



# ANNEX - SECOND PARTY OPINION

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**OSAKA GAS CO., LTD.**

**Daigas Group Transition Bond (#2)**

Prepared by: DNV Business Assurance Japan K.K.

Location: Kobe, Japan

Date: August 1, 2022

Ref. Nr.: PRJN-414822-2022-AST-JPN-1

This opinion is prepared based on the Daigas Group Green/Transition Finance Framework Second Party Opinion (hereinafter, "Master SPO") (Ref. Nr.: PRJN-333926-2022-AST-JPN-1-rev1 \*August 1, 2022), which was assessed against to the Daigas Group Green/Transition Finance Framework (hereinafter, "Framework").

\*For more information on the ANNEX - Second Party Opinion, see following DNV website

<https://www.dnv.jp/news/page-227965> Release of a new evaluation service (Master SPO + ANNEX)

## Executive Summary

DNV Business Assurance Japan K.K. (hereinafter, "DNV") confirmed that the Daigas Group Transition Bond (#2) issued by Osaka Gas Co., Ltd. (hereinafter, "Osaka Gas"), meets the various principles and guidelines requirements for such bond issuance and is planned to be issued and managed through appropriate internal processes, based on the Framework<sup>\*1</sup> which has been assessed its eligibility<sup>\*2</sup>.

\*1: Daigas Group Green/Transition Finance Framework

\*2: Daigas Group Green/Transition Finance Framework Second Party Opinion

Table-1 shows an outline of the Daigas Group Transition Bond (#2) and ANNEX - Second Party Opinion. The additional items to be assessed in the ANNEX - Second Party Opinion are Element-1 (Use of Proceeds) and Element-4 (Reporting) which are under the use of proceeds bond (response to the four elements). The conformances against to the criteria for the other elements has already been assessed its eligibility in accordance with Framework.

Table - 1 Daigas Group Transition Bond (#2) ANNEX - Second Party Opinion

Target finance	Daigas Group Transition Bond (#2)	
Target organization	Osaka Gas Co., Ltd.	
Target framework	Daigas Group Green/Transition Finance Framework	
Targeted external review	Daigas Group Green/Transition Finance Framework Second Party Opinion Ref. Nr.: PRJN-333926-2022-AST-JPN-1-rev1 Issued August 1, 2022	
Target criteria	Criteria for Climate Transition Finance	
	<ul style="list-style-type: none"> <li>- Climate Transition Finance Handbook (ICMA, 2020)</li> <li>- Basic Guidelines on Climate Transition Finance (FSA, METI, and MoE, 2021).</li> </ul>	
Climate Transition Finance (response to the four disclosure elements)	Disclosure element-1 (Transition strategy and governance)	- Confirmed reliance on Framework
	Disclosure element-2 (Environmental materiality)	- Confirmed reliance on Framework
Bonds with specific use of proceeds (response to the four elements)	Disclosure element-3 (Science-based strategy)	- Confirmed reliance on Framework
	Disclosure element-4 (Transparency of implementation)	- Confirmed reliance on Framework
		<ul style="list-style-type: none"> <li>- Confirmed reliance on the Framework. Additional assessment was implemented as follows: <ul style="list-style-type: none"> <li>• Solar power generation projects (Izumi, Kagoshima; Kitaibaraki, Ibaraki).</li> <li>• High-efficiency gas-fired power generation project (Himeji Natural Gas Power Plant Units 1 &amp; 2)</li> </ul> </li> </ul>

Element-2 (Process for project evaluation and selection)	- Confirmed reliance on Framework
Element-3 (Management of proceeds)	- Confirmed reliance on Framework
Element-4 (Reporting)	- Confirmed reliance on Framework. Additional review were carried out as follows: <ul style="list-style-type: none"> <li>• Allocation of proceeds: items and categories</li> <li>• Environmental benefits: Annual CO<sub>2</sub> reduction (t- CO<sub>2</sub>/year)</li> </ul>

DNV, as an external reviewer, evaluated the eligibility of the use of proceeds and reporting for the Daigas Group Transition Bond (#2), based on an assessment of the Framework and other relevant documents and information provided by Osaka Gas. DNV also confirmed that there were no changes to the other items (in accordance with the framework).

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### Revision history

Date of issue	Remarks
1/8/2022 This report (Initial)	Prepared and issued as Daigas Group Transition Bond (#2) ANNEX - Second Party Opinion

### Disclaimer

Our assessment relies on the premise that the data and information provided by Issuer to us as part of our review procedures have been provided in good faith. Because of the selected nature (sampling) and other inherent limitation of both procedures and systems of internal control, there remains the unavoidable risk that errors or irregularities, possibly significant, may not have been detected. Limited depth of evidence gathering including inquiry and analytical procedures and limited sampling at lower levels in the organization were applied as per Scope of work. DNV expressly disclaims any liability or co-responsibility for any decision a person or an entity may make based on this Statement.

### Statement of Competence and Independence

DNV applies its own management standards and compliance policies for quality control, in accordance with ISO/IEC 17021:2011 - Conformity Assessment Requirements for bodies providing audit and certification of management systems, and accordingly maintains a comprehensive system of quality control, including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. We have complied with the DNV Code of Conduct<sup>1</sup> during the assessment and maintain independence where required by relevant ethical requirements. This engagement work was carried out by an independent team of sustainability assurance professionals. DNV was not involved in the preparation of statements or data included in the Framework except for this Statement. DNV maintains complete impartiality toward stakeholders interviewed during the assessment process.

<sup>1</sup> DNV Code of Conduct is available from DNV website ([www.DNV.com](http://www.DNV.com))



## I. Scope and Objectives

DNV has been commissioned by Osaka Gas to provide a pre-issuance assessment on the Transition Bond. Our objective has been to implement an assessment on whether Osaka Gas meet the criteria established on CTFH•CTFBG and GBP•GBGLs, which are the criteria for bonds with the specific use of proceeds, to provide ANNEX - Second Party Opinion regarding the eligibility of the Transition Bond.

DNV, as an independent external reviewer, has identified no real or perceived conflict of interest associated with the delivery of this ANNEX - Second Party Opinion for Osaka Gas.

In this report, no assurance is provided regarding the financial performance of the BOND, the value of any investments in the BOND, or the long-term environmental benefits of the transaction.

### (1) Scope of review\*

The review assessed the following elements and confirmed their alignment with the gist of GBP/GLP:

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Use of proceeds | <input type="checkbox"/> Process for Project Evaluation and Selection |
| <input type="checkbox"/> Management of proceeds     | <input checked="" type="checkbox"/> Reporting                         |

\* The scope of review is to be applied as a part of the evaluation of the transition finance with use of proceeds.

\* DNV has already reviewed the four disclosure elements of CTFH/CTFBG, "Process for Project Evaluation and Selection", and "Management of Proceeds" and has exposed our opinion below. DNV also confirmed through our assessment with Osaka Gas that there were no changes in the Transition Bond to be implemented this time or additional assessments required.

"Daigas Group Green/Transition Finance Framework Second Party Opinion"

Ref. Nr.: PRJN-333926-2022-AST-JPN-rev1 Issued August 1, 2022

### (2) Role(s) of review provider

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Consultancy (incl. #2 opinion) | <input type="checkbox"/> Certification |
| <input type="checkbox"/> Verification                              | <input type="checkbox"/> Ratings       |
| <input type="checkbox"/> Other ( <i>please specify</i> ):          |  |

### (3) Standards/guidelines to be applied

No.	Standards/guidelines	Scheme owner
1.	Climate Transition Finance Handbook (CTFH) <sup>*1</sup>	International Capital Market Association (ICMA), 2020
2.	Basic Guidelines on Climate Transition Finance (CTFBG) <sup>*1</sup>	Financial Services Agency, Ministry of Economy, Trade and Industry, Ministry of the Environment, 2021
3.	Green Bond Principles (GBP) <sup>*2</sup>	International Capital Market Association (ICMA), 2021
4.	Green Bond Guidelines (GBGLs) <sup>*2</sup>	Ministry of the Environment, 2020

\*1 Climate transition: The concept of climate transition focuses principally on the credibility of an issuer's climate change-related commitments and practices (quoted from CTFH and CTFBG).

\*2 It confirms compliance with the four core elements (use of proceeds, process for project evaluation and selection, management of proceeds, and reporting) that must be met when implementing as a bond/loan that meets the four elements of transition and has a specific use of proceeds (quoted from CTFBG).



## II. Responsibilities of Osaka Gas and DNV

Osaka Gas has provided the information and data used by DNV during the delivery of this review. DNV's ANNEX - Second Party Opinion represents an independent opinion and is intended to inform Osaka Gas and other interested stakeholders in the Osaka Gas Transition Bond (#2) as to whether the established criteria have been met, based on the information provided to us. In our work we have relied on the information and the facts presented to us by Osaka Gas. DNV is not responsible for any aspect of the nominated projects and assets referred to in this opinion and cannot be held liable if estimates, findings, opinions, or conclusions are incorrect. Thus, DNV shall not be held liable if any of the information or data provided by Osaka Gas's management and used as a basis for this assessment were not correct or complete.

## III. Basis of DNV's Opinion

To provide a more flexible ANNEX - Second Party Opinion for the issuer, Osaka Gas, DNV identified the key assessment targets and carried out assessments in accordance with its procedures.

DNV, as an independent external reviewer, provides ANNEX - Second Party Opinion according to the protocol.

Our Protocol includes a set of suitable criteria that can be used to underpin DNV's opinion. The overarching principle behind the Climate Transition Finance with an use of proceeds bond as the basis for the opinion are as follows:

"provide an investment opportunity with transparent sustainability credentials"

"enable capital-raising and investment for new and existing projects with environmental benefits"

As per our Protocol, the criteria against which the Daigas Group Transition Bond (#2) has been grouped into common elements bellow.

The additional assessment for this ANNEX - Second Party Opinion covers Element 1 and Element 4 out of the four common elements of (2) GBPs/GBGLs.

Part of (1) and (2) has already been assessed for eligibility. Detailed results of the eligibility assessment for such parts of (1) and (2) can be found in the "Daigas Group Green/Transition Finance Framework Second Party Opinion" (Ref. Nr.: PRJN-333926-2022-AST-JPN-1-rev1, issued August 1, 2022).

## (1) Four elements of CTFH/CTFBG (disclosure elements)

### Principle One: Issuer's climate transition strategy and governance

The financing purpose should be for enabling an issuer's climate change strategy.

### Principle Two: Business model environmental materiality

The planned climate transition trajectory should be relevant to the environmentally-material parts of the issuer's business model.

### Principle Three: Transition is science-based including targets and pathway

Issuer's climate strategy should reference science-based targets and transition pathways.

### Principle Four: Implementation transparency

Market communication in connection with the offer of a financing instrument which has the aim of funding the issuer's climate transition strategy should also provide transparency of the underlying investment program.

## (2) Four elements of GBP/GBGLs

### Principle One: Use of Proceeds *\*Subject to additional assessment of ANNEX - Second Party Opinion*

The Use of Proceeds criteria are guided by the requirement that an issuer of a transition finance with specific use of proceeds must use the funds raised to bond eligible activities. The eligible activities should produce clear environmental benefits.

### Principle Two: Process for Project Evaluation and Selection

The Project Evaluation and Selection criteria are guided by the requirements that an issuer of a transition finance should outline the process it follows when determining eligibility of an investment using the proceeds from transition finance, and outline any impact objectives it will consider.

### Principle Three: Management of Proceeds

The Management of Proceeds criteria are guided by the requirements that a transition finance should be tracked within the issuing organization, that separate portfolios should be created when necessary and that a declaration of how unallocated funds will be handled should be made.

### Principle Four: Reporting *\*Subject to additional assessment of ANNEX - Second Party Opinion*

The Reporting criteria are guided by the recommendation that at least Sustainability Reporting to the bond investors should be made of the use of bond proceeds and that quantitative and/or qualitative performance indicators should be used, where feasible.



#### **IV. Work Undertaken**

Our work constituted a comprehensive review of the available information, based on the understanding that this information was provided to us by the issuer in good faith. We have not performed an audit or other tests to check the veracity of the information provided to us. The work undertaken to form our opinion included:

The assessment work that forms DNV's opinion includes

##### **i. Pre-funding assessment (ANNEX - Second Party Opinion)**

- Assessment of additional documentary evidence provided by Osaka Gas on the Osaka Gas Transition Finance and supplemented assessment by a comprehensive desktop research. These checks refer to current assessment best practice and standards methodologies;
- Discussions with Osaka Gas, and review of relevant documentation;
- Documentation of findings against each element of the criteria to be additionally assessed.

##### **ii. Post-funding assessment (periodic review) (*\*not included in this report*)**

- Interviews with fundraiser managers and review of relevant documentation.
- Site surveys and inspections (if required).
- Documentation of post-issuance assessment results.



## V. Findings and DNV's Opinion

DNV's findings and opinion are as described below.

Please see Schedule-1 and Schedule-2 for details.

### **GBP/GBGLs-1. Use of Proceeds**

Osaka Gas has defined the criteria applied to eligible projects as transition projects which meet Transition Strategy and related handbook, principle and guidelines (CTF-H and CTF-BG).

The proceeds of the Daigas Group Transition Bond (#2) will be used for the following three projects (SE-01, SE-02, and TE-01). Please see Schedule-1 for details.

All three projects are eligible projects that are aligned with either or both of the Technology Roadmap in the gas sector (METI, February 2022) and the Transition Roadmap in the power sector, in addition to the Daigas Group Green/Transition Finance Framework.

The amount of proceeds of the Daigas Group Transition Bond (#2) will be disclosed in future documents relating to the bond issuance. DNV confirmed at the time of this assessment that the proceeds will be used mainly for new investments and partly be allocated to refinancing. The actual allocation results will be reported on an annual basis in accordance with GBP/GBGLs-4.Reporting.

**Project SE-01: Kuwabarajo Mega Solar (No.4) (solar PVs power plant)**

- The Kuwabarajo Mega Solar (No.4) is a project categorized as an onshore solar power plant and is a green project that meets the technical criteria of the referenced Climate Bond Standard.
- Specifically, DNV confirmed that the negative environmental factors were considered and resulted no significant issues are found, and that there are no fossil fuel-based backup sources (if there are fossil fuel-based backup sources, they must be less than 15% of annual electricity generation, including solar power).
- Osaka Gas defines renewable energy, including onshore solar power, as key activity (Green/Transition Eligibility Criteria) to realize the "Daigas Group Roadmap to Carbon Neutrality" and transition targets in its own Daigas Group Green/Transition Finance Framework.
- The annual CO<sub>2</sub> reduction is estimated to be approximately 17,000t-CO<sub>2</sub>/year in total with project SE-02 (the amount planned to be allocated from the bond (investment amount) was calculated proportionally to the project amount).



Image-1 Project SE-01 Kuwabarajo Mega Solar (No.4)

Table-1 Project SE-01 Outlines of Kuwabarajo Mega Solar (No.4)

<b>Name of power plant (project name):</b>	<b>Kuwabarajo Mega Solar (No.4)</b>
Location:	Izumi City, Kagoshima Prefecture
Capacity:	Approx. 12,000 kW
Operation started:	April 2020
Date of acquisition:	December 17, 2020
Other:	Acquired through a joint venture with Development Bank of Japan, Inc.
<b>Estimated environmental benefits:</b>	<b>Approx. 17,000 t-CO<sub>2</sub>/year (combined with SE-02)</b>

**Project SE-02: Isohara Extra-high Voltage Power Plant (solar PVs power plant),  
Kitaibaraki, Ibaraki**

- The Isohara Extra-high Voltage Power Plant in Kitaibaraki City, Ibaraki Prefecture is a project categorized as an onshore solar power plant and is a green project that meets the technical criteria of the referenced Climate Bond Standard.
- Specifically, DNV confirmed that the negative environmental factors were considered and resulted no significant issues are found, and that there are no fossil fuel-based backup sources (if there are fossil fuel-based backup sources, they must be less than 15% of annual electricity generation, including solar power).
- Osaka Gas defines renewable energy, including onshore solar power, as key activity (Green/Transition Eligibility Criteria) to realize the "Daigas Group Roadmap to Carbon Neutrality" and transition targets in its own Daigas Group Green/Transition Finance Framework.
- The annual CO<sub>2</sub> reduction is estimated to be approximately 17,000t-CO<sub>2</sub>/year in total with project SE-02 (the amount planned to be allocated from the bond (investment amount) was calculated proportionally to the project amount).



Image-2 Project SE-02 Isohara Extra-high Voltage Power Plant, Kitaibaraki, Ibaraki

Table 2 Project SE-02 Outlines of Isohara Extra-high Voltage Power Plant, Kitaibaraki, Ibaraki

<b>Name of power plant (project name):</b>	<b>Isohara Extra-high Voltage Power Plant</b>
Location:	Kitaibaraki City, Ibaraki Prefecture
Capacity:	Approx. 35,000 kW
Operation started:	January 2021
Date of acquisition:	February 1, 2021
Other:	Acquired through a joint venture with Development Bank of Japan, Inc.
<b>Estimated environmental benefits:</b>	<b>Approx. 17,000 t-CO<sub>2</sub>/year (combined with SE-01)</b>

**Project TE-01: Himeji Natural Gas Power Plant**

- The Himeji Natural Gas Power Plant is a gas turbine combined cycle power generation system using BAT with higher power generation efficiency than "(B) Power generation technologies that have already started construction as a commercial plant (including trial operation period, etc.) and those that have been decided to be adopted as commercial plants and are in the environmental assessment procedure" in the "Commercialization and development status of state-of-the-art power generation technologies (BAT reference table)" (April 2014).
- The power generation facility (gross thermal efficiency: approx. 64% based on lower calorific value) is equipped with a high-efficiency gas turbine with an inlet temperature of 1650°C class using liquefied natural gas (LNG) and a heat recovery steam generator, and plans to achieve a CO<sub>2</sub> emission factor: 0.307 kg-CO<sub>2</sub>/kWh. This means that the Himeji Natural Gas Power Plant has top-class power generation efficiency and environmental performance compared to fossil fuel-based thermal power plants in Japan (approx. half of the average CO<sub>2</sub> emission factor\* of domestic thermal power plants) and will indirectly contribute to the replacement (fuel conversion) of inefficient and relatively high CO<sub>2</sub> emissions fossil fuel-based thermal power plant.  
  
\*Source: Average emission factor for thermal power in FY2030: 0.60 kg-CO<sub>2</sub>/kWh (Outlook for energy supply and demand in FY2030, "Global Warming Prevention Plan" (Cabinet decision on October 22, 2021) Schedule-1: List of measures concerning energy-derived carbon dioxide)
- The facility uses gas turbines that can be modified and converted to a low-carbon power source through hydrogen co-firing in the future.
- Environmental impact assessments have been completed and appropriate measures and investigations are planned during construction and after starting operation based on the assessment results, etc.
- In view of the above, the Himeji Natural Gas Power Plant is a transition project that is aligned with both the "Daigas Group Roadmap to Carbon Neutrality" and the Technology Roadmap in the gas sector and the Transition Roadmap in the power sector.
- The annual CO<sub>2</sub> reduction is estimated to be approximately 1.14 million t-CO<sub>2</sub>/year.

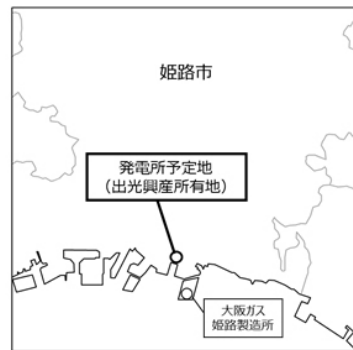
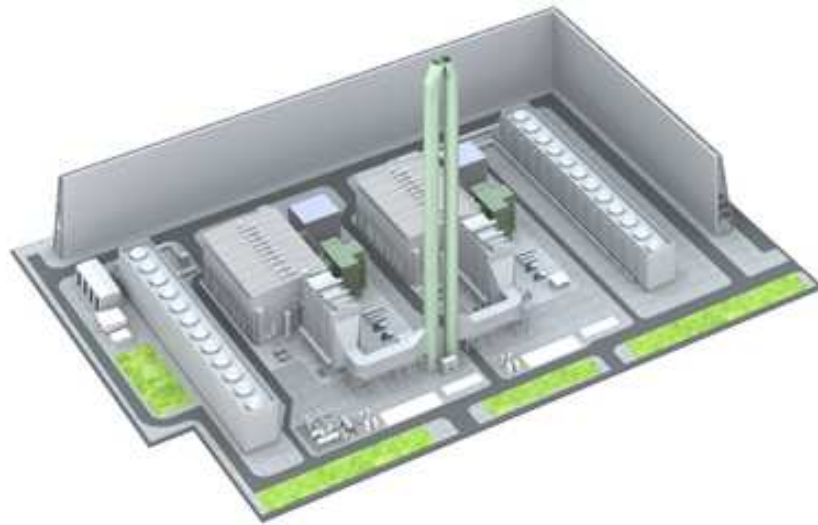


Image (Figure)-3 Project TE-01 Himeji Natural Gas Power Plant (Himeji, Hyogo prefecture)

Table-3 Project TE-01 Outlines of Himeji Natural Gas Power Plant

<b>Name of power plant (project name):</b>	<b>Himeji Natural Gas Power Plant</b>
<b>Location:</b>	1-22, Megahida-cho, Shikama-ku, Himeji, Hyogo (Land owned by Idemitsu Kosan), etc. *Adjacence to Osaka Gas Himeji LNG Terminal
<b>Capacity:</b>	1.25 million kW (0.62 million kW x 2 units)
<b>Operation started:</b>	Unit 1: January 2026; Unit 2: May 2026
<b>Fuel:</b>	Liquefied Natural Gas (LNG)
<b>Estimated environmental benefits:</b>	<b>Approx. 1.14 million t-CO<sub>2</sub>/year (after starting commercial operation of Units 1 and 2)</b>



#### **GBP/GBGLs-4. Reporting**

DNV confirms that Osaka Gas will report on the Transition Bond (#2) until the proceeds are allocated, and disclose information on the status of the allocation, the projects to which the proceeds have been allocated or the environmental benefits. DNV also confirmed that environmental benefits will be reported until the completion of the redemption or repayment of the Transition Bond.

DNV confirmed that, even after allocation have been completed, Osaka Gas plans to report any changes in transition strategy or pathways, or any major changes in the allocation plan or project implementation status, in a timely manner in Osaka Gas's reporting.

The report will be disclosed on the issuer's website.

#### **<Allocation status>**

- ◆ Allocated Amount per eligible criteria
- ◆ Balance of unallocated amount
- ◆ Estimated amount of the portion of the proceeds allocated as refinancing

#### **<Environmental benefits>**

- ◆ Environmental benefits will be disclosed within the confidentiality, to the extent practicable, and in consideration of the characteristics of the project, including an overview of the project (including progress, completion, operation, etc.) and the environmental benefits (e.g., t-CO<sub>2</sub>/year) for each eligible criterion.

\*Report the calculation results of environmental benefits based on estimated values before starting commercial operation, and the actual power generation after starting commercial operation.

**Use of Proceeds reporting:**

- Project-by-project
- On a project portfolio basis
- Linkage to individual bond(s)
- Other *(please specify)*:

**Information reported:**

- Allocated amounts
- GB refinanced share of total investment
- Other *(please specify)*:

**Frequency:**

- Annual
- Semi-annual
- Other *(please specify)*:

**Impact reporting (Environmental Impact):**

- Project-by-project
- On a project portfolio basis
- Linkage to individual bond(s)
- Other *(please specify)*:

**Frequency:**

- Every year
- Every six months
- Other *(please specify)*:

**Information reported (expected or ex-post):**

- GHG Emissions / Savings
- Energy savings
- Other ESG indicators *(please specify): Equipment completion of installation, size, year of operation, etc.*

**Means of Disclosure**

- Information published in financial report (Integrated Report)
- Information published in sustainability report
- Information published in ad hoc documents
- Other *(please specify): on Osaka Gas web site*
- Reporting reviewed (if yes, please specify which parts of the reporting are subject to external review)



## vi. Assessment Conclusion

On the basis of the information provided by Osaka Gas and the work undertaken, it is DNV's opinion that the Daigas Group Transition Bond (#2) meets the criteria established in the Protocol, and that it is aligned with the following stated definition or purpose of the bonds that specify the use of proceeds within the CTFH/CTFBG and GBP/GBGLs:

"provide an investment opportunity with transparent sustainability credentials"

"enable capital-raising and investment for new and existing projects with environmental benefits"

DNV Business Assurance Japan K.K.

August 1, 2022



**Mark Robinson**

Manager, Sustainability Services  
DNV Business Assurance, Australia



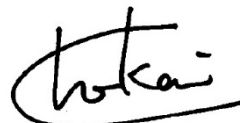
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### About DNV

Driven by our purpose of safeguarding life, property and the environment, DNV enables organisations to advance the safety and sustainability of their business. Combining leading technical and operational expertise, risk methodology and in-depth industry knowledge, we empower our customers' decisions and actions with trust and confidence. We continuously invest in research and collaborative innovation to provide customers and society with operational and technological foresight.

With our origins stretching back to 1864, our reach today is global. Operating in more than 100 countries, our 16,000 professionals are dedicated to helping customers make the world safer, smarter and greener.

### Disclaimer

Responsibilities of the Management of the Issuer and the Second-Party Opinion Providers, DNV: The management of Issuer has provided the information and data used by DNV during the delivery of this review. Our statement represents an independent opinion and is intended to inform the Issuer management and other interested stakeholders in the Bond as to whether the established criteria have been met, based on the information provided to us. In our work we have relied on the information and the facts presented to us by the Issuer. DNV is not responsible for any aspect of the nominated assets referred to in this opinion and cannot be held liable if estimates, findings, opinions, or conclusions are incorrect. Thus, DNV shall not be held liable if any of the information or data provided by the Issuer's management and used as a basis for this assessment were not correct or complete.

## Schedule-1 Daigas Group Transition Bond (#2) Eligible Projects

Eligible Criteria (partly extracted from the framework)		No.	Project Overview		
1)	Decarbonization of gas energy: hydrogen utilization (methanation, direct use), biogas *Not allocated this time				
2)	Decarbonization of power generation	Renewable power generation	(Expenditure on the development, construction, operation and refurbishment of solar power plants).	SE-01	<p>Acquisition of domestic solar power plants *Refinancing (or lookback) planned</p> <p><b>Project name (name of power plant): Kuwabarajo Mega Solar (No.4)</b> Location: Izumi City, Kagoshima Prefecture Capacity: Approx. 12,000 kW Operation started: April 2020 Date of acquisition: December 17, 2020</p>
				SE-02	<p>&lt;Estimated environmental benefits&gt; Approx. 17,000 t-CO<sub>2</sub>/year</p> <p><b>Project name (name of power plant): Isohara Extra-high Voltage Power Plant, Kitaibaraki, Ibaraki</b> Location: Kitaibaraki City, Ibaraki Prefecture Capacity: Approx. 35,000 kW Operation started: January, 2021 Date of acquisition: February 1, 2021</p>
	Thermal power generation	(Reduction of CO <sub>2</sub> emissions from thermal power sources by adopting state-of-the-art CO <sub>2</sub> efficient power generation technologies using the best economically available technologies such as gas turbine combined cycle power generation)	TE-01	<p>Himeji Natural Gas Power Plant *New allocations planned</p> <p>&lt;Estimated environmental benefits&gt; Approx. 1.14 million t-CO<sub>2</sub>/year</p> <p><b>Project name (name of power plant): Himeji Natural Gas Power Plant</b> Location (planned): 1-22, Megahida-cho, Shikama-ku, Himeji, Hyogo (Land owned by Idemitsu Kosan), etc. Capacity: 1.25 million kW (0.62 million kW x 2 units) Operation started: Unit 1, January 2026; Unit 2, May 2026</p> <p>- A gas turbine combined cycle power generation system using BAT with power generation efficiency higher than "(B) Power generation technologies that have already started construction as a commercial plant (including trial operation period, etc.) and those that have been decided to be adopted as commercial plants and are in the environmental assessment procedure" in</p>	

3)	Low-carbonization	Advanced utilization of natural gas and CHP	Conversion from oil, coal, etc. to natural gas			<p>the "Commercialization and development status of state-of-the-art power generation technologies (BAT reference table)" (April 2014)</p> <ul style="list-style-type: none"> <li>- The power generation facility (gross thermal efficiency: approx. 64% based on lower heating value) is equipped with a high-efficiency gas turbine with an inlet temperature of 1650°C class using liquefied natural gas (LNG) and a heat recovery steam generator (boiler), and achieved a CO<sub>2</sub> emission factor: 0.307 kg-CO<sub>2</sub>/kWh.</li> <li>- Can be modified and converted to a low-carbon power source through hydrogen co-firing/single-firing in the future</li> </ul>
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## SECOND PARTY OPINION

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**OSAKA GAS CO., LTD.**

**Daigas Group**

**GREEN/TRANSITION FINANCE FRAMEWORK**

Prepared by: DNV Business Assurance Japan K.K.

Location: Kobe, Japan

Date: August 1, 2022

Ref. Nr.: PRJN-333926-2022-AST-JPN-1\_Rev1

## Executive Summary

Osaka Gas Co., Ltd. (hereinafter, "Osaka Gas", including the Daigas Group) was established in 1897. Currently, the Daigas Group consists of three major business segments: Domestic Energy business, Overseas Energy business, and Life & Business Solutions business (LBS), mainly in the Kinki region.

The Daigas Group has formulated the "Daigas Group Carbon Neutral Vision" in 2021 to demonstrate its efforts to achieve carbon neutrality by 2050. Under the "Daigas Group Carbon Neutral Vision", the Daigas Group, as an innovative energy services company, will provide solutions for the realization of a sustainable society by decarbonizing the raw materials for city gas and introducing renewable energy. In addition, one of the key initiatives in the Daigas Group Medium-Term Management Plan 2023, which was formulated in 2021, is the realization of a low and decarbonized society. In this plan, the Daigas Group's strengths are used to specify targets for 2030 and initiatives for 2050.

In promoting these efforts, Osaka Gas has formulated a "Roadmap to Carbon Neutrality". In order to achieve carbon neutrality, Osaka Gas will promote various research and development activities, demonstrations, and the introduction of technologies and facilities, and will also promote the reduction of CO<sub>2</sub> emissions through the use of low-carbon technologies in the medium term until practical application, and these efforts are in line with the concept of Climate Transition. The "Roadmap to Carbon Neutrality" is consistent with the Japan Gas Association's Carbon Neutral Challenge 2050 Action Plan and with the roadmaps for the gas and electricity sectors developed by Ministry of Economy, Trade and Industry in January 2022 to promote transition finance. In addition, it includes representative green projects as presented in the widely recognised international green finance framework.

