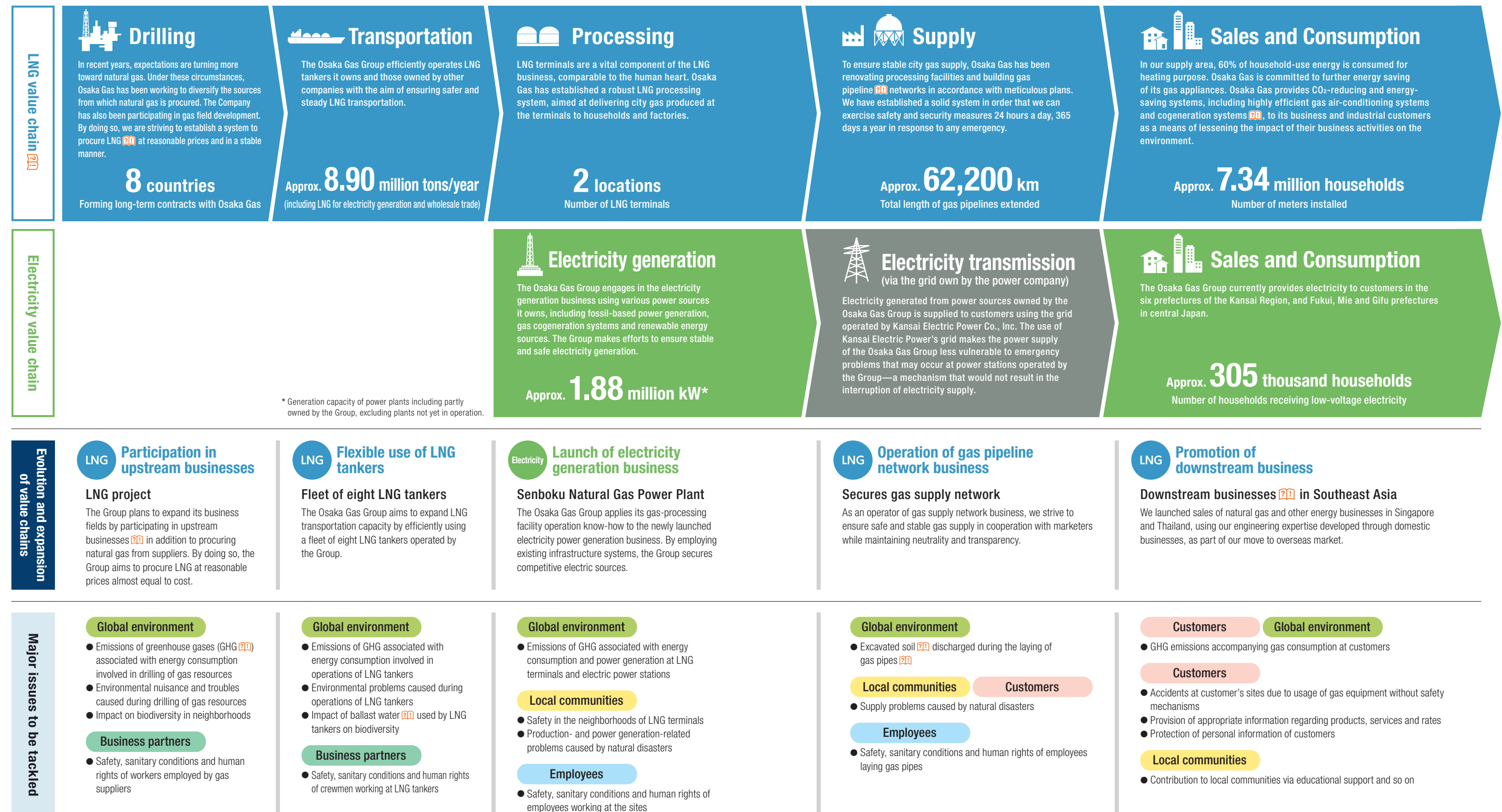


## Enhancement of CSR in Our Value Chains

## Social Impact of Business Activities in Our Energy Value Chains and Efforts to Reduce Such Impact

The Osaka Gas Group procures natural gas, which is an environmentally-friendly and stable energy source, from overseas suppliers, and provides gas to about 7.34 million households and electricity to about 300,000 households, both mainly in the Kansai Region. The Group ensures the safety of customers and gives them peace of mind by procuring natural gas in a stable manner and building a solid security and accident-prevention system.

(As of March 31, 2017)



\* Generation capacity of power plants including partly owned by the Group, excluding plants not yet in operation.

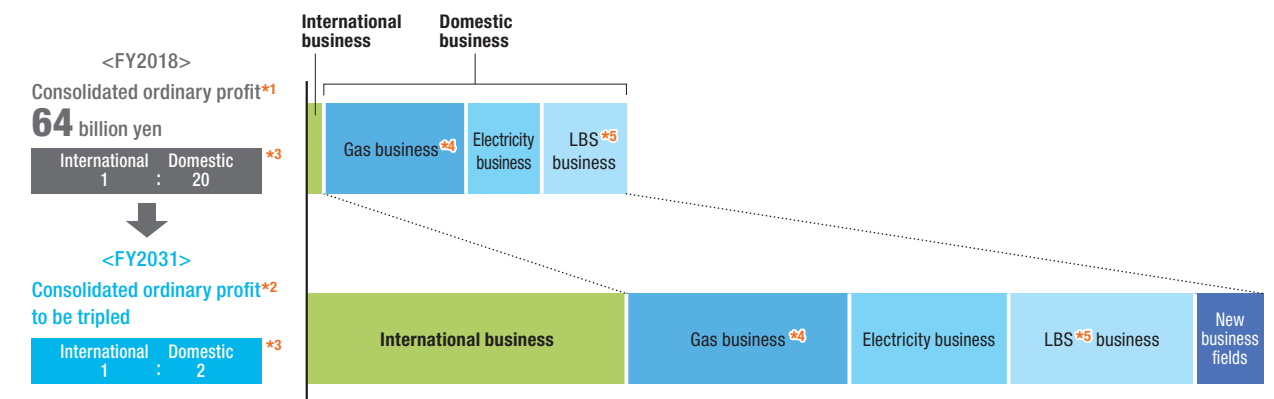
## Osaka Gas Group Long-Term Management Vision 2030 and Medium-Term Management Plan 2020 [Going Forward Beyond Borders]

### Becoming an Innovative Energy & Service Company that Continues to Be the First Choice of Customers

The Osaka Gas Group has formulated a Long-Term Management Vision toward fiscal 2031, called “Going Forward Beyond Borders,” and a Medium-Term Management Plan toward fiscal 2021. The Group aims to contribute to the development of society, local communities and customers by going beyond “customer expectations,” “business boundaries” and “corporate boundaries.” By doing so, the Group aims to become an innovative energy and service provider which continues to be chosen by customers through successive generations.

The Osaka Gas Group has adopted “a service-first” policy as its corporate motto, while continuing to be a corporate group which can support customers for their “further evolution” in consumer life and business. In its corporate philosophy, the Group is committed to creating four values—“value for customers,” “value for society,” “value for shareholders” and “value for employees.” Based on this philosophy, the Group will also cherish “three guiding principles” until fiscal 2031 and implement activities to realize the Long-Term Management Vision.

#### “What we aim to be in FY2031” - Target income level and structure



\*1 Crude oil price: 55 dollars/barrel, exchange rate: 115 yen/dollar \*2 Crude oil price: 70 dollars/barrel, exchange rate: 115 yen/dollar \*3 Based on consolidated ordinary profit  
\*4 Profit from the gas business includes profit from selling gas appliances and LNG. \*5 Life & Business Solutions

### Osaka Gas Group Corporate Philosophy and three guiding principles toward fiscal 2031

#### Osaka Gas Group Corporate Philosophy

Corporate Motto	<b>Service First</b>
What the Osaka Gas Group aims to be	<b>A corporate group that supports continuous advancement of consumer life and businesses</b>
Osaka Gas Group Declaration	<b>The Osaka Gas Group is committed to creating four values.</b>

The Osaka Gas Group is committed to creating value primarily for customers, as well as for society, shareholders and employees.

Value for customers

Value for society

Value for shareholders

Value for employees

#### Three guiding principles toward FY2031

1

Continue providing the high-quality services we have developed in the Kansai area to as many customers as possible.

2

Always strive to be professionals who pursue innovative challenges.

3

Constantly winning confidence of investors, corporate partners, employees and society.

### Medium-Term Management Plan Fiscal 2018–2021

#### Measures to be taken under the Medium-Term Management Plan 2020

- Enhancement of solutions business for residential customers
- Enhancement of solutions business for commercial and industrial customers
- Establishment of competitive power-supply portfolio
- Development of pipeline network operator business
- Efforts to expand international energy business
- Securing of a business footing in the LBS business and exploration of new business fields

### Long-Term Management Vision 2030



**Becoming an innovative energy & service company that continues to be the first choice of customers**

#### Going beyond customer expectations

Always try to provide services that go beyond customer expectations with a challenging spirit

#### Going beyond business boundaries

Expand business fields to contribute to society, local communities and customers

#### Going beyond corporate boundaries

Pursue business alliances and M&As in broader business fields both in Japan and abroad



## Osaka Gas Group Long-Term Management Vision 2030 and Medium-Term Management Plan 2020 [Going Forward Beyond Borders]

### CSR Efforts to Realize Long-Term Management Vision 2030

The Osaka Gas Group has formulated the Long-Term Management Vision 2030 and the Medium-Term Management Plan 2020, in which we adopted “three guiding principles” under its corporate philosophy. One of these principles is setting global ESG (environment, social and governance) standards in its business operations, with the aim of becoming a corporate group that continues to be trusted by investors, business partners, citizens and employees.

We have stepped up our ESG efforts in line with the Osaka Gas Group CSR Charter. To get the campaign moving further, the Group has identified important aspects in its CSR activities, which we call “materiality.” Based on the materiality, we have undertaken specific CSR activities. We will continue to see ESG as an important element of our business operations and redouble our efforts to realize the sustainable development of society and the Osaka Gas Group.

	ESG Efforts in the Long-Term Management Vision		Materiality of our CSR		Long-term management goals
	Management that wins confidence of stakeholders	Work style reform and development of human resources to improve productivity	Osaka Gas CSR Charter	Identified material aspects	Indexes toward fiscal 2031
<b>E</b> Environment	<ul style="list-style-type: none"> <li>Support customers in introducing high-efficiency energy equipment, and provide them with energy services</li> <li>Promote fuel conversion to natural gas, a clean energy source, and introduction of energy-saving technologies</li> <li>Develop and introduce leading-edge thermal power plants and renewable energy</li> <li>Promote environmental management focusing on resources recycling, biodiversity, chemical substances safety, etc.</li> </ul>	<b>Attitude Reform</b> <ul style="list-style-type: none"> <li>Think and act independently and remain reform-minded with readiness to change our mindset if necessary</li> <li>Execute assigned duties wisely and efficiently</li> <li>Shift to flexible thinking</li> <li>Pursue growth by taking up challenges beyond the boundaries</li> </ul>	<b>II</b>	<ul style="list-style-type: none"> <li>Amount of energy consumption</li> <li>Emissions into the air</li> <li>Effluents and Waste</li> </ul>	<b>Expansion of business fields</b> <ul style="list-style-type: none"> <li>Amount of electric sources procured*<sup>1</sup> <b>9 million kW</b></li> <li>Number of customer accounts <b>10 million or more</b></li> <li>Scale of natural gas business*<sup>2</sup> <b>17 million tons</b></li> </ul>
<b>S</b> Social	<ul style="list-style-type: none"> <li>Pursue activities in accordance with international norms, such as the Global Compact</li> <li>Promote activities relevant to the entire value chain <a href="#">[21]</a> including initiatives to protect human rights</li> <li>Engage in co-creation with local communities (social design activities, community communication activities, community building, etc.)</li> </ul>	<b>Work Style Reform</b> <ul style="list-style-type: none"> <li>Develop human resources who can play important roles in the global community</li> <li>Increase business efficiency through the active use of ICT</li> <li>Share business know-how among employees to make them immediately available in business and improve service quality</li> <li>Make workplaces attractive for employees</li> </ul>	<b>I</b> <b>III</b> <b>IV</b> <b>V</b>	<ul style="list-style-type: none"> <li>Customer Health and Safety</li> <li>Product and Service Labeling</li> <li>Local Community</li> <li>Customer Privacy</li> <li>Grievance Mechanism</li> <li>Supplier Assessment</li> </ul>	<b>Environment and CSR</b> <ul style="list-style-type: none"> <li>Amount of CO<sub>2</sub> emissions reduced*<sup>3</sup> <b>about 70 million tons</b></li> </ul>
<b>G</b> Governance	<ul style="list-style-type: none"> <li>Promote dialogue with stakeholders</li> <li>Pursue fair business practices</li> <li>Enhance Diversity <a href="#">[21]</a> of employees and executives</li> <li>Disclosure of ESG information in accordance with global standards</li> <li>Take measures to ensure information security</li> </ul>	<b>Work Environment Improvement</b> <ul style="list-style-type: none"> <li>Promote collaboration among individuals and companies with diverse values</li> <li>Provide employees with equal opportunities irrespective of nationality, age, gender or location of residence</li> <li>Develop a work environment and system whereby employees can work anywhere and any time</li> </ul>	Refer to “Corporate Governance” (P17–18) <ul style="list-style-type: none"> <li>Basic ideas on corporate governance</li> <li>System and measures to promote corporate governance</li> <li>Roles and functions of outside board directors</li> <li>Efforts under way to strengthen the function of auditors</li> <li>Risk management</li> <li>Situation on internal control</li> </ul>		<b>Improvement of service quality</b> <ul style="list-style-type: none"> <li>Customer satisfaction at contact points*<sup>4</sup> <b>95 %</b></li> </ul>
					<b>Security and safety</b> <ul style="list-style-type: none"> <li>Ensure security and safety in gas pipeline <a href="#">[21]</a> installation, gas processing and power generation business <b>Maintain zero serious accidents</b></li> </ul>
					<b>Investment</b> <ul style="list-style-type: none"> <li>Amount of investment for growth*<sup>5</sup> <b>1.45 trillion yen</b></li> </ul>

\*<sup>1</sup> Upon changes in country's institutional designs, procurement from the market / other companies will be considered.  
\*<sup>2</sup> Include LNG [\[21\]](#) sales to energy companies both in Japan and abroad, and natural gas handled at overseas LNG terminals  
\*<sup>3</sup> Cumulative total of CO<sub>2</sub> emissions reduced during fiscal 2018–2031, which includes reduction at customers and overseas projects  
\*<sup>4</sup> Degree of customer satisfaction in gas line opening, appliance repairs, marketing and engineering services  
\*<sup>5</sup> Cumulative investment since fiscal 2018

## Osaka Gas Group Long-Term Management Vision 2030 and Medium-Term Management Plan 2020 [Going Forward Beyond Borders]

### We will Work Hard to Build a Low-Carbon Society by Conducting Environment-Friendly Business.

It is imperative for the global community to address global-scale climate change. The Paris Agreement, a UN accord on climate change, came into force in November 2016. The response to the climate change is seen as one of the Sustainable Development Goals (SDGs) adopted by the United Nations. It is also recognized as part of international efforts since 2020 to establish a framework for solving issues related to climate change. The Japanese government has set the goal of curtailing greenhouse gas emissions in the country by 26% in fiscal 2031 compared with the fiscal 2014 level, and presented it to the United Nations. The goal has been incorporated into a plan drawn up by the Japanese government to curb global warming.

The Osaka Gas Group believes making efforts to reduce greenhouse gas emissions is an extremely important mission for the Group, given that it is a corporate group whose primary business field is energy. The Osaka Gas Group is focusing on reducing CO<sub>2</sub> emissions not only at facilities run by the Group, such as city gas processing plants and electric power stations, but also at energy-consuming customers—by proposing and diffusing environment-friendly natural gas that emits less CO<sub>2</sub>, highly energy-efficient products and services, and introducing renewable energy sources.

The Osaka Gas Group will conduct its business with more attention paid to environmental preservation under the Long-Term Management Vision 2030. Specifically, the Group aims to cut CO<sub>2</sub> emissions by a total of 70 million tons between fiscal 2018 and fiscal 2031 as part of its efforts to help create a low-carbon society.



**Megumu Tsuda**  
General Manager,  
CSR & Environment Dept.,  
Osaka Gas Co., Ltd.

#### Long-term goals covering the period between fiscal 2018 and fiscal 2031

**Aim to reduce CO<sub>2</sub> emissions by a total of about 70 million tons during the period\***

\* Include reductions at customers and overseas reductions (representing about 2% of the government's total reduction target)

##### Subject to calculation

CO<sub>2</sub> emissions that are expected to be cut between fiscal 2018 and fiscal 2031 as a result of the Osaka Gas Group's plan to introduce highly energy-efficient facilities in fiscal 2018 or after, and its promotion of low-carbon energy sources. (Each year's projected reduction amounts are added up.)

##### Calculation method

The amount of expected reductions of emissions due to the use of highly energy-efficient facilities and low-carbon energy sources is calculated based on the following formula.

Extent of expected use of highly energy-efficient technologies and low-carbon energy sources

×


Reduction effects expected if existing facilities and conventional energy sources are replaced by highly energy-efficient facilities and low-carbon energy sources

2030

2017

#### Reductions of CO<sub>2</sub> emissions from business activities by the Osaka Gas Group


##### Energy saving during the city gas production process

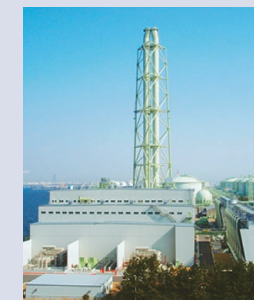
The Group will strive to save energy by promoting LNG  cryogenic power generation and making the overall operation efficient.



LNG cryogenic power generation facilities at the Senboku LNG Terminal

##### Introduction of highly energy-efficient fossil-based power generation

The Osaka Gas Group has adopted highly energy-efficient power generation technologies that are advanced and optimal, and are commercially feasible, including the gas turbine combined cycle  method.



Senboku Natural Gas Power Plant

##### Promote the use of renewable energy sources

As part of its efforts to diversify electric sources, the Osaka Gas Group promotes the use of renewable energy sources, such as solar power, wind power and biomass.



Hizen Wind Power Station in Karatsu City, Saga Prefecture

##### Efforts to diffuse natural gas and its advanced use

The Osaka Gas Group aims to diffuse natural gas, which emits CO<sub>2</sub> less than any other fossil-derived fuels. The Group also develops and offers highly energy-efficient systems and appliances.



Development of energy-saving facilities

##### Energy services realize energy saving

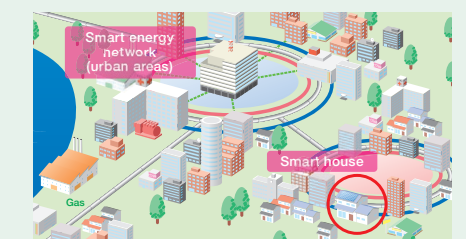
The Osaka Gas Group supports comprehensive energy-saving for customers by offering IT-based energy services and using the know-how the Group has built up through its past operations.




Monitoring of energy consumption

##### Effective use of energy in local communities and society as a whole

The Osaka Gas Group promotes the effective use of electricity and heat that have less environmental impact in local communities and society as a whole by building the "smart energy network" and the so-called "reverse power flow" in which electricity generated by the distributed system flows back to the power grid.



##### Highly energy-efficient distributed system

The Osaka Gas Group strives to diffuse a gas cogeneration system , in which electricity is generated using city gas, and the heat generated in that process is used for heating space and water. The Group also aims to spread the use of fuel cells.




ENE-FARM Type S



## Osaka Gas Group Long-Term Management Vision 2030 and Medium-Term Management Plan 2020 [Going Forward Beyond Borders]

### Development of Human Resources and Work Environment for Continuously Providing Services that Exceed the Customers Expectations

Among social issues facing Japan recently is the declining working population. The phenomenon has highlighted the importance of diversity  in corporate management, posing a challenge to the country as it is trying to realize a society in which each of the country's 100 million people can play an important role. Various measures are in place at business corporations in Japan. Specifically, companies are rectifying their practice of forcing their employees to work for long hours and accelerating their efforts to improve productivity.

For Osaka Gas to carry out measures envisaged under the Long-Term Management Vision 2030, it is crucially important to stay “healthy” in terms of work styles and practices.

The Osaka Gas Group will promote changes in mindset, work styles and work environment. By doing so, the Group aims to be a corporate group that is chosen by people with diverse values as their place to work. The Group will also strive to foster a work environment in which employees can work with motivation and pride, thereby realizing highly productive and creative work styles.

The Group will promote efficient work styles and diversity in order to build a solid human resources base that continuously provides services that exceed the expectations of customers.



**Masamichi Iwai**  
Associate Director / General Manager,  
Human Resources Dept.,  
Osaka Gas Co., Ltd.

### Continue to Be a Healthy Corporate Group

To continue to be a healthy corporate group, we are committed to reforming attitude and style of work while securing an environment to promote such reforms.



#### ● Promotion of efficient work styles

The Osaka Gas Group launched a committee to encourage employees to work efficiently. The committee is intended to improve the Group's productivity and establish creative work styles. As a means of increasing operational efficiency and promoting efficient manpower use, the committee has formulated a specific code of conduct for employees, which spell out how to streamline business operations in document compilation and time management during conferences. Also included in the code of conduct is what superiors should keep in mind in their everyday work. Employees of Osaka Gas and its group companies can access an in-house portal site containing information on how to work efficiently, which is open around the clock.