Osaka Gas has established Daigas Group Green/Transition Finance Framework (hereinafter, "Framework") to procure investment funds that contribute to the realization of the "Daigas Group Carbon Neutral Vision" is carried out in a manner that conforms to the internationally recognized framework.

DNV Business Assurance Japan K.K. (hereinafter, "DNV"), as an external reviewer, evaluated the eligibility of the framework.

Specifically, DNV provided the eligibility evaluation for frameworks against the following handbook, principle and guidelines which are widely recognized:

- **Climate Transition Finance Handbook** (International Capital Market Association, 2020, hereinafter CTFH)
- **Basic Guidelines on Climate Transition Finance** (Financial Services Agency, Ministry of Economy, Trade and Industry, Ministry of the Environment, 2021 hereinafter, CTFBG)
- **Green Bond Principles** (International Capital Market Association, 2021 hereinafter GBP)
- **Green Bond Guidelines** (Ministry of the Environment, 2020, hereinafter GBGLs)
- **Green Loan Principles** (Loan Market Association (LMA) and others, 2021 hereinafter GLP)
- **Green Loan Guidelines** (Ministry of the Environment, 2020, hereinafter GLGLs)

The following is a summary of the assessment results for each common element indicated in the above framework. Followings (CTF-1 ~ CTF-4) are findings and opinions of DNV against the four common elements of the CTFH and CTFBG (disclosure elements); Followings (GBP/GLP-1 ~ GBP/GLP-4) are findings and opinions of DNV against the elements of GBP/GBGLs and GLP/GLGLs as a transition finance with Use of Proceeds.

### <CTF Eligibility assessment results>

#### CTF-1. Issuer's Climate Transition Strategy and Governance:

The transition strategy of the issuer Osaka Gas sets carbon neutrality in 2050 as a long-term goal consistent with the goals of the Paris Agreement set forth in the "Daigas Group Carbon Neutral Vision". This is in line with the pathway of the Japan Gas Association's Carbon Neutral Challenge 2050 Action Plan and the Ministry of Economy, Trade and Industry's roadmap for the gas and electricity sectors. In addition, Osaka Gas's Transition Strategy will contribute to the realization of supply-side and demand-side carbon neutrality as a key initiative presented in various plans and strategies for decarbonization in Japan. In terms of governance and disclosure related to implementation of the finance, an internal structure and information disclosure process based on TCFD<sup>\*1</sup> have been established. These are disclosed in the framework and other documents, and meet the disclosure elements of CTF-1. \*1: Task Force on Climate-related Financial Disclosures

#### CTF-2. Business model environmental materiality :

The environmental materiality of Osaka Gas's business model is closely related to three initiatives related to the materiality identified as "climate change" under the Osaka Gas Charter of Business Conduct, "Contributing to the Sustainability of the Environment and Society": 1) achieving carbon neutrality, 2) the provision of clean energy and the expansion of the renewable energy value chain, and 3) the advanced use of natural gas and the promotion of environmental products. Materiality is identified by using the GRI Standards<sup>\*1</sup>, ISO 26000, TCFD, etc., and scoring the materiality of the two aspects of social and environmental impact and the future financial impact of the Group, of which "climate change" is shown to be if high materiality. In addition, efforts to address environmental materiality include not only the reduction of CO<sub>2</sub> emissions from the company's own business activities, but also activities that contribute to Scope 3 and the CO<sub>2</sub> emission reduction of other companies. In addition, the contribution to the SDGs (see below) is also taken into account. These are disclosed in the framework and other documents, and meet the disclosure elements of CTF-2.

\*1: Global Reporting Initiative (an international standard providing ESG-related reporting, management and analysis tools)

#### CTF-3. Climate transition strategy to be 'science-based' including targets and pathways :

Osaka Gas' Transition Strategy is defined by science-based targets and pathways. Specifically, it is consistent with the roadmaps for the gas industry and the electricity sector of the Japan Gas Association and the Ministry of Economy, Trade and Industry (METI) as described in CTF-1, and in addition to reducing CO<sub>2</sub> emissions from the company's own activities, long-term and medium-term targets that take into account Scope 3 and reduction contributions are indexed and quantified, and the process of achieving these targets is clarified. These are disclosed within the framework, other documents and second party opinion, and meet the disclosure elements of CTF-3.

#### CTF-4. Implementation transparency:

Osaka Gas plans to invest a cumulative total of 2 trillion yen from fiscal 2017 to 2030 in quality improvement, growth and M&A, including the implementation of its transition strategy. In the fiscal years 2021-2023, Osaka Gas plans to invest 737 billion yen (237 billion yen for quality improvement and 500 billion yen for growth (including 120 billion yen for renewable energy)), which includes projects implemented with green/transition finance. DNV has confirmed that the overall and individual investment plans to achieve the carbon neutral vision in the future will be implemented in accordance with the appropriate timeline, based on the internal management system and processes, taking into account CTF-1 to CTF-3, for the investments required to implement the transition strategy. These are disclosed in the framework and other documents and this second party opinion and meet the disclosure elements of CTF-4.

**<GBP/GLP Eligibility assessment results>**

**GBP/GLP-1. Use of Proceeds:**

Osaka Gas defines the eligible criteria for the use of proceeds as projects (green/transition projects) that contribute directly or indirectly to the realization of transition strategies and goals. Specifically, the eligible criteria are indicated by the eligible project categories classified into the initiatives 1) to 3) shown in Table-1, and the proceeds will be allocated to finance or refinance existing expenditures for one or more research and development, business development, construction, operation, refurbishment and other related expenditures. DNV has confirmed that these green/transition projects are consistent with the elements of CTF-1 to 4. Transition projects have been evaluated by Osaka Gas as having a clear environmental benefit on the transition strategy and are expected to contribute directly and indirectly to the SDGs. These processes are in line with GBP-1.

Table-1 Osaka Gas Green/Transition Finance Eligibility Criteria and Project Overview  
(Please see text for details)

Eligible Criteria		Eligible Criteria & Project Overview	
1)	Decarbonization of gas energy	Hydrogen utilization	- Methanation, direct use (chemical looping combustion technology), etc.
		Biogas	- On-site utilization in domestic/global scale
2)	Decarbonization of power generation	Renewable power generation	- Solar power plants, onshore wind farm, offshore wind farm, biomass power plants, etc.
		Thermal power generation	- Use of carbon neutral fuels such as synthetic methane, hydrogen and ammonia, CCUS (Carbon Capture, Utilization and Storage), etc.
3)	Low-carbonization	Fuel Cell	- Enhancing efficiency and downsizing, etc.
		Advanced utilization of natural gas and CHP	- Support for converting fuel from oil and coal to natural gas - Demonstration of building micro grid - Use of carbon neutral LNG
		Advanced energy use	- VPP, smart energy systems, etc.
		Other (Reduction of CO <sub>2</sub> emission associated with own activities)	- Cryogenic power generation in the city gas production process, Cryogenic power generation facilities, energy efficiency renovation work of buildings, etc.

**GBP/GLP-2. Process for Project Evaluation and Selection:**





Osaka Gas will confirm that the transition project meets the GBP-1 eligibility project categories, and that potentially negative environmental and social considerations are taken into account, and the procedures such as facility certification, permits, and environmental assessments are appropriate in the region where the project is to be implemented. Specifically, eligible projects are made list by the Finance Department and finalized by the Finance Director after consultation with the Business Unit and Planning Department. These processes are in line with GBP-2.

### **GBP/GLP-3. Management of Proceeds:**

The proceeds are managed by the Finance Department on an annual, project-by-project basis, using an internal system and dedicated ledgers. The proceeds are managed in cash or cash equivalents in an amount equal to the unallocated proceeds until the full amount of the proceeds has been allocated.

### **GBP/GLP-4. Reporting:**

Until the full amount of the proceeds is allocated to eligible projects, Osaka Gas will disclose the status of the allocation (allocated/unallocated amount, new/refinanced) on the Osaka Gas website. In addition, the overview of the projects that have been allocated and the environmental benefits will be disclosed on the Osaka Gas website to the extent practicable (for projects under construction, the progress and expected environmental benefits will be included). Furthermore, any changes to the transition strategy or pathway, or significant changes to the allocation plan or actual results will be reported in a timely manner or in reporting.

Based on an assessment of the framework and other relevant documents and information provided by Osaka Gas, DNV has confirmed that the framework meets the criteria required by the relevant framework and eligibility as transition finance. It was also confirmed that the transition bond to be implemented this time would be appropriately planned and implemented in accordance with the framework.

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### Revision history

Revision number	Date of issue	Remarks
0	28/2/2022	Initial The initial version was prepared in the “Climate Transition Finance Model Project in FY2021 (Investigation of ideal way of Transition Finance)” which is a commissioned project by the Ministry of Economy, Trade and Industry.
1	1/8/2022	This version was updated as “Framework Master SPO”, setting apart certain parts regarding eligibility assessment on the “44th Transition Bond” (bond for May 2022) stated in the initial version (the result of eligibility assessment on the framework remains unchanged).

### Disclaimer

Our assessment relies on the premise that the data and information provided by Issuer to us as part of our review procedures have been provided in good faith. Because of the selected nature (sampling) and other inherent limitation of both procedures and systems of internal control, there remains the unavoidable risk that errors or irregularities, possibly significant, may not have been detected. Limited depth of evidence gathering including inquiry and analytical procedures and limited sampling at lower levels in the organization were applied as per Scope of work. DNV expressly disclaims any liability or co-responsibility for any decision a person or an entity may make based on this Statement.

### Statement of Competence and Independence

DNV applies its own management standards and compliance policies for quality control, in accordance with ISO/IEC 17021:2011 - Conformity Assessment Requirements for bodies providing audit and certification of management systems, and accordingly maintains a comprehensive system of quality control, including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. We have complied with the DNV Code of Conduct<sup>1</sup> during the assessment and maintain independence where required by relevant ethical requirements. This engagement work was carried out by an independent team of sustainability assurance professionals. DNV was not involved in the preparation of statements or data included in the Framework except for this Statement. DNV maintains complete impartiality toward stakeholders interviewed during the assessment process.

<sup>1</sup> DNV Code of Conduct is available from DNV website ([www.dnv.com](http://www.dnv.com))

## I. Introduction

### i. About the Issuer

Osaka Gas Co., Ltd. (hereinafter, "Osaka Gas", including the Daigas Group) was established in 1897. Currently, the Daigas Group consists of three major business segments: Domestic Energy business, International Energy business, and Life & Business Solutions business (LBS), mainly in the Kinki region (west Japan, around Osaka area).


























<b>Domestic Energy Business: Gas</b>	Production, supply and sales of city gas, sales of gas appliances, gas piping work, LNG sales, LPG sales, industrial gas sales
	<b>: Electricity</b> Power generation and sales of electricity
<b>International Energy Business</b>	: Development and investment related to natural gas and oil, energy supply, LNG transportation
<b>Life &amp; Business Solutions Business</b>	: Development and leasing of real estate, information processing services, sales of fine materials and carbon products

**ii. Issuers' initiatives for ESG/SDGs**

The Daigas Group has revised the “Daigas Group Charter of Business Conduct” and formulated the “Daigas Group Human Rights Policy” as part of its Medium-Term Management Plan 2023, and is conducting ESG-conscious management. In addition, the Daigas Group is working to create "Creating Value for a Sustainable Future" based on the three pillars of "Achieving a Low Carbon/Carbon Neutral Society", "Establishing Lifestyles and Businesses Adjusted to the New Normal" and "Enhancing Resilience of Customers and Society". These initiatives are linked to the materiality issues shown in Table-1, and the Daigas Group also aims to make a broad contribution to the achievement of the Sustainable Development Goals (SDGs) set by the United Nations.

Of these, the important issue (materiality) primarily relevant to Transition Finance is climate change (Value for a Sustainable Future: Achieving a Low Carbon/Carbon Neutral Society), as set out in the Daigas Group Charter of Business Conduct: "Contributing to the Sustainability of the Environment and Society".

Table-1: Relationship between the Daigas Group Charter of Business Conduct, Materiality and Creating Value for a Sustainable Future and the SDGs

Charter of Business Conduct		Important issues (Materiality)	Value for a Sustainable Future	Contribution to SDGs
I	Creating value for customers	Maintain and expand customer base	Establishing lifestyles and businesses adjusted to the new normal	   
		Improvement of customer satisfaction and quality of services		
		Customer health and safety	Enhancing resilience of customers and society	   
		Stable supply of services		
II	Contributing to the sustainability of the environment and society	Climate change	Achieving a low carbon/carbon neutral society	    
III	Engaging with and contributing to society	Coexistence with local community	Building foundations that support the realization of value for a sustainable future	   
IV	Respecting human rights	Supply chain management		   
V	Complying with laws and regulations	Compliance		 
VI	Providing work environment that supports employees' personal growth	Employee Engagement		 
		Development of employee skills		
		Diversity and inclusion		

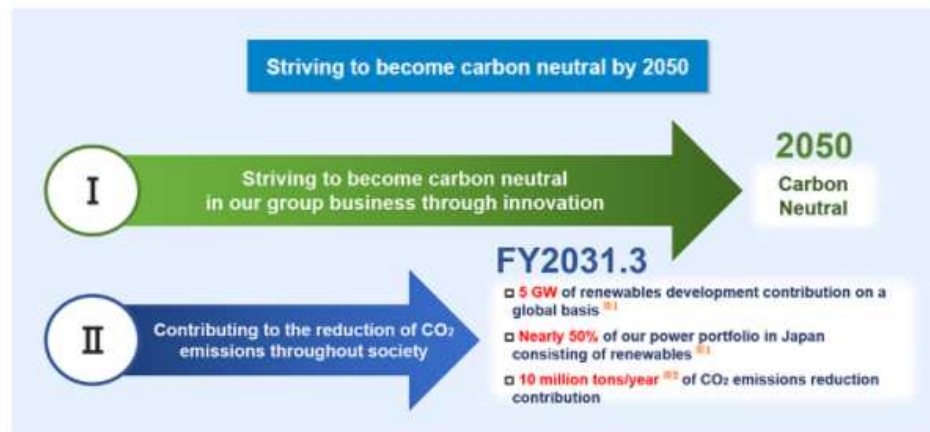
### iii. Issuer's Environmental Initiatives

The Daigas Group has formulated the “Daigas Group Carbon Neutral Vision” in 2021 to demonstrate its efforts to achieve carbon neutrality by 2050. Under the “Daigas Group Carbon Neutral Vision”, the Daigas Group, as an innovative energy services company, will provide solutions for the realization of a sustainable society by decarbonizing the raw materials for city gas and introducing renewable energy.

In addition, one of the key initiatives in the Daigas Group Medium-Term Management Plan 2023, which was formulated in 2021, is the realization of a low and decarbonized society. In this plan, the Daigas Group's strengths are used to specify targets for 2030 and initiatives for 2050. (Table/Figure-2).

These visions and plans approach not only the CO<sub>2</sub> emission reduction of Scope 1 to 3 (Figure-2) towards carbon neutrality in the Daigas Group's businesses, but also the contribution to the CO<sub>2</sub> emission reduction for society as a whole.

Table/Figure-2 The challenge of carbon neutrality in 2050



\*1 Including solar, wind, and biomass power projects, which are eligible for the feed-in tariff (FIT) scheme

\*\*2 Equivalent to one third of the CO<sub>2</sub> emissions currently produced in our business and by our customers (33 million tons/year)

Initiatives			Target
1	Striving to become carbon neutral in Daigas group business through innovation	<ul style="list-style-type: none"> <li>Development of methanation and other technologies for the decarbonization of city gas feedstock</li> <li>Practical application of methanation in 2030 (city gas pipeline injection)</li> <li>Decarbonization of the power sources with a focus on the introduction of renewable energies</li> </ul>	<b>2050 Carbon neutral</b>
2	Contributing to the reduction of CO <sub>2</sub> emissions throughout society	<ul style="list-style-type: none"> <li>Promoting maximum contribution to CO<sub>2</sub> emission reduction before the establishment of decarbonization technologies</li> <li>Promotion of advanced use of natural gas, expansion of LNG use overseas and spread of renewable energy</li> </ul>	<b>2030</b> <ul style="list-style-type: none"> <li>Renewable development contribution on a global basis : <b>5GW</b></li> <li>Power portfolio in Japan consisting of renewable2 : <b>Nearly 50%</b></li> <li>CO<sub>2</sub> emission reduction contribution : <b>10 million tons/year</b> (compared to 2016)</li> </ul>

In order to achieve carbon neutrality, Osaka Gas will promote various research and development, demonstrations, and the introduction of technology and facilities, as well as promote the reduction of CO<sub>2</sub> emissions through the use of low-carbon technologies in the medium term until practical application.

In promoting these efforts, Osaka Gas has developed a "Roadmap to Carbon Neutrality" (hereinafter, "Roadmap") (Figure-1).

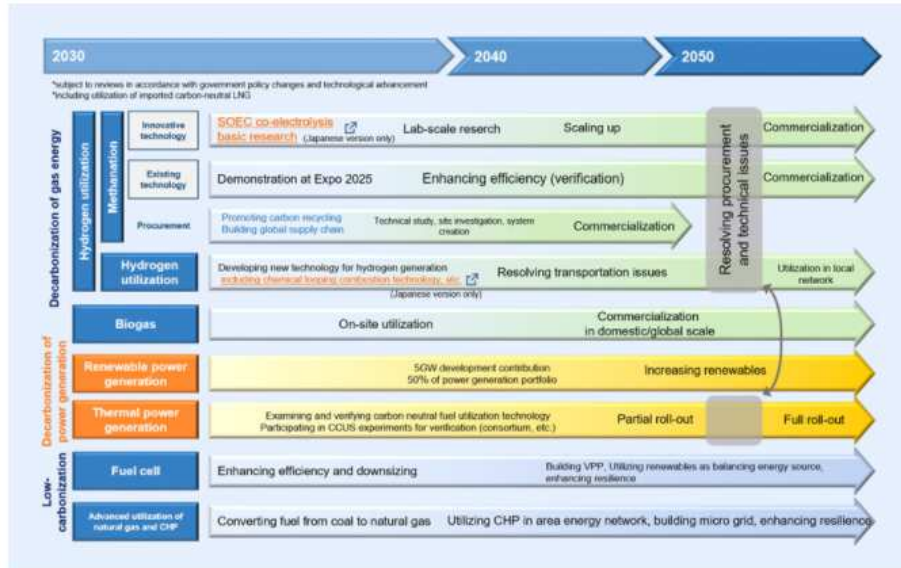
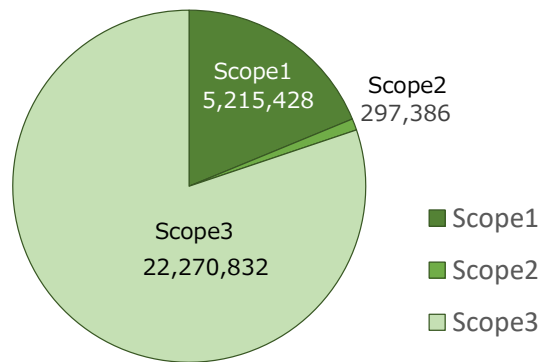


Figure 1: Daigas Group roadmap to carbon neutrality



Target Scope	Results for FY2020	
Scope1	5,215, 428 t-CO <sub>2</sub> e	19%
Scope2	297,386 t-CO <sub>2</sub> e	1 %
Scope3	22,270,832 t-CO <sub>2</sub> e	80%
Total	27,783,646 t-CO <sub>2</sub> e	(100%)

Figure-2: Daigas Group greenhouse gas emissions (Scope 1 to 3)

Source: Daigas Group website Environmental performance data (emissions to the atmosphere)





<Osaka Gas's approach to Scope 1 to 3 emissions>

Scope1:Direct emissions from own operations (gas production, power generation, etc.) (combustion of gas for power generation, etc.)

Scope2: Indirect emissions from own operations (gas production, power generation, etc.) (use of electricity supplied by other companies, etc.)

Scope3: Indirect emissions from value chains other than Scope 1 and Scope 2 (e.g., fuel procurement, combustion of gas at destination)

Table-2 Osaka Gas's Participation in External Initiatives and Efforts

External initiatives		Osaka Gas' Efforts
UN Global Compact		In 2007, Osaka Gas became the first Japanese public interest company to join the UN Global Compact. Supporting the principles that we should work towards as a good member of the international community
Sustainable Development Goals (SDGs)		(See Table-1) Declaration of proactive efforts to contribute to the achievement of the SDGs by promoting business activities aimed at realizing "Value for a Sustainable Future".
Task Force on Climate-related Financial Disclosures (TCFD)		Osaka Gas endorses the TCFD recommendations and will use them as a benchmark for verifying its response to climate change. Osaka Gas is also a member of the TCFD Consortium, which is discussing efforts to disclose information on climate change response in line with the TCFD recommendations.
Challenge Zero		Osaka Gas has decided to support "Challenge Zero (Challenge Net Zero Carbon Innovation)" which is a new initiative of Nippon Keidanren (Japan Business Federation) that strongly promotes and encourages the innovation actions that companies and organizations are taking on, both domestically and internationally, with the aim of realizing a "decarbonized society," which is the long-term goal of the Paris Agreement, the international framework for combating climate change. Osaka gas also participated in the "Companies Taking on the Zero-Emission Challenge" in 2021.

#### iv. About the Green/Transition Finance Framework

In order to promote the environmental initiatives, set out in the "Daigas Group Carbon Neutral Vision", Osaka Gas has issued transition finance for transition activities to realize the Carbon Neutral Challenge 2050<sup>\*1</sup> set out by the Japan Gas Association (JGA) and the sector-specific technology roadmap<sup>\*2\*3</sup> set out by the Ministry of Economy, Trade and Industry (METI). Also, Osaka Gas engaged in dialogue with investors and a wide range of marked participants and has established the Osaka Gas Green/Transition Finance Framework (hereinafter, "Framework") in order to carry out funds for in a manner that conform to the internationally recognized frameworks.

The framework which this framework specifically refers to is described in (3) of Section II below.

\*1: Japan Gas Association: Carbon Neutral Challenge 2050 on 24th November 2020

\*2: Ministry of Economy, Trade and Industry (METI): Technology roadmap for the gas sector on "Transition Finance" on February 2022.

\*3: Agency for Natural Resources and Energy, Electric Infrastructure Division: Transition Roadmap for the Electricity Sector on February 2022.

**v. Issuer’s transition strategy for decarbonization**

**(1) Strategies by sector (industry) at the international/national/regional level**

Figure-3 shows the scenarios for gas carbon neutrality set out in the "Carbon Neutral Challenge 2050" developed by the Japan Gas Association in November 2020. Figure-4 shows the technology roadmap by sector (gas) of the Ministry of Economy, Trade and Industry (METI).

The Japan Gas Association's scenario (Figure-3)/the METI's technology roadmap by sector (gas) (Figure-4.1 2/3) and Osaka Gas's roadmap (Figure-1) are well aligned, and it is designed to reduce CO<sub>2</sub> emissions throughout the entire gas supply chain, including demand-side, supply-side, CCUS and overseas contribution initiatives.

Fuel conversion from coal and oil to natural gas is one of the main ways contributing to the reduction of CO<sub>2</sub> emissions in society as a whole in the gas sector, and is widely recognised as a typical transition project. According to METI's technology roadmap for the gas sector (Figure-4.1 1/3), the progress of fuel conversion in society as a whole will lead to an increase in gas demand (consumption and sales) for gas utilities, which in turn will lead to an increase in supply-side (gas utility) CO<sub>2</sub> emissions (increase in Scope 3) in the short to medium term.

In other words, while Osaka Gas is working to reduce CO<sub>2</sub> emissions in its gas business through the introduction of high-efficiency gas appliances and other measures (Figure-4.1 3/3), its Scope 3 CO<sub>2</sub> emissions are expected to increase due to the relatively large amount of natural gas supplied for fuel conversion. Osaka Gas is committed to reduce CO<sub>2</sub> emissions for society as a whole through the supply of gas for fuel conversion, etc. (contributing to the reduction of CO<sub>2</sub> emissions), and the voluntary reduction of CO<sub>2</sub> emissions through the introduction of high-efficiency gas appliances, etc. (the introduction of technologies and equipment that will contribute to the reduction of the supply of low-carbon gas in the future) will also contribute to the reduction of Scope 3.

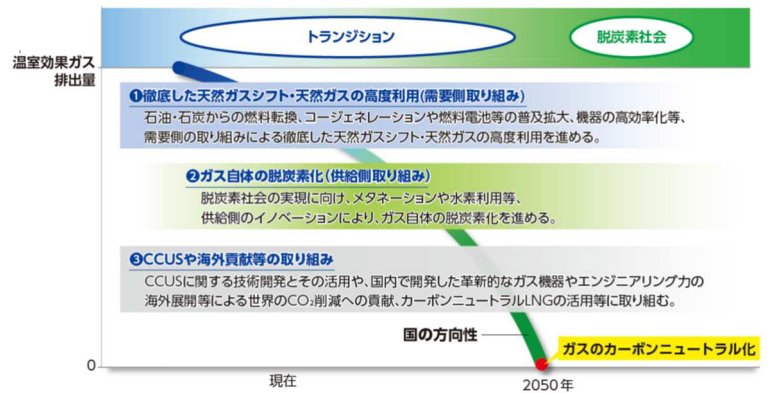


Figure-3 Scenarios for achieving gas carbon neutral (Japan Gas Association)

- ① **Shift to natural gas and advanced use of natural gas (demand side)**
  - Conversion from coal and oil to natural gas
  - Introducing cogeneration, fuel cell
  - Introducing high efficient equipment
- ② **Decarbonization of Gas (supply side)**
  - Synthetic Methane and hydrogen utilization
  - Decarbonization of Gas by innovation by supplier
- ③ **CCUS and overseas contribution**
  - R&D and installation of CCUS.
  - Expand innovative gas technology and engineering to global, use of carbon neutral LNG



Furthermore, in addition to the gas business, Osaka Gas is actively involved in the electric power business as an innovative energy and service company. Osaka Gas recognizes the importance of building a system for supplying electricity from renewable energy sources until the technology necessary to achieve a decarbonized society is established, and is promoting the introduction of renewable energy sources, which is the green power infrastructure necessary for the future supply of green gas body energy through methanation, etc. (For details, see Table-3 below and Figure-4.2).

Osaka Gas's policy on renewable energy in its roadmap, as well as its contribution to the dissemination of renewable energy (5 million kW) and the renewable energy ratio (50% \*of the domestic electricity business provided by Osaka Gas) as set out in its FY2030 target, are considered to be closely related to the renewable energy of Ministry of Economy, Trade and Industry's transition roadmap for the electricity sector (Figure-4.2).