#### ● Promotion of diversity

The Osaka Gas Group believes that it is essential for the Group to promote diversity in its corporate membership—an idea materialized by the compilation of the Osaka Gas Group Diversity Promotion Policy. Based on this policy, the Group is working on fostering a corporate culture in which people with different backgrounds can engage in discussion freely—irrespective of their gender, age, nationality or physical disability. Especially imperative for the Group is establishing a system to empower women. To become a corporate group that can use women's abilities fully and establish a corporate structure in which such abilities can be used effectively, we have set numerical goals and worked out an action plan, based on which various measures and systems are being introduced.

### Contribution to the Sustainable Development Goals (SDGs)

The Osaka Gas Group has undertaken CSR activities as part of its efforts to build a sustainable society in line with the Osaka Gas Group CSR Charter. The Group believes that the main philosophy envisioned under the SDGs is consistent with its basic idea on CSR. Therefore, we are convinced that we can contribute to achieving some SDGs through our CSR activities.

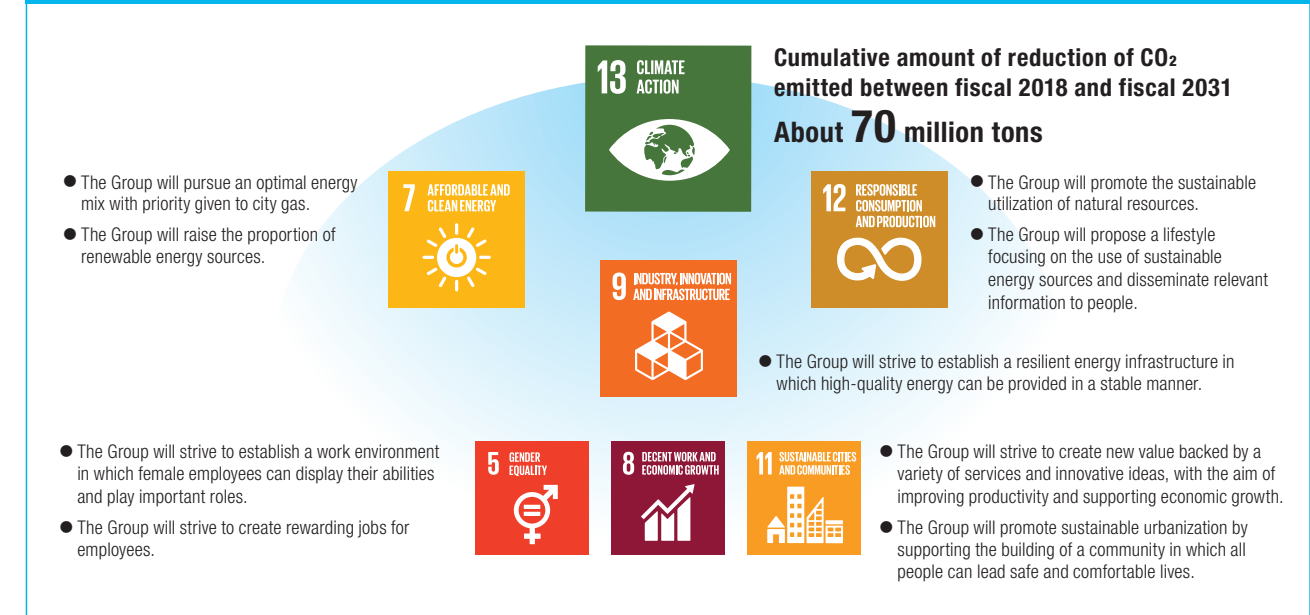
Among the 17 SDGs, Goal 13, “Take urgent action to combat climate change and its impacts,” is closely related to business operations undertaken by the Osaka Gas Group, a corporate group which is aiming to become a comprehensive energy service provider. The Osaka Gas Group sees Goal 13 as the challenge to which the Group can contribute the most, and has drawn up the Long-Term Management Vision 2030. The Group has pledged to reduce CO<sub>2</sub> emissions from its operations by a total of 70 million tons between

fiscal 2018 and fiscal 2031 under the vision.

For the emissions reduction goal to be achieved, the Osaka Gas Group believes that it is essential to establish a solid energy infrastructure in which high-quality energy can be provided steadily without being disrupted by natural disasters. Under these circumstances, the Osaka Gas Group will manage sustainable utilization of energy including natural gas, and explore an optimal energy mix. By doing so, we will promote the use of renewable energy sources. We also believe it is important for the Group to disseminate adequate information to stakeholders on the energy consumption side so as enable them to make better choices.

By implementing all these measures, the Osaka Gas Group will provide new value to society and is committed to making people's lives safe, comfortable and sustainable.

**The Osaka Gas Group will address climate change as a comprehensive energy service provider.  
The Group is committed to contributing to development of industries and communities  
through the provision of sustainable energy.**



#### ● What are SDGs?

Sustainable Development Goals (SDGs) are goals set under the “Transforming our World: the 2030 Agenda for Sustainable Development,” which was adopted by world leaders in September 2015 at the U.N. headquarters during the United Nations Sustainable Development Summit. Building on the United Nations Millennium Development Goals (MDGs), SDGs are goals set not only for developing countries but also for advanced countries. They are composed of 17 goals, divided into 169 targets.



# Corporate Governance

## Basic Views on Corporate Governance

To implement measures envisaged under the Long-Term Management Vision and the Medium-Term Management Plan, both formulated in March 2017 and together called “Going Forward Beyond Borders,” Osaka Gas will ensure transparency, fairness and boldness in decision making, and execute its assigned business duties efficiently and adequately, based on the Osaka Gas Group CSR Charter, a set of guiding principles for employees, and specific standards for actions—the Osaka Gas Group Code of Conduct and the Osaka Gas Group Environmental Activities Policy. By doing

so, the Company aims to attain sustainable growth and enhance its corporate value on a medium- and long-term basis. The Company aims to maintain its trust from stakeholders in response to shareholders’ moves to exercise their rights and by promoting dialogue and collaboration with them. To further enhance its CSR levels, the Osaka Gas Group will continuously improve and strengthen the current corporate governance system.

## System and Efforts Aimed at Enhancing Corporate Governance

Osaka Gas has chosen to be a company that adopts a corporate auditor system. The Company has also adopted an executive officer system. The Company’s corporate governance system is shown below.

### Board of Directors, Directors of the Company

The Board of Directors consist of 13 Directors, including three Outside Directors. Its mission is to make swift and appropriate decisions concerning important matters that affect the Group as a whole including subsidiaries, and reinforce the supervisory capability. In fiscal 2017, the Board of Directors met a total of 13 times, with the attendance rate reaching an average of 99.4%. Sufficient time was allocated to discussing the matters tabled for the meetings and active discussions were conducted.

### Executive Officers

Osaka Gas has adopted an executive officer system, which is aimed at revitalizing the activities of the Board of Directors, and enhancing its supervisory function while increasing the Company’s management efficiency, by enabling Directors to focus on decision-making, and supervisory duties. Under the executive officer system, Executive Officers perform duties determined by the Board of Directors, while some Representative Directors and Directors concurrently serve as executive officers to make management decision-making more accurate and efficient.

### Executive Board

Osaka Gas makes decisions on important matters concerning basic management policies and other management issues after the Executive Board fully discusses these matters. In line with the in-house rules related to the Executive Board, the Board is composed of the President, Vice Presidents, Managing Directors, Heads of HQ and Business Units, and generally meets every week. In principle, meetings held by the Executive Boards each year include three meetings held as the CSR Promotion Council, which deliberates on CSR-related activity plans and reports on results of the activities.

### Board of Corporate Auditors, Auditors

The Board of Corporate Auditors consists of five Auditors, including three Outside Auditors. These Auditors audit the execution of duties assigned to each Director.

## Roles and Functions of Outside Directors

As a member of the Board of Directors, an Outside Director takes part in the Company’s decision-making process, and monitors and supervises whether the Executive Officers have executed their

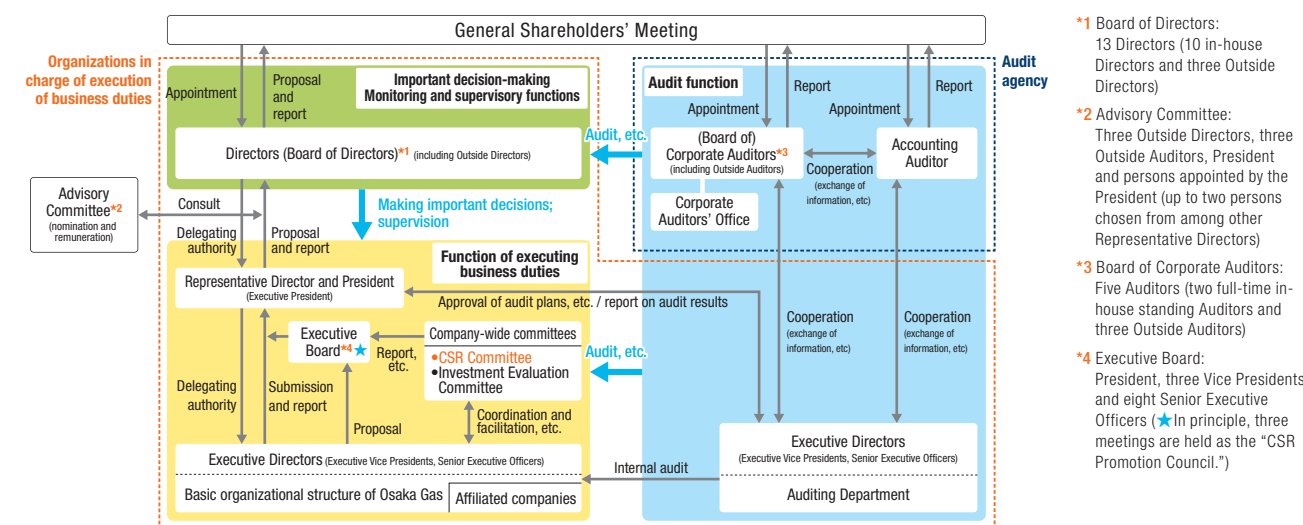
business duties appropriately, based on his or her knowledge and experience, and from an independent viewpoint.

## Efforts to Strengthen the Functions of Auditors

As part of its efforts to strengthen the functions of Auditors, Osaka Gas appoints three Outside Auditors, whose role is to audit if Directors have executed their duties appropriately—from an independent viewpoint. The Auditors meet on a regular basis to discuss annual audit plans and audit reports, and exchange information to ensure the effectiveness of auditing activities and

enhance their quality. Osaka Gas has established the Corporate Auditors’ Office, which is composed of full-time staff operating outside the Executive Officers’ chain of command. The Office is designed to strengthen the auditing function of Auditors by supporting them in executing their business duties.

### Corporate Governance System (as of the end of a regular general shareholders meeting held on June 29, 2017)



## Risk Management

Heads of divisions of Osaka Gas and affiliates are in charge of managing crisis-related losses by conducting risk-management inspections on a regular basis. Utilizing the Gas Group Risk Management System (G-RIMS)\*, an originally developed by Osaka Gas for self-assessment of risk management practices, and other systems, each division and affiliate checks if there are any risks and if risk control has been conducted properly regarding each risk item, and implements follow-up and other measures if necessary. In fiscal 2017, the Osaka Gas Group strengthened its overall risk management by setting up a subcommittee in charge of risk management in the CSR Committee.

As for risk management regarding matters that affect the entire Osaka Gas Group, such as safety, security, and disaster and accident prevention, the departments or divisions responsible have

been clarified to support each division. In order to be prepared for disasters or emergency situation, the Rules for Disaster Control and the Business Continuity Plan (BCP ) in the Event of Large-Scale Disasters and Accidents have been established. In fiscal 2017, the Osaka Gas Group revised its in-house rules concerning disaster-prevention measures following the change in the gas business system in Japan. The Group also established a response system in the event of an emergency in overseas operations.

\* G-RIMS was introduced in fiscal 2007 to smooth risk management in routine business operations. The manager of each organization and affiliated company checks if preventive measures have been implemented or an early-detection system is in place as required, using a checklist comprising about 50 items. G-RIMS is also designed to evaluate the magnitude of risks and identify risks to be addressed, before PDCA (plan-do-check-act) is operated for improvement. Based on the findings of G-RIMS, the CSR Committee’s section in charge of risk management clarifies what to do with future risks and shares relevant information.

## Status of Internal Control

The Company establishes systems (internal control systems) to ensure that the Directors of the Company execute the duties in compliance with the laws and regulations and the Articles of Incorporation and other systems necessary to ensure the properness of the Group’s operations. The Company confirms the operating

status of the internal control systems on a periodic basis by receiving reports from the organizational heads and other persons concerned regarding items to be confirmed. At the meeting of the Board of Directors held on April 26, 2017, it was reported that the internal control systems were operating in a proper manner.



## CSR Management

### The Osaka Gas Group Promotes CSR

To live up to the expectations of its stakeholders, fulfill its corporate social responsibilities and achieve sustainable development, the Osaka Gas Group adopted the CSR Charter in 2006, a guiding principles based on which executives and employees execute their business duties.

Furthermore, in 2007, the Osaka Gas became the first Japanese utility to express its intention to join the United Nations Global Compact in a show of its support of principles to be respected by companies worldwide.

The Osaka Gas Group Code of Conduct, adopted in 2000, spells out guiding principles the Group's employees and executives must abide by. In 2008, the code was revised to make it harmonious with the United Nations Global Compact. In 2011, it was also modified to reflect core elements of ISO 26000.

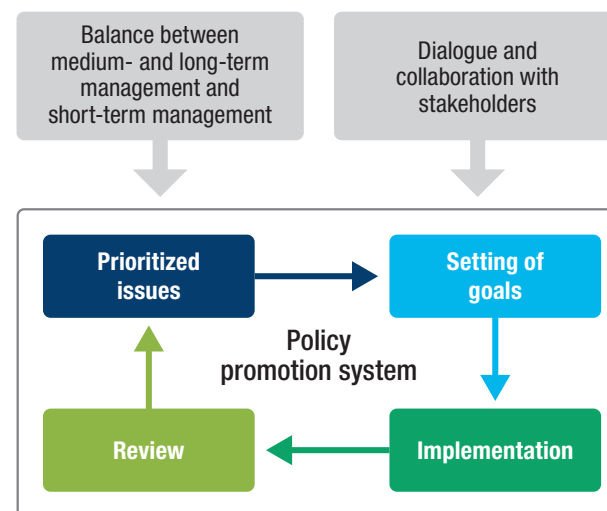
As our business field has expanded, the scope of stakeholders—parties influenced by our operations—has further expanded, including customers, local communities, shareholders and employees.

In order to recognize the impact our business activities may have on society and the environment, and conduct business while taking such impact into account, the Osaka Gas Group has been promoting CSR activities. Specifically, in 2009, the Group introduced CSR Indicators under each chapter of the CSR Charter to promote CSR activities and visualize the process.

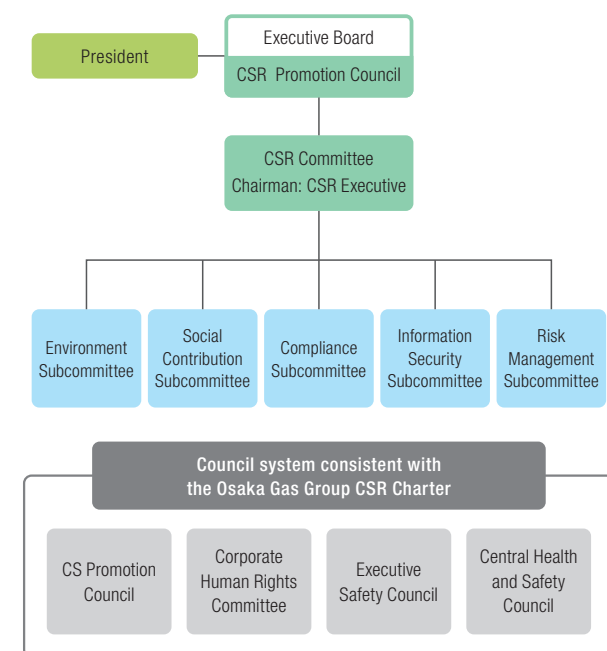
In fiscal 2014, we identified 16 important aspects for the Group's CSR, which we call "materiality," by referring to the fourth edition of the Sustainability Reporting Guidelines (G4) through discussion with outside knowledgeable people.

Under the "CSR Promotion System" as a basis of CSR activities, we implement CSR management system to promote and assess activities and indicators aiming for implementing effective PDCA management.

#### Concept of CSR Management




#### CSR Promotion System (as of April 1, 2017)



#### Osaka Gas Group CSR Charter

I	<b>Creating Value for Customers</b>	The Osaka Gas Group is committed to making a positive contribution to realizing a higher level of comfort and development in the business activities of its customers. The group intends to achieve this objective through the provision of a reliable and safe supply of natural gas and other energy services with an improved level of services for its customers. We also pursue the development of new products and services furthering value for customers, and that create opportunities for growth for our business and customers and society at large.
II	<b>Harmonizing with the Environment and Contributing to Realizing a Sustainable Society</b>	Addressing the issues of the environment both at regional and global levels is of paramount importance for the Osaka Gas Group which is engaged in wide-ranging energy services. Being seriously aware of the impacts of its business activities on the environment, the Group seeks to harmonize its businesses with the environment and to realize efficient utilization of energy resources, thereby contributing to realizing a sustainable society.
III	<b>Being a Good Corporate Citizen Contributing to Society</b>	As a good corporate citizen, the Osaka Gas Group strives to maintain communication with society and the communities it serves. Through proactive disclosure of information and improved managerial transparency, we intend to establish favorable relationships with citizens and to make our positive contribution to the development of a healthy society.
IV	<b>Complying with Laws and Regulations and Respect for Human Rights</b>	The management's and the employees' compliance with laws and regulations forms the basis for gaining society's trust. Our perspectives on compliance go beyond legal and regulatory boundaries to include decent conduct expected of all citizens. Based on our respect for human rights, we intend to maintain equitable relationships with our customers, business partners, and other parties.
V	<b>Management Policy for Human Growth</b>	The Osaka Gas Group strives to become a group of enterprises to realize the growth of its employees through work by ensuring employment opportunities and respecting employees' individuality and initiative. We will charge ourselves with the task of creating new value for customers, shareholders and society.

#### How the U.N. Global Compact and ISO 26000 are related to the Osaka Gas Group Code of Conduct

Osaka Gas Group Code of Conduct		United Nations Global Compact	ISO 26000: Core subjects*
			Organizational governance (See P.17-18)
1	Respect for human rights	Human Rights	Human rights Osaka Gas Group Code of Conduct 1 3 4 5 13
2	Creating a pleasant work environment		
3	Compliance with laws and regulations	Labor	Labor practices Osaka Gas Group Code of Conduct 2 3 4 5 13
4	Personal and professional lives		
5	Respect for international rules and regulations as well as international norms including those on human rights		
6	Consideration to the environment		
7	Compliance with anti-monopoly laws and practice of fair transaction	Environment	The environment Osaka Gas Group Code of Conduct 3 4 5 6 13
8	Provision of products and services		
9	Ensuring safety of products and services		
10	Interacting with customers		
11	Contributing to society	Anti-Corruption	Fair operating practices Osaka Gas Group Code of Conduct 3 4 5 7 12 ~ 18
12	Associating with business partners		
13	Developing our partners' understanding of our Code of Conduct		
14	Use of information and information systems		
15	Disclosure of information		Consumer issues Osaka Gas Group Code of Conduct 3 4 5 8 9 10 13
16	Management of intellectual property		
17	Prohibiting association with anti-social forces, favors and benefits		
18	Appropriate payment of taxes and accounting practices		Community involvement and development Osaka Gas Group Code of Conduct 3 4 5 11 13

\* Numbers in the right column show the items of the Osaka Gas Group Code of Conduct relating to each core subject of ISO 26000

\* Numbers in the right column show the items of the Osaka Gas Group Code of Conduct relating to each core subject of ISO 26000.

CSR Management

Dialogue and Cooperation with Stakeholders

The Osaka Gas Group is focusing on active engagement with stakeholders through dialogue to recognize various possible issues involved in its CSR and to come up with mutually acceptable solutions to such issues. For example, the Osaka Gas Group has been promoting dialogue with the Kansai Consumers' Association, the Osaka Voluntary Action Center, and the Osaka Gas Labor Union. Furthermore, Osaka Gas is sharing information and cooperating with the Japan Network of the United Nations Global Compact, and actively taking part in the formulation of various policy measures

by the government and municipalities. The Company is also active as a member of the International Gas Union (IGU) putting forward proposals, aimed at promotion of the global gas industry.

One of the results of such engagement is that 5 business associations formed by partner companies undertaking gas-related services established the Code of Ethics respectively in response to the Group's policy. The Group is also actively engaging with various stakeholders, such as businesses, universities and NPOs.

Fiscal 2017 results of dialogues

In fiscal 2017, we conducted Service Masters 2016, a contest held among Osaka Gas servicemen to enhance their motivation to develop their skills and expertise on repair work and to improve the quality of our repair and maintenance service—to which we invited members of consumer groups to provide them with a first-hand look at our efforts to improve our service quality. We also held briefing sessions for consumer groups mainly to explain the licensing system regarding our repair service, also as part of our efforts to enhance the public's understanding of what we are doing for improving service quality.

We will continue to hold similar meetings and study tours for consumer group members—through which they are invited to visit our facilities—to deepen our dialogue with them.