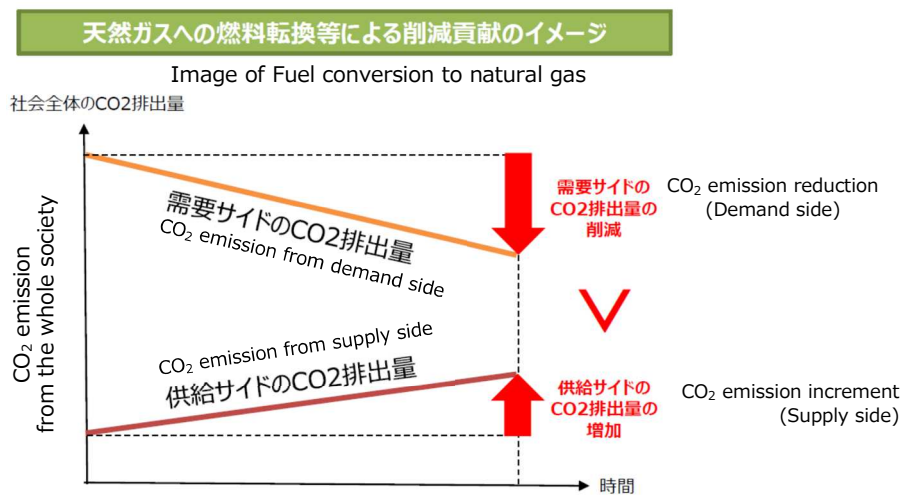
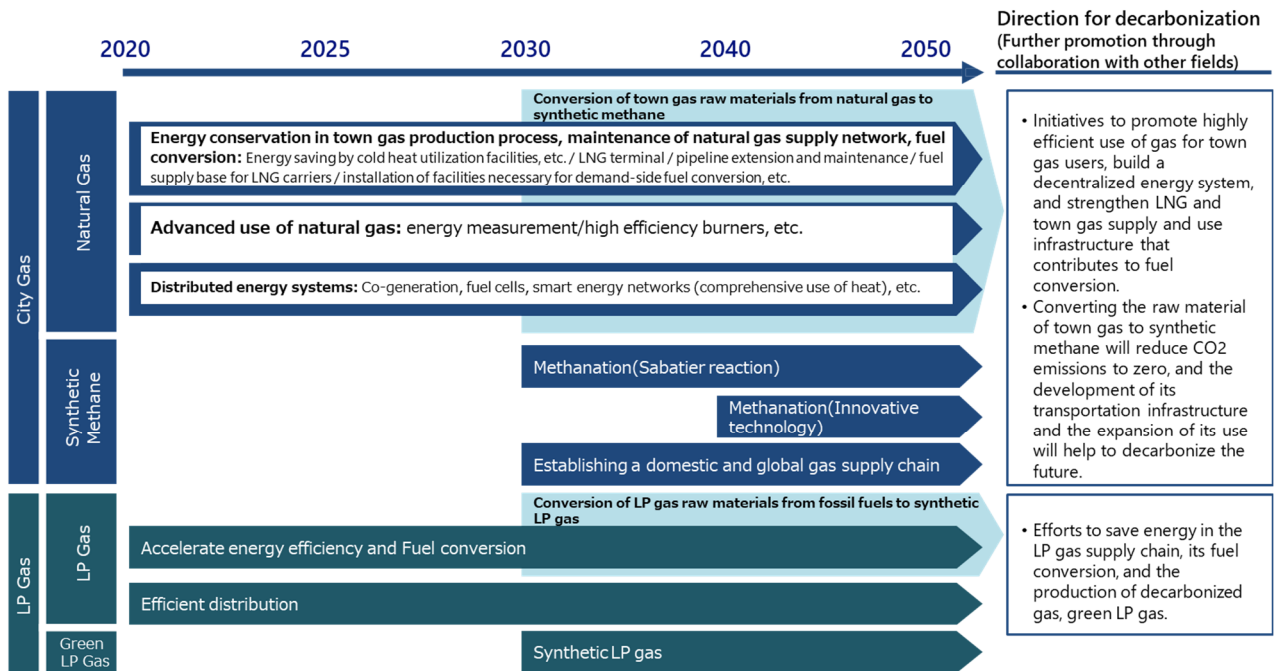


Figure-4.1(1/3) Ministry of Economy, Trade and Industry Technology roadmap for the gas sector (contribution to CO<sub>2</sub> emission reduction of demand-side)

### 3. Carbon neutral technology pathway | ②-1 Technical roadmap (City Gas and LP Gas)



### 3. Carbon neutral technology path | ②-1 Technical roadmap (common technology)

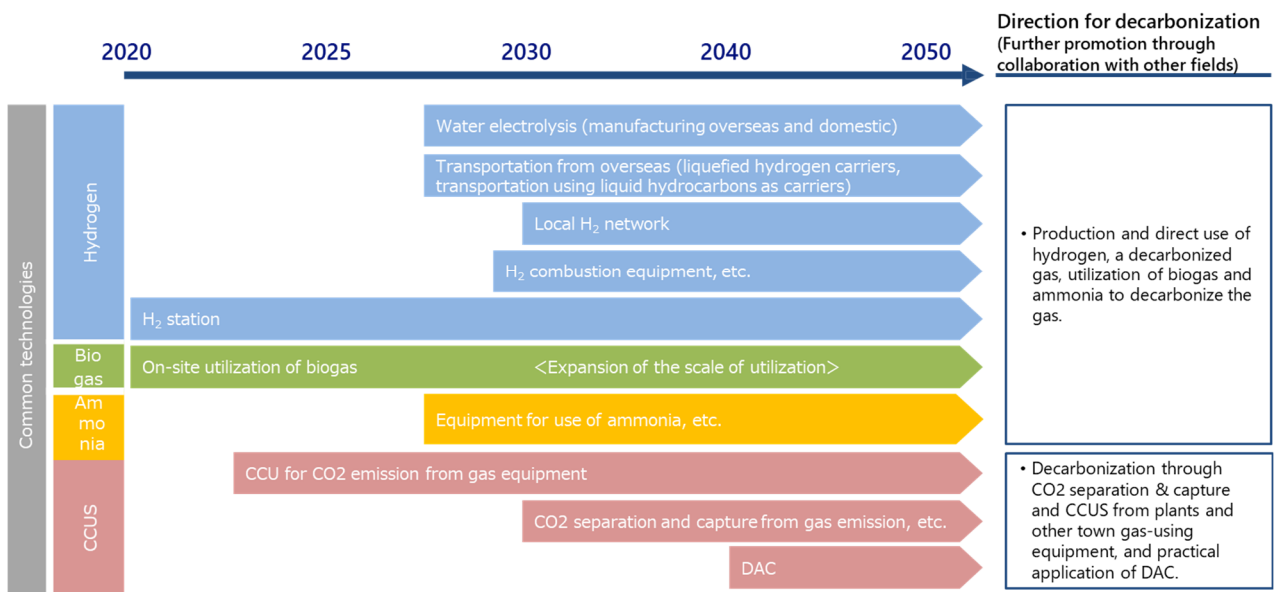


Figure-4.1(2/3) Ministry of Economy, Trade and Industry Technology roadmap for the gas sector (city gas, LP gas, common technologies)

Provisional translation by DNV based on the Japanese version

## 2. ガス事業について（共通） | （参考）高効率なガスコジェネの開発・普及拡大

- 高効率なガスコージェネレーションシステムを導入することで、トランジション期の低炭素化に資するだけでなく、レジリエンスや再生可能エネルギーの調整力としての貢献も考えられる。



Figure-4.1 (3/3) Ministry of Economy, Trade and Industry Technology roadmap for the gas sector (development and diffusion of highly-efficiency gas cogeneration)  
Technology roadmap for gas sector related to transition finance on February 2022, Ministry of Economy, Trade and Industry

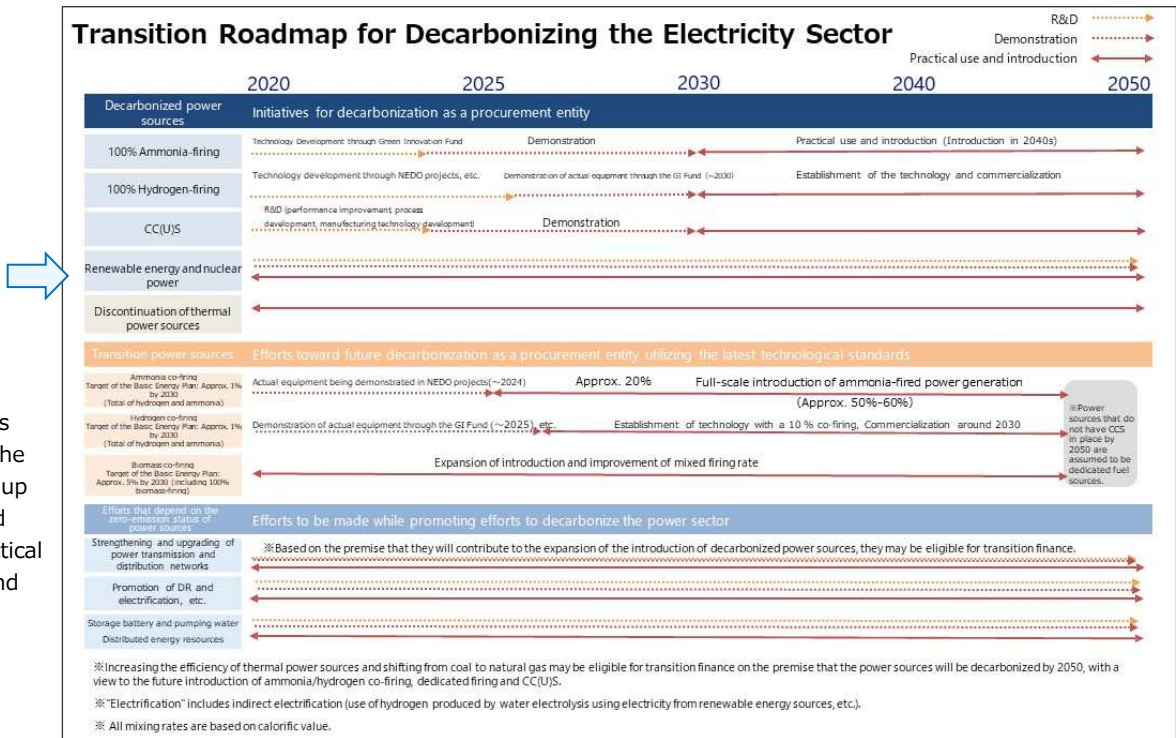


Figure-4.2 Ministry of Economy, Trade and Industry Technology roadmap for the electricity sector Agency for Natural Resources and Energy, Electric Infrastructure Division Transition Roadmap for the Electricity Sector on February 2022

Provisional translation by DNV based on the Japanese version

## (2) Issuer's transition strategy

Osaka Gas has positioned its transition strategy as a way to achieve its mid-term and long-term goals by embodying the transition initiatives outlined above by the Japan Gas Association and the Ministry of Economy, Trade and Industry, in line with the goals of the Paris Agreement, as well as the efforts to achieve carbon neutrality in 2050 as outlined in the "Daigas Group Carbon Neutral Vision" and Roadmap.

These targets will contribute to (and support) the achievement of supply-side and demand-side carbon neutrality as a key initiative outlined in Japan's various decarbonization plans and strategies.

Table-3 shows the Osaka Gas transition targets, and Figure-5 shows the concept of each Scope and contribution of CO<sub>2</sub> emission reduction for the mid-term targets. In addition, Figure-6 shows the roadmap for the transition to carbon neutrality, including the outline of the transition strategy, specific initiatives and timeline, and Table-4 shows the main initiatives for achieving carbon neutrality.

Although the transition strategies of the Japan Gas Association and the Ministry of Economy, Trade and Industry (METI) do not set clear interim targets (base year, specific quantified reduction targets, etc.), Osaka Gas has set the short-, mid- and long-term targets required by the transition strategies from the perspective of its own activities and contribution to society, together with specific management strategies and business plans.

Table-3 Osaka Gas Transition Targets

<b>Medium-term targets</b>	<b>FY2030</b>	Renewable development contribution on a global basis : <b>5GW</b> Power portfolio in Japan consisting of renewable* <sup>1</sup> : <b>Nearly 50%</b> CO <sub>2</sub> emission reduction contribution : <b>10 million tons/year</b> * <sup>2*3</sup> (compared to 2016)
<b>Long-term targets</b>	<b>2050</b>	Carbon-neutral

- 1: Including solar, wind, biomass power sources which are eligible for the feed-in tariff (FIT) scheme  
 2: Equivalent to one third of the CO<sub>2</sub> emission currently produced in our business and by our customers (33 million ton/year)  
 3: Includes 700,000 tonnes of a partial reduction of Scope 3 emissions equivalent through introduction of high-efficiency gas appliances, etc.

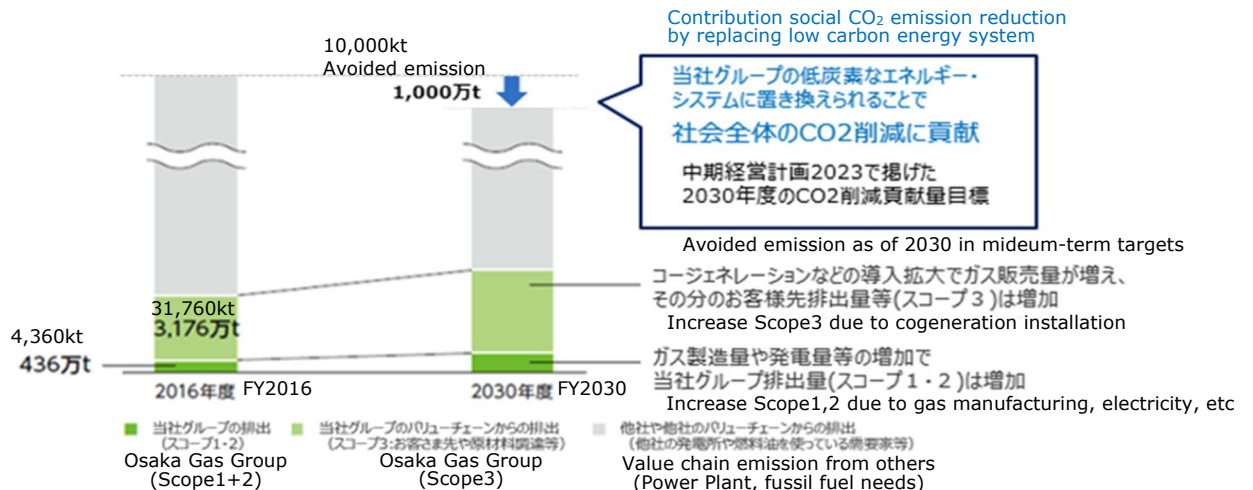


Figure-5 Daigas Group Transition Targets (details of medium-term targets)

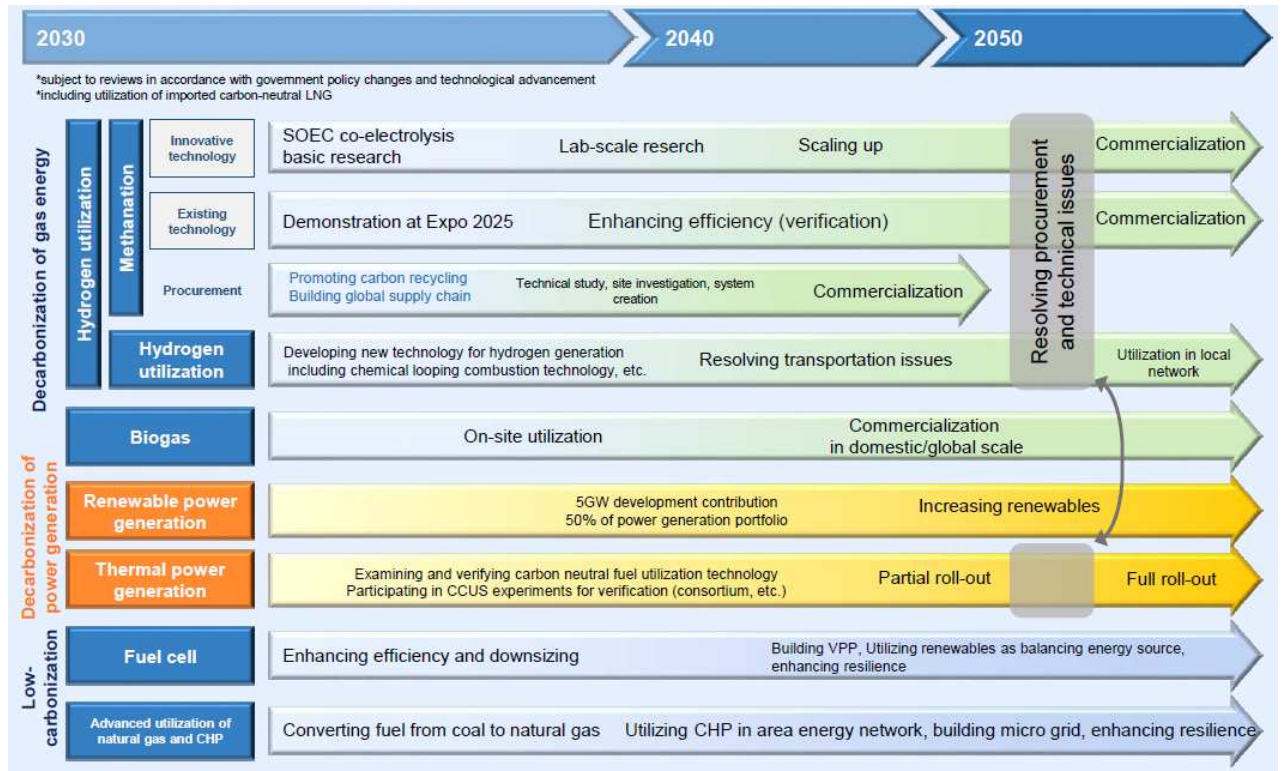


Figure-6 Daigas Group Road Map to Carbon Neutrality

Table-4 Daigas Group's key initiatives to achieve carbon neutrality (Green/transition finance candidate projects)

Eligible Criteria		Eligible Criteria & Project Overview	
1)	Decarbonization of gas energy	Hydrogen utilization	Methanation, direct use (chemical looping combustion technology), etc.
		Biogas	On-site utilization in domestic/global scale
2)	Decarbonization of power generation	Renewable power generation	Solar power plants, onshore wind farm, offshore wind farm, biomass power plants, etc.
		Thermal power generation	Use of carbon neutral fuels such as synthetic methane, hydrogen and ammonia, CCUS (Carbon Capture, Utilization and Storage), etc.
3)	Low-carbonization	Fuel Cell	Enhancing efficiency and downsizing, etc.
		Advanced utilization of natural gas and CHP	Support for converting fuel from oil and coal to natural gas Demonstration of building micro grid Use of carbon neutral LNG
		Advanced energy use	VPP, smart energy systems, etc.
		Other (Reduction of CO <sub>2</sub> emission associated with own activities)	Cryogenic power generation in the city gas production process, Cryogenic power generation facilities, energy efficiency renovation work of buildings, etc.

### (3) Governance of the issuer (sustainability promotion system)

Figure-7 and Figure-8 show Osaka Gas' sustainability promotion system and its approach to sustainability promotion.

Osaka Gas considers the response to climate change, including the implementation of the Transition Strategy, as one of the most important management issues, and manages various aspects of the response to climate change as the Daigas Group through the ESG Promotion Committee (Management Committee) and ESG Promotion Committee as shown in Figure-7. As part of this process, the Daigas Group monitors the roadmap initiatives and important matters are discussed and reported to the Board of Directors, so that the transition strategy is managed as a Daigas Group.

In addition, the Daigas Group's response to climate change is incorporated in its corporate philosophy as a key issue in its Charter of Business Conduct. In this context, activities are being carried out in line with a roadmap based on the Daigas Group Carbon Neutral Vision and the Medium-Term Management Plan 2023 "Creating Value for a Sustainable Future."



Figure-7 Osaka Gas Climate Change Governance Organization Chart

- ◆ Board of Directors
  - 10 directors  
(6 Internal Directors and 4 Outside directors)
- ◆ Executive Board (ESG Council)
  - 1 President and Executive Officer
  - 3 Vice Presidents (Executive Officers)
  - 6 Managing Officers
  - \*In principle, it is held three times per year as "ESG Council"
- ◆ ESG Committee
  - Vice President (Head of ESG Promotion)
  - Heads of related business units, etc.



Figure-8 The Daigas Group's Values

\*Climate change action is part of the Daigas Group Charter of Business Conduct.

**Issuer Name:** Osaka Gas Co., Ltd.

**Framework Name:** Osaka Gas Co. Ltd. Daigas Group Green/Transition Finance Framework

**Review provider's Name:** DNV Business Assurance Japan K.K.

**Date of report:** August 1, 2022 (Rev1)

## II. Scope and objectives

DNV has been commissioned by Osaka Gas to provide an assessment on Osaka Gas’s Green/Transition Finance Framework. Our objective has been to implement an assessment on whether the Osaka Gas’s Transition Bonds meet the criteria established on CTFH•CTFBG, GBP•GBGLs and GLP•GLGLs to provide a second party opinion on the eligibility of the framework.

DNV, as an independent external reviewer, has identified no real or perceived conflict of interest associated with the delivery of this second-party opinion for Osaka Gas.

In this report, no assurance is provided regarding the financial performance of the BOND, the value of any investments in the BOND, or the long-term environmental benefits of the transaction.

### (1) Scope of review\*

The review assessed the following elements and confirmed their alignment with the gist of GBP/GLP:

- Use of Proceeds
- Process for Project Evaluation and Selection
- Management of Proceeds
- Reporting

\*The scope of review is to be applied as a part of the evaluation of the transition finance with use of proceeds

\*The four disclosure elements of CTFH and CTFBG are included in the scope of review

### (2) Role(s) of review provider

- Consultancy (incl. 2<sup>nd</sup> opinion)
- Certification
- Verification
- Ratings
- Other (please specify):

### (3) Standards/guidelines to be applied

No.	Standards/guidelines	Scheme owner
1.	Climate Transition Finance Handbook (CTFH) <sup>*1</sup>	International Capital Market Association (ICMA), 2020
2.	Basic Guidelines on Climate Transition Finance (CTFBG) <sup>*1</sup>	Financial Services Agency, Ministry of Economy, Trade and Industry, Ministry of the Environment, 2021
3.	Green Bond Principles (GBP) <sup>*2</sup>	International Capital Market Association (ICMA), 2021
4.	Green Bond Guidelines (GBGLs) <sup>*2*3</sup>	Ministry of the Environment, 2020
5.	Green Loan Principles (GLP) <sup>*2*3</sup>	Loan Market Association (LMA) and others, 2021
6.	Green Loan Guidelines (GLGLs) <sup>*2*3</sup>	Ministry of the Environment, 2020

\*1 Climate transition: The concept of climate transition focuses principally on the credibility of an issuer’s climate change-related commitments and practices. (Quoted from CTFH and CTFBG)

\*2 It confirms compliance with the four core elements (use of proceeds, process for project evaluation and selection, management of proceeds, and reporting) that must be met when implementing as a bond/loan that meets the four elements of transition and has a specific use of proceeds (quoted from CTFBG).

\*3 Green projects were assessed for eligibility using the referable technical criteria of the Climate Bond Initiative’s Climate Bond Standard.

### III. Responsibilities of Osaka Gas and DNV

Osaka Gas has provided the information and data used by DNV during the delivery of this review. DNV's second party opinion represents an independent opinion and is intended to inform Osaka Gas and other interested stakeholders in the Osaka Gas's Transition Finance as to whether the established criteria have been met, based on the information provided to us. In our work we have relied on the information and the facts presented to us by Osaka Gas. DNV is not responsible for any aspect of the nominated projects and assets referred to in this opinion and cannot be held liable if estimates, findings, opinions, or conclusions are incorrect. Thus, DNV shall not be held liable if any of the information or data provided by Osaka Gas's management and used as a basis for this assessment were not correct or complete.

### IV. Basis of DNV's opinion

To provide as much flexibility for the issuer, Osaka Gas as possible, we have adapted our Osaka Gas Green/Transition Finance assessment methodologies, which incorporates the requirements of the CTFH, CTFBG, GBP, GBGLs, GLP and GLGLs, to create an Osaka Gas Green/Transition Finance Eligibility Assessment Protocol (hereinafter, "Protocol"). Please refer to Schedule-2. The Protocol is applicable to Osaka Gas Transition Finance under the CTFH, CTFBG, GBP, GBGLs, GLP and GLGLs.

\*Green projects have been evaluated using the technical criteria referred to in the Climate Bond Initiative's Climate Bond Standard.

DNV, as an independent external reviewer, provides second party opinion according to the protocol.

Our Protocol includes a set of suitable criteria that can be used to underpin DNV's opinion. The overarching principle behind the Climate Transition Finance of Bond and Loan with a specific use of proceeds as the basis for the opinion are as follows:

"provide an investment opportunity with transparent sustainability credentials"

"enable capital-raising and investment for new and existing projects with environmental benefits"

As per our Protocol, the criteria against which the Osaka Gas Transition Finance has been reviewed are grouped into common elements below, represented by CTFH, CTFBG, GBP, GBGLs, GLP and GLGLs.



**(1) Four elements of CTFH/CTFBG (disclosure elements)****Principle One: Issuer's climate transition strategy and governance**

The financing purpose should be for enabling an issuer's climate change strategy.

**Principle Two: Business model environmental materiality**

The planned climate transition trajectory should be relevant to the environmentally-material parts of the issuer's business model.

**Principle Three: Transition is science-based including targets and pathway**

Issuer's climate strategy should reference science-based targets and transition pathways.

**Principle Four: Implementation transparency**

Market communication in connection with the offer of a financing instrument which has the aim of funding the issuer's climate transition strategy should also provide transparency of the underlying investment program.

**(2) Four elements of GBP/GBGLs and GLP/GLGLs****Principle One: Use of Proceeds.**

The Use of Proceeds criteria are guided by the requirement that an issuer of a transition finance with specific use of proceeds must use the funds raised to bond eligible activities. The eligible activities should produce clear environmental benefits.

**Principle Two: Process for Project evaluation and selection.**

The Project Evaluation and Selection criteria are guided by the requirements that an issuer of a transition finance should outline the process it follows when determining eligibility of an investment using the proceeds from transition finance, and outline any impact objectives it will consider.

**Principle Three: Management of Proceeds.**

The Management of Proceeds criteria are guided by the requirements that a transition finance should be tracked within the issuing organization, that separate portfolios should be created when necessary and that a declaration of how unallocated funds will be handled should be made.

**Principle Four: Reporting**

The Reporting criteria are guided by the recommendation that at least Sustainability Reporting to the bond investors should be made of the use of bond proceeds and that quantitative and/or qualitative performance indicators should be used, where feasible.

\*The GLGLs set out requirements for loan-specific elements (internal reviews). This is identified in the green loan requirements check in Schedule-6.

## V. Work Undertaken

Our work constituted a comprehensive review of the available information, based on the understanding that this information was provided to us by the issuer in good faith. We have not performed an audit or other tests to check the veracity of the information provided to us. The work undertaken to form our opinion included:

The assessment work that forms DNV's opinion includes

### i. Pre-funding assessment (Green/Transition Finance Framework)

- Creation of a Daigas Group-specific Protocol, adapted to the purpose of the Daigas Group Green/Transition Finance, as described above and in Schedule-2 to this assessment.
- Assessment of documentary evidence provided by Osaka Gas on the Osaka Gas Transition Finance and supplemented assessment by a comprehensive desktop research. These checks refer to current assessment best practice and standards methodologies;
- Discussions with Osaka Gas, and review of relevant documentation;
- Documentation of findings against each element of the criteria.

### ii. Post-funding assessment (*\*not included in this report*)

- Interviews with fundraisers' managers, and review of the relevant documentation;
- Field research and inspection (if necessary)
- Document creation of post-issuance assessment results



## VI. Findings and DNV's opinion

DNV's findings and opinion are as described in (1) and (2) below.

From the CTF-1 to 4 in (1) below are the findings and opinions of DNV against the disclosure elements of the CTFH and CTFBG.

Please see Schedule-2 for details.

From the GBP 1 to 4 in (2) below are the findings and opinions of DNV against the requirement of the four common elements of GBP/GBGLs and GLP/GLGLs.

Please see Schedule-3 for details.

### **(1) Findings and opinions of DNV against the four common elements (disclosure elements) of CTFH and CTFBG**

#### **CTF-1. Issuer's Climate Transition Strategy and Governance**

- In January 2021, Osaka Gas formulated the "Daigas Group Carbon Neutral Vision", which sets out a roadmap for achieving carbon neutrality. In the vision, Osaka Gas sets the long-term goal of achieving carbon neutrality in 2050, which is consistent with the goals of the Paris Agreement, and the medium-term goals for achieving the long-term goal. The roadmap discloses the strategic plan to achieve the transition to carbon neutrality.
- DNV has reviewed and confirmed that Osaka Gas's targets are equivalent to meeting the targets of the Paris Agreement, based on a plan of action to achieve carbon neutrality in 2050, a science-based long-term target quantified by Osaka Gas. Osaka Gas sets environmental corporate strategies that are important to its business model, based on the identification of risks and opportunities and scenario analysis using TCFD guidance.
- Specifically, Osaka Gas's Transition Strategy incorporates the environmental targets of the Japan Gas Association and the Ministry of Economy, Trade and Industry (METI), as well as its action plan to achieve a target of limiting the increase in average temperature below 2°C using TCFD guidance. If it becomes necessary to review Osaka Gas's efforts in order to achieve continuous emission reductions in the future, Osaka Gas plans to implement them as appropriate according to the timeline.
- Osaka Gas considers the response to climate change, including the implementation of the Transition Strategy, to be one of the most important management issues, and has established a system and framework to promote the initiatives specified in the Daigas Group Carbon Neutral Vision and Roadmap at the management level.
- Osaka Gas's approach to promoting sustainability, both for the Daigas Group and for society as a whole, is to provide solutions for the realization of a sustainable society as an innovative energy service company by decarbonizing city gas feedstock and introducing renewable energy. Based on this approach, Osaka Gas is promoting various initiatives (the declaration of Creating Value for a Sustainable Future in the medium-term management plan and the Daigas Group Carbon Neutral Vision), and through these activities Osaka Gas aims to make a broad contribution to the achievement of the SDGs, the sustainable development goals set by the United Nations. Of these, the key materiality issue to which Green/Transition Finance is primarily concerned is

climate change (achieving a low- and decarbonized society) as set out in the Daigas Group's Charter of Business Conduct "Contributing to the Sustainability of the Environment and Society".

- Based on an assessment of the implementation plan provided by Osaka Gas under the Framework, the "Daigas Group Carbon Neutral Vision" and the Osaka Gas Roadmap, DNV confirmed that it is well aligned with Osaka Gas's Transition Strategy. Through the assessment, DNV confirmed that the implementation plan based on the Transition Strategy is reliable, ambitious and achievable.

## **CTF-2. Business model environmental materiality**

- Osaka Gas's Transition efforts include not only CO<sub>2</sub> emission reductions from its own business activities (SCOPE 1 and 2), but also SCOPE 3 and activities that contribute to the CO<sub>2</sub> emission reduction at customers. This will contribute to the implementation of supply-side and demand-side carbon neutrality as an important initiative indicated in the various plans and strategies for decarbonisation in Japan. In other words, Osaka Gas's transition initiatives directly support the transition of society as a whole, including its own company, as an energy service company taking on the challenge of achieving carbon neutrality in 2050.
- The Osaka Gas's roadmap is well aligned with the gas and electricity sector roadmaps of the Japan Gas Association and the Ministry of Economy, Trade and Industry, and its specific implementation plans and targets are set and quantified in the absolute sense that they must be the optimization to achieve them and the possibility of further improvement.
- DNV confirmed that Osaka Gas's plan to implement its Transition Strategy is closely linked to the activities of its core business and to activities that contribute to the CO<sub>2</sub> emissions reduction of in society as a whole, thus contributing to the environmental aspects of society as a whole and supporting the promotion of Osaka Gas's business. Osaka Gas's planned transition strategy and transition pathway are associated with the materiality that Osaka Gas has achieved through GRI standards<sup>\*1</sup>, ISO 26000, TCFD, etc., and will contribute to significant environmental improvements (impact) in both qualitative and quantitative terms.

\*1: Global Reporting Initiative (an international standard providing ESG-related reporting, management and analysis methods)

## **CTF-3. Transition is science-based including targets and pathways**

- Osaka Gas has set a transition plan that is consistent with the Paris Agreement based on science-based evidence, and a transition trajectory that is consistent with the goals of the Japan Gas Association and the Ministry of Economy, Trade and Industry.

DNV has confirmed that Osaka Gas's Transition Strategy is quantified in terms of emissions intensity and absolute values or ratios based on a consistent measurement methodology with prescribed assumptions. Transition targets are set voluntarily based on the use of TCFD and other initiatives to achieve sustainable CO<sub>2</sub> emission reductions, and they are consistent with the policies of the benchmarking Japan Gas Association and the Ministry of Economy, Trade and Industry.

<b>Medium-term targets</b>	<b>FY2030</b> Renewable development contribution on a global basis : <b>5GW</b> Power portfolio in Japan consisting of renewable* <sup>1</sup> : <b>Nearly 50%</b> CO <sub>2</sub> emission reduction contribution : <b>10 million tons/year</b> * <sup>2*3</sup> (compared to 2016)
<b>Long-term targets</b>	<b>2050</b> Carbon-neutral

- 1: Including solar, wind, biomass power sources which are eligible for the feed-in tariff (FIT) scheme  
 2: Equivalent to one third of the CO<sub>2</sub> emission currently produced in our business and by our customers (33 million ton/year)  
 3: Includes 700,000 tonnes of a partial reduction of Scope 3 emissions equivalent through introduction of high-efficiency gas appliances, etc.