Explaining our efforts for improving maintenance service quality

Stakeholders	Main contact opportunities and contact tools
Customers	● Business opportunities such as security and sale ● “Customer Centers” ● Website ● Service shops ● Showrooms ● Corporate PR events ● Advertisements via TV and other media ● Catalogs for products and services
Consumers groups	● Meetings ● Tours ● Seminars, study meetings
Regional communities	● Social contribution activities ● Tours ● “Energy and Environmental Education”
Students and educational institutions	● Joint study ● “Energy and Environmental Education,” “Food Education,” “Fire Education,” “Education on Disaster Prevention” ● Acceptance of interns ● Recruitment meetings ● Website
Knowledgeable people	● Joint study ● Meetings
Administrative authorities	● Submission of various documents ● Meetings ● Cooperation for regional development
NPO / NGO	● Joint research ● Joint work and cooperation for solving regional issues ● Meetings
Shareholders / investors	● Issuance of various reports (financial statement, annual reports) ● Briefings ● Website
Employees	● Labor-management meetings ● Education and training sessions ● “Compliance Desks” ● “Human Rights Desk” ● “Harassment Desk” ● Intranet, in-house publications
Business partners, suppliers	● Business opportunities ● Various regular meetings ● Joint training and joint drills

CSR Indicators

Efforts to promote CSR activities and visualize the process

In 2009, the Osaka Gas Group introduced CSR indicators under each chapter of the CSR Charter to promote CSR activities and visualize the process. Under the Group's policy of promoting CSR, the current CSR indicators cover the medium-term period between fiscal 2015 and fiscal 2017. Some of the indicators, however, are reviewed on a

single-year basis through dialogue with stakeholders.

In fiscal 2017, new CSR indicators were introduced based on past results—to cover the fiscal 2018–2021 period. We are working on achieving the new medium-term goals.

Reflection of results achieved in light of the CSR Indicators (FY2015-2017)

CSR Charter	CSR Indicators	Targets		FY2015 Results	FY2016 Results	FY2017 Results
I	Customer Satisfaction Survey: Seven Customer Service Duties	Overall satisfaction rate	87% or more	91%	91.9%	91.7% * The target was revised to 91% or more.
		Each satisfaction rate for seven customer service duties	84% or more	84% or more in all of the seven duties	84% or more in all of the seven duties	88% or more in all of the seven duties * The target was revised to 86% or more.
II	Environmental Management Indicator	Environmental Management Efficiency	58 yen/1,000 m³ or less * Target for FY2017	60 yen/1,000 m³	59 yen/1,000 m³	52.5 yen/1,000 m³
III	Communication events	Number of events held (on-site dietary and energy / environmental seminars, etc.)	1,000 events or more	1,985 events	2,028 events * The targeted number of events was revised to 1,100 or more.	2,341 events * The targeted number of events was revised to 1,500 or more.
		Number of contacts (visitors to permanent facilities including Gas Science Museum)	60,000 persons or more	69,369 persons	61,402 persons	58,316 persons * The targeted number of visitors was revised to 55,000 or more.
	Social contribution	Number of events held	600 events or more	696 events	778 events	1,066 events
IV	Scores on compliance awareness	(Individual) Understanding level of "Code of Conduct"	Higher than the previous year	0.4 points decreased compared to the previous year (73.4%)	0.4 points improved compared to the previous year (73.8%)	3.2 points decreased compared to the previous year (70.6%)
		(Organization) Degree of compliance penetration in the organization	Higher than the previous year	1.0 points improved compared to the previous year (87.0%)	0.4 points decreased compared to the previous year (86.6%)	1.0 points decreased compared to the previous year (87.6%)
	Percentage of employees receiving the "Compliance Training"		100%	100%	100%	100%
V	Employee Attitude Survey ★	Job satisfaction and attachment to the company	Maintain sufficient levels	Maintained sufficient levels (job satisfaction: 3.85; attachment to the company: 4.38; scale of 1 to 5)	Maintained sufficient levels (Result of FY2015)	Maintained sufficient levels (Result of FY2015)

★ Survey is conducted every few years.

Formulation of new targets for CSR Indicators (FY2018 –FY2021)

CSR Charter	CSR Indicators	Targets	Revised Indicators
I	Customer Satisfaction Survey: Seven Customer Service Duties	Overall satisfaction rate	91% or more
		Each satisfaction rate for seven customer service duties	86% or more
II	Environmental Management Indicator	Environmental Management Efficiency	14.2 yen/1,000 m <sup>3</sup> or less
III	Communication events	Number of events held (on-site dietary and energy / environmental seminars, etc.)	1,950 events or more
		Number of events held	600 events or more
IV	Scores on compliance awareness	(Individual) Recognition level of “Code of Conduct”	Higher than the previous year
		(Organization) Degree of compliance penetration in the organization	Higher than the previous year
IV	Percentage of employees receiving the “Compliance Training”	100%	100%
		100%	100%
V	Employee Attitude Survey	Job satisfaction and attachment to the company	Maintain sufficient levels (The next survey is set for fiscal 2019.)



## Creating Value for Customers

## Fundamental concept

The Osaka Gas Group will endeavor to ensure stable procurement, stable supply and security to allow customers to utilize energy safely. By doing so, the Group will provide products and services that are valuable to customers.

The Osaka Gas Group is committed to making a positive contribution to realizing a higher level of comfort and development in the business activities of its customers through stable procurement and safe supply of natural gas and other energies, and ensuring of safe use of gas and equipment with an improved level of services for its customers. We believe that an important foundation in realizing this will be ensuring security so that customers can use energy without worry. We will endeavor to provide products and services that give utmost reassurance to safety and to take on the challenge of creating new value in line with customers' wishes in order to be a corporate group that continually evolves and develops alongside its customers.

## CSR Indicator Customer Satisfaction Survey: Seven Customer Service Duties

The "Customer Satisfaction Survey" covers seven operations that deal directly with customers: opening of gas lines, repair of gas appliances, regular security patrol (gas facilities inspection), response to telephone inquiries, sales of appliances, security emergency response, and replacement of gas meters upon expiration of the validity period. A questionnaire form is mailed out after the completion of each operation, and assessments of responded customers received are then analyzed. Customer satisfaction is graded on a scale of one to six, and "overall satisfaction rate" is the ratio of responses in the top two grades to the total number of responses.

## Targets and results

The overall satisfaction rate was 91.7% in fiscal 2017, representing a decline of 0.2 percentage points from the preceding year.

We will continue to offer customer-oriented services based on their opinions shown in the survey.

	Targets	Results
Overall satisfaction rate	91% or more	91.7%
Each satisfaction rate for seven customer service duties	86% or more	88% or more

## Actions taken

## Further efforts to enhance levels of customer service

In fiscal 2017, we redoubled our efforts to improve customer satisfaction (CS). Specifically, we observed the behavior of Osaka Gas staff who received high CS grades in four of the seven customer-service fields—opening of gas lines, repair of gas appliances, sales of appliances, and response to telephone inquiries. This is what we call "behavioral observation."\* The observation results were analyzed and developed into a customer service manual in each field for use by all other staff.

The detailed survey results are fed back to staffs for further improvement of their customer service level.

\* "Behavioral observation" is a methodology for seeking solutions based on the academic analysis of facts and findings obtained through the broad-based observation of people's behavior that becomes prominent in various situations.

## Efforts to Ensure Safety and Ease Customers' Worry

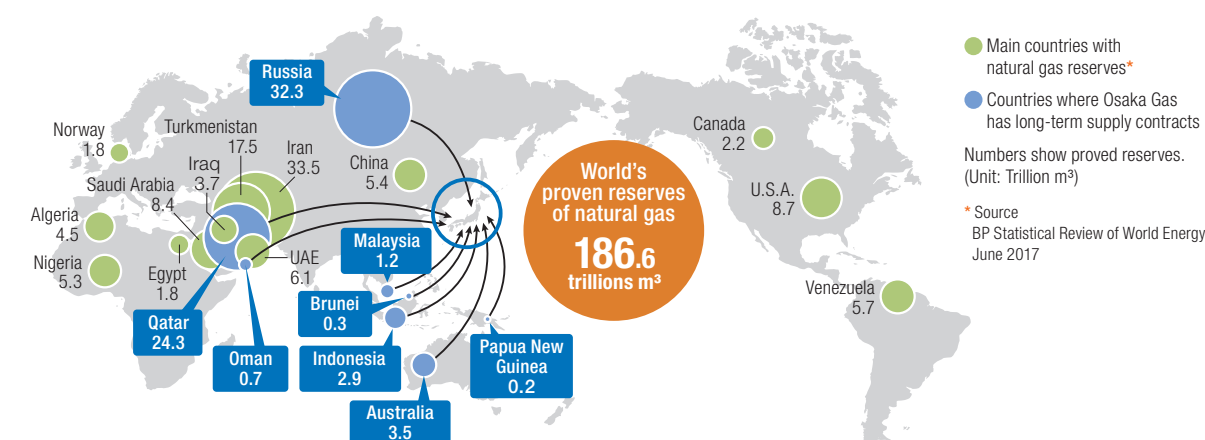
## Ensuring stable procurement by diversifying sources of LNG imported by Osaka Gas

Expectations and demand for natural gas have been growing in recent years in view of the need to ensure energy security. Osaka Gas has been diversifying its LNG procurement sources to provide natural gas to our customers in a stable manner. The company has been also diversifying its contract price indicators to enhance its market competitiveness in LNG procurement. Meanwhile, when procuring LNG from other countries, Osaka Gas

has been conducting efficient operations of tankers used for LNG shipments, including those owned by us, to ensure expeditious and safe LNG transportation.

As a means of stabilizing natural gas procurement and ensuring profitability, Osaka Gas has undertaken liquefied projects and gas field development projects.

## Countries with Natural Gas Reserves and Natural Gas Supply Sources for Osaka Gas



## Safety measures at city gas processing terminals

Gas processing is a core and vital part of the Osaka Gas Group's business operations. Its Senboku LNG Terminal and Himeji LNG Terminal process LNG into city gas and supply it to customers in a stable manner appropriately responding to their city gas demand.

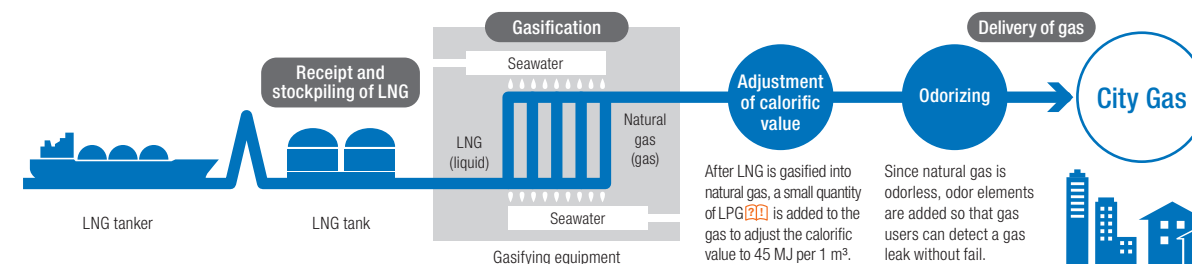
We are renovating and repairing our aging gas-processing facilities to secure facility safety and stable gas supply over the coming decades.

## Flow of city gas manufacturing

LNG, used as a raw material of city gas, is transported by tankers and stockpiled in tanks set up at processing terminals. The LNG brought in is vaporized using heat from seawater. Its calorific value is adjusted and gas odor elements are added before it is delivered to customers as city gas.



Central control rooms at LNG terminals carry out around-the-clock monitoring and operation of all processes.





Taking calls and responding all day, every day

It is particularly important to establish an initial response system in the event of accidents and natural disasters, and act appropriately in response to such events.

Osaka Gas has established a unified security system covering the entire supply area. Under the system, if gas leakage occurs, the Central Control Room at the Head Office will take charge of all relevant duties, including receiving an accident report and dispatching security staff to the accident site. Specifically, the Central Control Room will order the dispatch of the emergency vehicle that can reach the accident site the fastest by taking various factors into consideration, such as availability of vehicles and their locations.

The Central Control Room accepts emergency reports such as on gas leakage around the clock via dedicated telephone lines set up at the Room. After an accident is reported, emergency staff will be sent to the site immediately and work in close collaboration with local police and fire department.



Central Control Room (emergency call reception)

Conducting a company-wide earthquake drill along with a Business Continuity Plan (BCP) training

In July 2013 the Osaka Gas Group formulated the Business Continuity Plan (BCP) in the Event of Large-scale Disasters and Accidents and shared it across the Group to improve its ability to respond to accidents and disasters.

The BCP will in principle be reviewed once a year, in addition to earthquake drills, education/ training via e-learning and other means to foster greater understanding among employees.

In the event of a large-scale earthquake, the Group must do all it can to ensure business continuity as well as to respond to the immediate needs associated with the disaster. In fiscal 2017, the Group conducted a company-wide earthquake drill and BCP training at the same time, as it had done the previous year. The Group then studied various issues that may arise when these drills are conducted simultaneously.

About 2,300 people participated in the earthquake drill in fiscal 2017, which was conducted in preparation for the expected occurrence of a powerful earthquake in the Nankai Trough off central and western Japan. Osaka Gas President Takehiro Honjo headed a special task force that would be set up in the event of an actual

earthquake. Participants in the training shared relevant information and confirmed what should be done in the process of evaluating quake damage, deciding whether or not to stop gas supply and establishing an overall response system. The drills conducted individually at each organization were highly practical. In addition, the Group also conducted training for the temporary termination of gas-supply services, using anti-disaster blocks that had been built along coastlines to protect against tsunami. Practical use of the blocks, established to prevent secondary damage following a large-scale earthquake, started in December 2015. In the BCP training, manpower deployment was confirmed for business duties deemed to require continuity in the event of a disaster, along with necessary procedures for implementing the BCP.



A company-wide disaster drill

Passing on advanced knowledge and skills in safety and disaster prevention

Osaka Gas is striving to nurture human resources with a high level of knowledge and skill in the areas of safety and disaster prevention. In fiscal 2008 a new human resources development system was launched by the Pipeline Business Unit's Human Resources Development Center in preparation for the mandatory retirement of veteran engineers. We are engaged in structured and systematic human resources development as well as educational efforts "to spread know-why" that teach the meaning and background of work procedures to build a framework (i.e. safety culture) that prevents accidents. To convey the lessons learned from various past failures, we have set up experiential-type training facilities that reproduce the circumstances at the time of these failures.

In addition, the Human Resources Development Center of the Pipeline Business Unit has sponsored a pipeline work contest among employees with high levels of skills and knowledge in the field. The

contest, started in 2015, is designed to enhance the overall safety level of Osaka Gas.

In addition, a variety of training is being offered at the Human Resources Growth Center, which provides education on safety and disaster prevention at LNG terminals, and at the respective Human Resource Development Centers of the Residential Energy Business Unit and the Commercial & Industrial Energy Business Unit, which are responsible for gas pipes and gas appliances on customer premises.



Pipeline work contest, sponsored by the Pipeline Business Unit, to improve engineers' skills in pipeline installation

Incorporating Customer Opinions

Examples of product and service improvements based on customer comments

At Osaka Gas, we have been working on improving the quality of various products and services based on comments from our customers.

In fiscal 2017, we improved the functions of the "My Osaka Gas" website for household customers, especially Net access to monthly gas bills. As a result, customers have been able to confirm

their payments in the past one year, past gas consumption and gas charges—all through graphs.



Posters notifying improvement based on customers' voices

Voices from staff

We are striving to reflect various comments from customers in our operations at relevant divisions and departments.

Osaka Gas receives comments from its customers, including critical opinions and demands. Such comments are valuable to us because they provide us with clues in improving our services in various fields.

In fiscal 2017, we were able to develop / improve gas appliances in cooperation with gas appliance makers, based on various customer comments that had reached us. Comments from customers were also reflected in the upgrading of the "My Osaka Gas" website, whose registered membership has topped 1 million. In reflection of customer comments, we improved visibility and accessibility of the website.

Our efforts to improve overall business operations and services have been disseminated not only to our employees but also to people outside the company via our website and showroom posters.

We will continue to reflect customers' views and opinions in our services, and upgrade our operations in collaboration with relevant parties both inside and outside the company.



Hiromi Yonehara  
Marketing Promotion Dept.,  
Residential Energy Business Unit

Multi-Energy Business

Energy business both in Japan and overseas

As a comprehensive energy service provider, the Osaka Gas Group proposes the optimal use of natural gas, electricity, LPG and thermal energy. The move is intended to enhance "customer value" at a time when customer needs for energy have been diversified following the liberalization of the energy market.

Among various businesses we are undertaking in the energy field, the Group has been positioning the electricity business as the second most important business after the gas business. In fiscal 2010, the Senboku Natural Gas Power Plant (capacity: 1.109 million kW) went into operation as one of our key power plants. In addition, in Japan, we operate five other fossil-based power plants and three cogeneration systems while participating in or operating six wind power businesses and eight solar power businesses as part of our efforts to promote power generation from renewable energy sources. Our overseas IPP business includes investment in fossil-based power plants, wind power projects and solar power projects in North America and Australia. In 2015, we invested in St. Charles Power Project, a power station located in Maryland, the United States. The power plant began operation in February 2017. In 2017, we also invested in two power plant projects in the United States—the Shore Power Plant in New Jersey and the Fairview Power Plant in Pennsylvania.

These projects give the Osaka Gas Group power sources totaling about 1.878 million kW in Japan and about 1.403 million kW

overseas, both as of the end of March 2017.

As part of our efforts to develop additional power sources, in 2016 we invested in Fukushima Natural Gas Electric Power Station, currently being built by Fukushima Gas Power Co., Ltd. The Osaka Gas Group is committed to ensuring the stable supply of electricity with lower environmental impact in lower prices while contributing to industrial and economic development in local communities.

Total power generation capacity (domestic):  
Approx. 1.88 million kW

Fossil-based power generation:	1.63 million kW
Cogeneration systems:	0.09 million kW
Renewable energy sources:	0.16 million kW*

\* including biomass and coal power generation

Total power generation capacity (overseas):  
Approx. 1.40 million kW

Fossil-based power generation:	1.30 million kW
Renewable energy sources:	0.10 million kW

(Power generation capacity includes the Osaka Gas's share of interests of the projects, excluding those under consideration or construction.)



## Downstream business in Southeast Asia

The Osaka Gas Group sees Southeast Asia as a priority area, due to its promising outlook in view of its expected high economic growth in addition to the fact that many Japanese companies expand their business in the region, mostly manufacturers. To study the feasibility of launching downstream business [\(21\)](#) overseas, the Group has been conducting market research in the region since around 2010.

The Group established a Singapore subsidiary in March 2013 and a Thai subsidiary in October 2013. It also set up a representative office in Indonesia in October 2016 and a similar office in the Philippines in March 2017.

## Proposing New Value

### “Sumikata Service” to respond to customer housing needs

Osaka Gas launched a housing support service called “Sumikata Service,” which combines a wide range of housing-support services in addition to gas and electricity services to make a positive contribution to realizing a higher level of comfort and security in people’s lives.

Provided under the “Sumikata Service” are housing maintenance and repair services regarding water-related facilities, air conditioning equipment, and other housing equipment and systems. Also offered are house cleaning services, housing renovation services, and housing support aimed at realizing a higher level of comfort and security. For example, in water-related facility repair

services, Osaka Gas service chains act expeditiously in response to inquiries from customers, while applying the technological expertise acquired through the maintenance and repair of gas appliances to repairing water-related facilities including kitchens, bathtubs, bathrooms and toilets.

In fiscal 2018, Osaka Gas launched a new service called “Sumikata Plus,” which consists of the “Sumai no Kaketsuke Service,” aimed at responding to emergency housing needs, and the “Kurashi Ouen Service,” designed to support customers in their daily lives. Customers can receive such support services by paying fixed monthly fees.



## 住まいの「お困りごと」おまかせください！

### Development of a new cart-type gas detector

Osaka Gas developed a new cart-type gas detector jointly with New Cosmos Electric Co., Ltd. The device is intended to detect gas leakage from underground gas pipes.

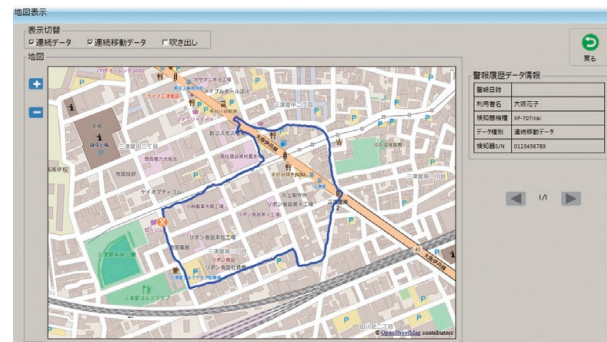
The gas detector, operated by hand, is designed to detect possible gas leakage by absorbing ground-level air. It is equipped with a GPS function, aimed at improving search-route tracing ability, and a warning system against the cart’s use at excessive speed in order to secure an appropriate speed for accurate detection.

Osaka Gas is prepared to diffuse the newly developed cart-type gas detector to gas service providers across Japan as part of its efforts to ensure safe and care-free gas services. We will continue to



Cart-type gas detector

work harder to develop even more upgraded gas detectors and other equipments for safety.



The track where the gas detector run displayed through GPS function

## Harmonizing with the Environment and Contributing to Realizing a Sustainable Society

### Fundamental concept

Through the provision of products and services, including natural gas, the Osaka Gas Group is committed to reducing the environmental impact of business activities. By harmonizing its business activities with the environment, the Group will strive to create a sustainable society.

Environmental conservation on a local and a global scale is an extremely important mission for the Osaka Gas Group, whose operations center on the energy business. In accordance with the “Osaka Gas Group Environmental Activities Policy” we established in FY2007, the Osaka Gas Group is lessening the environmental impact of its business activities and customers through the expansion of utilization of natural gas and renewable energies, the provision of environmentally friendly products and services. And through our business activities, we contribute to environmental improvement and the development of sustainable societies locally, nationally, and internationally by pursuing harmony with the environment and making efficient use of energy and resources.

### CSR Indicator

### Environmental Management Indicator: Environmental Management Efficiency

Osaka Gas uses “Environmental Management Efficiency” as an indicator to assess progress in environmental management in a continuous, integrated manner. This indicator is the total monetary value of seven environmental impacts\* per gas sold. The smaller the figure for environmental management efficiency, the greater the reduction in environmental impact per amount of gas sold.

\* GHG [\(22\)](#) emissions, NOx emissions, COD (chemical oxygen demand), final disposal of general / industrial waste, final disposal of excavated soil [\(23\)](#), chemical emissions, use of drinking water and industrial water

### Targets and results

The environmental management efficiency for fiscal 2017 was given as 52.5 yen/1,000 m<sup>3</sup>, achieving the target set for the year.

	Targets	Results
Environmental Management Efficiency	58 yen/ 1,000 m <sup>3</sup> or less	52.5 yen/ 1,000 m <sup>3</sup>

### Actions taken

#### Actions taken to reduce the impact of business activities on the environment, measured by an increase in environmental management efficiency

At LNG terminals, we have continued to operate energy-saving facilities, such as cogeneration systems [\(24\)](#) and cryogenic power generation systems. At electric power stations, we have begun operating highly-efficient fossil-based power generation facilities while introducing renewable energy sources. At office buildings, we have promoted company-wide energy-saving through “Green Gas Buildings” activities. All employees of the Osaka Gas Group have worked on reducing the environmental impact of business activities by operating the Environmental Management System (EMS) toward the ultimate goal of cutting overall greenhouse gas emissions. In addition, we have reduced the environmental impact of business activities by recycling drilling soil discharged during the gas pipelines [\(25\)](#) works. Consequently, the Environmental Management Efficiency for fiscal 2017 came to 52.5 yen/1,000 m<sup>3</sup>.



Efforts Contributing to Realizing a Low-Carbon Society

CO2 emissions from Osaka Gas's city gas business

CO2 emissions in Osaka Gas's city gas business for FY2017 were 127,369 tons, resulting in CO2 emissions per cubic meter of gas sold (emission intensity) of 14.7 g-CO2/m3. Compared to 1990, the Kyoto Protocol's benchmark year, total CO2 emissions were down 52% and emissions on a per-unit basis fell by 76%.

Reasons for the decrease in CO2 emissions included a decline in purchased electricity following the active use of cogeneration

Efforts to reduce CO2 emissions at offices

Business offices operated by Osaka Gas and its group companies have established an Environmental Management System (EMS) based on ISO 14001, Eco Action 21 developed by the Ministry of Environment and the Osaka Gas Environmental Management System (OGEMS). Under the EMS, all employees steadily work to reduce their energy use while setting energy-saving targets. Specifically, they try to turn off lights and office equipment not currently needed or in use, and set air conditioning temperatures at reasonable levels.

In addition, the Osaka Gas Group has proactively been implementing advanced energy-saving and CO2 reduction measures when its buildings are newly set up or renovated. Such measures include the installation of equipment to achieve higher energy efficiency, the adoption of energy-control systems, and an overall review of the facility operations in its office buildings.

What has been achieved through energy-conservation activities and energy-saving know-how have been accumulated and shared among office buildings operated by the Group. Among others, measures deemed effective for energy saving are horizontally applied to all office buildings of the Osaka Gas Group under the "Green-Gas Building" project.

The Osaka Gas Group received "Building Energy-efficiency Labeling System (BELS)"\* assessment for two of its properties

systems and cryogenic power generation, efficient operations at power facilities, and stepped-up energy-saving activities at office buildings.

We will work for further reductions of CO2 emissions by aggressively using electricity produced by unused energy such as LNG cryogenics and gas pressure of gasification, as well as by reducing energy use in offices.

in fiscal 2017. The East Wing of Fukiai Office in Hyogo and the showroom building "hu+g MUSEUM" in Osaka received four stars and five stars, respectively, under the BELS system for their excellent energy conservation performance. Their respective energy-conservation rates in the year were 33% and 39%.

\* BELS  
BELS stands for Building Energy-efficiency Labeling System. It is aimed at evaluating the energy-saving ability of nonresidential buildings based on the Act on Improvement of Energy Consumption Performance of Buildings. The evaluation, certified by third parties, is given on a scale of one to five stars. The evaluation result is represented by a number of stars displayed on a special plate.



Voices from staff

I want to play a role in diffusing energy conservation to society through our efforts to promote energy saving at office buildings of the Osaka Gas Group.

Observing energy-saving standards became mandatory at newly constructed office buildings when the Act on Improvement of Energy Consumption Performance of Buildings came into force on April 1, 2017. This has made corporate energy-conservation activities all the more important.

I believe that, under these circumstances, boosting energy conservation performance at office buildings of the Osaka Gas Group and using our experiences and expertise in the field for society are an important mission of Osaka Gas in view of its anticipated role as an energy service provider.

BELS is a government-sponsored energy conservation evaluation system aimed at diffusing energy-efficient buildings. Our recent energy-saving efforts included the promotion of highly energy-efficient cogeneration systems and air-conditioning systems powered by gas, which the Osaka Gas Group received the highest evaluation under the BELS system. Furthermore, we have stepped up our public relations activities introducing such efforts. We will continue to disseminate information to the general public regarding our energy conservation activities.



Shunsuke Nakajima  
Business Strategy Dept.,  
Commercial & Industrial Energy  
Business Unit

Helping Customers' Efforts for Realizing a Low-Carbon Society

Development and diffusion of gas cogeneration systems for business and industrial use

Distributed energy systems generate power at the site where power is consumed and utilize waste heat from the power generation process for hot water supply and air conditioning. Thus distributed energy systems are highly economic and environmentally friendly.

Since releasing the first business-use micro-cogeneration system in 1998, Osaka Gas has expanded its lineup of cogeneration systems featuring not only a power-saving function but also power outage response capability. These systems have been widely used in factories, hospitals, public welfare facilities, hotels, spas and restaurants. As of the end of March 2017, there were 4,463 cogeneration systems under operation in the Osaka Gas service area with a combined output capacity of 1,589,000 kW.

In order to meet the diverse needs of customers, we are developing technology to further improve energy efficiency, reliability and generated electricity value.

In fiscal 2017, we worked with Mitsubishi Heavy Industries

Engine & Turbocharger, Ltd. to develop a highly energy efficient gas engine cogeneration system with an output capacity of 1,200 kW. We also focused on evaluating and commercializing a small-size solid oxide fuel cell (SOFC) for business use. A business-use SOFC with output capacity of 3 kW, made by KYOCERA Corp., achieved 52% in power-generation efficiency and 90% in overall efficiency. With its large electricity output, the product features specifications that suit the needs of customers from whom heat demand is relatively low. Osaka Gas began selling the product in fiscal 2018. We will step up our efforts to promote energy saving and contribute to environmental conservation by expanding sales of the product.



A small-size SOFC

Home-use SOFC ENE-FARM type S received environmental- and technology-related awards.

ENE-FARM type S, a home-use solid oxide fuel cell (SOFC) launched by Osaka Gas in April 2016, won high acclaim from consumers in various quarters and received many environmental-related awards.

ENE-FARM type S is a highly efficient energy system that generates electricity through a chemical reaction between hydrogen extracted from city gas and oxygen in the air. The product effectively uses the heat generated in the power generation process for hot water supply. ENE-FARM type S achieved the world's highest power generation efficiency of 52%, and at the same time features the world's smallest size for its main components. The compactness of the model has made installation easier in condominiums, being less spacious than ordinary houses. The installation of power generation units using existing hot water-supply appliances has also been made easier,

resulting in a broader base of customers being able to receive services. Furthermore, Osaka Gas has been able to purchase redundant electricity from its customers. By continuing to make efforts to diffuse ENE-FARM type S, Osaka Gas will contribute to CO2 emission reductions on the customer side, while supporting the central government's policy of diversifying power sources and promoting the distribution of power sources, and easing peak power demand. As of the end of March 2017, Osaka Gas had sold about 64,000 units of the product, which translated into CO2 emission reductions of some 94,000 tons per year.



ENE-FARM type S

Main awards given to ENE-FARM type S in fiscal 2017

- Grand award given by the head of the Agency for Natural Resources and Energy for contribution to energy saving, sponsored by the Energy Conservation Center (product and business model category)
- Award given by the Environment Minister for contribution to curbing global warming, sponsored by the Environment Ministry (technological development and commercialization category)
- Grand award given by the Chairman of the Advanced Cogeneration and Energy Utilization Center Japan (ACEJ) for the promotion of cogeneration systems, sponsored by ACEJ (technological development category)

\*1 The world's highest power generation efficiency  
The world's highest power generation efficiency among household-use fuel cells with a rated output capacity of 1 kW or less (based on data compiled by Osaka Gas as of Feb. 24, 2016)

\*2 Calculation of power generation efficiency  
Calculated based on a Lower heating value (LHV), which is the calorific value calculated by subtracting the latent heat of vaporization of the water vapor that is generated when complete fuel gas combustion occurs.

\*3 The world's smallest size  
The world's smallest size among household-use SOFCs, including systems supplying heat and hot water using exhaust heat (based on data compiled by Osaka Gas as of Feb. 24, 2016)

\*4 Purchase of redundant electricity  
This marked the first time in Japan that electricity generated by household fuel cells was bought through the grid (based on data compiled by Osaka Gas as of Feb. 24, 2016). Customers from whom we can buy their redundant electricity are those who use our specific ENE-FARM models and have concluded gas contracts with us.

Development of Smart Energy House

Osaka Gas is working on the development of the Smart Energy House, which is designed to offer comfortable and environmentally friendly living to people by achieving “smart” management of electricity and heat when they are created, stored and consumed. The Smart Energy House runs on three batteries—a residential fuel cell, a solar power system and a storage battery—and uses IT to

achieve the goal.

Osaka Gas and Sekisui House Ltd. conducted a living experiment of the Smart Energy House for three years from February 2011. The results of the experiment break down into three main points, which were released after technological studies were conducted to put them to practical use in the future.

- 1) The main functions in the experimental house are controlled by three batteries, including a storage battery installed in an electric vehicle. The house adopts a unique control method based on maximum use of a fuel cell to achieve energy efficiency. The experiment conducted under actual living conditions achieved a 103% reduction in CO<sub>2</sub> emissions\*, an 82% reduction in energy consumption, and savings of 310,000 yen in utility expenses and fuel costs for the vehicle.
- 2) The experiment confirmed the functionality of the Home Energy Management System (HEMS), which is said to be effective in ensuring both comfort for residents and energy savings over many years.
- 3) The experiment also demonstrated that automatic control systems set up in housing facilities, such as electrically operated shutters and electric curtains, are effective in increasing the convenience and comfort of residents.

\* Calculation of the rate of CO<sub>2</sub> emission reductions  
In addition to CO<sub>2</sub> emission reduction to net zero, CO<sub>2</sub> emissions are expected to be further decreased by another 3% through the use of the three batteries and by exporting electricity generated by the solar cell back to the grid.

Osaka Gas developed a “Smart Energy House Storage System,” a small-size and lightweight storage system with a storage capacity of 3.2 kWh. The product, capable of charging electricity generated by ENE-FARM type S, a home-use fuel cell developed by Osaka Gas,

was developed based on the Osaka Gas’s know-how on enabling optimal control of the three batteries and a storage system developed by KYOCERA Corp. Osaka Gas began selling the new storage system in April 2017.

Launched a demonstration test for aiming zero CO<sub>2</sub> emissions and net zero energy consumption

Osaka Gas and Sekisui House Ltd. conducted a long-term living experiment in a smart energy house using an existing house. The test, conducted for about two-and-a-half years from December 2016 using the renovated house, is designed to demonstrate that attaining zero CO<sub>2</sub> emissions and net zero energy consumption is compatible with leading a healthier and more comfortable life. This marked the first time that a living experiment using a renovated house had been

conducted in Japan to demonstrate net zero energy consumption.

The experiment will study how to realize zero CO<sub>2</sub> emissions and net zero energy consumption while taking into account residents’ opinions on the indoor conditions and convenient IoT systems for them to lead a comfortable life. Osaka Gas expects the ongoing test to lead to the creation of a feasible smart house in which people can live healthier and more comfortable lives.

Characteristics of a Smart Energy House

- 1) Generates electricity and heat in an energy-saving way by operating a fuel cell performs constant rated-output.

Electricity	Redundant electricity and electricity generated through a solar cell flow to the grid (reverse power flow)*.
Heat	Exhaust heat is fully used for hot water supply and air conditioning.

- 2) Realizes air-conditioning with less energy whereby people can enhance their health and lead a comfortable life by a smart air-conditioning operation.

Summer and winter season	Air-conditioning is controlled according to the residents’ lifestyles, helping prevent health problems caused by temperature change, such as heat shock.
Spring and autumn seasons	The smart control system can control the amount of sunlight and ventilation to realize a comfortable living space by adjusting the opening of a shutter and sash according to external weather conditions.



House used for a long-term living experiment

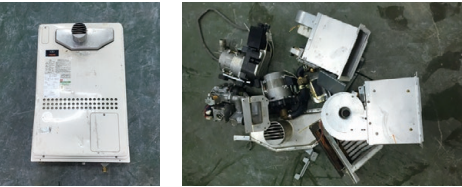
\* Under the Act on Special Measures Concerning Procurement of Renewable Electric Energy by Operators of Electric Utilities, better known as Feed-in Tariff (FIT), reverse power flow involving both a solar cell, covered by FIT, and a fuel cell, not covered by FIT, is not permitted. Therefore, a solar cell used in reverse power flow in the demonstration test is treated as a non-FIT electric source.

Efforts in Resource Recycling

Resource recycling in value chains

Osaka Gas is thoroughly implementing the 3Rs (reduce, reuse, recycle), cutting its resource consumption and waste generation, and endeavoring to reuse and recycle used resources in its efforts to help create a recycling-oriented society. We are recycling resources throughout our business activity value chain by such means as striving for zero emissions at LNG terminals, reusing gas meters, recycling gas pipe materials, reusing excavated soil from gas pipe installation, and recycling used gas equipment. In fiscal 2017, the rate of reuse of excavated soil from gas pipe work

stood at 89%. The rate of recycling of PE pipes came to 100%. The rate of recycling of used gas appliances was given as about 90%.



Main part of a hot-water device and iron scraps subject to recycling

Conserving Biodiversity

A condominium introducing native plants won the Good Design Award

Osaka Gas Urban Development Co., Ltd., an Osaka Gas Group company, received the Good Design Award for fiscal 2017 for developing condominiums while taking biodiversity into account.

In addressing “co-existence with the environment,” one of its “five focuses” for urban and property development, Osaka Gas Urban Development is pursuing a planting plan that takes biodiversity into consideration. The planting of native seedlings of “Chimakizasa,” a species of bamboo grass called Sasa Palmata in English was completed in March 2014 in the garden of the “Urbanex Kyoto Matsugasaki”. The indigenous bamboo grass, growing in the northern part of Kyoto City, has been traditionally used to make amulets sold at the annual Gion Festival which are alleged to have the power to protect people from illness and accidents, and as wraps for traditional Japanese sweets. Chimakizasa has been recognized as an endangered plant in Kyoto City as a result of excessive eating by wild deer, whose population in the city has been increasing in recent years. All of the 10 bamboo grass plants that were planted in the garden of the “Urbanex Kyoto Matsugasaki” were donated by the Chimakizasa revival committee, a local team formed to increase

numbers of the plant, with members including researchers from Kyoto University.

At the “Urbanex Kobe Okurayama”, under construction since February 2016, Osaka Gas Urban Development has planted Japanese blue oaks, gooseneck loosestrife and other local seeds/seedlings with a support from the Museum of Nature and Human Activities, Hyogo. Signs describing plants names and their characteristics have also been put up so that local residents, too, can learn the importance of biodiversity. Osaka Gas Urban Development’s continuous efforts to promote biodiversity by using native seedlings in its condo development led to the company receiving the Good Design Award for fiscal 2017.

Osaka Gas Urban Development has adopted a policy of considering biodiversity when formulating their planting plans. Future real estate development projects by Osaka Gas Urban Development will earmark greenery that provides a natural habitat for plants and animals.



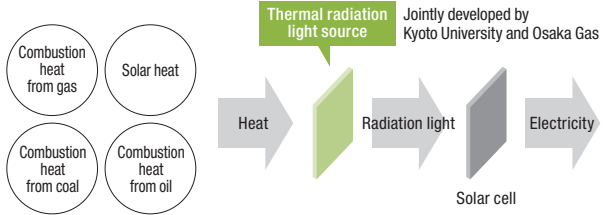
Developing Environmental Technologies

Technology to convert thermal energy into light with a wavelength suitable for power generation by a solar cell

Osaka Gas and Kyoto University joined hands and succeeded for the first time in developing technology to convert thermal energy into light with a wavelength whereby a solar cell can generate electricity most efficiently. The development is expected to improve power generation efficiency using thermal energy sources.

In their joint studies, Osaka Gas and Kyoto University used silicon, a chemical element mainly used to develop semiconductors, to form a photonic nanostructure. They used this structure to develop a thermal radiation light source that exclusively emits light with a wavelength whereby a solar cell can generate electricity efficiently when the temperature is high. A power generation efficiency of 40% or higher is expected with this technology—much higher than the

figure of around 20% recorded with an ordinary solar cell. Thermal sources are not limited to solar power with this technology. Equally efficient power generation can be expected using other thermal sources such as combustion heat.





Environmental Impact throughout the Osaka Gas Group Value Chain in FY2017

Third-party verification completed. Osaka Gas underwent a third party verification by Bureau Veritas Japan Co., Ltd.

The Osaka Gas Group calculated the amount of greenhouse gas (GHG [21](#)) emitted by companies that constitute the Osaka Gas Group's value chain [21](#) network, based on the GHG Protocol, an international emission standard. The methodology of the calculation and its results have been certified by an independent organization to warrant their reliability and accuracy.

Combined GHG emissions by the Osaka Gas Group and value-chain companies, measured by CO<sub>2</sub>, totaled about 36.13 million tons in fiscal 2017. The sum breaks down into about 4.36 million tons or about 12% for GHG emitted through business activities by the Osaka Gas Group (Scope 1 and Scope 2), and about 31.77 million tons or about 88% emitted by organizations involved in our value-chain (Scope 3).

GHG emissions from city gas combustion on the customer side amounted to 19.91 million tons in the reporting year in terms of CO<sub>2</sub>, accounting for about 55% of the total. This makes it all the more important for Osaka Gas to further diffuse energy-efficient ENE-FARM systems and cogeneration systems [21](#)—for which our company has mounted a promotional campaign—while promoting energy conservation using natural gas, an energy source that emits less CO<sub>2</sub>.

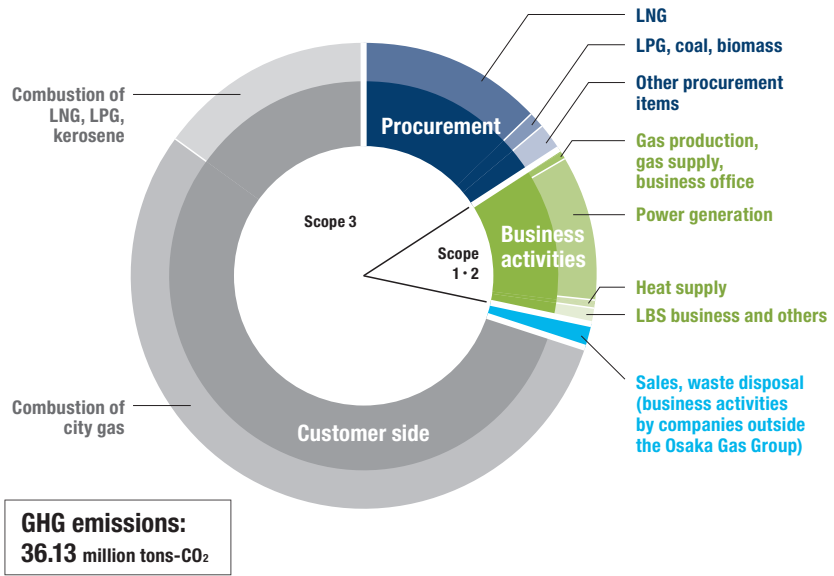
GHG emissions through electricity generation by the Osaka Gas Group, as measured in terms of CO<sub>2</sub>, came to 3.9 million tons, representing about 11% of the total. As a way of reducing GHG emissions from its own business activities, the Group will continue to actively introduce highly advanced energy-efficient power generation facilities and using renewable energy sources.

GHG emissions from material and fuel procurement totaled 5.9 million tons in the year, accounting for about 16% of the total emissions. The procurement of energy sources, especially LNG [21](#), accounted for nearly 90% of the 5.9 million tons. Under these circumstances, we will continue our efforts to improve fuel efficiency regarding the operation of LNG tankers in collaboration with material suppliers.

Activities that have potential environmental impacts other than GHG emissions include the disposal of waste (general waste and industrial waste), and the disposal of excavated soil [21](#) and polyethylene pipes [21](#) associated with gas pipe [21](#) works. However, the recycling rates are high for such waste, a situation we will try to maintain in the future.

More than 99% of water used for our industrial activities is taken from the sea. Such water is mostly used to vaporize LNG at LNG terminals. Sea water is also used as coolant inside the steam turbine condenser at some power stations. Once used, the water is discharged into the sea under strict control.