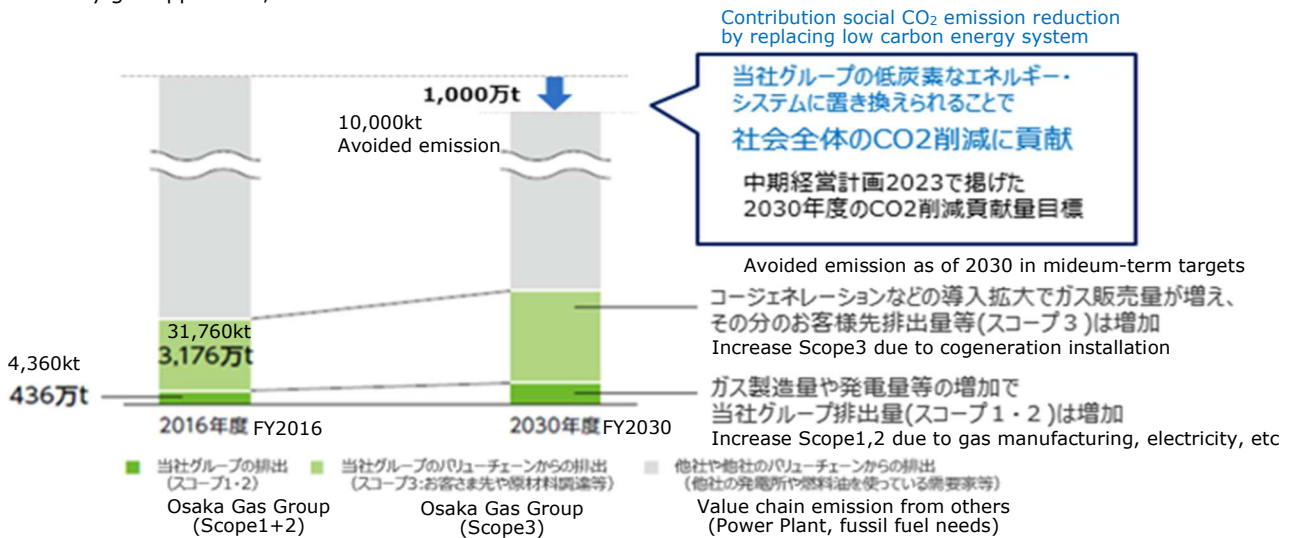


Figure-5 (re-posted) Daigas Group transition targets (details of medium-term targets)

- Osaka Gas's Transition efforts include not only CO<sub>2</sub> emission reductions from its own business activities (SCOPE 1 and 2), but also SCOPE 3 and activities that contribute to the reduction at customers. This will contribute to the implementation of supply-side and demand-side carbon neutrality as an important initiative indicated in the various plans and strategies for decarbonisation in Japan. In other words, Osaka Gas's transition initiatives directly support the transition of society as a whole, including its own company, as an energy service company taking on the challenge of achieving carbon neutrality in 2050.

**CTF-4. Implementation Transparency**

- DNV has confirmed that the investment and development plans related to Osaka Gas's Transition Strategy include agreement on future investment and expenditure. Specifically, Osaka Gas plans to invest a cumulative total of 2 trillion yen by FY2030 from FY2017 in quality improvement, growth and M&A, including the activities outlined in the Daigas Group Carbon Neutral Vision and Roadmap. In the fiscal years 2021 to 2023, Osaka Gas plans to invest 737 billion yen (237 billion yen for quality improvement and 500 billion yen for growth (including 120 billion yen for renewable energy)), which includes projects to be implemented with green/transition finance.
- DNV confirmed that the overall investment plan (investment amount) for the future considers CTF-1 to CTF-3 for the investment required to implement the transition strategy and also confirmed plans to be implemented according to the appropriate timelines, based on internal management system and process.

**(2) Findings and opinions of DNV against the four common elements of GBP/GBGLs and GLP/GLGLs**

\*The four elements are used as criteria for transition finance to specify the use of proceeds, and some green bonds/loans below can be read as transition finance (bond/loan).

**GBP/GLP-1. Use of Proceeds**

Osaka Gas has defined the criteria applied to eligible projects as transition projects which meet Transition Strategy and related handbook, principle and guidelines (CTF-H and CTF-BG).

Table-4 shows the eligible project categories for transition finance.

Table-4(re-posted): Daigas Group's key initiatives to achieve carbon neutrality  
(Green/transition finance candidate projects)

Eligible Criteria		Eligible Criteria & Project Overview	
1)	Decarbonization of gas energy	Hydrogen utilization	Methanation, direct use (chemical looping combustion technology), etc.
		Biogas	On-site utilization in domestic/global scale
2)	Decarbonization of power generation	Renewable power generation	Solar power plants, onshore wind farm, offshore wind farm, biomass power plants, etc.
		Thermal power generation	Use of carbon neutral fuels such as synthetic methane, hydrogen and ammonia, CCUS (Carbon Capture, Utilization and Storage), etc.
3)	Low-carbonization	Fuel Cell	Enhancing efficiency and downsizing, etc.
		Advanced utilization of natural gas and CHP	Support for converting fuel from oil and coal to natural gas Demonstration of building micro grid Use of carbon neutral LNG
		Advanced energy use	VPP, smart energy systems, etc.
		Other (Reduction of CO <sub>2</sub> emission associated with own activities)	Cryogenic power generation in the city gas production process, Cryogenic power generation facilities, energy efficiency renovation work of buildings, etc.



DNV has confirmed that Osaka Gas plans to allocate the net proceeds from green/transition finance, excluding expenses, as new investment and refinancing for capital investment, operating expenses, equity investment and R&D-related expenses for green/transition-eligible projects that meet Osaka Gas's investment plan for implementing its transition strategy.

These are projects that contribute to business transformation projects as exemplified by CTFH/CTFBG, GBP/GBGLs and GLP/GLGLs, that directly or indirectly support fuel conversion, and that contribute to achieving the goals of the Japan Gas Association and METI. These projects have been evaluated as having a clear environmental benefit on the Transition Strategy, and are expected to contribute to the SDGs. These processes are in line with the GBP-1.

Table-6 shows the eligible project candidates and the project overview.

Table-6 Green/Transitional Finance Eligibility Criteria and Project Overview

Eligible Criteria			Project overview (main expenditure)
1)	Decarbonization of gas energy	Hydrogen utilization	Methanation Expenditure on research and development and capital expenditure to establish methanation technology (e.g. SOEC co-electrolysis).
			Direct use Expenditure on research and development investment in a process for simultaneous production of hydrogen, electricity and CO <sub>2</sub> using chemical looping combustion technology
		Biogas Expenditure on capital expenditure to expand the use of biogas for domestic and international on-site utilization.	
2)	<u>Decarbonization of power generation</u>	<u>Renewable power generation</u> Expenditure on the development, construction, operation and refurbishment of renewable energy, such as biomass, solar, onshore wind and offshore wind.	
		Thermal power generation	Carbon-neutral Fuel utilisation Expenditure on investment, research and development in the procurement, supply and use of synthetic methane, hydrogen and ammonia
			CO <sub>2</sub> capture and storage (CCUS) Expenditure on participation in CCUS demonstrations (e.g. consortia)
3)	<u>Low-carbonization</u>	Fuel Cells	The fuel cell High efficiency and miniaturisation Expenditure on research, development and capital investment in small SOFCs with high power generation efficiency
		<u>Advanced utilization of natural gas and CHP</u>	<u>converting fuel from oil and coal to natural gas</u> Expenditure on capital expenditure (e.g. on the construction of LNG satellite terminals and the provision of related equipment) to support customers' fuel conversion.
			Micro grid Expenditure on the construction and demonstration of microgrids
			Carbon-neutral LNG Expenditure on the procurement and supply of carbon neutral LNG*. *LNG with GHG emissions offset by credits
		Advanced energy utilization	VPP and smart energy systems Expenditure on research and development and capital investment in projects to demonstrate the establishment of VPPs and smart energy systems using consumer-side energy resources.
		Other (Reduction of CO <sub>2</sub> emission associated with own activities)	Reduce CO <sub>2</sub> emissions from activities other than the above, such as manufacturing, power generation, and office operations. Expenditure on cold power generation equipment and cold heat utilisation equipment in the city gas production process, and on energy-saving renovation work in buildings.





## GBP/GLP-2. Process for Project Evaluation and Selection

Osaka Gas confirms that green/transition projects contribute to the achievement of the transition strategy and confirms the following (<confirmations>), which are set out in the framework in advance. Specifically, the Finance Team of the Finance Department consolidates and selects the project candidates based on the eligibility criteria, and then the ESG Promotion Office of the Planning Department evaluates and confirms their compliance with the various frameworks. In addition, the Finance Team of the Finance Department confirms, when necessary, with the business unit in charge of the project in question, and after drafting the required approval, the President makes the final decision in accordance with internal regulations.

DNV confirmed that these processes had been established as internal documents of Osaka Gas and the plan will be implemented in accordance with the appropriate processes.

DNV also confirmed that the green/transition project implemented by Osaka Gas is consistent with the issuer's management and environmental policies, as well as its transition strategy, goals and pathways.

### <Confirmation>

In assessing the eligibility of each project, it is confirmed that the project takes into account the potential negative environmental and social impacts and that the facility certification, licensing, and environmental assessment procedures required by the country, region, or municipality where the facility or project is to be installed are appropriate.

## Evaluation and selection

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Conforms to the issuer's achievement of environmental contribution goals               | <input checked="" type="checkbox"/> Documented process to determine that projects fit within defined categories               |
| <input checked="" type="checkbox"/> The project is eligible for use of proceeds by green bond and transparency is ensured. | <input checked="" type="checkbox"/> Documented process to identify and manage potential ESG risks associated with the project |
| <input type="checkbox"/> The project is evaluated and selected based on the published standard summary                     | <input type="checkbox"/> Other ( <i>please specify</i> ):   |

## Information on Responsibilities and Accountability

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Evaluation / Selection criteria subject to external advice or verification | <input checked="" type="checkbox"/> In-house assessment |
| <input type="checkbox"/> Other (please specify):   |   |

### GBP/GLP-3. Management of Proceeds

The proceeds will be deposited into Osaka Gas’s common account, and the Finance Department will then manage the allocation of proceeds for each project by allocating them to affiliated companies, subsidiaries, and investments, using the accounting management rules, the integrated accounting system, and specially prepared ledgers.

The accounting management rules and the integrated accounting system allow for tracking over the period of redemption or repayment, and a review of the allocation will be carried out at least once a year on the basis of books prepared exclusively by the Finance Department. Vouchers relating to the management of the proceeds will be kept in accordance with the document management rules.

The net proceeds will be allocated within two years of the issue. If the proceeds are to be used to refinance existing expenditure, it is planned to be allocated within approximately three years from the time of the financing, and the projects that are determined to be eligible as transition projects at the time of allocation are eligible in accordance with the process set out in GBP/GLP-2. However, if the project execution (planning, construction, etc.) takes a long time, the period of appropriation and refinancing may be flexibly adjusted in consideration of the green/transition characteristics of the project.

The amount of proceeds will be managed in cash or cash equivalents in the same amount as the unallocated proceeds until the allocation.

If green/transition finance is to be implemented under this framework in the future, the method of managing the proceeds will be explained prior to implementation of the loan through disclosure in legal documents and loan agreement documentation.

#### Tracking of Proceeds:

- Some or all of the proceeds by green bonds that are planned to be allocated are systematically distinguished or tracked by the issuer.
- Disclosure of intended types of temporary investment instruments for unallocated proceeds
- Other (please specify): Unallocated proceeds are managed in cash or cash equivalents

#### Additional disclosure:

- |  |   |
|--|---|
| <input type="checkbox"/> Allocations to future investments only                  | <input type="checkbox"/> Allocations to both existing and future investments  |
| <input checked="" type="checkbox"/> Allocation to individual disbursements       | <input type="checkbox"/> Allocation to a portfolio of disbursements   |
| <input type="checkbox"/> Disclosure of portfolio balance of unallocated proceeds | <input checked="" type="checkbox"/> Other ( <i>please specify</i> ): includes allocations and investments made through affiliates and subsidiaries. |



#### **GBP/GLP-4. Reporting**

DNV confirms that the issuer will report on the transition finance until the proceeds are allocated, and disclose information on the status of the allocation, the projects to which the proceeds have been allocated or the environmental benefits. DNV also confirmed that environmental benefits will be reported until the completion of the redemption or repayment of the transition financing.

DNV confirmed that, even after the allocation plan or allocation have been completed, Osaka Gas plans to report any changes in transition strategy or pathways, or any major changes in the allocation plan or project implementation status, in a timely manner or in Osaka Gas's reporting.

The report will be disclosed on the issuer's website.

#### **<Allocation Status>**

- ◆ Allocated Amount to be allocated per eligible criteria
- ◆ Balance of unallocated amount
- ◆ Estimated amount of the portion of the proceeds allocated to refinancing

#### **<Environmental benefits>**

- ◆ Environmental impacts are disclosed within the scope of confidentiality, to the extent practicable, and in consideration of the characteristics of the project, including an overview of the project (including progress, completion, operation, etc.) and the expected environmental benefits (e.g., t-CO<sub>2</sub>/year).

#### **<Others>**

- ◆ Efforts to achieve carbon neutrality in 2050 will be reviewed as necessary in light of policy and technological trends, and will be disclosed where necessary.

### Use of Proceeds reporting:

- |  |  |
|--|--|
| <input type="checkbox"/> Project-by-project            | <input checked="" type="checkbox"/> On a project portfolio basis |
| <input type="checkbox"/> Linkage to individual bond(s) | <input type="checkbox"/> Other ( <i>please specify</i> ):        |

#### Information reported:

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Allocated amounts     | <input type="checkbox"/> GB refinanced share of total investment |
| <input type="checkbox"/> Other ( <i>please specify</i> ): |  |

#### Frequency:

- |   |                                      |
|---|--------------------------------------|
| <input checked="" type="checkbox"/> Annual                | <input type="checkbox"/> Semi-annual |
| <input type="checkbox"/> Other ( <i>please specify</i> ): |                                      |

### Impact reporting (Environmental Impact):

- |  |  |
|--|--|
| <input type="checkbox"/> Project-by-project            | <input checked="" type="checkbox"/> On a project portfolio basis |
| <input type="checkbox"/> Linkage to individual bond(s) | <input type="checkbox"/> Other ( <i>please specify</i> ):        |

#### Frequency:

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Every year            | <input type="checkbox"/> Every six months |
| <input type="checkbox"/> Other ( <i>please specify</i> ): |   |

#### Information reported (expected or ex-post):

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> GHG Emissions / Savings   | <input type="checkbox"/> Energy savings |
| <input checked="" type="checkbox"/> Other ESG indicators ( <i>please specify</i> ): Equipment completion of installation, size, year of operation, etc. |   |

### Means of Disclosure

- |  |  |
|--|--|
| <input type="checkbox"/> Information published in financial report (Integrated Report)   | <input type="checkbox"/> Information published in sustainability report                    |
| <input type="checkbox"/> Information published in ad hoc documents   | <input checked="" type="checkbox"/> Other ( <i>please specify</i> ): on Osaka Gas web site |
| <input type="checkbox"/> Reporting reviewed (if yes, please specify which parts of the reporting are subject to external review) |  |

## VII. Assessment Conclusion

On the basis of the information provided by Osaka Gas and the work undertaken, it is DNV's opinion that the Osaka Gas Green/Transition Finance Framework meets the criteria established in the Protocol, and that it is aligned with the following stated definition or purpose of climate transition finance for bonds and loans that specify the use of proceeds within the CTFH/CTFBG, GBP/GBGLs, GLP/GLGLs.

"provide an investment opportunity with transparent sustainability credentials"

"enable capital-raising and investment for new and existing projects with environmental benefits"

DNV Business Assurance Japan K.K.

1<sup>st</sup> Aug. 2022



**Mark Robinson**

Manager, Sustainability Services  
DNV Business Assurance, Australia



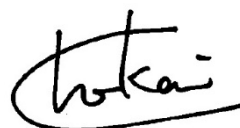
**Naoki Maeda**

Managing Director  
DNV Business Assurance Japan K.K.



**Masato Kanedome**

Project Leader  
DNV Business Assurance Japan K.K.



**Jun Chokai**

Assessor  
DNV Business Assurance Japan K.K.



### About DNV

Driven by our purpose of safeguarding life, property and the environment, DNV enables organisations to advance the safety and sustainability of their business. Combining leading technical and operational expertise, risk methodology and in-depth industry knowledge, we empower our customers' decisions and actions with trust and confidence. We continuously invest in research and collaborative innovation to provide customers and society with operational and technological foresight.

With our origins stretching back to 1864, our reach today is global. Operating in more than 100 countries, our 16,000 professionals are dedicated to helping customers make the world safer, smarter and greener.

### Disclaimer

Responsibilities of the Management of the Issuer and the Second-Party Opinion Providers, DNV: The management of Issuer has provided the information and data used by DNV during the delivery of this review. Our statement represents an independent opinion and is intended to inform the Issuer management and other interested stakeholders in the Bond as to whether the established criteria have been met, based on the information provided to us. In our work we have relied on the information and the facts presented to us by the Issuer. DNV is not responsible for any aspect of the nominated assets referred to in this opinion and cannot be held liable if estimates, findings, opinions, or conclusions are incorrect. Thus, DNV shall not be held liable if any of the information or data provided by the Issuer's management and used as a basis for this assessment were not correct or complete

## Schedule-1 Daigas Group Green/Transition Finance Nominated Projects

The projects listed in the table are transition finance candidates that have been evaluated for eligibility at the time of the assessment of the framework (as of February 2022). In the future, green/transition bonds or loans issued under the Daigas Group Green/Transition Finance Framework will be selected from one or more of the green/transition eligible project (Eligible Criteria) as per its labelling and reported in the pre-financing or post-financing reports. If additional green/transition projects are included, eligibility will be evaluated in advance by Osaka Gas in accordance with the Daigas Group Green/Transition Finance Framework and, if necessary, DNV will evaluate them in a timely manner.

Eligible Criteria			Project overview (main expenditure)	
1)	Decarbonization of gas energy	Hydrogen utilization	Methanation	Expenditure on research and development and capital expenditure to establish methanation technology (e.g. SOEC co-electrolysis).
			Direct use	Expenditure on research and development investment in a process for simultaneous production of hydrogen, electricity and CO <sub>2</sub> using chemical looping combustion technology
		Biogas	Expenditure on capital expenditure to expand the use of biogas for domestic and international on-site utilization.	
2)	Decarbonization of power generation	Renewable power generation		Expenditure on the development, construction, operation and refurbishment of renewable energy, such as biomass, solar, onshore wind and offshore wind.
		Thermal power generation	Carbon-neutral Fuel utilisation	Expenditure on investment, research and development in the procurement, supply and use of synthetic methane, hydrogen and ammonia
			CO <sub>2</sub> capture and storage (CCUS)	Expenditure on participation in CCUS demonstrations (e.g. consortia)
3)	Low-carbonization	Fuel Cells	The fuel cells High efficiency and miniaturisation	Expenditure on research, development and capital investment in small SOFCs with high power generation efficiency
		Advanced utilization of natural gas and CHP	converting fuel from oil and coal to natural gas	Expenditure on capital expenditure (e.g. on the construction of LNG satellite terminals and the provision of related equipment) to support customers' fuel conversion.
			Micro grid	Expenditure on the construction and demonstration of microgrids
			Carbon-neutral LNG	Expenditure on the procurement and supply of carbon neutral LNG*.

				*LNG with GHG emissions offset by credits
		Advanced energy utilization	VPP and smart energy systems	Expenditure on research and development and capital investment in projects to demonstrate the establishment of VPPs and smart energy systems using consumer-side energy resources.
		Other (Reduction of CO <sub>2</sub> emission associated with own activities)	Reduce CO <sub>2</sub> emissions from activities other than the above, such as manufacturing, power generation, and office operations.	Expenditure on cold power generation equipment and cold heat utilisation equipment in the city gas production process, and on energy-saving renovation work in buildings.



## Schedule-2 Climate Transition Finance Eligibility Assessment Protocol

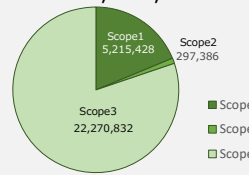
The checklists (1-4) below are DNV evaluation procedures created for Daigas Group Green/Transition Finance Framework Eligibility Evaluation based on the disclosure requirements of CTFH and CTFBG.

The "confirmed documents" in the Work Undertaken include public or private documents (internal documents of the issuer or borrower), etc., and are provided by Osaka Gas as evidence of eligibility judgment for DNV.

\*Please replace "Issuer", "Investor" to "Borrower/Fundraiser", "Lender" in the context in the following requirements.

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
1	Issuer's Climate Transition Strategy and Governance	<p>The financing purpose should be for enabling an issuer's climate change strategy. A 'transition' label applied to a debt financing instrument should serve to communicate the implementation of an issuer's corporate strategy to transform the business model in a way which effectively addresses climate-related risks and contributes to alignment with the goals of the Paris Agreement.</p> <p>Suggested information and indicators</p> <ul style="list-style-type: none"> <li>• A long-term target to align with the goals of the Paris Agreement (e.g. the objective of limiting global warming ideally to 1.5°C and, at the very least, to well below 2°C);</li> <li>• Relevant interim targets on the trajectory towards the long-term goal;</li> </ul>	<p>Confirmed documents</p> <ul style="list-style-type: none"> <li>- Framework</li> <li>- Daigas Group Medium-Term Management Plan 2030</li> <li>- Daigas Group Carbon Neutral Vision</li> <li>- Carbon Neutral Challenge 2050 Action Plan of the Japan Gas Association</li> <li>- Gas and Electricity Sector Roadmap of Ministry of Economy, Trade and Industry</li> <li>- Daigas Group Integrated Report 2021</li> <li>- Daigas Group ESG data</li> <li>- Project list &amp; estimated CO<sub>2</sub> emission reduction</li> </ul> <p>Interviews with stakeholders</p>	<p>Osaka Gas has established a framework and has introduced a range of plans and initiatives to manage and enhance the environmental sustainability and related performance of the organisation against Daigas Group's wider environmental strategy.</p> <p>DNV has reviewed and confirmed that Osaka Gas's targets are equivalent to achieving the goals of Paris Agreement, based on action plan to achieve carbon neutrality in 2050, a science-based long-term target quantified by Osaka Gas. Osaka Gas sets environmental corporate strategies that are important to its business model, based on the identification of risks and opportunities and scenario analysis using TCFD guidance.</p> <p>In January 2021, Osaka Gas formulated the "Daigas Group Carbon Neutral Vision," in which it outlines a roadmap for achieving carbon neutrality. The roadmap sets a long-term targets of carbon neutrality by 2050, consistent with the goals of Paris Agreement, and medium-term targets for achieving that goal. The roadmap discloses a strategic plan to achieve the transition to carbon neutrality.</p>

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
		<ul style="list-style-type: none"> <li>• Disclosure on the issuer’s levers towards decarbonisation, and strategic planning towards a long-term target to align with the goals of the Paris Agreement;</li> <li>• Clear oversight and governance of transition strategy and,</li> <li>• Evidence of a broader sustainability strategy to mitigate relevant environmental and social externalities and contribute to the UN Sustainable Development Goals.</li> </ul>		<p>Specifically, Osaka Gas's Transition Strategy incorporates the environmental targets of the Japan Gas Association and the Ministry of Economy, Trade and Industry (METI), as well as action plan to achieve a target of limiting the increase in average temperature below 2°C using the TCFD. In addition, if it becomes necessary to review Osaka Gas’s efforts in order to achieve continuous emission reductions in the future, Osaka Gas plans to implement them as appropriate according to the timeline.</p> <p>Osaka Gas considers the response to climate change, including the implementation of the Transition Strategy, to be one of the most important management issues, and has established a system and framework to promote the initiatives specified in the Daigas Group Carbon Neutral Vision and Roadmap at the management level.</p> <p>Osaka Gas's approach to promoting sustainability, both for the Daigas Group and for society as a whole, is to provide solutions for the realization of a sustainable society as an innovative energy service company by decarbonizing city gas feedstock and introducing renewable energy</p> <p>Based on this approach, Osaka Gas is promoting various initiatives (the declaration of Creating Value for a Sustainable Future in the medium-term management plan and the Daigas Group Carbon Neutral Vision), and through these activities Osaka Gas aims to make a broad contribution to the achievement of the SDGs, the sustainable development goals set by the United Nations.</p> <p>Of these, the key materiality issue to which Green/Transition Finance is primarily concerned is climate change (achieving a low- and decarbonized society) as set</p>

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings															
				<p>out in the Daigas Group's Charter of Business Conduct "Contributing to the Sustainability of the Environment and Society".</p> <p>Based on an assessment of the implementation plan provided by Osaka Gas under the Framework, the "Daigas Group Carbon Neutral Vision" and the Osaka Gas Roadmap, DNV confirmed that it is well aligned with Osaka Gas's Transition Strategy. Through the assessment, DNV confirmed that the implementation plan based on the Transition Strategy is reliable, ambitious and achievable.</p>															
2	Business model environmental materiality	The planned climate transition trajectory should be relevant to the environmentally-material parts of the issuer's business model, taking into account potential future scenarios which may impact on current determinations concerning materiality.	<p>Confirmed documents</p> <ul style="list-style-type: none"> <li>- Framework</li> <li>- Daigas Group Medium-Term Management Plan 2030</li> <li>- Daigas Group Medium-Term Management Plan 2030</li> <li>- Daigas Group Carbon Neutral Vision</li> <li>- Carbon Neutral Challenge 2050 Action Plan of the Japan Gas Association</li> <li>- Gas and Electricity Sector Roadmap of Ministry of Economy, Trade and Industry</li> <li>- Daigas Group Integrated Report 2021</li> <li>- Daigas Group ESG data</li> </ul>	<p>DNV evaluated whether the key activities associated with Osaka Gas's business activities correspond to the Osaka Gas's Transition Strategy, which was evaluated as contributing to the environment.</p> <p>The Daigas Group's greenhouse gas emissions (FY 2020) are as follows</p> <p>Scope 1: 5,215,428 t-CO<sub>2</sub>e            Scope 2: 297,386 t-CO<sub>2</sub>e            Scope3: 22,270,832 t-CO<sub>2</sub>e            Total: 27,783,646 t-CO<sub>2</sub>e</p>  <table border="1"> <thead> <tr> <th>対象 Scope</th> <th colspan="2">2020 年度実績</th> </tr> </thead> <tbody> <tr> <td>Scope1</td> <td>5,215,428 t-CO<sub>2</sub>e</td> <td>19%</td> </tr> <tr> <td>Scope2</td> <td>297,386 t-CO<sub>2</sub>e</td> <td>1%</td> </tr> <tr> <td>Scope3</td> <td>22,270,832 t-CO<sub>2</sub>e</td> <td>80%</td> </tr> <tr> <td>合計</td> <td>27,783,646 t-CO<sub>2</sub>e</td> <td>(100%)</td> </tr> </tbody> </table> <p>&lt;Osaka Gas's approach to Scope 1 to 3 emissions&gt;            Scope1: Direct emissions from own operations (gas production, power generation, etc.) (combustion of gas for power generation, etc.)</p>	対象 Scope	2020 年度実績		Scope1	5,215,428 t-CO <sub>2</sub> e	19%	Scope2	297,386 t-CO <sub>2</sub> e	1%	Scope3	22,270,832 t-CO <sub>2</sub> e	80%	合計	27,783,646 t-CO <sub>2</sub> e	(100%)
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Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
			<ul style="list-style-type: none"> <li>- Project list &amp; estimated CO<sub>2</sub> emission reduction</li> </ul> <p>Interviews with stakeholders</p>	<p>Scope2: Indirect emissions from own operations (gas production, power generation, etc.) (use of electricity supplied by other companies, etc.)</p> <p>Scope3: Indirect emissions from value chains other than Scope 1 and Scope2 (e.g., fuel procurement, combustion of gas at destination)</p> <p>Osaka Gas's Transition efforts include not only CO<sub>2</sub> emission reductions from its own business activities (SCOPE 1 and 2), but also SCOPE 3 and activities that contribute to the reduction at customers.</p> <p>This will contribute to the implementation of supply-side and demand-side carbon neutrality as an important initiative indicated in the various plans and strategies for decarbonisation in Japan. In other words, Osaka Gas's transition initiatives directly support the transition of society as a whole, including its own company, as an energy service company taking on the challenge of achieving carbon neutrality in 2050.</p> <p>The Osaka Gas's roadmap is well aligned with the gas and electricity roadmaps of the Japan Gas Association and the Ministry of Economy, Trade and Industry, and its specific implementation plans and targets are set and quantified in the absolute sense that they must be the optimization to achieve them and the possibility of further improvement.</p> <p>DNV confirmed that Osaka Gas's plan to implement its Transition Strategy is closely linked to the activities of its core business and to activities that contribute to the CO<sub>2</sub> emissions reduction of in society as a whole, thus contributing to the environmental aspects of society as a</p>

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
				<p>whole and supporting the promotion of Osaka Gas's business.</p> <p>Osaka Gas's planned transition strategy and transition pathway are associated with the materiality that Osaka Gas has achieved through GRI standards*1, ISO 26000, TCFD, etc., and will contribute to significant environmental improvements (impact) in both qualitative and quantitative terms.</p> <p>*1: Global Reporting Initiative (an international standard providing ESG-related reporting, management and analysis methods)</p>
3	Climate transition strategy to be science-based including targets and pathways	<p>Issuer's climate strategy should reference science-based targets and transition pathways. The planned transition trajectory should:</p> <ul style="list-style-type: none"> <li>• be quantitatively measurable (based on a measurement methodology which is consistent over time);</li> <li>• be aligned with, benchmarked or otherwise referenced to recognized, science-based trajectories where such trajectories exist;</li> <li>• be publicly disclosed (ideally in mainstream financing filings), include interim milestones, and;</li> </ul>	<p>Confirmed documents</p> <ul style="list-style-type: none"> <li>- Frameworks</li> <li>- Daigas Group Medium-Term Management Plan 2030</li> <li>- Daigas Group Carbon Neutral Vision</li> <li>- Carbon Neutral Challenge 2050 Action Plan of the Japan Gas Association</li> <li>- Gas and Electricity Sector Roadmap of Ministry of Economy, Trade and Industry</li> <li>- Daigas Group Integrated Report 2021</li> <li>- Daigas Group ESG data</li> <li>- Project list &amp; estimated CO<sub>2</sub> emission reduction</li> </ul>	<p>Osaka Gas has set a transition plan that is consistent with the Paris Agreement based on science-based evidence, and a transition trajectory that is consistent with the goals of the Japan Gas Association and the Ministry of Economy, Trade and Industry.</p> <p>The plan sets out realistic targets and pathways for reducing CO<sub>2</sub> emissions in absolute terms, and plans to reduce absolute (total) CO<sub>2</sub> emissions to maintain defined levels in the future.</p> <p>DNV has confirmed that Osaka Gas's Transition Strategy is quantified in terms of emissions intensity and absolute values or ratios based on a consistent measurement methodology with prescribed assumptions.</p> <p>Transition targets are set voluntarily based on the use of TCFD and other initiatives to achieve sustainable CO<sub>2</sub> emission reductions, and they are consistent with the</p>

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings								
		<ul style="list-style-type: none"> <li>• be supported by independent assurance or verification</li> </ul> <p>Suggested information and indicators</p> <ul style="list-style-type: none"> <li>• Short, medium, and long-term greenhouse gas reduction targets aligned with Paris Agreement;</li> <li>• Baseline</li> <li>• Scenario utilised, and methodology applied (e.g. ACT, SBTi, etc.);</li> <li>• Greenhouse gas objectives covering all scopes (Scope 1, 2 and 3<sup>11</sup>); and,</li> <li>• Targets formulated both in intensity and absolute terms</li> </ul>	<p>Interviews with stakeholders</p>	<p>policies of the benchmarking Japan Gas Association and the Ministry of Economy, Trade and Industry.</p> <p>Specifically, Osaka Gas has set the following targets for Transition</p> <table border="1" data-bbox="1422 539 2123 842"> <caption>Table-3 Osaka Gas Transition Targets</caption> <thead> <tr> <th data-bbox="1422 571 1624 625">Medium-term targets</th> <th data-bbox="1624 571 2123 593">FY2030</th> </tr> </thead> <tbody> <tr> <td data-bbox="1422 593 1624 785"></td> <td data-bbox="1624 593 2123 785"> <ul style="list-style-type: none"> <li>- Renewable development contribution on a global basis : <b>5GW</b></li> <li>- Power portfolio in Japan consisting of renewable<sup>*1</sup> : <b>Nearly 50%</b></li> <li>- CO<sub>2</sub> emission reduction contribution : <b>10 million tons/year<sup>*2*3</sup></b> (compared to 2016)</li> </ul> </td> </tr> <tr> <th data-bbox="1422 785 1624 839">Long-term targets</th> <th data-bbox="1624 785 2123 807">2050</th> </tr> <tr> <td data-bbox="1422 807 1624 839"></td> <td data-bbox="1624 807 2123 839">Carbon-neutral</td> </tr> </tbody> </table> <p>1: Including solar, wind, biomass power sources which are eligible for the feed-in tariff (FIT) scheme            2: Equivalent to one third of the CO<sub>2</sub> emission currently produced in our business and by our customers (33 million ton/year)            3: Includes 700,000 tonnes of a partial reduction of Scope 3 emissions equivalent through introduction of high-efficiency gas appliances, etc.</p> <p>Osaka Gas's Transition efforts include not only CO<sub>2</sub> emission reductions from its own business activities (SCOPE 1 and 2), but also SCOPE 3 and activities that contribute to the reduction at customers.</p> <p>This will contribute to the implementation of supply-side and demand-side carbon neutrality as an important initiative indicated in the various plans and strategies for decarbonisation in Japan. In other words, Osaka Gas's transition initiatives directly support the transition of society as a whole, including its own company, as an</p>	Medium-term targets	FY2030		<ul style="list-style-type: none"> <li>- Renewable development contribution on a global basis : <b>5GW</b></li> <li>- Power portfolio in Japan consisting of renewable<sup>*1</sup> : <b>Nearly 50%</b></li> <li>- CO<sub>2</sub> emission reduction contribution : <b>10 million tons/year<sup>*2*3</sup></b> (compared to 2016)</li> </ul>	Long-term targets	2050		Carbon-neutral
Medium-term targets	FY2030											
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Long-term targets	2050											
	Carbon-neutral											

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
				<p>energy service company taking on the challenge of achieving carbon neutrality in 2050.</p> <p>Transition initiatives and the respective scope emissions are disclosed in the “Daigas Group Carbon Neutral Vision”, “Daigas Group Environmental Performance Data” and other documents.</p>
4	Implementation transparency	<p>Market communication in connection with the offer of a financing instrument which has the aim of funding the issuer’s climate transition strategy should also provide transparency to the extent practicable, of the underlying investment program including capital and operational expenditure. This may include R&amp;D-related expenditure where relevant, and details of where any such operating expenditure is deemed ‘non-Business as Usual’, as well as other relevant information indicating how this program supports implementation of the transition strategy, including details of any divestments, governance and process changes.</p> <p>Suggested information and indicators</p> <ul style="list-style-type: none"> <li>• Disclosure on the percentage of assets/revenues/expenditures/divestments aligned to the various levers outlined in Element 1 above;</li> </ul>	<p>Confirmed documents</p> <ul style="list-style-type: none"> <li>- Framework</li> <li>- Daigas Group Medium-Term Management Plan 2030</li> <li>- Daigas Group Carbon Neutral Vision</li> <li>- Carbon Neutral Challenge 2050 Action Plan of the Japan Gas Association</li> <li>- Gas and Electricity Sector Roadmap of Ministry of Economy, Trade and Industry</li> <li>- Daigas Group Integrated Report 2021</li> <li>- Daigas Group ESG data</li> <li>- Project list &amp; estimated CO<sub>2</sub> emission reduction</li> </ul> <p>Interview with stakeholders</p>	<p>DNV has confirmed that the investment and development plans related to Osaka Gas's Transition Strategy include agreement on future investment and expenditure. Specifically, Osaka Gas plans to invest a cumulative total of 2 trillion yen by FY2030 from FY2017 in quality improvement, growth and M&amp;A, including the activities outlined in the Daigas Group Carbon Neutral Vision and Roadmap. In the fiscal years 2021 to 2023, Osaka Gas plans to invest 737 billion yen (237 billion yen for quality improvement and 500 billion yen for growth (including 120 billion yen for renewable energy)), which includes projects to be implemented with green/transition finance.</p> <p>DNV confirmed that the overall investment plan (investment amount) for the future considers CTF-1 to CTF-3 for the investment required to implement the transition strategy and also confirmed plans to be implemented according to the appropriate timelines, based on internal management system and process.</p> <p>Osaka Gas plans to allocate the proceeds to capital investment, operating expenses, equity investment and R&amp;D-related expenditures for the transition eligible project candidates shown in Schedule-1. Through the assessment, DNV concluded that Osaka Gas's transition strategy, in</p>



Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
		<ul style="list-style-type: none"><li>• Capex roll-out plans consistent with the overall strategy and climate science</li></ul>		terms of directly and indirectly supporting the decarbonization of society as a whole, can be seen as a non-Business as Usual concept in that it aims to both expand its electricity business, including its gas business, as an innovative energy and service company.



## Schedule-3 Green Finance (Transition Finance with specific use of proceeds) Eligibility

### Assessment Protocol

The checklist below (GBP/GLP-1 to GBP/GLP-4) is a DNV evaluation procedure created for Daigas Group Green/Transition Finance (Bond & Loan) Eligibility Assessment (Bond & Loan with specific use of proceeds) based on the requirements of GBP/GBGLs and GLP/GLGLs. "Confirmed documents" in the "Work Undertaken" includes documents inside the issuer and is provided by Osaka Gas as evidence of eligibility judgment for DNV.

In Schedule-3, it is referred to as GBP or GLP according to the practice, but this is the standard to be referred to in the case of financing that specifies the use of proceeds such as transition projects in transition finance (bonds and loan) that specifies the use of proceeds based on CTFH and CTFBG, so please read as the meaning of the transition as appropriate.

### GBP/GLP-1 Use of proceeds

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
1a	Types of funds	The types of green bonds are classified into one of the following types defined by GBP. <ul style="list-style-type: none"> <li>· (Standard) Green/transition Bond</li> <li>· Green/transition Revenue Finance</li> <li>· Green/transition Project Finance</li> <li>· Other</li> </ul>	Confirmed documents <ul style="list-style-type: none"> <li>- Frameworks</li> </ul> Interview with stakeholders	Through the evaluation work, DNV confirmed that Osaka Gas Green/Transition Finance (bond/loan) fall into the following categories. <ul style="list-style-type: none"> <li>· (Standard) Green/transition Bond</li> </ul>
1b	Green/transition Project Classification	The key to a green/transition bond is that the proceeds will be used for a green project, which should be properly stated in the legal documents relating to the security.	Confirmed documents <ul style="list-style-type: none"> <li>- Frameworks</li> <li>- Project list &amp; estimated CO<sub>2</sub> emission reduction</li> <li>- Amendment Shelf Registration Statement</li> </ul>	DNV confirms that Daigas Group Green/Transition Finance is intended to finance a wide range of green/transition projects focused on Osaka Gas's environmental targets and transition strategy, as described in the Framework and Schedule-1. The Group confirmed that the purpose of the financing is to allocate funds to a wide range of green/transition projects focusing on Osaka Gas' environmental objectives and transition strategy as described in the Framework and Schedule-1.  Specifically, all Green/Transition Finance Eligible Project Candidates listed in Schedule-1 are evaluated as conforming to

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings																								
			<p>Interview with stakeholders</p>	<p>the Transition Strategy, and the proceeds through Green/Transition Finance are planned to be financed one or more of the Green/Transition Finance Eligible Project Candidates.</p> <p>If a transition project is pre-selected before the financing is implemented, this will be disclosed in legal documents.</p> <p>Through the assessment, DNV concludes that the Green/Transition eligible projects candidates will bring concrete and actual environmental benefits.</p> <p>Table Daigas Group Key initiatives to achieve carbon neutrality (Green/transition finance candidate projects)</p> <table border="1" data-bbox="1330 815 2112 1378"> <thead> <tr> <th colspan="2">Eligible Criteria</th> <th colspan="2">Eligible Criteria &amp; Project Overview</th> </tr> </thead> <tbody> <tr> <td rowspan="2">1)</td> <td rowspan="2">Decarbonization of gas energy</td> <td>Hydrogen utilization</td> <td>Methanation, direct use (chemical looping combustion technology), etc.</td> </tr> <tr> <td>Biogas</td> <td>On-site utilization in domestic/global scale</td> </tr> <tr> <td rowspan="2">2)</td> <td rowspan="2">Decarbonization of power generation</td> <td>Renewable power generation</td> <td>Solar power plants, onshore wind farm, offshore wind farm, biomass power plants, etc.</td> </tr> <tr> <td>Thermal power generation</td> <td>Use of carbon neutral fuels such as synthetic methane, hydrogen and ammonia, CCUS (Carbon Capture, Utilization and Storage), etc.</td> </tr> <tr> <td rowspan="3">3)</td> <td rowspan="3">Low-carbonization</td> <td>Fuel Cells</td> <td>Enhancing efficiency and downsizing, etc.</td> </tr> <tr> <td>Advanced utilization of natural gas and CHP</td> <td>Support for converting fuel from oil and coal to natural gas Demonstration of building micro grid Use of carbon neutral LNG</td> </tr> <tr> <td>Advanced energy utilization</td> <td>VPP, smart energy systems, etc.</td> </tr> </tbody> </table>	Eligible Criteria		Eligible Criteria & Project Overview		1)	Decarbonization of gas energy	Hydrogen utilization	Methanation, direct use (chemical looping combustion technology), etc.	Biogas	On-site utilization in domestic/global scale	2)	Decarbonization of power generation	Renewable power generation	Solar power plants, onshore wind farm, offshore wind farm, biomass power plants, etc.	Thermal power generation	Use of carbon neutral fuels such as synthetic methane, hydrogen and ammonia, CCUS (Carbon Capture, Utilization and Storage), etc.	3)	Low-carbonization	Fuel Cells	Enhancing efficiency and downsizing, etc.	Advanced utilization of natural gas and CHP	Support for converting fuel from oil and coal to natural gas Demonstration of building micro grid Use of carbon neutral LNG	Advanced energy utilization	VPP, smart energy systems, etc.
Eligible Criteria		Eligible Criteria & Project Overview																										
1)	Decarbonization of gas energy	Hydrogen utilization	Methanation, direct use (chemical looping combustion technology), etc.																									
		Biogas	On-site utilization in domestic/global scale																									
2)	Decarbonization of power generation	Renewable power generation	Solar power plants, onshore wind farm, offshore wind farm, biomass power plants, etc.																									
		Thermal power generation	Use of carbon neutral fuels such as synthetic methane, hydrogen and ammonia, CCUS (Carbon Capture, Utilization and Storage), etc.																									
3)	Low-carbonization	Fuel Cells	Enhancing efficiency and downsizing, etc.																									
		Advanced utilization of natural gas and CHP	Support for converting fuel from oil and coal to natural gas Demonstration of building micro grid Use of carbon neutral LNG																									
		Advanced energy utilization	VPP, smart energy systems, etc.																									

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings				
				<table border="1"> <tr> <td data-bbox="1330 373 1375 549"></td> <td data-bbox="1375 373 1509 549"></td> <td data-bbox="1509 373 1671 549">Other (Reduction of CO2 emission associated with own activities)</td> <td data-bbox="1671 373 2112 549">Cryogenic power generation in the city gas production process, Cryogenic power generation facilities, energy efficiency renovation work of buildings, etc.</td> </tr> </table>			Other (Reduction of CO2 emission associated with own activities)	Cryogenic power generation in the city gas production process, Cryogenic power generation facilities, energy efficiency renovation work of buildings, etc.
		Other (Reduction of CO2 emission associated with own activities)	Cryogenic power generation in the city gas production process, Cryogenic power generation facilities, energy efficiency renovation work of buildings, etc.					
1c	Environmental benefits	All green projects to which the funds are used should have clear environmental benefits, the effects of which should be assessed by the issuer and, where possible, quantitatively demonstrated.	<p>Confirmed documents</p> <ul style="list-style-type: none"> <li>- Frameworks</li> <li>- Project list &amp; estimated CO<sub>2</sub> emission reduction</li> </ul> <p>Interviews with stakeholders</p>	<p>Green/Transition projects will contribute to goals based on Osaka Gas's Transition Strategy, and contribute to low-carbon or decarbonization that classified into the three eligibility criteria listed in 1b. The environmental benefit is the reduction of CO<sub>2</sub> emissions, which has been quantitatively or qualitatively evaluated by the issuer.</p> <p>It was confirmed that, prior to the implementation of green/transition finance, the project's environmental improvement effect evaluation method (calculation method) and the items to be disclosed are planned to be evaluated and reported quantitatively as indicators and CO<sub>2</sub> emission reductions according to the project's characteristics in the annual report. (If it is difficult to evaluate the quantitative CO<sub>2</sub> emission reductions due to the characteristics of the project, Osaka Gas will report the project outline and the status of R&amp;D and demonstration to the extent practicable).</p>				
1d	Refinancing rate	If all or part of the proceeds are used or may be used for refinancing, the issuer will indicate the estimated ratio of the initial investment to the refinancing and, if necessary. Therefore, it is recommended to clarify which investment or project portfolio is subject to refinancing.	<p>Confirmed documents</p> <ul style="list-style-type: none"> <li>- Frameworks</li> <li>- Project list &amp; estimated CO<sub>2</sub> emission reduction</li> </ul>	Osaka Gas plans to allocate all of the proceeds to new investment, refinancing, or both, in one or more of the eligible project candidates included in Schedule-1. If it is clear in advance, prior to the implementation of the financing, whether the financing will be used for new investments or refinancing, this will be disclosed in legal documents. If it is not yet clear, the issuer plans to disclose the estimated amount (or percentage) of				



Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
			Interviews with stakeholders	the proceeds used for refinancing through reporting (annual report).

## GBP/GLP-2 Process for Project Evaluation and Selection

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
2a	Project selection process	Green bond issuers should provide an overview of the process of qualifying projects for which green bond funding will be used. This includes (but is not limited to): <ul style="list-style-type: none"> <li>• The process by which the issuer determines that the project in question is included in the business category of a qualified green project.</li> <li>• Creation of criteria for eligibility of projects for which green bond funding will be used</li> <li>• Environmental sustainability goals</li> </ul>	Confirmed documents <ul style="list-style-type: none"> <li>- Frameworks</li> <li>- Osaka Gas Project Selection Document</li> </ul> Interviews with stakeholders	DNV confirmed that the issuer has a process of determining the eligibility of projects for which the green/transition finance, and that the outline is specified in the framework.
2b	Issuer's Environmental and Social Governance Framework	In addition to criteria and certifications, the information published by issuers regarding the green bond process also considers the quality of performance of the issuer's framework and environmental sustainability.	Confirmed documents <ul style="list-style-type: none"> <li>- Frameworks</li> <li>- Osaka Gas Project Selection Document</li> </ul> Interviews with stakeholders	The issuer complies with environment-related laws, ordinances and regulations, and considers that the effects of environmental improvement such as CO <sub>2</sub> reduction are clear in the entire life cycle or each process when selecting green/transition projects to be implemented. In the operation and implementation of the project, each of the departments involved is committed to the preservation of the surrounding environment.  DNV has confirmed that the green/transition projects implemented by the issuer are consistent with issuer's management and environmental policies, as well as with the transition strategy, goals and pathways.

## GBP/GLP -3 Management of Proceeds

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
3a	Tracking procedure-1	The net proceeds from of Green bonds should be managed in sub-accounts, included in sub-portfolio, or otherwise tracked. It should also be certified by the issuer in a formal internal process related to the issuer's investment and financing operations for the Green Project.	Confirmed documents <ul style="list-style-type: none"> <li>- Framework</li> <li>- Accounting management rules</li> <li>- Document handling regulations</li> </ul> Interviews with stakeholders	DNV has confirmed that the proceeds by the green/transition financing can be tracked in line with the issuer's accounting integration system and other systems, and confirmed the systems actually in use or to be used, and documents to be created specifically for use through the assessment, and confirmed that the management status of the proceeds was proved.
3b	Tracking procedure-2	During the green bond redemption period, the balance of funds raised that is being tracked should be adjusted at regular intervals to match the amount allocated to eligible projects undertaken during that period.	Confirmed documents <ul style="list-style-type: none"> <li>- Framework</li> <li>- Accounting management rules</li> <li>- Document handling regulations</li> </ul> Interviews with stakeholders	DNV confirmed that the issuer plans to regularly (at least once a year) review the outstanding balance of the transition financing by using the integrated accounting system and other documents prepared specifically for this purpose described in 3a during the period from the implementation of the transition finance to its redemption or repayment.
3c	Temporary holding	If no investment or payment has been made in a qualified green project, the issuer should also inform the investor of the possible temporary investment method for the balance of unallocated proceeds.	Confirmed documents <ul style="list-style-type: none"> <li>- Framework</li> <li>- Accounting management rules</li> <li>- Document handling regulations</li> </ul> Interviews with stakeholders	DNV has confirmed that the confirmation process through the issuer's integrated accounting system and documents produced specifically for this purpose is structured to ensure that the balance of unallocated proceeds is recognised sequentially.  DNV confirmed through the framework and assessment that the balance of unallocated proceeds will be managed in cash or cash equivalents. DNV has also confirmed that the balance of unallocated proceeds will be disclosed through reporting on the allocation status of funds.

## GBP/GLP-4 Reporting

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
4a	Periodical Reporting	<p>In addition to reporting on the use of proceeds and the temporary investment of unallocated proceeds, the issuer will consider each project at least once a year for projects to which the Green bond proceeds have been allocated, taking into account the following: A list of each project should be provided.</p> <ul style="list-style-type: none"> <li>-Confidentiality and competitive considerations</li> <li>-Outline of each project, expected sustainable environmental and social effects</li> </ul>	<p>Confirmed documents</p> <ul style="list-style-type: none"> <li>- Frameworks</li> <li>- Project list &amp; estimated CO<sub>2</sub> emission reduction</li> <li>- Information on projects to be allocated</li> </ul>	<p>DNV confirmed that the issuer will carry out annual reporting of the green/transition finance until the proceeds are allocated and disclose information on the status of the allocation of proceeds, the projects to which the proceeds have been allocated and the environmental benefits. DNV also confirmed that the issuer will report on the environmental benefits until the redemption or repayment of the green/transition finance is completed.</p> <p>DNV also confirmed that, even after the allocation plan or allocation has been completed, the issuer plans to report in a timely manner or in its reporting on any changes in transition strategy or pathways, or any major changes in the allocation plan or project implementation status (e.g. interruption of a project for which allocation has been started, significant postponement on an annual basis, sale or retirement, etc.). This was confirmed.</p> <p>The report will be disclosed on the website.</p> <p>&lt;Allocation Status&gt;</p> <ul style="list-style-type: none"> <li>◆ Allocated Amount to be allocated per eligible criteria</li> <li>◆ Balance of unallocated amount</li> <li>◆ Estimated amount of the portion of the proceeds allocated to refinancing</li> </ul> <p>&lt;Environmental benefits&gt;</p> <ul style="list-style-type: none"> <li>◆ Environmental impacts are disclosed within the scope of confidentiality, to the extent practicable, and in consideration of the characteristics of the project, including an overview of the project (including progress, completion, operation, etc.) and the expected environmental benefits (e.g., t-CO<sub>2</sub>/year).</li> </ul>

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
				<p>&lt;Others&gt;</p> <ul style="list-style-type: none"> <li>♦ Efforts to achieve carbon neutrality in 2050 will be reviewed as necessary in light of policy and technological trends, and will be disclosed where necessary.</li> </ul> <p>The currently planned reporting for the transition project is described in the section of GBP/GLP-4. Reporting in this document.</p>

## Schedule-4: Basic Guidelines on Climate Transition Finance Eligibility Checklist

The following checklist (from CTF-1 to CTF-4) are based on four “disclosure elements” which indicated in the “Basic Guidelines on Climate Transition Finance (CTF)” established by the Financial Services Agency, Ministry of Economy, Trade and Industry, and Ministry of the Environment in May 2021.

According to the CTF, “disclosure elements” are classified into the following three categories. Should:◎ recommend:○ be considered/possible: △

These expressions are used in the following context.

- Items described with the word “should” are basic elements that financial instruments labeled as transition finance are expected to have.
- Items described with the word “recommended” are elements that financial instruments labeled as transition finance are optimally recommended to have under these Guidelines although instruments which do not have these items can also be labeled as “transition”.
- Items described with the word “be considered” or “possible” are elements that these Guidelines provides as examples and interpretations although it is not considered problematic even if financial instruments labeled as transition finance do not have them.

There is a supplementary explanation in the margin of each checklist for the annotations in the disclosure elements.

The number /01/, /02/~ /20/ listed in the “Work Undertaken” are documents confirmed through the eligibility evaluation work. Details (document name) are shown in Appendix. In addition to the confirmed documents, the “Work Undertaken” includes the case where the information obtained through discussions and interviews with the issuer is used as evidence.

### CTF-1 Fundraiser’s Climate Transition Strategy and Governance




Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings												
©	1-a)	<p>Financing through transition finance should aim to implement or incentivize the achievement of transition strategies<sup>9</sup>. Such strategies should incorporate a long-term target to align with the goals of the Paris Agreement, relevant interim targets on the trajectory towards the long-term goal, disclosure on the levers towards decarbonization, and fundraiser's strategic planning.</p>	<p>kWh Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	<p>Confirmed documents: /01//02//03//04//05/</p> <p>Interviews with stakeholders</p>	<p>Osaka Gas's transition financing is aimed at achieving its transition strategy, which is consistent with the low-carbon/decarbonization strategy set out by the Gas and Electricity Technology Roadmap of the Japan Gas Association and the Ministry of Economy, Trade and Industry, which aims to align with the goals of the Paris Agreement.</p> <p>Osaka Gas has formulated its Transition Strategy as a "Roadmap for achieving carbon neutrality", which incorporates, in addition to the long-term goal of carbon neutrality in 2050, a medium-term goal and a strategic plan for decarbonization (a plan to introduce technologies that contribute to the Transition). Each target based on Osaka Gas's Transition Strategy is disclosed below.</p> <p style="text-align: center;">Table Osaka Gas Transition Targets</p> <table border="1"> <tr> <td><b>Medium-term targets</b></td> <td><b>FY2030</b></td> </tr> <tr> <td></td> <td>- Renewable development contribution on a global basis : <b>5GW</b></td> </tr> <tr> <td></td> <td>- Power portfolio in Japan consisting of renewable<sup>*1</sup> : <b>Nearly 50%</b></td> </tr> <tr> <td></td> <td>- CO<sub>2</sub> emission reduction contribution : <b>10 million tons/year<sup>*2*3</sup></b> (compared to 2016)</td> </tr> <tr> <td><b>Long-term targets</b></td> <td><b>2050</b></td> </tr> <tr> <td></td> <td>Carbon-neutral</td> </tr> </table> <p>1: Including solar, wind, biomass power sources which are eligible for the feed-in tariff (FIT) scheme                  2: Equivalent to one third of the CO<sub>2</sub> emission currently produced in our business and by our customers (33 million ton/year)                  3: Includes 700,000 tonnes of a partial reduction of Scope 3 emissions equivalent through introduction of high-efficiency gas appliances, etc.</p>	<b>Medium-term targets</b>	<b>FY2030</b>		- Renewable development contribution on a global basis : <b>5GW</b>		- Power portfolio in Japan consisting of renewable <sup>*1</sup> : <b>Nearly 50%</b>		- CO <sub>2</sub> emission reduction contribution : <b>10 million tons/year<sup>*2*3</sup></b> (compared to 2016)	<b>Long-term targets</b>	<b>2050</b>		Carbon-neutral
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	Carbon-neutral																

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings																
◎ (△)	1-b)	A transition strategy should serve to explicitly communicate the implementation of an issuer’s strategy to transform the business model in a way which effectively addresses climate-related risks and contributes to achieving the goals of the Paris Agreement <sup>10</sup> . Transformation of a business model is not limited to initiatives as an extension of existing businesses but can also be transformation based on various other perspectives. It includes fuel conversion that achieves significant carbon and GHG reduction benefits, introduction of innovative technologies, improvement of / changes in manufacturing processes and products, and development and provision of products and services in new fields.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//04//05//06//07//08//09/ Interviews with stakeholders	<p>The Osaka Gas’s Transition Strategy takes into account scenarios that make use of the TCFD guidance. The Osaka Gas’s Transition Strategy includes efforts to achieve significant reductions in the gas business, which is its core business, regarding its role as a supplier which is the policy of the national government and its contribution to the demand side. In addition to the gas business, Osaka Gas, as an "innovative energy and service company," is also actively promoting the business of supplying low-carbon and decarbonized electricity through the introduction of renewable energy. The following are the specific initiatives for the Green/Transition Strategy, mainly in the energy business, including gas and electricity.</p> <p>Table Daigas Group Key initiatives to achieve carbon neutrality (Green/transition finance candidate projects)</p> <table border="1"> <thead> <tr> <th colspan="3">Eligible Criteria</th> <th>Eligible Criteria &amp; Project Overview</th> </tr> </thead> <tbody> <tr> <td rowspan="2">1)</td> <td rowspan="2">Decarbonization of gas energy</td> <td>Hydrogen utilization</td> <td>Methanation, direct use (chemical looping combustion technology), etc.</td> </tr> <tr> <td>Biogas</td> <td>On-site utilization in domestic/global scale</td> </tr> <tr> <td rowspan="2">2)</td> <td rowspan="2">Decarbonization of power generation</td> <td>Renewable power generation</td> <td>Solar power plants, onshore wind farm, offshore wind farm, biomass power plants, etc.</td> </tr> <tr> <td>Thermal power generation</td> <td>Use of carbon neutral fuels such as synthetic methane, hydrogen and ammonia, CCUS (Carbon Capture,</td> </tr> </tbody> </table>	Eligible Criteria			Eligible Criteria & Project Overview	1)	Decarbonization of gas energy	Hydrogen utilization	Methanation, direct use (chemical looping combustion technology), etc.	Biogas	On-site utilization in domestic/global scale	2)	Decarbonization of power generation	Renewable power generation	Solar power plants, onshore wind farm, offshore wind farm, biomass power plants, etc.	Thermal power generation	Use of carbon neutral fuels such as synthetic methane, hydrogen and ammonia, CCUS (Carbon Capture,
Eligible Criteria			Eligible Criteria & Project Overview																		
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		Other (Reduction of CO2 emission associated with own activities)	Cryogenic power generation in the city gas production process, Cryogenic power generation facilities, energy efficiency renovation work of buildings, etc.																						
○	1-c)	The implementation of a transition strategy assumes cases where it affects society and environment other than climate change, such as employment or stable provision of products and services, through transformation of a business model. In such cases, it is recommended that the fundraiser also takes into consideration the impact of business innovations to society and environment other than climate change.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//11//16//17//18//19//20/ Interviews with stakeholders	At present, DNV confirms that there are no additional significant social or environmental impacts with respect to the implementation of Osaka Gas's Transition Strategy. DNV also confirmed that Osaka Gas has a process in place to ensure that the project evaluation and selection process takes into account the potentially negative environmental and social impacts associated with the implementation of the project, and that the various measures required by the country, region or municipality in which the target facility or project is located are appropriate.																				

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
◎ (△)	1-d)	Climate change-related scenarios <sup>11</sup> should be referenced in developing transition strategies. The pathway to transition should be planned for respective sector and regions of individual fundraiser, who may generally be placed in a different starting point and pathway to transition.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//04//05//08//09/ Interviews with stakeholders	Osaka Gas's transition strategy is built on the Japan Gas Association, the Ministry of Economy, Trade and Industry, and the use of TCFD guidance. Osaka Gas has developed a transition strategy that is consistent with the Japan Gas Association (JGA), which the gas industry should refer to, and with METI's roadmap for gas and electricity as the relevant roadmap for green/transition, which identifies criteria, pathways and targets for CO <sub>2</sub> emission reductions.
○	1-e)	Transition strategies and plans must be highly credible in terms of their effectiveness. Therefore, it is recommended that a transition strategy and plan are linked to management strategy and business plan, including medium-term management plans.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//04//05//08//09//10/ Interviews with stakeholders	Osaka Gas has formulated the "Daigas Group Carbon Neutral Vision" and one of the main points of the vision is to provide solutions for the realization of a sustainable society as an innovative energy and service company by decarbonizing the raw materials for city gas and introducing renewable energy. In addition, as a concrete approach to realising the Daigas Group Carbon Neutral Vision, a "Roadmap towards Carbon Neutral" has been established and specific transition strategies and plans have been drawn up. These have been incorporated into the "Creating Value for a Sustainable Future ", one of the key initiatives of the Daigas Group's Medium-Term Management Plan 2023. In other words, Osaka Gas's transition strategies and plans are closely linked to its management plan, and are considered to be highly effective and reliable initiatives.
△	1-f)	However, because such strategies and plans run for a long period of time, it is possible that the content may be modified or adjusted in the event of a	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//04//05//06//07/ Interviews with stakeholders	Osaka Gas has included a range of technology options in the implementation of its Transition Strategy. DNV also confirmed through the assessment that Osaka Gas plans to flexibly implement changes and amendments to the Transition Strategy and Plan in response to revisions to the Japan Gas Association and national guidelines.