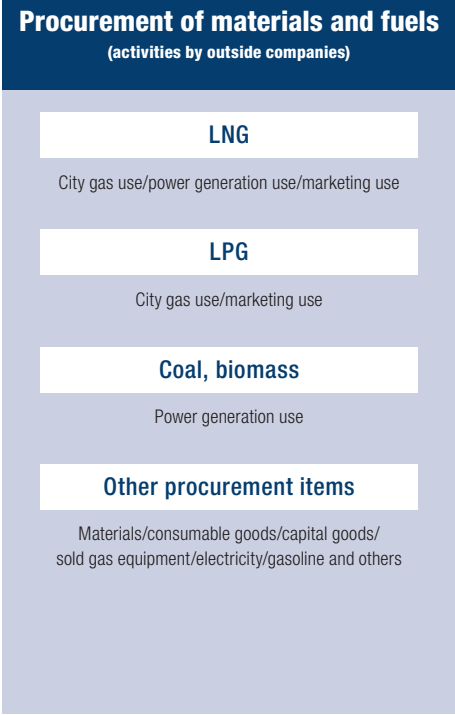
GHG Emissions Throughout the Value Chain in FY2017



Companies subject to the calculation of GHG emissions  
Osaka Gas and 64 companies among 150 consolidated subsidiaries are subject to calculation of GHG emissions. Those housed in office buildings as tenants and whose environmental data are difficult to grasp and whose environmental effects are minimal are not subject to such calculation. Also excluded from the calculation are overseas companies whose environmental impacts are minimal.

Main Materials and Fuels

Amount of LNG handled	8,915 thousand tons
	The figure above includes the amounts of the items listed below: <ul style="list-style-type: none"><li>Materials of city gas</li><li>Fuels at LNG terminals</li><li>Fuels used by Group companies for power generation</li><li>LNG shipments to outside companies</li></ul>
LPG <a href="#">21</a> used for calorific adjustment of city gas	132,432 tons



GHG (Scope 3<sup>\*1</sup>)

	CO <sub>2</sub> emission (1,000 t-CO <sub>2</sub> )
LNG	4,819
LPG, coal, biomass	272
Purchased goods	808
Total	5,898

[Sources of emission factors used for calculating CO<sub>2</sub> emissions]

- LNG production and shipment: Calculation of life cycle greenhouse gas emissions of LNG and city gas 13A (Research papers and a collection of academic speeches released at the 35th meeting of the Japan Society of Energy and Resources, held in June 2016)
- LPG production and shipment: Future forecast for life cycle greenhouse gas emissions of LNG and City Gas 13A (Energy and Resources, Vol. 28, No. 2, March 2007)
- Other main emission factors: Emission factors for calculating supply-chain greenhouse gas emissions (Database Ver.2.3) published by the Ministry of Environment

Amount of Energy Used

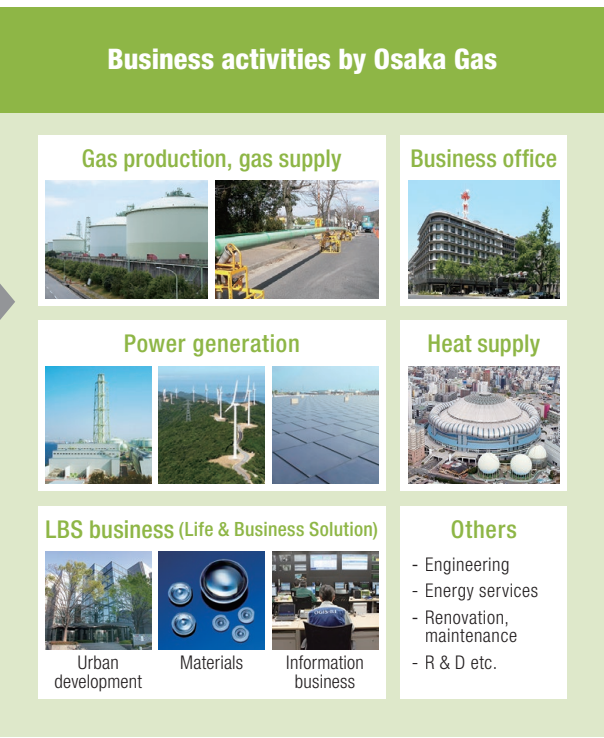
City gas	1,409 million m <sup>3</sup> (including gas whose calorific value has yet to be adjusted)
Purchased electricity	419 million kWh
Other energy sources	9,554 TJ

Amount of Vehicle Fuel Used

Gasoline	2,509 kl
City gas	180,777 m <sup>3</sup>
Diesel	738 kl
LPG	231,503 m <sup>3</sup>

Amount of Water Intake

General water, industrial water	11.13 million m <sup>3</sup>
Underground water	3.48 million m <sup>3</sup>
Seawater	586.46 million m <sup>3</sup>



GHG (Scope 1 and 2)

	CO <sub>2</sub> emission (1,000 t-CO <sub>2</sub> )
Gas production, gas supply	88
Business office	40
Power generation	3,903
Heat supply	119
LBS and others	214
Total	4,363

Waste

	Generated	Recycled
General waste	1,200 tons	91%
Industrial waste	92,711 tons	95%
Excavated soil	706,504 tons	99%
PE pipe	201 tons	100%
Used gas appliances recovered	1,719 tons	87%

\* At time of city gas production  
Figures in parentheses are not subject to verification.

Chemical Substances

	Amount of discharge
NO <sub>x</sub>	585 tons
SO <sub>x</sub>	103 tons
Toluene	28.1 tons
Xylene	1.05 tons
COD*	2.55 tons
Discharge of water	
Sewer	(1.79 million m <sup>3</sup> )
River	(1.26 million m <sup>3</sup> )
Sea	(588.36 million m <sup>3</sup> )



GHG (Scope 3<sup>\*2</sup>)

	CO <sub>2</sub> emission (1,000 t-CO <sub>2</sub> )
	568

GHG emissions due to energy consumption arising from various activities, including commuting of employees, business trips, transportation of products, business activities at outlets that provide sales support to Osaka Gas, disposal of own waste, disposal of product waste, and leasing of assets.

[CO<sub>2</sub> emission factors used]

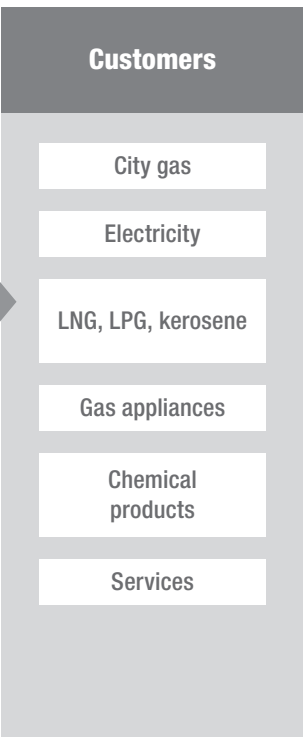
- Electricity: 0.65 kg-CO<sub>2</sub>/kW (2016 anti-global warming plan; fiscal 2014 average emission factor for fossil-based electricity sources)
- City gas: 2.29 kg-CO<sub>2</sub>/m<sup>3</sup> (based on Osaka Gas data)
- Others: Factors listed under the Law Concerning the Promotion of Measures to Cope with Global Warming

[Breakdown of Scope 3 categories]

- \*1 Category 1-4 (purchased products, capital goods, fuel procurement, upstream transportation)
- \*2 Category 5-10, 12-14 (waste, business trips, commuting, leased assets, downstream distribution, processing of products, waste disposal, franchises)
- \*3 Category 11 (use of sold products)

Sales Volume of Main Products

Gas	8,694 million m <sup>3</sup>
Electricity	8,948 million kWh



GHG (Scope 3<sup>\*3</sup>)

	CO <sub>2</sub> emission (1,000 t-CO <sub>2</sub> )
Combustion of city gas	19,910
Combustion of LNG, LPG and kerosene	5,387
Total	25,297



## Being a Good Corporate Citizen Contributing to Society

## Fundamental concept

The Osaka Gas Group will work on creating regional value by supporting community building under five themes—people, history and culture, sports, safety and security, and diet—and undertaking volunteer activities.

The Osaka Gas Group conducts business rooted in communities, and its business cannot succeed without good relations with these communities. Actively disclosing information to promote better understanding of our business is a matter of course, and we are engaged in social contribution activities on the topics of living, the environment and the community. We are making dynamic use of the Osaka Gas Group's assets to undertake efforts based on our "Small Light Campaign" underway for more than 30 years to contribute to the growth of local communities and also boost the pride of our employees.

## CSR Indicator Activities to Deepen Communication with Society and Social Contribution Activities

The figure "Number of events held (on-site dietary and energy / environment seminars, etc.)" represents the number of educational events the Osaka Gas Group sponsored to enhance people's understanding of energy, food and fire use. The figure "Number of contacts" means the number of visits by the general public to the Company's museums. The figure "Number of events (for social contribution) held" indicates the number of events the Osaka Gas Group has hosted, including baseball teaching by the Group's athletic club members and educational seminars targeting young people.

## Targets and results

In fiscal 2017, the Osaka Gas Group hosted a total of 2,341 educational event on the themes of energy, the environment, diet and fire use. The number of other social contribution events in the year totaled 1,066, focusing on events held under the "Small Light Campaign" and welfare events sponsored by its welfare institutions.

	Targets	Results
<b>Events held to enhance communication</b>		
Number of events held (on-site dietary and energy / environment seminars, etc.)	1,500 or more	2,341
Number of contacts (visits to Company's museums)	55,000 or more people	58,316 people
<b>Social contribution activities</b>		
Number of events held	600 or more	1,066

## Actions taken

## Continued communication activities and social contribution activities

By taking advantage of the assets it has acquired through its business activities, Osaka Gas is continuing to undertake educational activities aimed at developing healthy next-generation human resources, on the themes of energy and environment, food, disaster-prevention, and fire. In fiscal 2017, communication-enhancement events targeting elementary school children were held at 209 schools. At the Gas Science Museum and the Himeji Gas Energy Hall, fun events are held on a regular basis to teach visitors about natural gas and the global environment under the theme of "preservation of the global environment and effective use of energy." Furthermore, the Group actively undertakes social contribution activities, including baseball and soccer teaching sessions held for children by athletic clubs of Osaka Gas and activities aimed at supporting healthy growth of young people.

## Joining hands with local communities to create new social value

In a bid to create new value in regions, the Osaka Gas Group is supporting community building under five themes—people, history and culture, sports, safety and security, and diet. The Group is also stepping up the "Small Light Campaign," a volunteer initiative led by employees.

## For better society

- Donation, volunteer activities by employees
- Support for elderly, disabled and children
- Cooperation with social designers

## For healthy people and society

- Various education programs about food
- Disseminating the benefit of Japanese cuisine
- Cooking with local production

## For protecting ourselves

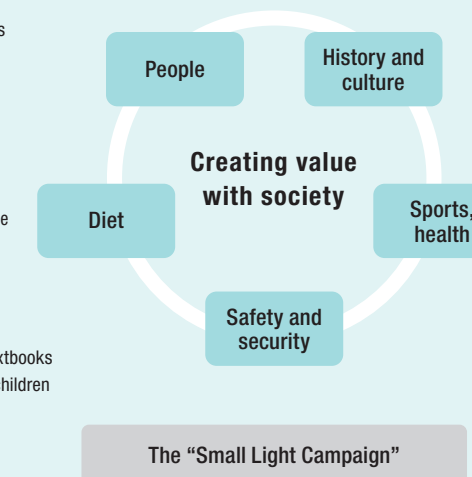
- Education on appropriate handling of fire
- Disaster-prevention class using original textbooks
- Energy/environment education for school children

## For nurturing attachment to the society

- Support for theatrical cultures
- Advocacy on life, culture, energy/infrastructure, management

## For healthy society through sports

- Track and field class
- Nutrition seminar for athletes



## Social Contribution Activities

## Corporate Volunteering Activities under the "Small Light Campaign"

The "Small Light Campaign" was launched in 1981, the UN International Year of Disabled Persons, as a company volunteer effort by the Osaka Gas Group. Begun with the idea that individual employees should take an interest in their immediate surroundings and give serious thought to resolving the various problems facing their local communities, this campaign is characterized by the fact that employees voluntarily plan, participate in, and sustain activities. Our Group's business activities are closely tied to the daily lives of everyone in the community. Acknowledging that this fact alone

demands greater self-awareness and action from them as members of their local communities, employees are involved in the "Small Light Campaign" as good corporate citizens.

To promote these activities, we have set up a number of supporting systems, including a Local Community Contribution Category in the President's Award, Community Gifts of which application is open to public, and "Volunteer Leave" as frameworks for improving employee awareness of the need for social contributions and for supporting voluntary activities.

## Voices from staff

## Support disabled people's social participation

"Midosuji Fureai Bazaar" is a charity event the Osaka Gas Group hosts on central Osaka's Midosuji boulevard to deepen people's understanding of the situation surrounding disabled people. About 20 days are allotted to this event every year. The bazaar is part of the Group's Small Light Campaign.

I have worked for this charity event for many years. Recently, a total of 40 groups have participated in the bazaar, including nonprofit organizations and welfare workshops established for the disabled people. Sold at stalls and stands set up for the event are home-made cookies, bread and sundry items, all produced by disabled people. The event has thus provided such people with job opportunities while supporting their participation in society.

I hope that through this kind of event I can continue to contribute to building an all-inclusive society—a community in which all people can play an active role while feeling fulfilled in what they do.



Midosuji Fureai Bazaar

Ken Aikawa  
Social Design Team,  
Regional Development Dept.



Support Kansai-based “Social Designers”

Osaka Gas operates “My Pro Showcase Kansai,” a regional revitalization program, jointly with Greenz, a nonprofit organization known as the operator of the online magazine “greenz.jp,” to support regional projects undertaken by Kansai-based “social designers” and nonprofit organizations. Osaka Gas sees people participating in the revitalization program, an initiative requiring a strong self-help drive to solve social issues, as potential future partners. Osaka Gas believes such people are capable of invigorating communities in the Kansai region through the program. Our company is thus prepared to disseminate its activities to society while helping them connect with stakeholders in various fields.

In March 2016, Osaka Gas published a leaflet titled “Socially Design the Kansai Region.” The leaflet included information on eight organizations Osaka Gas sees as “creatively” working to solve social issues such as the aging of society, homelessness, poverty and abuse.



Activities of the CEL

The Osaka Gas Research Institute for Culture, Energy and Life (CEL) has chosen four key areas of research—life, culture, energy infrastructure and business management—and conducts research from the perspective of day-to-day living and seeks to put its findings into practice and into recommendations. In undertaking such research activities, the company focuses on important and potentially important social issues facing regions. The CEL presents these findings in publications, symposiums and seminars, lectures on them

at universities, and publishes them in newspapers and magazines. It also makes good use of them in outside activities undertaken in cooperation with government agencies, business committees and NPOs. The CEL also disseminates information through its triannual magazine “CEL,” as well as its social media and talking sessions. It also uses a research and networking laboratory set up within the CEL to study the attractiveness of urban cities.

Activities to Promote Communication with Society

Food education activities

The Osaka Gas Group has been pursuing food education activities under the slogan “Nurturing healthy youth through food” to give children a zest for living through food and help them build well-rounded characters.

These activities include holding food education and cooking classes for children, preparing and providing food education learning materials to elementary schools, and developing food menus to be provided to elementary school cooking classes. Also being held are cooking contests participated in by parents and their children chosen from across Japan, and a food education symposium that has been co-sponsored with Osaka Seikei College to enhance the cooperation of people and municipalities in the region.

A new food education program focusing on dashi soup stock used in Japanese cuisine started in fiscal 2018. Japanese restaurant

chefs are dispatched to schools and other venues to teach participants about this soup stock through actual cooking and tasting. The participants—mainly fifth and sixth graders of elementary school—children and their parents, and university students can discover how delicious dashi is and learn how effective it is in enhancing people’s health. Osaka Gas will continue to support food education in each local community through this kind of event.



Cooking session aimed at promoting dashi soup stock led by chief chef of famed Japanese restaurant Gion Sasaki

Social Participation

Direct exchange of opinions between representatives of consumer groups and management

Once a year, there is a direct exchange of opinions between Osaka Gas’s management and the representatives of the Kansai Consumer Group Liaison Commission, an organization of local consumer groups throughout the Kansai region. In fiscal 2017, we received many comments and questions regarding Japan’s future energy strategy

related to such topics as energy market liberalization. For example, we received comments regarding the role Osaka Gas, as a gas supplier, is supposed to play to ensure safety and security following the April 2017 full liberalization of the retail city gas market.



CSR Charter

IV

Complying with Laws and Regulations and Respect for Human Rights

Fundamental concept

The Osaka Gas Group believes that observing compliance and respecting human rights are the most important factors for the Group in winning trust from customers and society, and constitute the basis of business continuity.

Based on our notion that compliance extends beyond just following laws and regulations to include exhibiting decent behavior as a member of society, we endeavor to maintain fair and honest relations with customers, business partners, and all other parties, and to respect human rights. Ensuring compliance is the most important thing we can do to gain the trust of customers and the society. Recognizing that individual employees are the key to compliance, we are continually conducting training sessions and employee surveys to raise awareness.

CSR Indicator Scores on Compliance Awareness / Percentage of Employees Receiving “Compliance Training”

We have introduced three viewpoints deemed important for compliance promotion as CSR indicators. These three are: (1) the degree of understanding by each Osaka Gas employee of the “Osaka Gas Group Code of Conduct”, (2) the degree of penetration through each Osaka Gas Group organization of employees’ awareness of the importance of compliance, and (3) the percentage of Osaka Gas Group employees taking a compliance training course. As for indicators (1) and (2) above, the Osaka Gas Group aims to obtain higher scores than in the previous year in the compliance awareness surveys that it has been conducting since fiscal 2004 to measure the degree of its penetration. Concerning indicator (3), we work to ensure that all employees receive compliance training.

Targets and results

The targets and results for fiscal 2017 are as follows.

	Targets	Results
Scores on compliance awareness		
1: (Individual) Understanding level of Code of Conduct	Higher than the previous year	Down 3.2 points from the previous year (70.6%)
2: (Organization) Degree of compliance penetration in the organization	Higher than the previous year	Up 1.0 points from the previous year (87.6%)
3: Percentage of employees receiving the “Compliance Training”	100%	100%

Actions taken

Actions taken to enhance the awareness and understanding of employees of compliance

Efforts are under way to have all employees understand the content of the “Osaka Gas Group Code of Conduct” and raise their awareness of the importance of compliance to penetrate through each organization of the Group. Specifically, each organization of the Osaka Gas and its affiliated companies hold training sessions for their employees while taking into account the characteristics of business and workplace of each organization and affiliate. Employees who have yet to take a training course, will be advised to do so in order to leave nobody unattended.

An in-house case-study session based on actual scandals that occurred inside and outside the Group was held in fiscal 2017 to find their causes and prevent recurrence. In fiscal 2018, a similar in-house session will continue to be held, with the scope of discussion expanded to include the Osaka Gas Group Code of Conduct.



Compliance Promotion Efforts

“Compliance Desk”

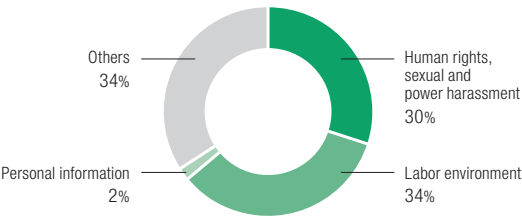
The Osaka Gas Group has established “Compliance Desks” at the Head Office, core affiliates, and law offices outside the company to provide a channel for persons who need a place to seek advice on, and report matters of compliance with laws and internal rules. Not only management and employees of the Group, and workers dispatched from manpower agencies to work for the Group, but also management and employees of client companies providing goods and labor to Group companies on a long-term basis can seek advice or make reports by phone, e-mail, or in writing anonymously.

In fiscal 2017, the “Compliance Desks” received a total of 109 consultations and reports. Upon receipt of a report, an initial examination was made, following which a fair investigation of the facts was conducted and any necessary corrective measures were implemented.

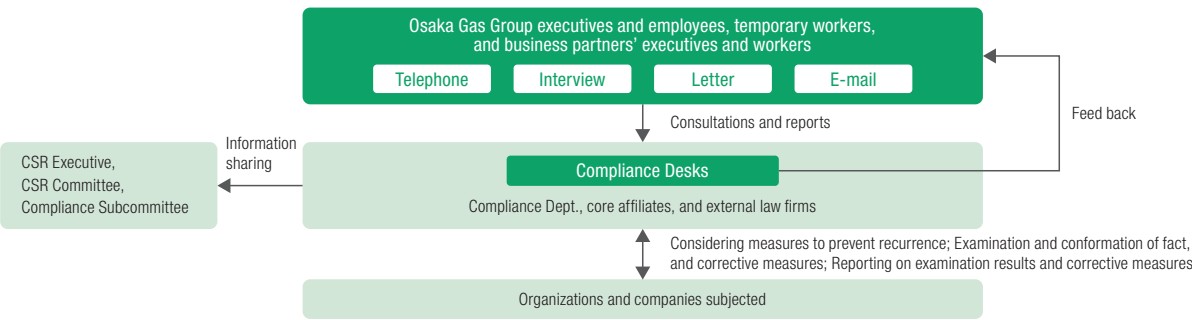
Acting on a report concerning compliance, the Group will take

remedial measures if the case is found to constitute a violation of law. Even if no violation is detected, the Group will carry out improvement measures as a way of creating a better working environment and maintaining it, if doing so is deemed necessary for the workplace.

Breakdown of Consultations and Reports



Organization of “Compliance Desks”



Efforts to Prevent a Recurrence of Failures

We would like to express our sincere apologies to all stakeholders and customers for causing two failures in handling personal information in fiscal 2017, which caused great concern to them.