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
		major change in the assumed external environment and so on.			
△	1-g)	In the initial phase of developing a transition strategy by the fundraiser, it is considered as an option for the fundraiser to indicate a plan for future implementation of items described with the words “recommended” and “be considered/ possible” in these Guidelines.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01/ Interviews with stakeholders * Confirmation through this assessment	DNV confirmed that Osaka Gas's transition strategy has largely been implemented in terms of the “recommended” and “be considered/possible” items in this basic guideline.
◎	1-h)	In order to secure the effectiveness of the transition strategy, the fundraiser should establish an organizational structure <sup>12</sup> for the board of directors and/or other such committee to oversee the activities addressing climate change and for management to play a role in assessing and managing such climate-related activities.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//08//09/ Interviews with stakeholders	Osaka Gas has established and is implementing the following organizational structure. <ul style="list-style-type: none"> <li>◆ Decision-making and oversight of the Board of Directors on matters including climate change issues.</li> <li>◆ The ESG Promotion Committee (Management Committee) is held three times a year, and under the supervision of the President, executives and others deliberate on activity plans and activity reports related to ESG issues, including climate change.</li> <li>◆ The ESG Promotion Committee is chaired by the Executive Vice President, who oversees sustainability activities, and includes the heads of related organizations. (The ESG Promotion Committee meets four times a year for cross-organizational deliberation, coordination, and supervision of the formulation and promotion of plans for business activities related to climate change, the status of goal achievement, and risk management and response.)</li> </ul>

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
					<ul style="list-style-type: none"> <li>Report to the Board of Directors on key issues, such as performance against ESG management targets for sustainability and business plans that are expected to have a significant financial impact due to climate change.</li> </ul>  <p>Figure Osaka Gas Climate Change Governance Structure</p>
△	1-i)	While a transition strategy shall be basically developed by a company in need of finance, it is possible for entities to utilize the strategy of companies that are wholly or partially responsible for the initiatives to establish or explain their own strategy, given that the finance supports GHG emissions reduction initiatives of not just a single company but its supply chain.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//06//07/ Interviews with stakeholders	Osaka Gas is building a transition strategy for the Daigas Group, with Osaka Gas at the core. In building the transition strategy, in addition to the strategy for the gas supply side, in accordance with the policies set by the government and other organizations, Osaka Gas has included activities to contribute to the CO <sub>2</sub> emission reduction in Japan and abroad, and in society as a whole, by providing technologies, products, and services that contribute to the reduction and decarbonization of the demand side. Furthermore, as an "innovative energy service company", in addition to its gas business, Osaka Gas is also actively promoting the supply of low-carbon

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
					electricity through its efforts to introduce renewable energy.
◎	1-j)	Transition strategies should be disclosed in advance in a company's integrated report, sustainability report, statutory documents and other materials for investors (including such disclosures on the website). This also applies to the other three elements.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//08//09//10/ Interviews with stakeholders	Osaka Gas's transition strategy (and environmental initiatives in general) is explained and disclosed to stakeholders in advance through the Daigas Group Carbon Neutral Vision and Roadmap, which are formulated and disclosed in 2021 annually, and related information is explained and disclosed to stakeholders through the Medium-Term Management Plan, Integrated Report and website.
△	1-k)	It is possible to disclose transition strategies and elements concerning the governance guaranteeing that the execution of transition strategies is in alignment with the reporting frameworks such as the Recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD; Final Report) <sup>13</sup> .	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//08//09/ Interviews with stakeholders	Osaka Gas's Transition Strategy takes into account the TCFD recommendations, and the governance of the Transition Strategy and TCFD recommendations are aligned. Osaka Gas discloses governance-related items in its integrated report, website and framework. Relevant information can be found in 1-d), 1-h) and 1-j).
○	1-l)	If the implementation of a transition strategy assumes impacts on society and environment other than climate change, it is recommended that the fundraiser explain the view underlying its approach <sup>14</sup> , etc. to address such impacts and disclose how the strategy on the whole contributes to achieving the Sustainable Development Goals (SDGs)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//08//09//11/ Interviews with stakeholders	At present, DNV confirms that there are no additional significant social or environmental impacts with respect to the implementation of Osaka Gas's Transition Strategy. DNV also confirmed that Osaka Gas has a process in place to ensure that the project evaluation and selection process takes into account the potentially negative environmental and social impacts associated with the implementation of the project, and that the various measures required by the

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
		so that the effects can be appropriately evaluated by the financier.			<p>country, region or municipality in which the target facility or project is located are appropriate.</p> <p>The key materiality issue to which transition finance is mainly related is climate change, as stated in the Daigas Group's Charter of Business Conduct: "Contributing to the Sustainability of the Environment and Society", and its relationship with the SDGs is summarized below.</p> <p>Reference (in Table-1 of the main text)            Charter of Business Conduct: II Contributing to the sustainability of the environment and society            Materiality: climate change            (Value for a Sustainable Future: Realising a low and decarbonised society)</p>  <p>Goal 7: Affordable and Clean Energy            Goal 9: Industry, Innovation and Infrastructure            Goal12: Responsible Consumption and Production            Goal 13: Climate Action            Goal 17: Partnerships for the Goals</p>
◎	1-m)	Considering the length of application and other factors, there may be instances when a transition strategy and plan will need to be modified due to major changes in the external environment and relevant conditions that were assumed at a planning phase. In this case, the contents of the modification should be	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//04//05/ Interviews with stakeholders	Osaka Gas has included a range of technology options in the implementation of its Transition Strategy. DNV also confirmed through the assessment that Osaka Gas plans to implement changes and modifications to the Transition Strategy and Plan in response to the guidelines of the Japan Gas Association and the national government, as well as reviews of technological trends.



Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
		disclosed together with the underlying reason in a timely manner.			Osaka Gas also plans to disclose any significant changes to its transition strategy and plans in a timely manner, together with the reasons for such changes.
○	1-n)	In terms of governance, it is recommended that disclosures include an organizational structure for overseeing the implementation of a transition strategy and for assessing and managing related initiatives. It is also recommended that disclosures include the specific roles of the constituent organizations and the management and the process by which the content of deliberations is reflected in management.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//08//09//10/ Interviews with stakeholders	<p>Osaka Gas has established the following organizational structure.</p> <p>In addition, the following information has been disclosed in the Daigas Group Integrated Report 2021</p> <ul style="list-style-type: none"> <li>Decision-making and oversight of the Board of Directors on matters including climate change issues.</li> <li>The ESG Promotion Meeting (Management Meeting) is held three times a year, and under the supervision of the President, executives and others deliberate on activity plans and activity reports related to ESG issues, including climate change.</li> <li>The ESG Promotion Committee is chaired by the Executive Vice President, who oversees sustainability activities, and includes the heads of related organizations. The ESG Promotion Committee meets annually to deliberate, coordinate and supervise the formulation and promotion of plans for business activities related to climate change, the achievement of targets, and risk management and response.)</li> <li>Report to the Board of Directors on key issues, such as performance against ESG management targets for sustainability and business plans that are expected to have a significant financial impact due to climate change.</li> </ul>
○	1-o)	In cases where the fundraiser determines the need for an objective assessment regarding the transition strategy, it is	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Confirmed documents: /01/~//11/	Osaka Gas uses a review by an external body, DNV, for an objective assessment of the eligibility of its green/transition finance, including its transition strategy.

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings								
		recommended that a review, assurance and verification by an external organization for its transition strategy.	<input type="checkbox"/> Not Applicable	Interviews with stakeholders * Confirmation through this assessment									
△	1-p)	<p>It is recognized useful to obtain a review particularly concerning the following in connection with the transition strategy:</p> <ul style="list-style-type: none"> <li>- Alignment of short-term, mid-term and long-term targets (for targets, refer to Element 3) with the overall scenario</li> <li>- Credibility of the fundraiser's strategy to reach the targets</li> <li>- Appropriateness of the management process and governance for the transition strategy</li> </ul>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01/~/11/</p> <p>Interviews with stakeholders * Confirmation through this assessment</p>	<p>DNV has confirmed the following about its review of Osaka Gas's transition strategy</p> <ul style="list-style-type: none"> <li>- Osaka Gas's Transition Strategy is consistent with the scenarios (specific action plans) and targets shown in the table below.</li> <li>- Osaka Gas's transition strategy is positioned as one of the core elements of its medium-term management plan, "Realization of a low-carbon/decarbonized society", and its credibility is supported by concrete plans and targets as a roadmap.</li> <li>- The Transition Strategy is a plan in which the management process and governance of the Transition Strategy will be properly implemented under the "Governance Framework for Climate Change".</li> </ul> <p style="text-align: center;">Table Osaka Gas Transition Targets</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #e6f2ff;"><b>Medium-term targets</b></td> <td style="background-color: #e6f2ff;"><b>FY2030</b></td> </tr> <tr> <td></td> <td style="background-color: #e6f2ff;"> <ul style="list-style-type: none"> <li>- Renewable development contribution on a global basis : <b>5GW</b></li> <li>- Power portfolio in Japan consisting of renewable*<sup>1</sup> : <b>Nearly 50%</b></li> <li>- CO<sub>2</sub> emission reduction contribution : <b>10 million tons/year</b>*<sup>2*3</sup> (compared to 2016)</li> </ul> </td> </tr> <tr> <td style="background-color: #e6f2ff;"><b>Long-term targets</b></td> <td style="background-color: #e6f2ff;"><b>2050</b></td> </tr> <tr> <td></td> <td style="background-color: #e6f2ff;">Carbon-neutral</td> </tr> </table>	<b>Medium-term targets</b>	<b>FY2030</b>		<ul style="list-style-type: none"> <li>- Renewable development contribution on a global basis : <b>5GW</b></li> <li>- Power portfolio in Japan consisting of renewable*<sup>1</sup> : <b>Nearly 50%</b></li> <li>- CO<sub>2</sub> emission reduction contribution : <b>10 million tons/year</b>*<sup>2*3</sup> (compared to 2016)</li> </ul>	<b>Long-term targets</b>	<b>2050</b>		Carbon-neutral
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	Carbon-neutral												

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
					1: Including solar, wind, biomass power sources which are eligible for the feed-in tariff (FIT) scheme 2: Equivalent to one third of the CO <sub>2</sub> emission currently produced in our business and by our customers (33 million ton/year) 3: Includes 700,000 tonnes of a partial reduction of Scope 3 emissions equivalent through introduction of high-efficiency gas appliances, etc.

- 9 Transition finance is available for not only entities with strategies and plans for reducing emissions associated with their corporate economic activities, but also entities that plan to take initiatives that enable others to implement transition strategies through their own products and services. In such cases of financial institutions, a financier should articulate how the underlying projects or activities themselves fit into the fundraiser’s strategy while, similarly, a subsidiary or an SPC to make use of its group’s or its sponsors’ strategy. However, doing so they should explain how their strategy will contribute to the strategy as a whole. In addition, it can be considered that parent company or the group who established the strategy would explain the transition elements as the main fundraiser.
- 10 The Paris Agreement sets out a goal to Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels.
- 11 Climate-related scenarios are listed in the “Task Force on Climate-related Financial Disclosures (TCFD) Technical Supplement” and the document issued by the Ministry of the Environment: “Practical Guide for Scenario Analysis in line with TCFD Recommendations”. In addition, Principles for Responsible Investment (PRI) disclose a set of climate scenario tools.
- 12 Assumes matters provided for under “governance” in the TCFD Recommendations.
- 13 As for the approach to disclosure aligned with TCFD Recommendations, refer to “Guidance on Climate-related Financial Disclosures (TCFD Guidance) 2.0”, “Guidance for Utilizing Climate-related Information to Promote Green Investment (Green Investment Guidance)” (both published by the TCFD Consortium), and the document published by the Ministry of the Environment: “Practical Guide for Scenario Analysis in line with TCFD Recommendations”.
- 14 An example of the approach may be to identify, eliminate, reduce, and manage potential negative effects.

## CTF-2 Business Model Environmental Materiality

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings																							
©	2-a)	Initiatives for achieving the transition strategy should be such that contribute to transforming core business activities that are environmentally material parts today and in the future. <sup>15</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Documents checked : /01//02//03//08//09//10/ Interviews with the people involved	<p>Osaka Gas's Transition Strategy includes initiatives designed to achieve significant reductions in the role of the gas business, the company's core business, as the supply side and its contribution to the demand side, in line with national and other policies.</p> <p>Furthermore, as an "innovative energy service company", in addition to its gas business, Osaka Gas is also actively promoting a business that supplies low-carbon electricity through the introduction of renewable energy. In addition to the introduction of renewable energies, the company is also active in the supply of low-carbon electricity.</p> <p>Table Daigas Group Key initiatives to achieve carbon neutrality (Green/transition finance candidate projects)</p> <table border="1"> <thead> <tr> <th colspan="2">Eligibility Criteria</th> <th colspan="2">Eligibility Criteria &amp; Project Summary</th> </tr> </thead> <tbody> <tr> <td rowspan="2">1)</td> <td>Decarbonisation of gaseous energy</td> <td>Hydrogen use</td> <td>Methanation, direct use (chemical looping fuel technology), etc.</td> </tr> <tr> <td></td> <td>Biogas</td> <td>Expanding the use of biogas onsite at home and abroad</td> </tr> <tr> <td rowspan="2">2)</td> <td rowspan="2">Power supply decarbonisation</td> <td>Renewable power generation</td> <td>Solar, onshore wind, offshore wind, biomass, etc.</td> </tr> <tr> <td>Thermal power supply</td> <td>Use of carbon-neutral fuels such as synthetic methane, hydrogen and ammonia, CCUS (Carbon Capture, Utilization and Storage), etc.</td> </tr> <tr> <td rowspan="2">3)</td> <td rowspan="2">Low carbon</td> <td>Fuel Cells</td> <td>High efficiency and miniaturisation of fuel cells, etc.</td> </tr> <tr> <td>Advanced utilization of natural gas and CHP</td> <td>Support for conversion from oil and coal to natural gas Demonstration of the construction of a microgrid Use of carbon-neutral LNG</td> </tr> </tbody> </table>	Eligibility Criteria		Eligibility Criteria & Project Summary		1)	Decarbonisation of gaseous energy	Hydrogen use	Methanation, direct use (chemical looping fuel technology), etc.		Biogas	Expanding the use of biogas onsite at home and abroad	2)	Power supply decarbonisation	Renewable power generation	Solar, onshore wind, offshore wind, biomass, etc.	Thermal power supply	Use of carbon-neutral fuels such as synthetic methane, hydrogen and ammonia, CCUS (Carbon Capture, Utilization and Storage), etc.	3)	Low carbon	Fuel Cells	High efficiency and miniaturisation of fuel cells, etc.	Advanced utilization of natural gas and CHP	Support for conversion from oil and coal to natural gas Demonstration of the construction of a microgrid Use of carbon-neutral LNG
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Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings						
					<table border="1"> <tr> <td></td> <td>Advanced energy use</td> <td>VPP, smart energy systems, etc.</td> </tr> <tr> <td></td> <td>Other (Reduction of CO<sub>2</sub> associated with own activities)</td> <td>Chillers in the city gas production process, chillers, energy-saving renovation of buildings, etc.</td> </tr> </table>		Advanced energy use	VPP, smart energy systems, etc.		Other (Reduction of CO <sub>2</sub> associated with own activities)	Chillers in the city gas production process, chillers, energy-saving renovation of buildings, etc.
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	Other (Reduction of CO <sub>2</sub> associated with own activities)	Chillers in the city gas production process, chillers, energy-saving renovation of buildings, etc.									
○	2-b)	When identifying business activities that are environmentally material parts, it is recommended that the fundraiser consider multiple climate change-related scenarios that may possibly impact its judgment on the identification <sup>16</sup> .	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Documents checked : /01//02//03//08//09//10/ Interviews with the people involved	Osaka Gas discloses climate change-related information in line with the recommendations of the TCFD. This includes governance, strategy (transitions, natural gas demand projections), risk management (risks and opportunities of the 2°C scenario, 2°C original scenario and 4°C scenario, and initiatives for 2030 and 2050), and disclosure of indicators and targets. Osaka Gas' Transition Strategy is linked to this TCFD initiative.						
△	2-c)	In terms of considering materiality, it is possible to apply existing guidance provided by an organization that creates standard criteria concerning sustainability reporting <sup>17</sup> .	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Documents checked : /01//02//03//08//09//10/ Interviews with the people involved	In identifying materiality, Osaka Gas uses analysis and evaluation methods based on GRI Standards <sup>*1</sup> , ISO 26000, TCFD, etc. In addition, efforts to address environmental materiality include not only the reduction of emissions from the company's own business activities, but also activities that contribute to the reduction of the scope3 and other companies. Furthermore, the contribution to the SDGs (see below) is also taken into account. These are disclosed in the framework and other documents. *1: Global Reporting Initiative						

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
◎	2-d)	The fundraiser should indicate that climate change is an environmentally material part of business activities <sup>18</sup> .	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Documents checked : /01//02//03//08//09//10/ Interviews with the people involved	Climate change, one of the materialities defined for the Osaka Gas Group, is closely linked to the Daigas Group's Charter of Corporate Behavior, which sets out the philosophy of the Daigas Group's business activities: "Harmony with the environment and contribution to a sustainable society". These are disclosed in the integrated report and through the website.
○	2-e)	It is recommended that disclosures include the contents of climate change-related scenarios used in identifying business activities that are environmentally material parts along with the underlying reasons (e.g., regional and industrial characteristics) for selecting such scenarios.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Documents checked : /01//02//03//08//09//10/ Interviews with the people involved	Osaka Gas recognizes that the TCFD recommendations and its efforts to participate in the TCFD consortium are appropriate scenario analyses to ensure effective corporate disclosure of information on climate change responses and to help financial institutions and others make appropriate investment decisions. These are disclosed in the integrated report and through the website.

15 They include activities that are environmentally material parts are considered to be business activities of the fundraiser that identifies climate change as part of its materiality.

16 Scenario analysis using multiple climate-related scenarios is similar to that required by the TCFD Recommendations, and it is considered useful to refer to relevant guidelines and such like for implementation methods. An example is the document issued by the Ministry of the Environment: "Practical Guide for Scenario Analysis in line with TCFD Recommendations".

17 "The SASB Materiality Map" issued by the Sustainability Accounting Standards Board serves as a guidance concerning materiality.

18 As for the approach to identifying environmentally material business activities, it is possible to use the materiality map and such like and outline the level of materiality of climate change for one's entity.

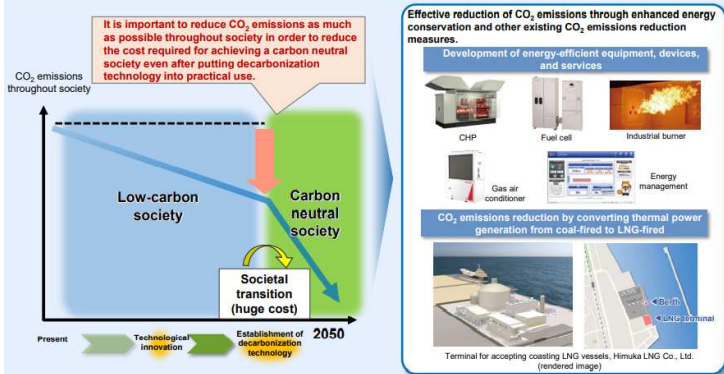
### CTF-3 Climate Transition Strategy to be Science-based Including Targets and Pathways

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
©	3-a)	The fundraiser should reference science-based targets in developing its transition strategies.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03//04//05/</p> <p>Interviews with stakeholders</p>	Osaka Gas's transition strategy and targets are consistent with the initiatives of the Japan Gas Association (JGA) and the Ministry of Economy, Trade and Industry (METI)'s technology roadmap (gas and electricity), which are designed to align with the Paris Agreement targets. The METI Technology Roadmap is based on the scientific-based evidence required to achieve the goals of the Paris Agreement, and therefore Osaka Gas's Transition Strategy is considered to be a science-based goal.
©	3-b)	This should include mid-term targets (short- to mid-term targets) in addition to long-term targets for 2050 and be quantitatively measurable based on a measurement methodology which is consistent over a long period of time.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03//04//05/</p> <p>Interviews with stakeholders</p>	Osaka Gas has formulated its Transition Strategy as a "Roadmap for achieving carbon neutrality", which incorporates, in addition to the long-term goal of carbon neutrality in 2050, a medium-term goal and a strategic plan for decarbonization (a plan to introduce technologies that contribute to the Transition). Each target based on Osaka Gas's Transition Strategy is disclosed below.

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings												
					<p style="text-align: center;">Table Osaka Gas Transition Targets</p> <table border="1"> <tr> <td><b>Medium-term targets</b></td> <td><b>FY2030</b></td> </tr> <tr> <td></td> <td>- Renewable development contribution on a global basis : <b>5GW</b></td> </tr> <tr> <td></td> <td>- Power portfolio in Japan consisting of renewable*<sup>1</sup> : <b>Nearly 50%</b></td> </tr> <tr> <td></td> <td>- CO<sub>2</sub> emission reduction contribution : <b>10 million tons/year</b>*<sup>2*3</sup> (compared to 2016)</td> </tr> <tr> <td><b>Long-term targets</b></td> <td><b>2050</b></td> </tr> <tr> <td></td> <td>Carbon-neutral</td> </tr> </table> <p>1: Including solar, wind, biomass power sources which are eligible for the feed-in tariff (FIT) scheme            2: Equivalent to one third of the CO<sub>2</sub> emission currently produced in our business and by our customers (33 million ton/year)            3: Includes 700,000 tonnes of a partial reduction of Scope 3 emissions equivalent through introduction of high-efficiency gas appliances, etc.</p>	<b>Medium-term targets</b>	<b>FY2030</b>		- Renewable development contribution on a global basis : <b>5GW</b>		- Power portfolio in Japan consisting of renewable* <sup>1</sup> : <b>Nearly 50%</b>		- CO <sub>2</sub> emission reduction contribution : <b>10 million tons/year</b> * <sup>2*3</sup> (compared to 2016)	<b>Long-term targets</b>	<b>2050</b>		Carbon-neutral
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<b>Long-term targets</b>	<b>2050</b>																
	Carbon-neutral																
◎  (△)	3-c)	In addition, it is recommended that GHG reduction targets, which could be formulated either in intensity and absolute terms, should consider environmental materiality and cover Scopes 1 through 3 of GHG Protocol, the international standard on supply-chain emissions. It is recommended that targets covering Scope 3 be set using a practical calculation method when it could be subject to significant reduction in the fundraiser's business model <sup>19</sup> . It is	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03//08//09/</p> <p>Interviews with stakeholders</p>	<p>The Daigas Group's CO<sub>2</sub> emissions are assessed in absolute terms. It covers Scope 1, Scope 2, and Scope 3 (major items), and also takes into account the reduction of CO<sub>2</sub> emissions from society as a whole. Scope 3 is an important reduction target in the supply chain and business model of Osaka Gas, and targets have been set to the extent practicable. Osaka Gas has also set a CO<sub>2</sub> emission reduction contribution of 10 million tonnes of CO<sub>2</sub> emissions in FY2030 (compared to 2016). *See 3-b) for details.</p>												



Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
		also possible to disclose the avoided emissions as necessary.			
◎ (△)	3-d)	<p>Science-based targets are GHG reduction targets required for achieving the goals of the Paris Agreement and should be set while taking into account differences in regional characteristics and industries. In so doing, it is possible to refer to the following trajectories.</p> <ul style="list-style-type: none"> <li>- Scenarios widely recognized in the international community (Examples include the Sustainable Development Scenario (SDS) outlined by the International Energy Agency (IEA)<sup>20</sup>)</li> <li>- Objectives verified under the Science Based Targets Initiative (SBTi) and such like</li> <li>- Nationally Determined Contributions (NDC) of countries aligned with the goals of the Paris Agreement, roadmaps by industry sector<sup>21</sup>, industries set out plans that are science-based achieving the Paris Agreement<sup>22</sup> and so on.</li> </ul>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03//08//09/</p> <p>Interviews with stakeholders</p>	<p>Osaka Gas' transition targets refer to these following</p> <ul style="list-style-type: none"> <li>- Scenarios widely recognized in the international community ⇒Refer to the analysis results to TCFD</li> <li>- Osaka Gas' roadmaps and targets have not been tested in such as the Science Based Targets Initiative (SBTi), but the assessment has confirmed the validity of the plans.</li> <li>- Targets consistent with the goals of the Paris Agreement (NDC, roadmaps by industry sector, industries set out plans that are science-based evidence established by industry, etc.) ⇒See the Technology Roadmap for Gas and Electricity developed by the Ministry of Economy, Trade and Industry and the Japan Gas Association's Carbon Neutral Challenge 2050.</li> </ul>
◎	3-e)	<p>Short- to mid-term targets (with a term of three to fifteen years) should be set by referencing the aforesaid trajectories or</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03//04//05/</p>	<p>Osaka Gas's medium-term target (FY2030) is based on the asset deployment and technology development plans set out in the pathway (transition roadmap) towards the long-term target of 2050.</p>

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
		on the pathway toward the long-term targets planned as benchmarks <sup>23</sup> .		Interviews with stakeholders	*See 3-b) for details.
△	3-f)	In doing so, since short- to mid-term targets will likely be set in consideration of various factors (including the starting point and track records of the issuer, timing of capital investments, economic rationality, cost-benefit analysis, and availability of technology necessary to achieve the targets), it is possible that the pathway may not necessarily be linear with the same slope at all times but may be nonlinear.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03//04//05/</p> <p>Interviews with stakeholders</p>	<p>Osaka Gas plans to achieve its targets through multiple technological options, taking into account a variety of matters (short-term initiatives, medium- to long-term technological development and their implementation) when formulating its roadmap. Osaka Gas recognizes that energy conservation, advanced use of natural gas, and the introduction of renewable energies are key to reducing CO<sub>2</sub> emissions until the technology to achieve a decarbonized society is established, and the target for 2030 takes these factors into account. A non-linear pathway towards carbon neutrality in 2050 is planned.</p>  <p>The diagram illustrates the transition from a 'Low-carbon society' to a 'Carbon neutral society' by 2050. It shows a downward trend in CO<sub>2</sub> emissions throughout society, with a significant drop during the 'Societal transition (huge cost)' period. Key measures include:         <ul style="list-style-type: none"> <li>Development of energy-efficient equipment, devices, and services (CHP, Fuel cell, Industrial burner, Gas air conditioner, Energy management).</li> <li>CO<sub>2</sub> emissions reduction by converting thermal power generation from coal-fired to LNG-fired.</li> <li>Terminal for accepting coasting LNG vessels (Himuka LNG Co., Ltd. rendered image).</li> </ul> </p> <p>Daigas Group Carbon Neutral Vision</p>

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings		
◎	3-g)	The fundraiser should disclose the short-to mid-term and long-term targets they have set, including the base years etc.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03/  Interviews with stakeholders	Osaka Gas's Transition Strategy sets the 2016 as the base year, 10 million tons of CO <sub>2</sub> emission reduction contribution as the mid-term target for 2030. Osaka Gas has also set a Scope 3 target, which is not disclosed for confidentiality reasons. Long-term goal is to become carbon neutral by 2050. These are disclosed in the Daigas Group Carbon Neutral Vision.		
◎	3-h)	In order to show that long-term targets are science-based, disclosures should explain the methodology or trajectory used to define target, including the underlying reasons (e.g., characteristics specific to a region or industry). In particular, when reference is made to plans and industry roadmaps established by an industry, etc., the explanation should include that they are grounded in scientific basis.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//04//05/  Interviews with stakeholders	The long-term goals in Osaka Gas's Transition Strategy are consistent with the goals and initiatives of the Japan Gas Association and the Ministry of Economy, Trade and Industry (roadmap for the gas and electricity sectors). The Ministry of Economy, Trade and Industry's targets refer to various Japanese policies and international scenarios aimed at achieving carbon neutrality in 2050, and are clearly consistent with the Paris Agreement.		
△	3-i)	It is possible that disclosures explain the pathway toward a long-term target and the alignment between the short- to mid-term targets on the pathway and the transition strategy, based on the investment plan (refer to Element 4) and other plans.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03/  Interviews with stakeholders	Osaka Gas has identified the following specific initiatives (see table below) as examples of typical projects that may be eligible for investment (eligible project categories) in its efforts to achieve its long-term goals.  Table Daigas Group Key initiatives to achieve carbon neutrality (Green/transition finance candidate projects) <table border="1" data-bbox="1384 1362 2078 1407"> <tr> <td>Eligible Criteria</td> <td>Eligible Criteria &amp; Project Overview</td> </tr> </table>	Eligible Criteria	Eligible Criteria & Project Overview
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Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
					implemented with green/transition finance. These are outlined in the framework.
△	3-j)	<p>Concerning targets and trajectories, obtaining expert reviews on the following is considered to be particularly useful:</p> <ul style="list-style-type: none"> <li>- Whether the long-term target is aligned with science-based targets</li> <li>➔ Whether the disclosed information explains the alignment with the Paris Agreement</li> <li>- Whether the short- to mid-term targets are determined using a GHG emissions forecast calculated based on a climate change scenario analysis</li> <li>➔ Whether scenarios, etc. widely recognized in the international community are used or referenced</li> <li>- Whether the actual values of the indicators used for the targets are quantitatively measured using consistent measurement methods</li> <li>➔ Whether a specific GHG emissions reduction measure has been developed to achieve short- to mid-term targets aligned with long-term goals</li> </ul>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03//04//05/</p> <p>Interviews with stakeholders *Confirmation through this assessment</p>	<p>On the basis of the documents and information provided by Osaka Gas, DNV has reviewed the following and confirmed that the targets and trajectories are based on science-based</p> <ul style="list-style-type: none"> <li>- Whether the long-term target is aligned with science-based targets             <ul style="list-style-type: none"> <li>➢ Targets and trajectories based on Osaka Gas's Transition Strategy refer to METI's targets (Gas and Electricity Sector Technology Roadmap) and various Japanese policies and international scenarios aimed at achieving carbon neutrality in 2050, and METI's targets are clearly aligned with the Paris Agreement.</li> </ul> </li> <li>- Whether the short- to mid-term targets are determined using a GHG emissions forecast calculated based on a climate change scenario analysis             <ul style="list-style-type: none"> <li>➢ Based on the IEA scenarios, Osaka Gas is analysing scenarios for 2030, 2040, and 2050 for 2°C, 2°C original, and 4°C respectively. This is closely related to Osaka Gas's greenhouse gas emissions and climate change initiatives.</li> </ul> </li> <li>- Whether the actual values of the indicators used for the targets are quantitatively measured using consistent measurement methods             <ul style="list-style-type: none"> <li>➢ The indicator used for the target is CO<sub>2</sub> emissions (absolute value), and Osaka Gas has established a method for calculating and evaluating the reduction</li> </ul> </li> </ul>

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
					<p>effect based on the amount of LNG supplied (including the amount of fuel switched from coal and oil), the number of high-efficiency gas-related products supplied, and the amount and ratio of renewable energy installed (kW and the ratio of renewable energy to domestic electricity business). DNV has confirmed through the review that the CO<sub>2</sub> savings are estimated on the basis of the above performance values. For some projects, it is difficult to calculate the direct CO<sub>2</sub> emission reduction effect, so the disclosure of project progress, plans, etc. is considered as a reduction benefit.</p>

- 19 Since an appropriate method for calculating Scope 3 emissions for specific industrial sectors is under development, it is possible to estimate Scope 3 emissions on a provisional “best effort” basis. When disclosing, it is recommended that boundaries, calculation methods and other relevant factors be also reported. “Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain” (METI, MoE; 2017 Japanese only. Related information in English) can be used for calculation references.
- 20 In addition to benchmarks indicated by the IEA, there are those referenced by the IPCC, such as RCP 2.6 (keep global warming to below 2°C), RCP 1.9 (keep global warming to below 1.5°C) and other related Transition Pathway Initiative (TPI) benchmarks. Meanwhile, scenario listings are available in the TCFD Technical Supplement and in the document published by the Ministry of the Environment: “Practical Guide for Scenario Analysis in line with TCFD Recommendations”.
- 21 An example of a sector-specific roadmap formulated by a public organization is the “Roadmap to Zero Emission from International Shipping” (Ministry of Land, Infrastructure, Transport and Tourism; 2020). The Ministry of International Trade and Industry also plans to formulate a roadmap for high emission industries.
- 22 In utilizing a plan formulated at a sector level, it is necessary to have a credible proposition that the alignment with the Paris Agreement can be explained with scientific grounds.
- 23 While it is possible to set short- to mid-term targets by determining the standard based on an assumed use of best available technologies (BAT), consideration should be made as to whether the use of such technologies might make it difficult to achieve long-term targets.

## CTF-4 Implementation Transparency

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
◎	4-a)	In implementing transition strategies, the fundraiser should provide transparency of the basic investment plan to the extent practicable.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03/</p> <p>Interviews with stakeholders</p>	DNV confirmed that Osaka Gas plans to invest a cumulative total of 2 trillion yen from fiscal 2017 to 2030 in quality improvement, growth and M&A, including activities outlined in the Daigas Group Carbon Neutral Vision and Roadmap. DNV also confirmed that in the fiscal years 2021-2023, Osaka Gas plans to invest 737 billion yen (237 billion yen for quality improvement and 500 billion yen for growth (including 120 billion yen for renewable energy)), which includes projects implemented with green/transition finance.
○	4-b)	The investment plan includes not only capital expenditure (Capex) but also capital and operational expenditure (Opex). Therefore, costs related to research and development, M&A, and dismantling and removal of facilities are also subject to the investment plan. In other words, it is recommended that the investment plan incorporate, to the extent possible, expenditure and investment necessary for implementing the transition strategy.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03//11//16/ /17//18//19//20/</p> <p>Interviews with stakeholders</p>	The investment plan includes one or more of the following capitals, operational and running costs necessary to implement the following strategies that contribute to the necessary efforts to implement the Transition Strategy. Specific initiatives (project outlines and main expenditure) include the following (table below).

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings	
		Eligible Criteria		Project overview (main expenditure)		
	1)	Decarbonization of gas energy	Hydrogen utilization	Methanation	Expenditure on research and development and capital expenditure to establish methanation technology (e.g. SOEC co-electrolysis).	
	Direct use			Expenditure on research and development investment in a process for simultaneous production of hydrogen, electricity and CO <sub>2</sub> using chemical looping combustion technology		
	Biogas		Expenditure on capital expenditure to expand the use of biogas for domestic and international on-site utilization.			
	2)	Decarbonization of power generation	Renewable energy generation		Expenditure on the development, construction, operation and refurbishment of renewable energy, such as biomass, solar, onshore wind and offshore wind.	
			Thermal power generation	Carbon-neutral Fuel utilisation	Expenditure on investment, research and development in the procurement, supply and use of synthetic methane, hydrogen and ammonia	
				CO <sub>2</sub> capture and storage (CCUS)	Expenditure on participation in CCUS demonstrations (e.g. consortia)	
	3)	Low-carbonization	Fuel Cells	The fuel cells High efficiency and miniaturisation	Expenditure on research, development and capital investment in small SOFCs with high power generation efficiency	
			Advanced utilization of natural gas and CHP	converting fuel from oil and coal to natural gas		Expenditure on capital expenditure (e.g. on the construction of LNG satellite terminals and the provision of related equipment) to support customers' fuel conversion.
				Micro grid		Expenditure on the construction and demonstration of microgrids
				Carbon-neutral LNG		Expenditure on the procurement and supply of carbon neutral LNG*. *LNG with GHG emissions offset by credits
			Advanced energy utilization	VPP and smart energy systems		Expenditure on research and development and capital investment in projects to demonstrate the establishment of VPPs and smart energy systems using consumer-side energy resources.
			Other (Reduction of CO <sub>2</sub> emission associated with own activities)	Reduce CO <sub>2</sub> emissions from activities other than the above, such as manufacturing, power generation, and office operations.		Expenditure on cold power generation equipment and cold heat utilisation equipment in the city gas production process, and on energy-saving renovation work in buildings.



Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
△	4-c)	It is recommended that the investment plan outline the assumed climate-related outcomes and impacts <sup>24</sup> in a quantitative fashion where possible, along with the calculation methods and prerequisites <sup>25</sup> . If quantification is difficult, the use of external certification systems can be considered as a substitute for qualitative assessment.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03//11//16/ /17//18//19//20/</p> <p>Interviews with stakeholders</p>	The climate-related results and impacts envisioned by the investment plan are the reduction in the overall society (including domestic and international), as indicated by the eligibility criteria "Decarbonization of gas energy", "Decarbonization of power generation" and "Low-carbonization", as well as the reduction contribution, as indicated in 4-b). All of them use CO <sub>2</sub> reduction as an indicator, with a reduction of 10 million tons in 2030 (compared to the base year of 2016). DNV has confirmed through the assessment that Osaka Gas has established appropriate eligible criteria or calculation methods and assumptions for each project. However, Osaka Gas has not planned to disclose such information to the public when the calculation method and assumptions include business strategies and customer information, and DNV confirmed the appropriateness of that.
○	4-d)	In particular, when outlining the assumed climate-related outcomes and impacts, it is recommended that the disclosure include not only GHG emission reduction and other initiatives to ease climate change but also report how consideration of a "just transition" <sup>26</sup> is incorporated into the transition strategy.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03//11//16/ /17//18//19//20/</p> <p>Interviews with stakeholders</p>	Any critical factors that would impede a "just transition" through the implementation of Osaka Gas's Transition Strategy have not identified. DNV believes that the use of carbon-neutral LNG will have a medium to long-term impact on businesses and employment related to natural gas extraction. However, it is not considered to be a factor that will hinder an extreme "fair transition" through the use of existing supply chains and the systematic review of existing businesses in the process of transitioning to a low-carbon society globally.

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
					In addition, it was confirmed that Osaka Gas will take appropriate measures and disclose information when necessary, if it is necessary for future projects implemented by Osaka Gas to be equivalent to a "fair transition" through the assessment or if negative impacts on the SDGs are considered.
○	4-e)	If implementing the transition strategy has the potential of having a negative impact on employment or the environment and communities other than climate change, it is recommended that any expenditures to mitigate such negative impacts be added to the plan.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//11//16/ /17//18//19//20/  Interviews with stakeholders	At this time, DNV has confirmed that there are no additional significant social or environmental impacts associated with the implementation of Osaka Gas's Transition Strategy. However, in assessing the eligibility of each project, consideration is given to potential negative environmental and social impacts, and it is confirmed that the facilities and projects concerned have been properly certified and licensed, and that the environmental assessment procedures required by the country, region or municipality in which they are to be installed are appropriate.
◎	4-f)	Moreover, the outcomes arising from investments included in the investment plan should align with the targets.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//11//16/ /17//18//19//20/  Interviews with stakeholders	Osaka Gas quantitatively evaluates the results (CO <sub>2</sub> emission reduction effects) of each eligible project candidate (see (3-b)) included in the investment plan to ensure that they are consistent with the targets (see (3-c)).

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
○ (△)	4-g)	Transition finance is a means to financially support the implementation of a transition strategy, and it is recommended that financing be provided for new initiatives. However, in the case of transition finance in the format of Use of Proceeds instruments, refinancing for a reasonably set lookback period (the period during which refinancing is to be applied for projects that have already started) is considered to be eligible.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03//11//16/ /17//18//19//20/</p> <p>Interviews with stakeholders</p>	<p>Osaka Gas plans to allocate its transition finance to fund both new initiatives and refinancing of existing ones (amounts and ratio are expected to vary for each project and bond).</p> <p>Where refinancing is targeted, DNV confirmed that a reasonable look-back period should be set (e.g. the green/transitional nature of the target asset should be maintained at the time of refinancing and the environmental improvement benefits should be realised during the redemption or repayment period).</p>
○	4-h)	It is recommended that investment plans be disclosed by linking the outcomes and impacts with the expenditures to the extent practicable <sup>27</sup> .	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03//11//16/ /17//18//19//20/</p> <p>Interviews with stakeholders</p>	<p>DNV has confirmed that Osaka Gas plans to invest a cumulative total of 2 trillion yen from fiscal 2017 to 2030 in quality improvement, growth and M&amp;A, including the implementation of its transition strategy, and that these investments are being implemented in a planned manner. DNV also confirmed that there is an investment plan in the future according to the timeline. (See Schedule-2 Ref.4 for details)</p> <p>For each financing, the amount of the project to be invested, the amount to be allocated (new or refinanced), and the environmental improvement benefits (calculation method or results) will be disclosed to the extent practicable in the evaluation of the specific use of proceeds.</p>

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
○	4-i)	It is recommended that the fundraiser, after securing financing, reports any deviations between the initial plan and the actual expenditure, outcomes and impacts. For any deviations, it is recommended that the underlying reasons be explained.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//11//16/ /17//18//19//20/  Interviews with stakeholders	Osaka Gas will include in its post-funding reporting any significant variances in expenditure, outcomes or impact from the original plan, as well as the reasons for such variances.
◎	4-j)	In cases where the Use of Proceeds bonds include refinancing, the fundraiser should provide an explanation on the lookback period set under the framework or other relevant methods along with the underlying reasons and factors.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01/ Interviews with stakeholders	Osaka Gas has set a look-back period of approximately three years. This is the standard time frame that the Osaka Gas Green/Transition Project has set as the time frame in which green/transition ability will not be compromised in the short term. In the case of refinancing in the future, it was confirmed that the green/transition nature of the target assets will be maintained and that environmental improvement effects will be realized during the redemption or repayment period. In addition, the it was confirmed that the look-back period and the reason for the look-back period, if necessary, should be explained at an appropriate timing (e.g., in legal documents or reports before the bond issuance).
○  (△)	4-k)	While there are differences in business practices, such as the fact that loans are traditionally made based on the bilateral relationship between a borrower and a lender, it is recommended that disclosure on the above be made to the extent	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01/  Interviews with stakeholders	When Osaka Gas executes a transition financing using a loan, it will explain that the loan is based on the Framework and the results of this external evaluation, and will disclose the requirements set out in the green loan related standards to the extent practicable.

Ref.	No.	Disclosure elements	Requirement check	Work Undertaken	DNV Findings
		possible in order to ensure transparency and credibility of transition finance. However, if it is difficult to disclose such information to the public from the standpoint of confidentiality and competition, it is possible to report such information only to lenders or external evaluation organizations without disclosing it to the public.		*This report	
△	4-l)	Similarly, in cases where the fundraiser is a small-to-medium-sized enterprise and it is difficult to disclose to the public the same content as that reported to the financier or an external evaluation institution, it is possible for the fundraiser to simplify the content of disclosure, for example, by limiting disclosure to a summary of h) to j) of this section.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable	Interviews with stakeholders	Osaka Gas is not a small business.

24 The Ministry of the Environment, in its "Concept Paper on Impact Finance", refers to impact as "a positive or negative change to the environment, society or economy caused by an organization and is not a direct deliverable or output but an outcome as a change brought about in terms of the environment, society or economy."

25 In disclosing impacts, outlining the amount of contribution to reducing CO<sub>2</sub> emissions in the global value chain on the whole and the entire lifecycle, including the consumption phase, can be considered. For the amount of contribution to the reduction, it is possible to reference the "Guideline for Quantifying GHG Emission Reduction Contribution" (METI, 2018). Furthermore, as for outcomes on research and development, it is possible to reference the IEA Measuring Innovation by Technology Readiness Level (TRL) or Importance for Net-Zero Emission, among others, and outline the progress in the R&D phase or the potential of reducing CO<sub>2</sub> emissions with the relevant technology by highlighting the importance of net-zero emissions.



26 A just transition is an attempt to ensure the wide sharing of virtual profits created through a transition to a green economy, as well as to support any party who will experience an adverse economic impact (be it a country, a region, an industry, a community, a worker, or a consumer). The concept of a just transition corresponds to several SDGs.

27 In particular, disclosure of investment plans is expected to be required for projects applicable to Use of Proceeds.

## Schedule-5 Green Bond Guidelines (Transition Finance with specific use of proceeds) Eligibility

### Assessment

Following check list (GBGLs-1 ~ GBGLs-4) is prepared based on the Green Bond Guidelines (GBGLs, MOE, 2020).

According to the GBGLs, Requirements/Work Undertaken are divided into following two terms, Should:◎ Recommend:○

The numbers /01/, /02/ ~ /21/ listed in the Work Undertaken column are the confirmed documents, and the details (document name) are shown in Appendix.

In addition to the confirmed documents, the Work Undertaken includes the case where the information obtained through discussions and interviews with the publishers is used as evidence.

**This assessment applies as a requirement for Use of Proceeds based on CTFH and CTFBG, so any term "green" and "bond" in Schedule-5 should be read as "transition" or "finance (bond and loan)".**

### GBGLs-1 Use of proceeds

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
◎	1-①	Green Bond proceeds should be allocated to Green Projects that state the clear environmental benefits, which should be assessed by the issuer	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//11//16//17//18//19//20/  Interviews with stakeholders	The proceeds from green/transition finance will be allocated to Osaka Gas's projects that contribute to low and decarbonization through the business related to climate change, which is a materiality issue for Osaka Gas. Specific environmental benefits have been evaluated by the issuer as leading to CO <sub>2</sub> emission reduction.
○	1-①	Environmental benefit of Green Bond proceeds, where feasible, quantification is recommended.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//11//16//17//18//19//20/  Interviews with stakeholders	Osaka Gas has quantified the environmental improvement effects of the Green/Transition Project. Specifically, Osaka Gas has established a calculation formula in advance for the CO <sub>2</sub> reduction effect, and quantified the effects. (Some projects involve research and development or installation of equipment for future environmental improvements, which may make it difficult to disclose or quantify results.)

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings																						
©	1-④	In advance, issuers should provide investors with information regarding the use of Green Bond proceeds through legal documentation (such as a prospectus) or other documents.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//11//16//17//18//19//20//21/</p> <p>Interviews with stakeholders</p>	Osaka Gas plans to explain the use of proceeds to investors in advance through the Framework and the Amended Shelf Registration Statement, etc.																						
©	1-⑤	The provision of the information regarding the use of proceeds should specify the Green Project categories.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//11//16//17//18//19//20//21/</p> <p>*This report</p> <p>Interviews with stakeholders</p>	<p>The proceeds will be allocated to fund one or more of the projects listed in the table below and will be explained to investors through the Framework, the Amended Shelf Registration Statement and other documents and the results of external reviews.</p> <p>Table Daigas Group Key initiatives to achieve carbon neutrality (Green/transition finance candidate projects)</p> <table border="1"> <thead> <tr> <th colspan="2">Eligible Criteria</th> <th colspan="2">Eligible Criteria &amp; Project Overview</th> </tr> </thead> <tbody> <tr> <td rowspan="2">1)</td> <td rowspan="2">Decarbonization of gas energy</td> <td>Hydrogen utilization</td> <td>Methanation, direct use (chemical looping combustion technology), etc.</td> </tr> <tr> <td>Biogas</td> <td>On-site utilization in domestic/global scale</td> </tr> <tr> <td rowspan="2">2)</td> <td rowspan="2">Decarbonization of power generation</td> <td>Renewable power generation</td> <td>Solar power plants, onshore wind farm, offshore wind farm, biomass power plants, etc.</td> </tr> <tr> <td>Thermal power generation</td> <td>Use of carbon neutral fuels such as synthetic methane, hydrogen and ammonia, CCUS (Carbon Capture, Utilization and Storage), etc.</td> </tr> <tr> <td rowspan="2">3)</td> <td rowspan="2">Low-carbonization</td> <td>Fuel Cells</td> <td>Enhancing efficiency and downsizing, etc.</td> </tr> <tr> <td>Advanced utilization of natural</td> <td>Support for converting fuel from oil and coal to natural gas Demonstration of building micro grid</td> </tr> </tbody> </table>	Eligible Criteria		Eligible Criteria & Project Overview		1)	Decarbonization of gas energy	Hydrogen utilization	Methanation, direct use (chemical looping combustion technology), etc.	Biogas	On-site utilization in domestic/global scale	2)	Decarbonization of power generation	Renewable power generation	Solar power plants, onshore wind farm, offshore wind farm, biomass power plants, etc.	Thermal power generation	Use of carbon neutral fuels such as synthetic methane, hydrogen and ammonia, CCUS (Carbon Capture, Utilization and Storage), etc.	3)	Low-carbonization	Fuel Cells	Enhancing efficiency and downsizing, etc.	Advanced utilization of natural	Support for converting fuel from oil and coal to natural gas Demonstration of building micro grid
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	Other (Reduction of CO2 emission associated with own activities)	Cryogenic power generation in the city gas production process, Cryogenic power generation facilities, energy efficiency renovation work of buildings, etc.												
○	1-⑤	In the cases where individual Green Projects have been specified, it is recommended that issuers clearly present the projects to investors.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//11//16//17//18//19//20//21/ *This report</p> <p>Interviews with stakeholders</p>	<p>The explanations given to investors, taking into account confidentiality and other considerations, clearly outline the green/transition projects through the disclosure of the framework and the results of the external review. Details of the specific eligible project candidates and projects to be funded are provided to the external review body to confirm eligibility.</p> <p>Where the actual project to be allocated is fixed in advance, this will be disclosed in the amended Shelf Registration Statement and elsewhere, and if it is undecided, it will be disclosed in the annual report for each appropriate category.</p>									
◎	1-⑥	In cases where Green Projects have incidental negative environmental impacts along with the alleged environmental benefits, the issuers should include information regarding these negative impacts (e.g., how they are assessed, what the issuers	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//11//16//17//18//19//20//21/</p> <p>Interviews with stakeholders</p>	<p>The following are some of the negative effects of project implementation that were identified during the preliminary project evaluation and selection process. Projects with significant negative effects are limited to those for which the necessary action has been taken or will be taken in advance. In addition to the following, if additional explanations to investors are deemed</p>									

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
		do to curb them) to investors so that the investors and market participants can appropriately evaluate these impacts.			necessary, they will be provided in the amended Shelf Registration Statement or other documents.  "In assessing the eligibility of each project, it is confirmed that the project takes into account the potential negative environmental and social impacts and that the facility certification, licensing, and environmental assessment procedures required by the country, region, or municipality where the facility or project is to be installed are appropriate."
○	1-⑦	(In case of where a part of Green Bond proceeds is used to refinance existing Green Projects,) it is recommended that the issuers provide information to the investors regarding (1) the amount (or the share) of the bond proceeds being allocated for refinancing, and (2) which Green Projects (or Green Project categories) may be refinanced.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//11//16//17//18//19//20//21/  Interviews with stakeholders	DNV confirmed that Osaka Gas plans to disclose the estimated amount (or ratio) of the portion of the proceeds allocated to refinancing in the integrated report published on an annual basis or website. If the inclusion of refinancing and the nature of the refinancing is determined prior to the issue of the bond, Osaka Gas plans to disclose the necessary information in legal documents in accordance with CTF 4-g).
◎	1-⑦	When Green Bonds are issued multiple times to refinance an asset that requires long-term maintenance, the issuer should clearly disclose the asset's age and remaining useful life and the amount to be refinanced as at the time of the bond issuance, evaluate the long-term sustainability of environmental benefits and obtain an assessment	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable	Confirmed documents: /01//11//16//17//18//19//20/ Interviews with stakeholders	At present, there are no plans to allocate refinancing to projects that are long overdue. If the refinancing is targeted, DNV confirmed that a reasonable look-back period (e.g., the green/transitional nature of the target asset must be maintained at the time of refinancing and the environmental benefits must be realized during the redemption or repayment period) should be set.

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
		from an external reviewers for verification.			

### GBGLs-2 Process for Project Evaluation and Selection

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings		
◎	2-①	In advance, issuers should provide investors with information regarding the following: The environmental sustainability objectives that the issuers intend to achieve through Green Bonds.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03/</p> <p>Interviews with stakeholders</p>	<p>The financing that Osaka Gas implements by utilizing green/transition finance is aimed at achieving its transition strategy in line with the low-carbon decarbonization strategy set by the Gas and Electricity Technology Roadmap of the Japan Gas Association and the Ministry of Economy, Trade and Industry (METI), which aims to align with the goals of the Paris Agreement.</p> <p>Osaka Gas has formulated a roadmap for its Transition Strategy in the Daigas Group Carbon Neutral Vision, which incorporates medium-term targets and a strategic plan for decarbonization (a plan to introduce technologies that contribute to the Transition). Each target based on Osaka Gas's Transition Strategy is disclosed below.</p> <p>These are planned to be explained to investors in advance through the Framework, the results of the external review and the amended Shelf Registration Statement.</p> <p>Table-3 Osaka Gas Transition Targets</p> <table border="1"> <tr> <td><b>Medium-term targets</b></td> <td><b>FY2030</b> - Renewable development contribution on a global basis : <b>5GW</b></td> </tr> </table>	<b>Medium-term targets</b>	<b>FY2030</b> - Renewable development contribution on a global basis : <b>5GW</b>
<b>Medium-term targets</b>	<b>FY2030</b> - Renewable development contribution on a global basis : <b>5GW</b>						

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
					<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <ul style="list-style-type: none"> <li>- Power portfolio in Japan consisting of renewable<sup>1</sup> : <b>Nearly 50%</b></li> <li>- CO<sub>2</sub> emission reduction contribution : <b>10 million tons/year</b><sup>*2*3</sup> (compared to 2016)</li> </ul> </div> <p><b>Long-term targets</b>      <b>2050</b> Carbon-neutral</p> <p>1: Including solar, wind, biomass power sources which are eligible for the feed-in tariff (FIT) scheme            2: Equivalent to one third of the CO<sub>2</sub> emission currently produced in our business and by our customers (33 million ton/year)            3: Includes 700,000 tonnes of a partial reduction of Scope 3 emissions equivalent through introduction of high-efficiency gas appliances, etc.</p>
©	2-①	<p>In advance, issuers should provide investors with information regarding the following:            The criteria for determining the appropriateness of Green Projects based on the environmental sustainability objectives described above</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03//14//20/</p> <p>Interviews with stakeholders</p>	<p>It was confirmed through the framework and assessment that the eligibility of Osaka Gas's green/transition project is described based on which evaluation criteria (standards). Specifically, the criteria are as follows</p> <ul style="list-style-type: none"> <li>- The Climate Transition Finance Handbook International Capital Markets Association (ICMA), 2020</li> <li>- Basic Guidelines on Climate Transition Finance Financial Services Agency, the Ministry of Economy, Trade and Industry, the Ministry of the Environment, the 2021</li> <li>- Green Bond Principles International Capital Markets Association (ICMA), 2021</li> <li>- Green Bond Guidelines Ministry of the Environment 2020</li> </ul>

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
					<ul style="list-style-type: none"> <li>- Green loan principles Loan Market Association and others (LMA and others), 2021</li> <li>- Green Loan Guidelines Ministry of the Environment, 2020</li> </ul> <p>These will be specified in the Framework or in the External Review, and will be explained in advance to investors through the Amended Shelf Registration Statement.</p> <p>DNV conducted the eligibility assessment for the green projects using the technical criteria available for reference in the Climate Bond Initiative's Climate Bond Standard.</p>
©	2-①	In advance, issuers should provide investors with information regarding the following: The process for determining how Green Projects fit the criteria for the achievement of the environmental sustainability objectives (The process for the determination refers to the reason why issuers determine that Green Projects can provide environmental benefits appropriately in light of the objectives and criteria for the use of Green Bond proceeds, how and by whom are the criteria applied and used to determine whether Green Projects are appropriate in light of the objectives, and the like)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03//14//21 /</p> <p>Interviews with stakeholders</p>	<p>DNV confirmed that there is a description of the process by which decisions on the selection of green/transition projects were made in the framework.</p> <p>Specifically, the Finance Department selects candidates based on the Eligibility Criteria, and the Director in charge of Finance makes the final decision after consultation with the Business Units, etc. and the Planning Department. These processes have been established as internal documents of Osaka Gas, and DNV has confirmed that the plan is to be implemented in accordance with the appropriate processes.</p>

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
○	2-⑥	It is recommended that the issuers explain to investors in advance any environmental standards or certifications that the issuers will refer to in evaluating and selecting a Green Project to be financed.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//14//21 /  Interviews with stakeholders	The transition strategy, which forms the basis for the evaluation and selection of transition finance, is Osaka Gas' roadmap based on the technology roadmaps for the gas and electricity sectors of the Japan Gas Association and the Ministry of Economy, Trade and Industry, with specific targets (medium and long term) and plans. These will be explained to investors through the framework and second party opinions. There are no project-specific environmental standards or certifications. Some projects may be funded through subsidies (e.g. FIT).
◎	2-⑦	If an issuer intends to establish an exclusion standard to identify and control such potentially material environmental and social risks of Green Projects, the issuer should explain it to investors in advance as one of the criteria it applies.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//11//14 //16//17//18//19//20//21/  Interviews with stakeholders	Osaka Gas has established the following as common checks for green/transition finance (a concept equivalent to exclusion criteria). "In assessing the eligibility of each project, it is confirmed that the project takes into account the potential negative environmental and social impacts and that the facility certification, licensing, and environmental assessment procedures required by the country, region, or municipality where the facility or project is to be installed are appropriate."
○	2-⑨	It is recommended that internal groups who have expertise, such as the environment related group, or external institutions check whether the determination process is suitable from an environmental point of view.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//14/  Interviews with stakeholders	DNV confirmed that there is a description of the process by which decisions on the selection of green/transition projects were made in the framework. Specifically, the Finance Department selects candidates based on the Eligibility Criteria, and the Director in charge of Finance makes the final decision after consultation with the Business Units, etc. and the Planning Department. These processes have been established as internal documents of Osaka Gas, and DNV has confirmed that the plan is to be implemented in accordance with the appropriate processes.
○	2-⑪	It is recommended that issuers position their environmental objectives, criteria and information	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents:	The transition strategy, which forms the basis for the evaluation and selection of transition finance, is Osaka Gas' roadmap based on the technology roadmaps for the gas and



Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
		on their processes in the context of their comprehensive environmental sustainability objectives, strategy, policies and so on (e.g., medium-term management plan, sustainability strategy, CSR strategy) when explaining them to investors.		/01//02//03//08//09 //10//14/  Interviews with stakeholders	electricity sectors of the Japan Gas Association and the Ministry of Economy, Trade and Industry, with specific targets (medium and long term) and plans. These will be explained to investors through the framework and second party opinions. Osaka Gas' transition strategy, the "Daigas Group Carbon Neutral Vision" and roadmap, is closely linked to the medium-term management plan and the work with TCFD.

### GBGLs-3 Management of proceeds

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
◎	3-①	Issuers should track and manage the net Green Bond proceeds in an appropriate manner. These tracking and managing activities should be controlled by the issuer's internal process.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//12//15/</p> <p>Interviews with stakeholders</p>	<p>DNV confirmed that Osaka Gas plans to manage the proceeds through its accounting system and individual internal documents (dedicated ledgers) to ensure that the total green/transition-eligible project amount (or individual project amount) is not less than the amount of green/transition finance issued (or allocated). Based on the interviews with stakeholders and the results, DNV confirmed that there is an operational procedure (system) that can track in the above cash management.</p>
◎	3-②	As long as the Green Bonds are outstanding, issuers manage the amount of the allocation to the Green project is equal to or more than proceed, or issuers should periodically adjust to match the amount of the total Green Bond proceeds to the sum of the amount of the proceeds allocated to Green Projects and the amount of the unallocated proceeds.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//12//13//15/</p> <p>Interviews with stakeholders</p>	<p>DNV has confirmed that Osaka Gas plans to manage the allocated and unallocated amounts on a regular basis (at least once a year) using a special ledger, based on data extracted from its accounting system on the allocation status.</p>
◎	3-②	If any of the proceeds remains temporarily unallocated, the issuer should explain to investors how it intends to manage the balance of such unallocated funds and endeavour to promptly allocate such funds to Green Projects.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//12//15/</p> <p>Interviews with stakeholders</p>	<p>DNV confirmed that Osaka Gas keeps track of the balance of unallocated proceeds through the Green/Transition Finance Funding Control Sheet and other means, and explains to investors through the framework how the proceeds are managed (in cash and cash equivalents). In addition, DNV confirmed that the Osaka Gas plans to allocate (including refinance) the proceeds to the projects in a timely manner. The</p>



Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
					unallocated proceeds are expected to be used within two years. However, if the project execution (planning, construction, etc.) is long term, the period of appropriation and refinancing may be flexibly adjusted in consideration of the green/transition characteristics of the project. It was also confirmed that any significant overruns to the original plan would be reported in the reporting, along with the reasons for such overruns.
◎	3-⑤	In advance, issuers should provide investors with information on how Green Bond proceeds will be tracked and managed.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//12//15//21/  Interviews with stakeholders	DNV confirmed that Osaka Gas has internal processes in place to enable it to track and control the proceeds. It confirmed that Osaka Gas planned to explain to investors in the framework and other documents.
○	3-⑥	It is recommended that issuers keep evidenced documents appropriately that demonstrate how they tracked and managed Green Bond proceeds.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//12//13//15/  Interviews with stakeholders	DNV confirmed that Osaka gas has internal processes in place to ensure that documents relating to the management of proceeds are properly retained throughout the reimbursement period in accordance with Osaka Gas's accounting and document management rules.
◎	3-⑧	In advance, issuers should provide investors with information on how unallocated Green Bond proceeds will be managed when the Green Projects that will receive the Green Bond proceeds have not been determined, or when such Green Projects have been determined but the proceeds have not been allocated	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//12//15//21/  Interviews with stakeholders	DNV confirmed that the framework describes how the pre-allocation equivalent of funds is to be managed (in cash or cash equivalents).