Loss of documents containing personal information

Osaka Gas LPG Co., Ltd.

Osaka Gas confirmed on May 19, 2016 that documents containing the private information of 814 customers had been lost. The documents, used when conducting gas meter readings, were found to list the customers' private information including their names and residential addresses.

An in-house investigation revealed that there was no evidence that the data had been leaked to third parties or had been used illegally. The company visited all the customers affected by the incident and expressed its sincere apologies to them for the failure while explaining to them what had happened.

The Osaka Gas Group recognizes the high importance of protecting customers' personal information. The Group is ready to launch a full-scale investigation if an incident affecting customers' private information occurs, and improve the relevant business systems if necessary to prevent recurrence. We are prepared to do all we can to ensure the protection of customer information by reviewing and checking our operations periodically.

Nissho Gas Supply Co., Ltd.

Osaka Gas confirmed on Dec. 8, 2016 that documents containing the private information of 258 customers had been lost.

The affected documents were those that would have been presented to the customers following the start of LP gas services at their homes, and those containing maintenance and inspection records regarding gas appliances set up at the customers' houses—which had been duplicated for Nissho Gas Supply before the originals were delivered to the customers. Their names and residential addresses were contained in the documents.

Our investigation indicated there was no evidence showing their data had been leaked to third parties or had been used illegally. The company visited all the customers affected by the incident and apologized to them for the failure while explaining to them what had happened.

Promotion of Global Compliance

In view of expanding business operations abroad, Osaka Gas has compiled an English version of the leaflet meant for dissemination of the “Osaka Gas Group Code of Conduct” at overseas offices. Information included in the leaflet, to be handed out to employees for dissemination, are the “Osaka Gas Group CSR Charter,” the “Osaka Gas Group Code of Conduct” and “Compliance Desks” used for the internal reporting system. In fiscal 2017, Osaka Gas compiled a self-check list concerning compliance for overseas subsidiaries.

The list, compiled in collaboration with the relevant divisions and departments, took into account the results of the risk-management review conducted in the previous year. As part of our efforts to strengthen global compliance, we have sponsored educational seminars on bribery and other corruptive practices that may involve Osaka Gas employees posted overseas. The seminars have been participated in by employees who have been posted overseas to sell our gas appliances for business use.

Collaboration with engineering firms to enhance supply-side compliance

The Osaka Gas Pipeline Business Unit is working with the member companies of the group association, consisting of 17 engineering firms that specialized in gas pipe installation, to enhance compliance on the supply side.

Their activities include sponsoring a compliance seminar for new employees and establishing an information-sharing system aimed at compliance.

Voices from staff

We are joining hands with our important business partners to increase the awareness of each employee of the importance of observing compliance.

The Osaka Gas Pipeline Business Unit sponsors a compliance seminar for our important business partners—engineering firms belonging to the association for gas pipe engineering companies.

I am convinced that if we can increase our awareness of the importance of compliance together with our important business partners, our customers' trust in us will remain unshaken, and workplace communication and labor conditions will improve, enabling each gas pipe engineering company to provide high-quality service while maintaining safety and security.

We will continue to work hard together with these companies.



Compliance seminar



Hirotaka Seki  
Planning Dept., Pipeline Business Unit

Information Security

Efforts to strengthen information security within the Osaka Gas Group

The evolution of the Internet has led to sharp rises in leaks of confidential information, infections by computer viruses and other serious social issues, and the harm suffered by companies from such incidents increasingly extends beyond direct damage, even resulting in the loss of public trust.

Seeing itself as a company in charge of building social infrastructure, the Osaka Gas Group recognizes the importance of promoting information control regarding customer data. For that purpose, Osaka Gas set up the Information Security Subcommittee in August 2015 and has stepped up its efforts to strengthen security in its basic business systems and implement security-enhancement measures.

The Osaka Gas Group has established a system to enhance its overall information security by deploying managers in charge of promoting information security at core companies of the Osaka Gas Group, management departments at Headquarters of Osaka Gas and by deploying staff in charge of promoting information security at

other organizations and affiliated companies.

In fiscal 2017, we conducted on-site surveys and checks regarding information security at affiliated companies, formulated improvement plans for each of these companies, and had them implement suitable measures. Education on information security was also provided to all Osaka Gas Group employees to improve the information security awareness and skills of each and every employee. We also educated employees of Osaka Gas Group companies in charge of IT, and IT officials working at relevant divisions and departments of Osaka Gas.

Training Conducted in FY2017

	Frequency	Participants (persons)
Targeted-type e-mail training	2 times per year	19,070
Network disconnection training	1 time per year	13,522



Action on Human Rights

Education and training for human rights awareness-raising

The Osaka Gas Group releases a human rights awareness slogan and formulates an action plan every fiscal year in an effort to build a corporate culture in which human rights are respected.

The slogan we drew up for fiscal 2017 was “foster a corporate culture in which human rights are respected, with each and every employee having a sense of caring for others and accepting each other.” Under the slogan, we strove to achieve various initiatives including the following: Enhanced and strengthened Osaka Gas Group’s human rights awareness-raising structure, enhanced human rights education and awareness raising activities, disseminated information on human rights to be aware of across the Osaka Gas Group, actively participated in activities outside the Group and gather various relevant information.

We had an all-time high of 6,706 entries for our human rights slogan, a year-on-year increase of about 1,200 entries, and 7,291 entries for our compliance slogan, another all-time high achieved by a year-on-year increase of about 1,100 entries.



Posters raising awareness for human rights and compliance with slogans

Group-wide Human Rights Training - Participants in FY2017

Participants	Implementation period	Total number of persons
Executives	November	29
Organization heads, managers	May, July, August, November, December	372
New employees	April	136
Training for all employees	From August to March	About 17,300
Managers at affiliates	May, November	89
New employees at affiliates	April, June, November, February	170
Employees of affiliate	Year around	415
HR Committee members, etc.	Year around	189
Total		About 18,700

Color universal design poster produced for people with a different color sense

The poster we made to promote our human rights and compliance slogans for fiscal 2018 received a color universal design (CUD) certificate from the Color Universal Design Organization (CUDO),\*1 a nonprofit organization promoting universal color access by encouraging companies and others to avoid using confusing color combinations for people with color vision deficiency. This report and our leaflet explaining the Osaka Gas Group’s operations in 2017 also obtained the certification from the CUDO. A CUD mark\*2 is shown on the poster and the reports.

\*1 Color Universal Design Organization (CUDO): CUDO is a nonprofit organization aimed at building an all-inclusive society by promoting color universal design in posters and other documents to avoid inconveniencing people with “a different color sense.” CUDO pledges to build society that is friendly to people who were formerly referred to as “color blind” in Japan, elderly people, and people with low vision. (Website of CUDO)

\*2 Color Universal Design (CUD) mark: The CUD mark is certified by CUDO. It is given to printed material and other products that are confirmed to be color-friendly to all kinds of people, including people with “a different color sense.”



Color Universal Design (CUD) certificate

Major Activities in FY2017



CSR Charter



Management Policy for Human Growth

Fundamental concept

The Osaka Gas Group is working on to become a company that can realize the growth of its employees through work with preparing a personnel management system and environment whereby employees’ individuality and initiative are respected, as well as their diverse talents are maximized.

The Osaka Gas Group would like to be a company at which employees can find not just employment but also personal growth through their work. To that end, we have introduced career-course-specific human resources systems designed to respect and put to full use the individuality and autonomy of employees, and we have been conducting a wide range of training. We have also formulated the “Osaka Gas Group Diversity Policy” to ensure that a diversity of people can play active roles at the Osaka Gas Group. Convinced that ensuring employees’ safety and maintaining/improving their physical and mental well-being are keys to all our operations, we are also undertaking efforts to prevent work accidents and to promote fitness.

CSR Indicator Employee Attitude Survey: job satisfaction and attachment to the company

Osaka Gas periodically conduct “Employee Attitude Survey” to understand how employees satisfy with their job, workplace environment, superiors, company systems, and so on. Employees are asked to rate their satisfaction level on a five-point scale for 23 categories, including job satisfaction, attachment to the company, etc., and to leave an open comment.

Targets and results

The goal of the “Employee Attitude Survey,” conducted every two or three years, is to confirm changes over time in employee attitudes and the progress made in adopting/implementing the human resources systems introduced in FY2012. The results of the latest survey, conducted in FY2015, surpassed the results of the previous survey (FY2013) in the CSR indices of job satisfaction/attachment to company and degree of satisfaction with human resources systems.

	Targets	Results
Job satisfaction and attachment to the company	Maintain sufficient levels	Maintained sufficient levels (3.85 against scale of 5 for job satisfaction and 4.38 of scale of 5 for attachment to the company)

\* Result of the survey conducted in FY2015

Actions taken

“Employee Attitude Survey”

In the latest “Employee Attitude Survey,” a grade on a five-point scale was assigned to the attitudes of Osaka Gas employees in 23 categories, including “job satisfaction” and their “degree of attachment to the Company.” The next survey is scheduled for fiscal 2019, covering all employees.



Employment

Data on Osaka Gas workforce

Osaka Gas has 5,731 employees (4,868 men and 863 women) as of March 31, 2017. We hold joint hiring seminars as a Group, and 14 companies participated in the FY2017 seminar, where approximately 440 students were briefed on each company's business and the

types of human resources needed. Osaka Gas also provided about 290 students with opportunities to gain work experience through internships in fiscal 2017.

Acceptance of Diversity

Ensuring a diversified workforce

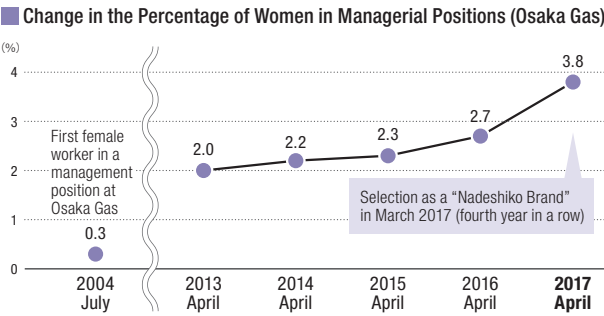
As a way of enhancing its corporate value, the Osaka Gas Group believes that it is essential for the Group to promote diversity in its corporate membership and corporate structure whereby employees can maximize their potential, irrespective of gender, age, nationality or physical disability. Recognizing that it is necessary for the Group to foster a corporate culture, the Group has adopted the Osaka Gas Group Diversity Promotion Policy aiming for people with diverse personality and talent are respected, accepted, they can feel rewarded and fulfilled through their work.

Furthermore, Osaka Gas has been working on fostering a workplace environment in which female employees can display their abilities. In fact, various jobs have been assigned to female workers at the Company based on their aptitudes and wishes, including gas production, gas supply and marketing. As a result of such efforts, Osaka Gas has received high appraisal from outside the Company, as shown by its selection as the leading company in empowering women, awarded by the Mayor of Osaka City in March 2016, and its selection as a "Nadeshiko Brand," an award given to the Company for four years in a row since fiscal 2014 for its active role in encouraging women by providing opportunities to engage in responsible jobs.

Furthermore, two Osaka Gas Group companies—OGIS-RI Co., Ltd. and Sakura Information Systems Co., Ltd.—received the highest rank of "Eruboshi" (L-Star) certified by the Ministry of Health, Labour

and Welfare based on the Act on Promotion of Women's Participation and Advancement in the Workplace.

In addition, Sakura Information Systems has been granted official use of the "Tomonin" logo from the Ministry of Health, Labour and Welfare in Feb. 2017 for its efforts in establishing a work environment that enables employees to pursue their careers while allotting much of their time to family nursing care.



Voices from staff

We are striving to become a company where all employees can work actively and passionately.

Sakura Information Systems has been to foster a workplace environment that enables all employees to display their abilities according to their aptitudes and feel fulfilled while working. The effort is in line with the company's management policy of respecting each employee's individuality, transforming itself into "a company with a rich sense of humanity." The company promotes diversity based on four basic policies.

- Expand opportunities for various human resources and improve productivity
- Review the way of working and make employees' work lives compatible with their private lives
- Establish a system that enables employees to pursue their careers while spending much time with their families
- Raise the share of women in managerial positions to 15% by 2020

Our company received the highest "Eruboshi" (L-Star) ranking from the government for the above effort. Our company has also been allowed to use the "Tomonin" logo for its efforts in fostering a work environment that enables employees to pursue their careers while allotting much of their time to family nursing care. At a time when our society is aging further, we will continue to work on improving employees' workplaces to enable them to work actively.



Masako Usui  
General Manager of Diversity Promotion Office, Human Resources Dept., Sakura Information Systems Co., Ltd.

Second life support

Osaka Gas established a Career Development Center to help its diverse workforce plan for post-retirement. Here, employees receive career guidance, consisting of a training session and an interview, at age 45 and in their early 50s.

This training offers the employees briefings on circumstances inside and outside the company as well as various support systems and, through closer examinations of their work histories and group discussions, the employees are encouraged to seek out career paths that is consistent with their values and motivation and to develop

their own career plans. After concluding the training session, the participants are asked to fill out a career track questionnaire and then discuss their career development options in an interview with an in-house career counselor. More than 400 employees have such "career development interviews" every year.

When employees reach the age of 54, they are invited to attend a "Nice Life Seminar" with their spouse. They are briefed about various systems that may affect their post-retirement life plans.

Balancing Work and Family

Supporting employees balancing work and home

Osaka Gas strives to create a corporate culture where employees can strike balance between taking a rewarding job and leading a fulfilling personal life with some involvement in society. The company expects the creation of such a corporate culture to enable employees to display their abilities to the fullest extent. Moreover, a joint labor-management Work-Life Balance Promotion Committee has been established to systematize support measures necessary at each stage of employees' lives and create a work environment where these measures can be implemented smoothly.

In fiscal 2017, Osaka Gas launched a company-wide committee to encourage employees to work efficiently. Measures to improve the Company's productivity and promote creative work styles are being studied through the committee.

Number of Employees Taking Childcare and Nursing Leave at Osaka Gas (excluding loaned employees)

	FY2013	FY2014	FY2015	FY2016	FY2017
Childcare leave	19	21	28	21	18
Male	0	1	1	1	1
Shorter working hours for childcare	32	35	35	37	31
Nursing care leave	3	0	4	2	1
Shorter working hours for nursing care	1	2	2	2	5
Nurturing leave	194	192	164	171	168
Male	173	175	140	153	149
Rate (%)	86.6	87.7	77.0	79.2	76.7

Improving Occupational Health and Safety

Promoting safety and health management activities based on OSHMS

Osaka Gas has been systematically and meticulously undertaking activities aimed at preventing workplace accidents with establishing the "Osaka Gas Health and Safety Action Plan" based on the Occupational Safety and Health Management System (OSHMS), which was established by the Minister of Health, Labour and Welfare.

Based on the plan, each organization of Osaka Gas is working on reducing the number of incidents leading to absence from work due to workplace accidents to zero. The plan, consisting of three priority themes—prevention of transportation-related accidents, prevention of general work accidents, and prevention of accidents through collaboration with business partners—is designed to enhance the level of workplace safety by implementing improvement measures under the PDCA cycle.

Each Osaka Gas Group company carried out safety- and health-enhancement measures envisaged under its own safety and

health-management plan, modified based on its evaluation of the previous year's activities in line with the Basic Plan on Health and Safety of the Osaka Gas Group covering fiscal 2015 to fiscal 2017. As a result of implementing these measures, Osaka Gas was able to establish a system to manage safety and sanitation in line with the mandatory requirements, while compiling an action plan aimed at enhancing employees' safety and health. Covering the four years between fiscal 2018 and fiscal 2021, a new Basic Plan on Health and Safety of the Osaka Gas Group has been devised. The new plan is designed to enable each Group company to take improvement measures under the PDCA cycle to enhance employees' safety and health in accordance with their current safety and health conditions, while maintaining its existing safety and sanitation management systems.



## Efforts to Review Materiality

### Review of Important Aspects of CSR (Materiality)

The Osaka Gas Group evaluated its three-year efforts through fiscal 2017 to improve its CSR activities in line with its important aspects (materiality), which the Group identified in fiscal 2014. The Group began reviewing the materiality in fiscal 2018 in response to changes in its business operations and the business environment while taking into account social trends.

#### Identification of current materiality

The Osaka Gas Group identified the materiality for the Group's CSR for the first time in fiscal 2014. The action was designed for the Group, a comprehensive energy service provider, to grasp the impacts its activities might have on society and to conduct business while managing such impacts and possible impacts. In identifying the materiality, the Group referred to procedures set in the fourth edition of the Sustainability Reporting Guidelines (G4). In-house meetings were held repeatedly with consideration mainly given to the characteristics of business operations undertaken by the Group and where its business was conducted, and based on views and opinions from third-party experts in certain fields. Final approval of the materiality came at a meeting of the CSR Promotion Council.

#### Background of review

While the Osaka Gas Group has been operating the PDCA (plan-do-check-act) cycle for the materiality, the business environment surrounding the Group and the social situation for sustainability have changed dramatically in the past three years. Some indicators used for the materiality have been reviewed when necessary—in response to the changes that have occurred both inside and outside the Group. In fiscal 2018, we began reviewing the overall materiality.

#### Changes in business environment

The Osaka Gas Group has globalized its operations. The Group operates gas, electricity and other energy services in such overseas markets as North America and Southeast Asia, while embarking on new development projects overseas. For example, Osaka Gas Chemicals Co., Ltd., a wholly owned subsidiary of Osaka Gas, acquired Jacobi Carbons AB, a chemical maker with a major share of the world market for activated carbons, environmental materials, bringing it into the Osaka Gas Group. In addition, the Osaka Gas Group has formulated the Long-Term Management Vision 2030 and the Medium-Term Management Plan 2020—a new business strategy based on which we have started action.

#### Social trends regarding sustainability

In recent years, moves to enhance sustainability have gathered impetus in international society, as characterized by the adoption in 2015 by the United Nations General Assembly of the Sustainable Development Goals (SDGs) following its signing by 193 countries. The move was also evidenced by the coming into force in 2016 of the Paris Agreement, a UN accord on climate change signed at the 21st session of the Conference of the Parties (COP) to the 1992 United Nations Framework Convention on Climate Change. Furthermore, the Global Reporting Initiative (GRI) Standards, the newest edition of the GRI guidelines, were published in 2017.

#### Changes in business and business-related environments

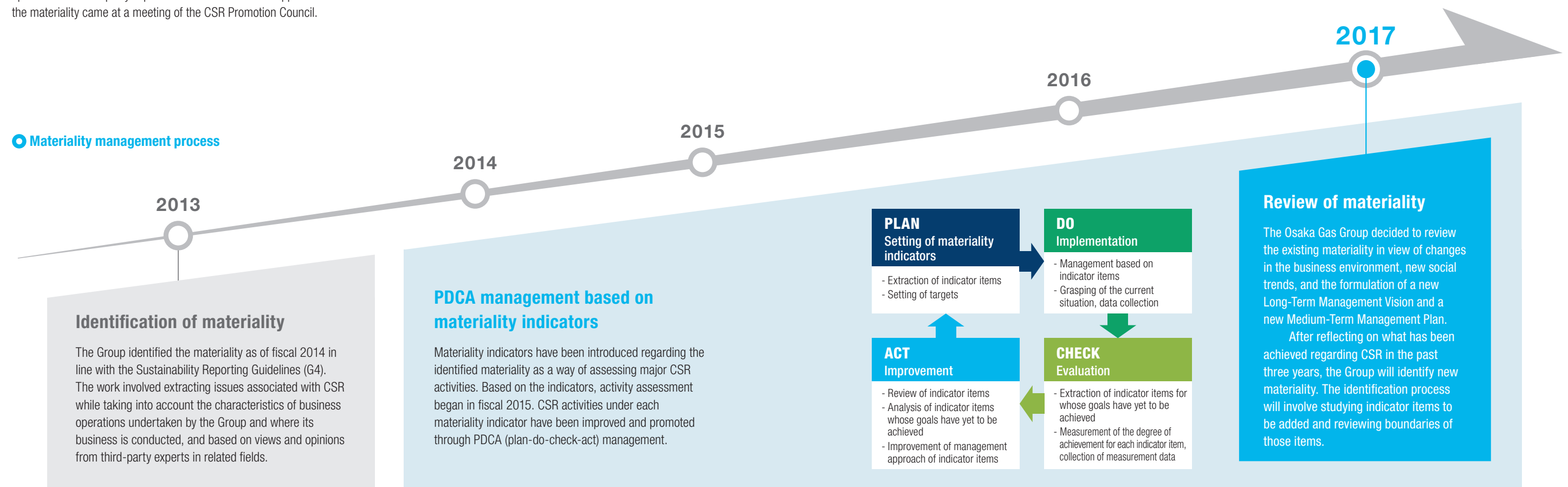
- Formulation of the Long-Term Management Vision 2030
- Formulation of the Medium-Term Management Plan 2020
- Expansion of overseas business
- Expansion of overseas production bases
- Expansion of electricity business
- Complete liberalization of retail gas market

#### Social trends

- Coming into force of the Paris Agreement
- Adoption of the Sustainable Development Goals (SDGs)
- Publication of the GRI Standards
- Expectations of stakeholders



#### Materiality management process



Efforts to Review Materiality

Materiality Review Process

The following is a process by which we will review the current materiality. First, we evaluated our CSR activities between fiscal 2015 and fiscal 2017 under the current materiality, and recognized what had been achieved and what remained as issues to be tackled. As a second step, we will identify materiality items that must be given higher priority, and corporate and other “boundaries” that must be addressed—through in-house discussions being attended by people in relevant organizations. We will work on this process while taking into account changes in the business environment and social trends on sustainability.

Next, we will receive comments from outside experts in certain fields on the proposed new materiality. With their views representing those of society and our stakeholders, the experts will judge whether the proposal is appropriate. Based on their comments, we will begin identifying a new set of important elements for our CSR activities.

The newly identified materiality, consisting of materiality items and key performance indicators (KPI), will be formally approved by the CSR Committee and the CSR Promotion Council, followed by the establishment of a management framework for getting our CSR activities restarted.

April 2017–June 2017

STEP 1

Evaluation of past CSR activities under the current materiality  
Details are reported on the page 47 to 50

↓  
Until around October 2017

STEP 2

Examination of new materiality items and its boundaries

STEP 3

Identification of new materiality

↓  
From October 2017

STEP 4

Establishment of a management framework

STEP 1

Evaluation of past CSR activities under the current materiality

After the materiality was identified, “materiality indicators” were introduced to evaluate our major CSR activities under the materiality. Evaluation started for CSR activities in fiscal 2015. Each year’s evaluation has translated into an annual CSR Report, detailing major CSR measures and their assessment.

Our CSR activities based on each materiality indicator were smooth between fiscal 2015 and fiscal 2017. The target set for each indicator has been achieved. In fiscal 2018, which began in April 2017, we will continue to step up our CSR activities under the materiality.

Meanwhile, the CSR Committee and outside experts in certain fields told us that it is necessary to study whether there is room for further improvement in fields where the targets have been achieved every year, and whether the numerical targets for the materiality have been set at appropriate levels. Acting on these comments, we have

begun looking for improvement measures and reviewing part of the numerical targets set under the materiality.

However, it is difficult to evaluate in a uniform manner regarding CSR activities that require individual judgment or those undertaken by multiple departments or divisions. Therefore, we see what to do with these activities as a challenge to be addressed in the future.

By taking this challenge into account and further deepening discussion both inside and outside the Company, we will review the materiality.

Progress

- Our CSR activities under each materiality indicator have been steady.
- Each year’s target has been achieved.
- A system to reconfirm the degree to which matters have been recognized in the departments or divisions in charge of management has almost been established.

Remaining issues

- Follow-up process for operational improvement is necessary in fields where each year’s targets have been attained.
- It is necessary to examine if the targets have been set at appropriate levels
- It is difficult to evaluate in a uniform manner regarding CSR activities that require individual response or those undertaken by multiple departments or divisions.
- It is necessary to further integrate the identified materiality with a business plan formulated by each department or division.

\* Targets for FY2017

CSR Charter	Materiality Indicators	G4 Indicators	Targets (FY2015 onward)	FY2015 Results	FY2016 Results	FY2017 Results
I	Customer Health and Safety	PR1	100%	100%	100%	100%
	Product and Service Labeling	PR5	87% or more	91.0%	91.9%	91.7% (The target is revised to 91% or more)
II	Energy / Emissions	EN18	12.3 t-CO <sub>2</sub> /1 million m <sup>3</sup> or less*	10.9 t-CO <sub>2</sub> /1 million m <sup>3</sup>	11.7 t-CO <sub>2</sub> /1 million m <sup>3</sup>	10.5 t-CO <sub>2</sub> /1 million m <sup>3</sup>
		EN18	74.4 t-CO <sub>2</sub> /1,000 m <sup>2</sup> or less*	65.6 t-CO <sub>2</sub> /1,000 m <sup>2</sup>	61.8 t-CO <sub>2</sub> /1,000 m <sup>2</sup>	61.0 t-CO <sub>2</sub> /1,000 m <sup>2</sup>
	Effluents and Waste	EN23	2.0% or less*	1.3%	0.9%	0.7%
III	Local Communities	SO1	100%	100%	100%	100%
IV	Customer Privacy	PR8		Took measures to prevent recurrence of mishandling of information	Took measures to prevent recurrence of mishandling of information	Took measures to prevent recurrence of mishandling of information
Common Theme II III IV V	Grievance Mechanisms on Environmental Impacts, Impacts on Society, Human Rights and Labor Practices	EN34 SO11 HR12 LA16		Responded to each grievance received	Responded to each grievance received	Responded to each grievance received
	Supplier Assessment on Environmental Impacts, Impacts on Society, Human Rights and Labor Practices	EN32 SO9 HR10 LA14	100%	100%	100%	100%



Efforts to Review Materiality

Comments from Experts

## Advice on Effective Function of Materiality

Dialogue was held with five outside experts regarding the materiality the Osaka Gas Group has worked on over the past three years. Through the dialogue, the experts evaluated the Group's CSR activities, with a focus on what the Group should take up as new themes and important issues as part of its efforts to review the materiality. The experts then pointed out fields where progress had been seen and issues to be tackled.

Views from a customer

### Shift in themes to improving the quality of people's lives and addressing their concerns

Osaka Gas saw its capital adequacy ratio standing at an impressive 51.5% in its financial statement for fiscal 2017, a result indicating that the Company's financial standing has been solid. The question is how the Company will use its financial resources backed by its strong financial footing. To get its value-creating management system rolling further, Osaka Gas must introduce new indicators that go beyond its conventional "boundaries," when revising the current materiality.

In Japan, household spending is dwindling in recent years. Under these circumstances, consumers tend to be strict about product and service quality.

Furthermore, their demand for leading care-free lives in their respective regions has grown strong amid the graying of society.

We hope that Osaka Gas, when introducing new materiality indicators, will attach importance not only to ensuring safety and sanitation in its gas business but also to improving the quality of people's lives and carrying out measures to dispel their concerns, including strengthening its housing support service called "Sumikata Service," based on what the Company has achieved in the past.



Mr. Hideo Iida

Representative of organizers, Council of the Kansai Consumers' Association

Views from an expert on the environment

### Expectations placed on Osaka Gas attaining long-term environmental targets by choosing an environment-friendly energy mix combining natural gas and renewable energy sources

Osaka Gas has seen steady progress in its materiality in the general environmental sector during the three-year period between fiscal 2015 and fiscal 2017. The Company's environmental management efficiency, a comprehensive indicator gauging corporate environmental preservation efforts, improved from 60 yen per 1,000 m³ in fiscal 2015 to 52.5 yen per 1,000 m³ in fiscal 2017, representing an improvement of 12.5% and attaining the targeted 58 yen per 1,000 m³. The company has been striving further, setting medium-term environmental targets covering the period from fiscal 2018 to fiscal 2021.

Under its Long-Term Management Vision, Osaka

Gas has set the goal of raising the amount of electric sources to be purchased through fiscal 2031 to 9 million kW, and reducing the cumulative amount of CO₂ emissions to 70 million tons. If Osaka Gas achieves these targets by effectively combining its competitive natural gas business, which the company should retain as its primary business, to energy business based on renewable energy sources, it is capable of spurring world ESG (environment, society and governance) investment. I hope that a virtual business cycle for Osaka Gas will start to operate in the next fiscal year, with corporate growth assisted by its environmental protection and energy measures.



Dr. Koji Shimada

Professor, Department of Economics at Ritsumeikan University

STEP 1

## Evaluation of past CSR activities under the current materiality

Views from an NGO

### Social contribution led through employees' daily lives, a system that goes beyond conventional system led by the company

The Osaka Gas Group has been credited with fostering next-generation human resources and supporting people tasked with invigorating local communities. The Osaka Gas Group has also been known as a corporate group active in social contribution projects. The degree of attaining the materiality targets the Group has set for its CSR activities has reached 100% in the past three years. Most remarkable among the Group's social contribution projects is the "Small Light Campaign," a volunteer initiative led by employees to solve a range of problems facing local communities. It is incredible that the initiative has continued for 36 years since its inception in 1981.

Under the United Nations' Sustainable Development Goals (SDGs), companies are asked to present a new approach regarding the review of people's lifestyles—not one that relies on conventional value regarding production and consumption but one that respects each person's lifestyle value. It would be better for the Osaka Gas Group to establish a system in which each employee is encouraged to contribute to society through his or her daily lives as well as through the Company.



Ms. Kaori Kuroda

Executive Director of CSO Network Japan

Views from a human rights expert

### Enhancing due diligence regarding human rights, rectifying remaining problems, and visualizing the operation of the grievance mechanism

The Osaka Gas Group has stepped up the assessment of suppliers regarding their human rights protection, and strengthened its engagement with business partners, mainly through study seminars, as a way of improving the level of human rights protection. At a time when the Osaka Gas Group has been expanding its value-chain network including overseas projects and electricity business, it is hoped that the Group will steadily carry out due diligence of potential business partners regarding their human rights protection efforts. Concerning the protection of customer privacy, issues are seen in handling personal information. It is regrettable that some incidents on mishandling of customers' information

have occurred at the Osaka Gas Group. However, the Group has done all it could expeditiously and sincerely to support the affected customers. Following the incidents, group-wide training seminars have been held to prevent similar cases from occurring. The Osaka Gas Group has established a grievance mechanism which is open to business partners, a contact desk. A contact desk that can function independently. The grievance system allows feedbacks while maintaining the secrecy of the complainant. It is hoped that the grievance mechanism will become more transparent in the next business year, in doing so the reliability of the mechanism will be improved.



Ms. Emi Sugawara

Associate Professor at Faculty of Law, Osaka University of Economics and Law

Views from an expert on diversity of human resources

### Reviewing each materiality item from a fresh angle, promoting information disclosure, and taking necessary remedial steps

Disclosure has been promoted at the Osaka Gas Group regarding the main items of its materiality, identified in 2013. Remedial measures are in place regarding problems that have surfaced following the disclosure. Overall, the Osaka Gas Group has achieved the materiality targets. It would be better if information had been further disclosed. The Group, however, has more work to do in the field of diversity of human resources, with the exception of measures that have been taken to empower women. It is hoped that the Group will review each materiality item related to diversity from a fresh viewpoint, further promote information disclosure, and take remedial measures if

necessary.

The current Medium-Term Management Plan calls for the Osaka Gas Group to expand the scope of its business fields and the scale of each business project as a means of responding to problems associated with the declining population of Japan. When choosing a new set of materiality items, the Osaka Gas Group should attach importance to strengthening due diligence regarding human rights protection involving overseas projects. In domestic operations, the Group should focus on establishing a sustainable business structure to ensure employment at companies that constitute the Group's supply-chain network.



Mr. Taro Tamura

Representative Director, Institute for Human Diversity Japan

## Activities on Materiality in FY2017

# Customer Health and Safety

### Why Reasons of materiality in respect of our business

The Osaka Gas Group puts the highest priority on securing safety of gas supply and facilities as an energy business operator which supplies city gas to 7.34 million customers. Therefore, we consider it important that we make efforts to enhance the safety level and formulate a structure to respond possible accidents and disasters.

### How Management systems and its performance

#### Indicator

Percentage of city gas for which health and safety impacts are assessed for improvement against total city gas provided by Osaka Gas (G4-PR1)

#### Commitment

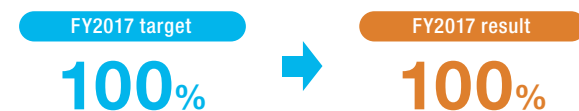
Osaka Gas is committed to ensuring the safety of city gas, our primary product, its secure supply, and safety of gas facilities—all by formulating “Gas Supply Clause” and “Security Rules” in line with the Gas Business Law.

#### Responsibilities

The Osaka Gas Group has established a system to ensure the safety of city gas supply and gas appliances in all fields of the Group’s city gas value chain [\(21\)](#)—processing, supply, sales and consumption. The person heading the company’s overall safety operations (Vice President) and the person heading each Business Unit’s safety operation offer advice on safety and security matters concerning his or her Business Unit and other Business Units.

The Vice President in charge of safety operations, the person in charge of safety operations at each Business Unit and the chiefs of the relevant departments—who together constitute the Executive Safety Council—convene a regular safety and security meeting (five times per year) to work out safety activity plans and assess the achievements made in the relevant term. Efforts to ensure and enhance the safety of the city gas supply and gas appliances are also being planned at each Business Unit.

#### Performance



In fiscal 2017, every procedure is conducted based on guidelines in accordance with laws and regulations as well as in-house rules in the processes such as quality control of gas in LNG terminals, safety inspection of gas pipelines and supply facilities, as well as gas appliances at customers consented.

#### Specific actions taken regarding materiality

To allow customers to receive our energy service without worry, we are working on maintaining the quality of city gas being supplied at high levels while ensuring stable gas supply and the safety of gas-processing and supply facilities.

#### Inspection of gas pipes

Gas supply facilities including pipelines and pressure regulators were inspected to ensure their safety. The frequency and content of such inspections are set under in-house “Security Rules.”

#### Securing safety at customers' sites

Facilitate systems to respond to reports and prepare resources for dispatching in case of accidents and disasters 24 hours a day, 365 days a year.

In accordance with laws, inspection of gas appliances for gas leaks, gas water heaters for air supply and exhaust function at customers’ sites were conducted. The visits to the customers were exploited as the opportunity for recommending installation of alarms for gas leaks for residential use and ventilation for commercial use, of which penetration rate were 52.5% and 99.2%, respectively.

#### Preparation for disaster prevention

From our experience of the earthquake occurred in Kobe, we have made every effort to prevent disasters incurred by earthquakes. Those efforts include enhancement of safety function and measures in LNG terminals, replacement of old gas pipes with polyethylene pipes [\(21\)](#) (approx. 15,500 km installed), installation of intelligent meter, of which penetration rate reached 99.8%.



A gas pipe made of high-strength polyethylene

# Product and Service Labeling

### Why Reasons of materiality in respect of our business

It is important for the Osaka Gas Group to provide customers with accurate information regarding safety and environmental aspects of city gas, gas facilities and appliances being provided so that they can use them safely.

### How Management systems and its performance

#### Indicator

Customer satisfaction rate for customer service duties including safety (G4-PR5)

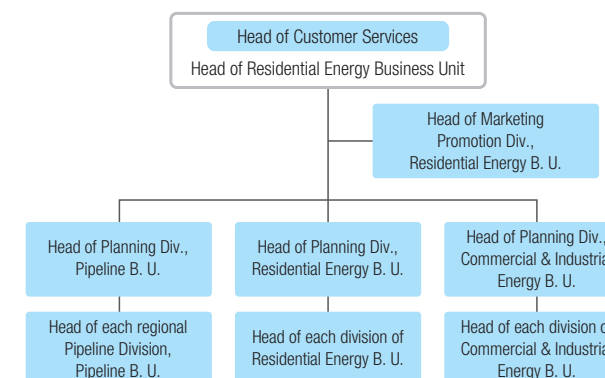
#### Commitment

Osaka Gas has formulated in-house rules and regulations in line with the PL Law and the Gas Business Law. The company strives to improve safeness and service quality on each business dealing with customers.

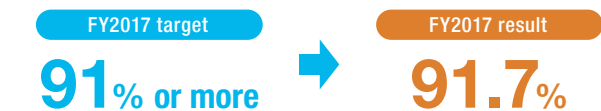
#### Responsibilities

In order to proceed with actions for improving customer satisfaction in a cross-sectional manner, in addition to the systems introduced in the materiality issue, mentioned in the left, “Customer Health and Safety,” the “Head of Service” (Head of Residential Energy Business Unit) appointed under the security system plays a role in maintaining and improving security and service quality.

#### CS Operating Organization



#### Performance



We conduct surveys in order to evaluate whether the business duties dealing directly with customers met their expectation. In fiscal 2017, we received about 57,000 replies from customers, their overall satisfaction rate standing at 91.7%.

#### Specific actions taken regarding materiality

In fiscal 2017, we took various actions to achieve a higher level of customer satisfaction. Customers’ opinions and requests reaching the Company on various occasions are shared by all of our employees through our database system called “C-VOICE.” In 2016, we reviewed the operational rules of the database and established a system whereby all of our employees are able to share information related to customer service more speedily, including the results of responses for customers’ inquiries and measures to prevent a recurrence of inappropriate behaviors. When a large number of similar customer requests or complaints are filed, for example, the secretariat expeditiously issues warnings to the relevant divisions or departments. This new system is part of our efforts to achieve a higher level of customer service.

In addition, various seminars and contests were held in the year to improve the quality of service responding inquiries via phone.

Retail sales of gas were fully liberalized in fiscal 2018. In the year, we will try to reflect the voices of as many customers as possible in our activities, with the aim of improving existing and new operations.



Customer Center



## Activities on Materiality in FY2017

# Energy / Emissions

### Why Reasons of materiality in respect of our business

The Osaka Gas Group, as an energy business operator, sees it as important to promote more efficient use of energy resources and curtail greenhouse gas emissions over the entire business process, from drilling of natural gas to supply.

### How Management systems and its performance

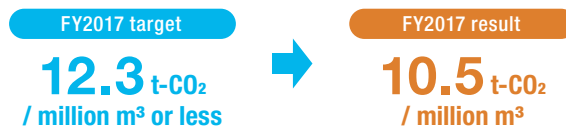
**Indicator**  
Amount of CO<sub>2</sub> emissions at LNG terminals per unit gas sales;  
Amount of CO<sub>2</sub> emissions at office buildings per unit floor space (G4-EN18)

**Commitment**  
Osaka Gas Group is committed to promoting environmental activities on a group-wide basis by formulating “Osaka Gas Group Environmental Activities Policy” and “Rules for Environment Management Systems” in line with related environmental laws.

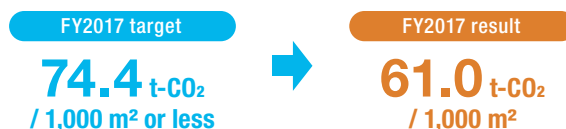
**Responsibilities**  
At Osaka Gas, a unified environmental management system (EMS) based on ISO 14001 [\(21\)](#) is deployed across the company under the supervision of the “CSR Executive” (Vice President), and all employees work to reduce the environmental impact of business activities and ensure that environment-related laws and regulations are complied with.  
In addition, the Osaka Gas Group’s 69 domestic affiliates operate their own EMSs, such as ISO 14001, Eco Action 21, and the “Osaka Gas Environmental Management System (OGEMS).”

### Performance

#### CO<sub>2</sub> Emissions at LNG Terminals Per Unit of Gas Sales



#### CO<sub>2</sub> Emissions at Office Buildings Per Unit of Gas Sales



In fiscal 2017, CO<sub>2</sub> emissions at LNG terminals was 10.5 t-CO<sub>2</sub> per 1 million m<sup>3</sup> of gas sold and CO<sub>2</sub> emissions at office buildings was 61.0 t-CO<sub>2</sub> per 1,000 m<sup>2</sup> floor space, meaning that we were able to achieve our target for fiscal 2017 of 12.3 tons or less and 74.4 tons or less, respectively.

### Specific actions taken regarding materiality

#### Efforts to curb CO<sub>2</sub> emissions at LNG terminals

The Osaka Gas Group has been striving to reduce CO<sub>2</sub> emissions at LNG processing terminals by undertaking various energy-saving activities. By recovering cryogenic energy generated at LNG [\(21\)](#) gasification facilities, the Group is reducing the amount of electricity it purchases, for example. Electricity generation using this cryogenic energy is called LNG cryogenic power generation, which is a power generation system that does not emit CO<sub>2</sub> at all, because no fuel is required in the process of power production.

To promote the efficient operation of our LNG cryogenic power generation facilities, we are implementing a variety of measures. We have begun to supply LNG cryogenic energy for the cooling process of a plant of a petrochemical company adjacent to an LNG terminal, thus contributing to energy saving and the reduction of CO<sub>2</sub> emissions at nearby plants as well as at our own.



LNG cryogenic power generation facilities at Senboku LNG Terminal

#### Efforts in office buildings

Osaka Gas is promoting energy conservation and reducing CO<sub>2</sub> emissions by employing advanced high-efficiency equipment and control systems when renovating or repairing buildings, and by undertaking “Green Gas Building Activities” aimed at revamping energy management for the facility as a whole.

# Effluents and Waste

### Why Reasons of materiality in respect of our business

Over the entire business process, from drilling of natural gas to supply, the Osaka Gas Group, as an energy business operator, sees it as important to promote more efficient use of natural resources based on the 3Rs (reduce, reuse and recycle) and to reduce the load on the environment in doing business.

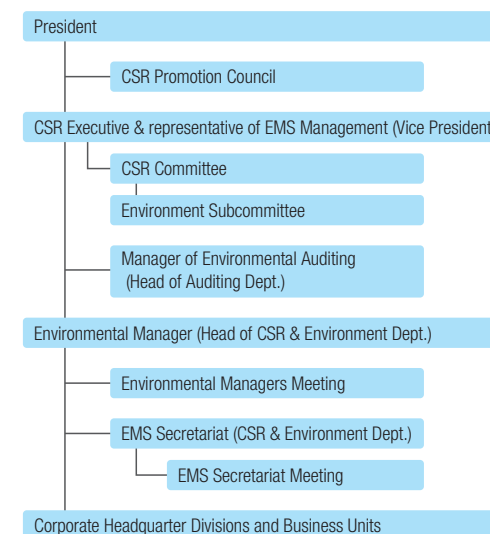
### How Management systems and its performance

**Indicator**  
Final disposal rate of industrial waste at Osaka Gas (G4-EN23)

**Commitment**  
Osaka Gas Group is committed to promoting environmental activities on a group-wide basis by formulating “Osaka Gas Group Environmental Activities Policy” and “Rules for Environment Management Systems” in line with related environmental laws.

**Responsibilities**  
Same as “Energy / Emissions” on P.53.

### Environmental Management Promotion Organization



### Performance



Final disposal rate of industrial waste at overall Osaka Gas was 0.7% and it indicates that we are making steady progress toward achieving our target of 2.0% for FY2017. From now on as well, we are strengthening 3R (Reduce, Reuse and Recycle) of waste materials.

### Specific actions taken regarding materiality

#### Efforts at city gas manufacturing plants

Industrial waste is generated in the course of repairing/improving plants, but Osaka Gas endeavors to undertake eco-friendly construction work and to reduce industrial waste. These efforts have been ongoing since the “Zero Emission Project” launched in the early 2000s.

#### Efforts in gas fitting

For gas fitting, Osaka Gas seeks to curb the generation of roadway waste materials (excavated soil [\(21\)](#), asphalt waste materials, etc.) by such means as adopting shallow pipe installation method and the method of replacing pipes without excavation of construction.

#### Appropriate use and discharge of water resources

Water is not a primary material among the products the Osaka Gas Group handles. However, the Group strictly controls drinking water, industrial-use water and seawater when they are used at LNG terminals, power stations and offices, and discharged into the sea. Seawater, for example, is discharged into the sea after it is used at LNG terminals mainly for vaporization of LNG, not for consumption. In discharging water after it is used for our industrial activities, we have controlled its quality in line with relevant laws, ordinances and agreements with local municipalities so that chemical substances such as COD, pH, phosphorus and nitrogen are not contained in the water being discharged in excess of the relevant standards. Thanks to such efforts, there were no violations regarding the quality of water being discharged. The Osaka Gas Group sees water as a limited natural resource. We will continue to use water adequately, control its discharge strictly, and promote water saving.

## Activities on Materiality in FY2017

# Local Communities

### Why Reasons of materiality in respect of our business

The Osaka Gas Group conducts businesses rooted in and supported by the local communities. Therefore, we believe various kinds of contribution to the local communities will lead to a favorable cycle that brings the development in both the Group and the society.

### How Management systems and its performance

#### Indicator

Percentage of operations with implemented local community engagement, impact assessments and development programs (G4-SO1)

#### Commitment

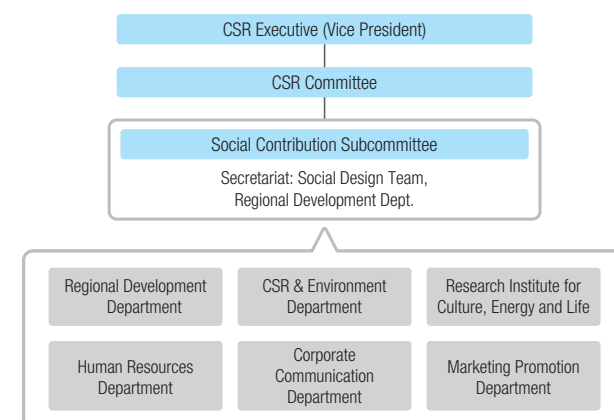
Based on the “Osaka Gas Group Code of Conduct”, we care about the issues faced by society and strive to contribute to the local community recognizing what we are expected to act as a member of the society.

#### Responsibilities

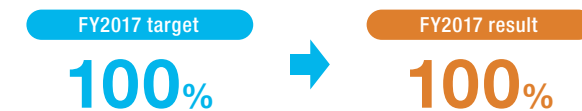
The “CSR Committee” has set up a “Social Contributions Subcommittee” to deliberate and report on multidisciplinary social contribution activities within the Group. The meetings of the Subcommittee were convened three times in fiscal 2017.

In the Regional Co-Creation Division, we have set up company-wide activity planning, with each individual business operation taking advantage of the local network it built in the communities to move forward with activities in its area.

#### ■ Social Contribution Promotion System



#### Performance



In fiscal 2016, all major business locations held various activities tailored to local stakeholders' needs.

#### Specific actions taken regarding materiality

The Osaka Gas Group strives to develop sustainable regional communities through the use of its assets, a Small Light Campaign promoted by employees of Group companies to enhance voluntary activities, and step up collaboration with nonprofit organizations. By doing so, the Group aims to create new value in each local community.



Endowment to the Ashinaga Scholarship Society

#### ● Osaka Gas Group's "Small Light Campaign"

This is a company volunteer effort by the Osaka Gas Group that has taken on many forms, including assistance for disaster-hit areas and assistance for the handicapped, over its more than 30-year history starting in 1981 (the UN International Year of Disabled Persons).

#### ● Cultivating youth

We are engaged in activities such as education on energy, the environment, food, fire and disaster prevention targeting youth who will be the major players in the next generation.

#### ● Creating local appeal

We are utilizing the Osaka Gas Group's business infrastructure to give the Kansai region even greater appeal, and to cooperate with local governments and communities as well as NPOs, social designers and others in revitalizing communities.

# Customer Privacy

### Why Reasons of materiality in respect of our business

As an energy business operator which secures the basis of the society, the Osaka Gas Group considers it is indispensable to recognize the importance of customers' information and those appropriate management.

### How Management systems and its performance

#### Indicator

Total number of substantiated complaints regarding breaches of customer privacy (G4-PR8)

#### Commitment

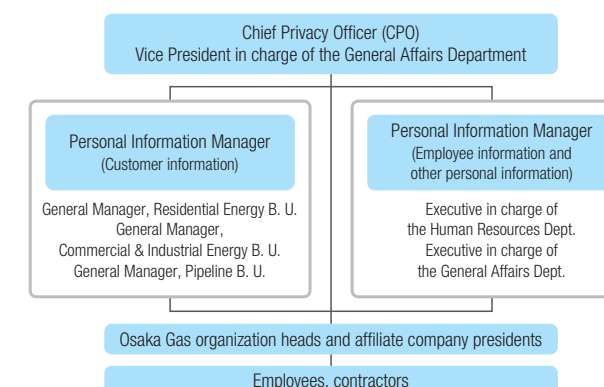
In accordance with the “Osaka Gas Group Code of Conduct” which incorporated code of conduct and guidelines concerning the handling of private information set by the Ministry of Economy, Trade and Industry and the Japan Gas Association, we strive to ensure safety regarding the privacy of customers abiding by in-house rules, such as “Rules for Personal Information Protection,” “Privacy Policy,” “Manual for Handling Personal Information.”

#### Responsibilities

The Vice President in charge of the General Affairs Department is appointed as the Chief Privacy Officer (CPO). Placed under the vice president are “Personal Information Managers,” who supervise Business Units, the Human Resources Department, Osaka Gas affiliated companies and contractors working for Osaka Gas.

An “Information Security Subcommittee” was established under the “CSR Committee” (chaired by the CSR Executive), since which it has been developing systems to ensure information security throughout the Osaka Gas Group.

#### ■ Personal Information Protection Structure



#### Performance



Incidents in which documents containing personal information of customers were lost were reported at two Osaka Gas Group companies in fiscal 2017. Acting on the incidents, the Group reviewed its business operational procedures and established a strict data control system to prevent a recurrence.

#### Specific actions taken regarding materiality

#### ● Mechanism to protect personal information

The Osaka Gas Group is doing all it can to prevent the leakage of personal information of customers and other incidents affecting their information by improving the Group's information management system, inspecting the implementation of the system as part of its risk-management efforts, carrying out a periodical audit of its business operations, and taking company-wide response actions in the event of incidents such as the loss of customer data, including information sharing and mobilization of all organizations to scrutinize the situation. In fiscal 2017, the Group held a Net-based session for employees to enhance their awareness of the importance of protecting personal information. In addition, the Group's Information Security Subcommittee introduced a system to check the management of data files containing customer information, and put the system in practice.

#### ● Education of employees

All Osaka Gas Group employees who have the authority to access PCs loaned to them by the Group, including those working on a contract basis and those dispatched from manpower agencies, are required to take an online training course on information security once a year. The percentage rate of employees taking this course reached 100% in fiscal 2017. These employees also receive e-learning training, twice a year, aimed at enabling them to respond appropriately to targeted e-mail attacks.



Activities on Materiality in FY2017

Grievance Mechanisms

WhyReasons of materiality in respect of our business

A business entity has the responsibility to grasp, as far as possible, the negative effects of its business activities on the environment, local communities, the human rights of stakeholders and labor practices, and to respond expeditiously to filed complaints. Doing so will lead to building long-term mutual trust between companies and their stakeholders.

HowManagement systems and its performance

Indicator

Number of grievances filed, addressed and resolved through the formal grievance mechanism on environmental and social impacts, human rights, and labor practices (G4-EN34, SO11, HR12, LA16)

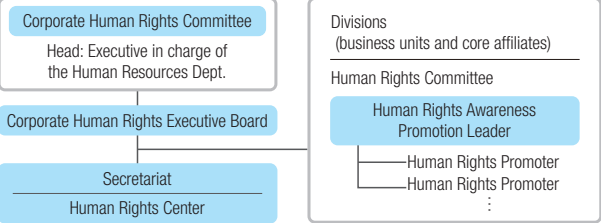
Commitment

The Osaka Gas Group supports such international standards as the Universal Declaration of Human Rights and the United Nations Global Compact, while pledging to observe domestic laws for promoting measures against global warming and protecting whistleblowers.

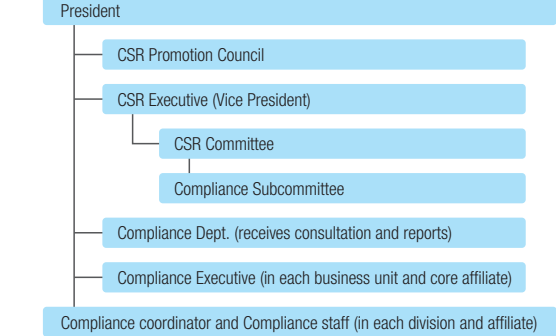
Responsibilities

To deal with voices on the environment, Osaka Gas operates a company-wide Environmental Management System (EMS) according to the ISO 14001 [\(21\)](#). As for the voices of local people who are concerned about the possible effects on local communities of our operations, we set up contact desks including customer centers. To address issues associated with human rights and labor practices, we set up “Compliance Desks” at Osaka Gas’s headquarters, major affiliated companies and outside law firms representing Osaka Gas, to receive reports and offer consultation regarding the observance of laws and in-house rules. Employees needing consultation or advice regarding their human rights can contact the “Human Rights Desk”, established at the Human Resources Department. Furthermore, the “Harassment Desk” has been set up for employees facing harassment-related problems in their work. Other systems established for the benefit of employees include the conducting of surveys designed to measure their work-related awareness, periodically holding meetings for the management to hold talks with labor union members, as well as meetings for employees and their superiors.

Systems for Human Rights Awareness Promotion



Organization for Strengthening Compliance



Performance

FY2017 result

Responded to complaints and other negative comments

We responded to complaints and other negative comments filed through help desks and other contacts.

Specific actions taken regarding materiality

Osaka Gas has been making efforts to reflect customers’ voices in its development of new products and improvement of service quality. In fiscal 2017, for example, we improved the functions of the “My Osaka Gas” website for household customers, especially usability regarding monthly gas bills. As a result, customers have been able to confirm their payments in the past year, and past gas consumption and gas charges—all through graphs.

Supplier Assessment

WhyReasons of materiality in respect of our business

Widespread value chains [\(21\)](#) of our business function with imperative cooperation of various business partners. Fulfilling our social responsibilities together with our suppliers in the value chain leads to relationships of mutual trust with our stakeholders, resulting in the development of the entire value chain.

HowManagement systems and its performance

Indicator

Percentage of new suppliers that have been selected using criteria regarding environment, social impact, human rights and labor practices (G4-EN32, SO9, HR10, LA14)

Commitment

Osaka Gas is committed to fulfilling CSR in close cooperation with business partners in line with the “Osaka Gas Group Code of Conduct,” revised in accordance with the United Nations Global Compact.

In material-procurement activities, which often involve business transactions with new suppliers, Osaka Gas requires to such suppliers to observe procurement-related standards and guidelines set by the company, including “Purchasing Policy” and “CSR-based Purchasing Guidelines.”

Responsibilities

Each organization in charge of procuring particular materials is to fulfill its responsibility in accordance with the procurement-related policies and guidelines set by Osaka Gas.

Performance

FY2017 target

100%



FY2017 result

100%

A total of 63 suppliers began new business transactions with Osaka Gas in fiscal 2017. In the year, no business deals were barred from being started due to violations of standards set in the fields of environmental and social impacts, human rights and labor practices.

Specific actions taken regarding materiality

Measures in material procurement

Before starting business transactions, Osaka Gas communicates its “Purchasing Policy” and “CSR-based Purchasing Guidelines,” and even confirms their efforts on CSR. In fiscal 2017, a survey

was conducted on 192 major suppliers to check their CSR efforts. Furthermore, when the suppliers conduct business transactions with Osaka Gas, they are asked to observe “Green Purchase Guidelines” set by Osaka Gas, attached to the specifications for the business transactions.

Revision to the “Green Partner Initiative”

The “Green Partner Initiative” adopted by Osaka Gas is designed to promote environmental conservation by suppliers of gas pipeline materials. Under the system, suppliers that are recognized as being active in environmental conservation activities such as the building of an Environmental Management System (EMS) will be registered as Partners.

Osaka Gas initially focused on suppliers of gas pipelines for its “Green Partner Initiative.” In fiscal 2016, the Company revised the initiative to cover companies other than suppliers of gas pipeline materials as well. As of the end of March 2017, 111 suppliers were registered as Partners, up sharply from the 16 companies at the end of March 2016.

“CSR Survey” conducted on gas appliance makers

Osaka Gas conducted a CSR survey on gas appliance makers to enhance their awareness of the importance of taking into account social and environmental aspects in doing business, and to ensure the safe use of gas appliances by end customers. The survey, conducted following the one in the previous year, asked 31 companies about their CSR efforts regarding 67 items covered by eight themes—compliance, human rights, labor, occupational health and safety, product safety and quality, environmental protection, ethics and anti-corruption, and implementation systems—in line with the “CSR Procurement Guidelines on Gas Appliances.” Of the 31 companies, 27 replied.

Osaka Gas plans to conduct a CSR survey of LNG [\(21\)](#) suppliers, service chains and engineering companies in fiscal 2018. We will continue to conduct similar surveys in the future as a means of deepening communications on our CSR with our business partners.

# Third-Party Review

The Osaka Gas Group CSR Report underwent a third-party review by the Institute for Environmental Management Accounting (IEMA), including recommendations as well as simple audits. IEMA interviewed Masataka Fujiwara, Executive Vice President and CSR Executive, regarding the planning and implementation of CSR activities at the Osaka Gas Group.

Questions and answers were exchanged intensively between the interviewers and the CSR Executive, with a focus on subjects listed in the Long-Term Management Vision 2030 and the Medium-Term Management Plan 2020. Among the subjects were ESG (environment, society and governance) management, how to respond to the complete liberalization of the retail electricity and gas markets, materiality analysis, and the setting of key performance indicators (KPI) that reflect the United Nations Sustainable Development Goals (SDGs). Based on the interview and documents submitted, IEMA prepared and presented a report which summarized IEMA's overall evaluation and advice regarding the Osaka Gas Group's CSR activities.



The Vice President being interviewed.  
(From left, Mr. Kokubu, Ms. Nashioka, CSR & Environment  
Department head Tsuda and CSR Executive Fujiwara)



## Evaluation and Opinion of CSR Management

### Purpose and outline of work that has been undertaken

As a third-party that has no business relationships with Osaka Gas, we are expressing our opinion to help enhance the reliability of the Osaka Gas Group CSR Report 2017 by evaluating all the CSR initiatives mentioned in the report, excluding numerical information on the environment. We interviewed Masataka Fujiwara, Executive Vice President and CSR Executive, to clarify the planning and implementation of CSR management of the Osaka Gas Group and the evaluation and utilization of the performance data that indicates the results of these activities and serves as the basis for the disclosed information.

### Evaluation and Opinion

The Osaka Gas Group has undertaken its CSR activities while clarifying its future policy direction through the Long-Term Management Vision 2030 and the Medium-Term Management Plan 2020, and setting relevant numerical targets. The Group has been making clear the direction of its CSR policy at a time when the environment surrounding it has changed drastically, as evidenced by the coming into force of the UN Paris Agreement on climate change, the release of the Sustainable Development Goals (SDGs) adopted by the United Nations, and the liberalization of the retail electricity and gas markets in Japan. By doing so, the Osaka Gas Group has kept the quality of its CSR activities at high levels. The Group has led CSR initiatives in new fields using new business approaches to comprehensively respond to social demands—an attitude that is highly commendable.

A report was submitted on the results of CSR activities that have been undertaken since 2014 on 16

items recognized as materiality (important elements) after analysis and extraction. Four years into the start of the activities, the Osaka Gas Group is scheduled to review this year the composition of materiality items through their comprehensive evaluation. It is notable that CSR targets have been achieved on almost all materiality items. Evaluating and analyzing CSR activities after a certain period of time, and reviewing the materiality items in response to the changes in the business environment surrounding the Group are necessary. What is important next is to choose materiality items through which the Osaka Gas Group can explain to the public social problems it needs to address, how to solve them and what would be the value to be provided to society, while taking into account the SDGs. CSR activities under each materiality item must be managed using major key performance indicators (KPI) as much as possible. The results of these activities, including the extent of progress, must be disclosed.

As a corporate group firmly rooted in local communities, the Osaka Gas Group should maintain a meticulously crafted customer-oriented service system and fulfill its role of shoring up the Kansai economy. It is also hoped that the Group will launch new businesses that can help create new social value beyond regional boundaries.

July 11, 2017

Katsuhiko Kokubu,  
Professor, Kobe University; Director of IEMA

Eriko Nashioka,  
Certied Public Accountant and  
Certied Tax Accountant; CEO of IEMA

# Third-Party Verification

The environmental performance data of the Osaka Gas Group included in this report underwent third-party verification by Bureau Veritas Japan Co., Ltd. The verification was conducted to check whether the data were reliable and accurate, and consistent with the purpose of the report. The stated amount of greenhouse gas emissions also underwent verification in light of the requirements stipulated under ISO 14064-3.

## Osaka Gas Group CSR Report 2017 Independent Verification Report (excerpt)

Bureau Veritas Japan Co., Ltd. (hereinafter called "Bureau Veritas") conducted third-party verification of part of the environmental data listed in the Osaka Gas Group CSR Report 2017, compiled by Osaka Gas Co., Ltd. (hereinafter called "Osaka Gas") under its responsibility. Subject to the verification were data whose verification was requested by Osaka Gas.



- |                                |   |
|--------------------------------|---|
| <b>1. Verification Outline</b> | This verification was conducted using Bureau Veritas' standard procedures and guidelines for external verification of non-financial reporting, based on current best practice. Bureau Veritas refers to the International Standard on Assurance Engagements (ISAE) 3000 in providing a limited assurance for the scope of work stated herein.   |
| <b>2. Findings</b>             | On the bases of our methodology and the activities described above: <ul style="list-style-type: none"><li>- Nothing has come to our attention to indicate that the reviewed information within the scope of our verification is inaccurate and does not provide a fair representation of the performance for the defined period.</li><li>- It is our opinion that Osaka Gas has established appropriate systems for the collection, aggregation and analysis of quantitative data within the scope of our verification.</li></ul> |

## Verification report regarding greenhouse gas emissions (excerpt)

Bureau Veritas Japan Co., Ltd. (hereinafter called "Bureau Veritas") verified greenhouse gas emission data recorded between April 1, 2016 and March 31, 2017, which were reported by Osaka Gas Co. Ltd., (hereinafter called "Osaka Gas") for inclusion in the Osaka Gas Group CSR Report 2017.

- |                                 |  |
|---------------------------------|--|
| <b>1. Scope of verification</b> | 1) Scope 1 and Scope 2 GHG emissions: GHG emissions through business operations of Osaka Gas and its 63 consolidated subsidiaries<br>2) Categories 1, 2, 3, 4, 5, 6, 7, 9, 11, 12, 13 and 14 of Scope 3 GHG emissions accounted and reported in line with the GHG Protocol's "Corporate Value Chain (Scope 3) Accounting and Reporting Standard" within the boundaries defined by Osaka Gas for each category.                           |
| <b>2. Verification method</b>   | Bureau Veritas verified the emission data in line with requirements stipulated under ISO 14064-3 (2006): Greenhouse Gases –Part 3.   |
| <b>3. Conclusion</b>            | Based on the verification work and processes followed, there is no evidence to suggest that the GHG emissions assertion shown below: <ul style="list-style-type: none"><li>- are not materially correct and are not a fair representation of the GHG emissions, as per the scope of work;</li><li>- are not prepared in accordance with the methodology for calculating GHG emission established and implemented by Osaka Gas.</li></ul> |

Bureau Veritas has implemented a code of ethics across its business which is intended to ensure that all our staff maintain high standards in their day to day business activities. We are particularly vigilant in the prevention of conflicts of interest. Bureau Veritas activities for Osaka Gas are for sustainability reporting verification only and we believe our verification assignment did not raise any conflicts of interest.

## Comments on "Evaluation and Opinion of CSR Management"

Once again, we recognized the extreme importance of the Osaka Gas Group enhancing its additional value in new business fields while improving our customer service quality by responding to customer needs meticulously and expeditiously using customer contact opportunities. We are committed to ensuring stable energy supply, enhancing the additional value of our services, and supporting customers' lives and their housing systems. By doing so, we will meet social needs and expectations. At a time when our business areas and fields are expanding, we are convinced that it is all the more important for the Group to undertake business activities while fully recognizing and taking into account our operations' possible impacts on society and the environment.

As for the proposed review of materiality items, we will revise KPIs when necessary in response to changing international trends and business environments, including the SDGs. We will continue to evaluate our CSR activities in an appropriate manner under the CSR Promotion System. In addition, we will do all we can to manage such activities more effectively in line with the Osaka Gas Group CSR Charter.



Masataka Fujiwara  
Executive Vice President  
and CSR Executive,  
Osaka Gas Co., Ltd.