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
		because the allocation timing has not yet arrived.			
○	3-⑨	It is recommended that issuers manage unallocated Green Bond proceeds as an asset with high liquidity and safety such as cash, cash equivalents, or short-term financial assets	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//12//15/  Interviews with stakeholders	Cash or cash equivalents as specified in the framework are highly secure assets and comply with the requirements.

## GBGLs-4 Reporting

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
◎	4-①	Issuers should publicly disclose the latest information on the use of Green Bond proceeds after issuance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01/  Interviews with stakeholders	DNV confirmed that Osaka Gas plans to report on the use of proceeds from the Green/Transition Finance issue and the environmental benefits from the year following the Green/Transition Finance issue until at least the completion of the use of proceeds and, if necessary, the environmental benefits will be reported until the redemption or completion of repayment of the green/transition financing. The annual report will also be disclosed on the Osaka Gas website.
◎	4-②	Issuers should disclose the latest information at least once a year until full allocation of the proceeds and as necessary thereafter in the event of new developments.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01/  Interviews with stakeholders	Same as 4-①. DNV confirmed that Osaka Gas would report in a timely manner or in its reporting on any changes in the transition strategy or pathway, or any major changes in the allocation plan or in the status of project implementation (e.g. interruption of a project for which an allocation has been initiated, significant postponement on an annual basis, sale or disposal, etc.), even after the completion of the allocation.
◎	4-③	Disclosed information should include the following contents: <Contents> <ul style="list-style-type: none"> <li>• A list of the Green Projects to which Green Bond proceeds have been allocated</li> <li>• A brief description of each Green Project (including up-to-date progress)</li> <li>• The amount allocated to each Green Project</li> <li>• The expected environmental benefits of each Green Project</li> </ul>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//11//16//17//18//19//20/  Interviews with stakeholders	The information to be disclosed will include, for reasons of confidentiality, the following information The report will be disclosed on the website. <ul style="list-style-type: none"> <li>&lt;Allocation Status&gt;               <ul style="list-style-type: none"> <li>◆ Allocated Amount to be allocated per eligible criteria</li> <li>◆ Balance of unallocated amount</li> <li>◆ Estimated amount of the portion of the proceeds allocated to refinancing</li> </ul> </li> <li>&lt;Environmental benefits&gt;               <ul style="list-style-type: none"> <li>◆ Environmental impacts are disclosed within the scope of confidentiality, to the extent practicable, and in</li> </ul> </li> </ul>

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
		<ul style="list-style-type: none"> <li>Information regarding unallocated Green Bond proceeds (the amount of the unallocated proceeds or the share of the unallocated proceeds to the total amount of the proceeds, when the unallocated proceeds are expected to be allocated to Green Projects, and how the unallocated proceeds are managed until allocation)</li> </ul>			<p>consideration of the characteristics of the project, including an overview of the project (including progress, completion, operation, etc.) and the expected environmental benefits (e.g., t-CO<sub>2</sub>/year).</p> <p>&lt;Others&gt;</p> <ul style="list-style-type: none"> <li>Efforts to achieve carbon neutrality in 2050 will be reviewed as necessary in light of policy and technological trends, and will be disclosed where necessary.</li> </ul>
○	4-④	If Green Bond proceeds have been allocated to the refinancing of existing projects, it is recommended that disclosed information include: 1) the approximate amount (or the share) of the allocated proceeds used for refinancing, and 2) a list of the Green Projects (or the project categories) refinanced.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//11//16//17//18//19//20/</p> <p>Interviews with stakeholders</p>	DNV confirmed that Osaka Gas plans to disclose on its website an annual report on the approximate amount (or percentage) of proceeds that are used for refinancing, if the proceeds are used for refinancing.
○	4-⑤	While it is recommended to disclose 4-③ and 4-④ on a project-by-project basis, if there are confidentiality agreements, competitive considerations, or a large number of underlying projects that limit the disclosure of details, it is considered that information is presented in generic terms or in an aggregated portfolio.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//11//16//17//18//19//20/</p> <p>Interviews with stakeholders</p>	It was confirmed that the disclosure of information is based on the disclosure of information for each transition project, but may take place in an aggregated format depending on the circumstances, taking into account confidentiality agreements.
◎	4-⑦	When disclosing information regarding the expected environmental benefits of projects, issuers should use appropriate indicators while ensuring consistency with the	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//11//16//17//18//19//20/</p>	The environmental benefits will be based on the CO <sub>2</sub> emission reduction effect, but will use appropriate indicators according to the nature of the project for which the transition finance is to be allocated, and the progress of the project.

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
		"environmental sustainability objectives," the "criteria" for Green Projects specified in Section 2, "Process for Project Evaluation and Selection," and the characteristics of Green Projects.		Interviews with stakeholders	
○	4-⑧	When disclosing the expected environmental benefits of projects, it is recommended that issuers, where feasible, use quantitative indicators and disclose information on methodologies and/or assumptions as well as these indicators.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//11//16//17//18//19//20/  Interviews with stakeholders	Environmental benefits will be disclosed using quantitative indicators, but will be carried out on a transition project basis or by transition project category, taking into account confidentiality and the rationality of the evaluation process. The calculation method will be disclosed to the extent necessary.

## Schedule-6 Green Loan Guidelines (Transition Finance Loan with specific use of proceeds)

### Eligibility Assessment

The following check list (GLGLs-1 to GLGLs-6) is prepared based on the Green Loan Guidelines (GLGLs, MOE, 2020).

According to the GLGLs, Requirements/Evaluation aspects are divided into following two terms, **Should:◎ Recommend:○**

The numbers /01/, /02/ ~ /21/ listed in the Work Undertaken column are the confirmed documents, and the details (document name) are shown in Reference document-1 (See the Attachment).

In addition to the confirmed documents, the Work Undertaken includes the case where the information obtained through discussions and interviews with the publishers is used as evidence.

**This assessment applies as a requirement for Use of Proceeds based on CTFH and CTFBG, so any term "green" and "bond" in Schedule-6 should be read as "transition" or "finance (bond)".**

### GLGLs-1 Use of proceeds

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
◎	1-①	Proceeds of Green Loans should be used for Green Projects that have clear environmental benefits. The borrowers should assess such environmental benefits.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents:  /01//02//03//11//16/ /17//18//19//20/  Interviews with stakeholders	The proceeds from green/transition finance will be allocated to Osaka Gas's projects that contribute to low and decarbonization through the business related to climate change, which is a materiality issue for Osaka Gas. Specific environmental benefits have been evaluated by the issuer as leading to a CO <sub>2</sub> emission reduction.
○	1-①	The borrowers is recommended to quantify them where possible.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents:	Osaka Gas has quantified the environmental improvement effects of the Green/Transition Project. Specifically, Osaka Gas has established a calculation formula in advance for

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings															
				/01//11//16//17//18/ /19//20/  Interviews with stakeholders	the CO <sub>2</sub> reduction effect, and quantified the effects. (Some projects involve research and development or installation of equipment for future environmental improvements, which may make it difficult to disclose or quantify results.)															
◎	1-④	Borrowers should explain in advance the use of proceeds in documents including contracts exchanged between parties involved.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//11//16//17//18/ /19//20//21/ Interviews with stakeholders	Osaka Gas plans to explain the use of proceeds to investors in advance through the Framework and the Amended Shelf Registration Statement, etc.															
◎	1-⑤	The provision of the information regarding the use of proceeds should specify the Green Project categories.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//11//16//17//18/ /19//20//21/  Interviews with stakeholders	<p>The proceeds will be allocated to fund one or more of the projects listed in the table below and will be explained to investors through the Framework, the Amended Shelf Registration Statement and other documents and the results of external reviews.</p> <p>Table Daigas Group Key initiatives to achieve carbon neutrality (Green/transition finance candidate projects)</p> <table border="1"> <thead> <tr> <th colspan="2">Eligible Criteria</th> <th colspan="2">Eligible Criteria &amp; Project Overview</th> </tr> </thead> <tbody> <tr> <td rowspan="2">1)</td> <td>Decarbonization of gas energy</td> <td>Hydrogen utilization</td> <td>Methanation, direct use (chemical looping combustion technology), etc.</td> </tr> <tr> <td></td> <td>Biogas</td> <td>On-site utilization in domestic/global scale</td> </tr> <tr> <td>2)</td> <td>Decarbonization of power</td> <td>Renewable power generation</td> <td>Solar power plants, onshore wind farm, offshore wind farm, biomass power plants, etc.</td> </tr> </tbody> </table>	Eligible Criteria		Eligible Criteria & Project Overview		1)	Decarbonization of gas energy	Hydrogen utilization	Methanation, direct use (chemical looping combustion technology), etc.		Biogas	On-site utilization in domestic/global scale	2)	Decarbonization of power	Renewable power generation	Solar power plants, onshore wind farm, offshore wind farm, biomass power plants, etc.
Eligible Criteria		Eligible Criteria & Project Overview																		
1)	Decarbonization of gas energy	Hydrogen utilization	Methanation, direct use (chemical looping combustion technology), etc.																	
		Biogas	On-site utilization in domestic/global scale																	
2)	Decarbonization of power	Renewable power generation	Solar power plants, onshore wind farm, offshore wind farm, biomass power plants, etc.																	

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings												
					<table border="1"> <tr> <td>generation</td> <td>Thermal power generation</td> <td>Use of carbon neutral fuels such as synthetic methane, hydrogen and ammonia, CCUS (Carbon Capture, Utilization and Storage), etc.</td> </tr> <tr> <td rowspan="4">3)</td> <td>Fuel Cells</td> <td>Enhancing efficiency and downsizing, etc.</td> </tr> <tr> <td>Advanced utilization of natural gas and CHP</td> <td>Support for converting fuel from oil and coal to natural gas Demonstration of building micro grid Use of carbon neutral LNG</td> </tr> <tr> <td>Advanced energy utilization</td> <td>VPP, smart energy systems, etc.</td> </tr> <tr> <td>Other (Reduction of CO2 emission associated with own activities)</td> <td>Cryogenic power generation in the city gas production process, Cryogenic power generation facilities, energy efficiency renovation work of buildings, etc.</td> </tr> </table>	generation	Thermal power generation	Use of carbon neutral fuels such as synthetic methane, hydrogen and ammonia, CCUS (Carbon Capture, Utilization and Storage), etc.	3)	Fuel Cells	Enhancing efficiency and downsizing, etc.	Advanced utilization of natural gas and CHP	Support for converting fuel from oil and coal to natural gas Demonstration of building micro grid Use of carbon neutral LNG	Advanced energy utilization	VPP, smart energy systems, etc.	Other (Reduction of CO2 emission associated with own activities)	Cryogenic power generation in the city gas production process, Cryogenic power generation facilities, energy efficiency renovation work of buildings, etc.
generation	Thermal power generation	Use of carbon neutral fuels such as synthetic methane, hydrogen and ammonia, CCUS (Carbon Capture, Utilization and Storage), etc.															
3)	Fuel Cells	Enhancing efficiency and downsizing, etc.															
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	Advanced energy utilization	VPP, smart energy systems, etc.															
	Other (Reduction of CO2 emission associated with own activities)	Cryogenic power generation in the city gas production process, Cryogenic power generation facilities, energy efficiency renovation work of buildings, etc.															
○	1-⑤	In cases where individual Green Projects have been specified, it is recommended that issuers clearly present the projects to lenders.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//11//16//17//18//19//20//21/</p> <p>Interviews with stakeholders</p>	<p>The explanations given to lenders, taking into account confidentiality and other considerations, clearly outline the green/transition projects through the disclosure of the framework and the results of the external review. Details of the specific eligible project candidates and projects to be funded are provided to the external review body to confirm eligibility.</p> <p>Where the actual project to be allocated is fixed in advance, this will be disclosed in the amended Shelf Registration Statement and elsewhere, and if it is undecided, it will be disclosed in the annual report for each appropriate category.</p>												



Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
◎	1-⑥	In cases where Green Projects have incidental negative environmental impacts along with the alleged environmental benefits, borrowers should include information regarding these negative impacts (e.g., how they are assessed, how borrowers intend to address them) so that lenders and market participants can appropriately evaluate these impacts.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//11//16//17//18/ /19//20//21/  Interviews with stakeholders	<p>The following are some of the negative effects of project implementation that were identified during the preliminary project evaluation and selection process. Projects with significant negative effects are limited to those for which the necessary action has been taken or will be taken in advance. In addition to the following, if additional explanations to investors are deemed necessary, they will be provided in the amended Shelf Registration Statement or other documents.</p> <p>“In assessing the eligibility of each project, it is confirmed that the project takes into account the potential negative environmental and social impacts and that the facility certification, licensing, and environmental assessment procedures required by the country, region, or municipality where the facility or project is to be installed are appropriate.”</p>
○	1-⑦	In cases where Green Loan proceeds are used to refinance existing Green Projects, it is recommended that borrowers provide information to the lenders regarding (1) the amount (or the share) of the loan proceeds being allocated for refinancing, and (2) which Green Projects (or Green Project categories) may be refinanced. Furthermore, when using proceeds for refinancing Green Projects, the borrower is recommended to indicate the	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//11//16//17//18/ /19//20//21/  Interviews with stakeholders	<p>DNV confirmed that Osaka Gas plans to disclose the estimated amount (or ratio) of the portion of the proceeds allocated to refinancing in the integrated report published on an annual basis or website. If the inclusion of refinancing and the nature of the refinancing is determined prior to the issue of the bond, Osaka Gas plans to explain the necessary information to lenders in documents related to loan contracts in accordance with CTF 4-g).</p>

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
		applicable period of the Green Project refinanced (Lookback Period).			
©	1-⑦	When Green Loans are used multiple times to refinance an asset that requires long-term maintenance, the borrower should clearly disclose the asset's age, remaining life and the amount to be refinanced as of the time of procurement, evaluate the long-term sustainability of environmental benefits and receive an assessment from an outside agency for verification as necessary.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//11//16//17//18//19//20/</p> <p>Interviews with stakeholders</p>	<p>At present, there are no plans to allocate refinancing to projects that are long overdue.</p> <p>If the refinancing is targeted, DNV confirmed that a reasonable look-back period (e.g., the green/transitional nature of the target asset must be maintained at the time of refinancing and the environmental benefits must be realized during the redemption or repayment period) should be set.</p>

## GLGLs-2 Process for Project Evaluation and Selection

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings												
©	2-①	Borrowers should provide lenders with information in advance regarding the following: the environmental sustainability objectives that the borrowers intend to achieve through the Green Loans;	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03/</p> <p>Interviews with stakeholders</p>	<p>The financing that Osaka Gas implements by utilizing green/transition finance is aimed at achieving its transition strategy in line with the low-carbon decarbonization strategy set by the Gas and Electricity Technology Roadmap of the Japan Gas Association and the Ministry of Economy, Trade and Industry (METI), which aims to align with the goals of the Paris Agreement.</p> <p>Osaka Gas has formulated a roadmap for its Transition Strategy in the Daigas Group Carbon Neutral Vision, which incorporates medium-term targets and a strategic plan for decarbonization (a plan to introduce technologies that contribute to the Transition). Each target based on Osaka Gas's Transition Strategy is disclosed below.</p> <p>These are planned to be explained to investors in advance through the Framework, the results of the external review and the amended Shelf Registration Statement.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <caption>Table-3 Osaka Gas Transition Targets</caption> <thead> <tr> <th>Medium-term targets</th> <th>FY2030</th> </tr> </thead> <tbody> <tr> <td></td> <td>- Renewable development contribution on a global basis : <b>5GW</b></td> </tr> <tr> <td></td> <td>- Power portfolio in Japan consisting of renewable<sup>*1</sup> : <b>Nearly 50%</b></td> </tr> <tr> <td></td> <td>- CO<sub>2</sub> emission reduction contribution : <b>10 million tons/year<sup>*2*3</sup></b> (compared to 2016)</td> </tr> <tr> <th>Long-term targets</th> <th>2050</th> </tr> <tr> <td></td> <td>Carbon-neutral</td> </tr> </tbody> </table> <p>1: Including solar, wind, biomass power sources which are eligible for the feed-in tariff (FIT) scheme</p>	Medium-term targets	FY2030		- Renewable development contribution on a global basis : <b>5GW</b>		- Power portfolio in Japan consisting of renewable <sup>*1</sup> : <b>Nearly 50%</b>		- CO <sub>2</sub> emission reduction contribution : <b>10 million tons/year<sup>*2*3</sup></b> (compared to 2016)	Long-term targets	2050		Carbon-neutral
Medium-term targets	FY2030																
	- Renewable development contribution on a global basis : <b>5GW</b>																
	- Power portfolio in Japan consisting of renewable <sup>*1</sup> : <b>Nearly 50%</b>																
	- CO <sub>2</sub> emission reduction contribution : <b>10 million tons/year<sup>*2*3</sup></b> (compared to 2016)																
Long-term targets	2050																
	Carbon-neutral																

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
					<p>2: Equivalent to one third of the CO<sub>2</sub> emission currently produced in our business and by our customers (33 million ton/year)</p> <p>3: Includes 700,000 tonnes of a partial reduction of Scope 3 emissions equivalent through introduction of high-efficiency gas appliances, etc.</p>
©	2-①	Borrowers should provide lenders with information in advance regarding the following: the criteria for determining the appropriateness of Green Projects based on the environmental sustainability objectives described above;	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//02//03//14//21/</p> <p>Interviews with stakeholders</p>	<p>It was confirmed through the framework and assessment that the eligibility of Osaka Gas's green/transition project is described based on which evaluation criteria (standards). Specifically, the criteria are as follows</p> <ul style="list-style-type: none"> <li>- The Climate Transition Finance Handbook International Capital Markets Association (ICMA), 2020</li> <li>- Basic Guidelines on Climate Transition Finance Financial Services Agency, the Ministry of Economy, Trade and Industry, the Ministry of the Environment, the2021</li> <li>- Green Bond Principles International Capital Markets Association (ICMA), 2021</li> <li>- Green Bond Guidelines Ministry of the Environment 2020</li> <li>- Green loan principles Loan Market Association and others (LMA and others), 2021</li> <li>- Green Loan Guidelines Ministry of the Environment, 2020</li> </ul> <p>These will be specified in the Framework or in the External Review, and will be explained in advance to investors through the Amended Shelf Registration Statement.</p>

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
					DNV conducted the eligibility assessment for the green projects using the technical criteria available for reference in the Climate Bond Initiative's Climate Bond Standard.
◎	2-①	Borrowers should provide lenders with information in advance regarding the following: the process for determining how Green Projects fit the criteria for the achievement of the environmental sustainability objectives.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//14//21/  Interviews with stakeholders	DNV confirmed that there is a description of the process by which decisions on the selection of green/transition projects were made in the framework. Specifically, the Finance Department selects candidates based on the Eligibility Criteria, and the Director in charge of Finance makes the final decision after consultation with the Business Units, etc. and the Planning Department. These processes have been established as internal documents of Osaka Gas, and DNV has confirmed that the plan is to be implemented in accordance with the appropriate processes.
○	2-⑥	It is recommended that the borrower explains to lenders in advance any environmental standards or certification that the borrower will refer to in evaluating and selecting a Green Project to be financed.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//14//21/  Interviews with stakeholders	The transition strategy, which forms the basis for the evaluation and selection of transition finance, is Osaka Gas' roadmap based on the technology roadmaps for the gas and electricity sectors of the Japan Gas Association and the Ministry of Economy, Trade and Industry, with specific targets (medium and long term) and plans. These will be explained to investors through the framework and second party opinions. There are no project-specific environmental standards or certifications. Some projects may be funded through subsidies (e.g. FIT).
◎	2-⑦	If the borrower intends to establish exclusion criteria to identify and control such potentially material environmental and social risks of Green Projects, the borrower should explain them to lenders in advance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//11//14//16//17//18//19//20//21/	Osaka Gas has established the following as common checks for green/transition finance (a concept equivalent to exclusion criteria). "In assessing the eligibility of each project, it is confirmed that the project takes into account the potential negative environmental and social impacts and that the facility

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
		as part of the criteria it applies.		Interviews with stakeholders	certification, licensing, and environmental assessment procedures required by the country, region, or municipality where the facility or project is to be installed are appropriate."
○	2-⑨	It is recommended that internal departments who have expertise, such as the environment related department, or external institutions are involved in the evaluation and selection process of Green Projects to ensure suitability from an environmental point of view.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//14/  Interviews with stakeholders	DNV confirmed that there is a description of the process by which decisions on the selection of green/transition projects were made in the framework. Specifically, the Finance Department selects candidates based on the Eligibility Criteria, and the Director in charge of Finance makes the final decision after consultation with the Business Units, etc. and the Planning Department. These processes have been established as internal documents of Osaka Gas, and DNV has confirmed that the plan is to be implemented in accordance with the appropriate processes.
○	2-⑩	It is recommended that borrowers position their environmental objectives and criteria and information on their processes in the context of their comprehensive objectives, strategy, policies concerning environmental sustainability (e.g. medium-term management plan, sustainability strategy, CSR strategy) and provide an explanation to lenders.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//02//03//08//09//10//14/  Interviews with stakeholders	The transition strategy, which forms the basis for the evaluation and selection of transition finance, is Osaka Gas's roadmap based on the technology roadmaps for the gas and electricity sectors of the Japan Gas Association and the Ministry of Economy, Trade and Industry, with specific targets (medium and long term) and plans. These will be explained to investors through the framework and second party opinions. Osaka Gas' transition strategy, the "Daigas Group Carbon Neutral Vision" and roadmap, is closely linked to the medium-term management plan and the work with TCFD.

### GLGLs-3 Management of proceeds

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
◎	3-①	Borrowers should track and manage the entire amount of Green Loan proceeds. These tracking and managing activities should be controlled by the borrower's internal processes.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//12//15/  Interviews with stakeholders	DNV confirmed that Osaka Gas plans to manage the proceeds through its accounting system and individual internal documents (dedicated ledgers) to ensure that the total green/transition-eligible project amount (or individual project amount) is not less than the amount of green/transition finance issued (or allocated). Based on the interviews with stakeholders and the results, DNV confirmed that there is an operational procedure (system) that can track in the above cash management.
◎	3-②	As long as the Green Loans are outstanding, borrowers should conduct periodic checks (at least yearly) to ensure that the amount used for Green Projects is equal to, or greater than, the amount raised by the procurement of Green Loans or the sum of the amount used for Green Projects and the amount of the unallocated proceeds match the total amount of Green Loan proceeds.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//12//13//15/  Interviews with stakeholders	DNV has confirmed that Osaka Gas plans to manage the allocated and unallocated amounts on a regular basis (at least once a year) using a special ledger, based on data extracted from its accounting system on the allocation status.
◎	3-②	If any of the proceeds remain temporarily unallocated, the borrower should explain to lenders how it intends to invest the balance of such unallocated funds and endeavor to promptly use such funds for Green Projects.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//12//15/  Interviews with stakeholders	DNV confirmed that Osaka Gas keeps track of the balance of unallocated proceeds through the Green/Transition Finance Funding Control Sheet and other means, and explains to investors through the framework how the proceeds are managed (in cash and cash equivalents). In addition, DNV confirmed that the Osaka Gas plans to allocate (including refinance) the proceeds to the projects in a timely manner. The unallocated proceeds are expected

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
					to be used within two years. However, if the project execution (planning, construction, etc.) is long term, the period of appropriation and refinancing may be flexibly adjusted in consideration of the green/transition characteristics of the project. It was also confirmed that any significant overruns to the original plan would be reported in the reporting, along with the reasons for such overruns.
◎	3-④	In advance, borrowers should provide lenders with information on how Green Loan proceeds will be tracked and managed.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//12//15//21/  Interviews with stakeholders	DNV confirmed that Osaka Gas has internal processes in place to enable it to track and control the funds raised. It confirmed that these are planned to be explained to lenders in the Framework and other documents.
○	3-⑤	It is recommended that borrowers keep evidenced documents appropriately that demonstrate how they tracked and managed Green Loans proceeds.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//12//13//15/  Interviews with stakeholders	DNV confirmed that it has internal processes in place to ensure that documents relating to the management of procured funds are properly stored for the duration of the repayment period in accordance with Osaka Gas' accounting and document management rules.



### GLGLs-4 Reporting

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
◎	4-①	Borrowers should report the latest information on the use of Green Loan proceeds to the financial institutions who are lenders and took part in the Green Loans after the procurement.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01/  Interviews with stakeholders	DNV has confirmed that Osaka Gas plans to report on the use of the proceeds from the transition finance issue and the environmental benefits from the issue from the year following the issue of the transition finance until at least the year following the completion of the use of the proceeds. The annual report will also be published on the Osaka Gas website.
◎	4-②	For a borrower to gain public acceptance by expressing that the procured loans are Green Loans, they need to ensure transparency. For this reason, if a borrower expresses that the procured loans are Green Loans, it should publicly disclose the latest information on the use of Green Loan proceeds after the procurement.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01/  Interviews with stakeholders	In the event that Osaka Gas finances the transition financing with a loan, it will state that it is a transition loan and will disclose to the public on its website updated information on the use of the funds raised.
◎	4-④	Borrowers should report or disclose the usage status of funds at least once a year until all the proceeds are used. Borrowers should report or disclose such information in a timely manner even after all the proceeds are allocated if there has been any major change in the situation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//11//16//17//18//19//20/  Interviews with stakeholders	Same as 4-①. DNV confirmed that Osaka Gas would report in a timely manner or in its reporting on any changes in the transition strategy or pathway, or any major changes in the allocation plan or in the status of project implementation (e.g. interruption of a project for which an allocation has been initiated, significant postponement on an annual basis, sale or disposal, etc.), even after the completion of the allocation.
◎	4-⑤	Reported or disclosed information should include the following contents: <Matters pertaining to reporting or	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Confirmed documents:	The information to be disclosed will include, for reasons of confidentiality, the following information The report will be disclosed on the website.

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
		<p>disclosure&gt;</p> <ul style="list-style-type: none"> <li>- A list of the Green Projects to which Green Loan proceeds have been allocated</li> <li>- A brief description of each Green Project (including up-to-date progress)</li> <li>- The amount allocated to each Green Project</li> <li>- The expected environmental benefits of each Green Project</li> <li>- Information regarding unallocated Green Loan proceeds (the amount of the unallocated proceeds or the share of the unallocated proceeds to the total amount of the proceeds, and when the unallocated proceeds are expected to be allocated to Green Projects)</li> </ul> <p>A borrower is small-medium, reported and disclosed information can be simplified, if it is difficult to disclose the same contents which a borrower reports to a lender.</p>	<input type="checkbox"/> Not Applicable	<p>/01//11//16//17//18//19//20/</p> <p>Interviews with stakeholders</p>	<p>&lt;Allocation Status&gt;</p> <ul style="list-style-type: none"> <li>◆ Allocated Amount to be allocated per eligible criteria</li> <li>◆ Balance of unallocated amount</li> <li>◆ Estimated amount of the portion of the proceeds allocated to refinancing</li> </ul> <p>&lt;Environmental benefits&gt;</p> <ul style="list-style-type: none"> <li>◆ Environmental impacts are disclosed within the scope of confidentiality, to the extent practicable, and in consideration of the characteristics of the project, including an overview of the project (including progress, completion, operation, etc.) and the expected environmental benefits (e.g., t-CO<sub>2</sub>/year).</li> </ul> <p>&lt;Others&gt;</p> <ul style="list-style-type: none"> <li>◆ Efforts to achieve carbon neutrality in 2050 will be reviewed as necessary in light of policy and technological trends, and will be disclosed where necessary.</li> </ul>
○	4-⑥	<p>If Green Loan proceeds have been allocated to the refinancing of existing projects, it is recommended that disclosed information include: (1) the approximate amount (or the share) of the allocated proceeds used for refinancing, and (2) a list of the Green Projects (or the project categories)</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//11//16//17//18//19//20/</p> <p>Interviews with stakeholders</p>	<p>DNV confirmed that Osaka Gas plans to disclose on its website an annual report on the approximate amount (or percentage) of proceeds that are used for refinancing, if the proceeds are used for refinancing.</p>

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
		refinanced.			
○	4-⑦	While it is recommended to disclose (v) and (vi) on a project-by-project basis, if there are confidentiality agreements, competitive considerations, or a large number of underlying projects that limit the disclosure of details, it is considered that information is presented in generic terms or in an aggregated portfolio.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//11//16//17//18//19//20/</p> <p>Interviews with stakeholders</p>	It was confirmed that the disclosure of information is based on the disclosure of information for each transition project, but may take place in an aggregated format depending on the circumstances, taking into account confidentiality agreements.
◎	4-⑩	When disclosing information regarding the expected environmental benefits of projects, borrowers should use appropriate indicators, while ensuring consistency with the characteristics of Green Projects.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//11//16//17//18//19//20/</p> <p>Interviews with stakeholders</p>	The environmental benefits will be based on the CO <sub>2</sub> emission reduction effect, but will use appropriate indicators according to the nature of the project for which the transition finance is to be allocated, and the progress of the project.
○	4-⑪	When disclosing the expected environmental benefits of projects, it is recommended that borrowers, where feasible, use quantitative indicators and disclose information on methodologies and/or assumptions as well as these indicators.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	<p>Confirmed documents: /01//11//16//17//18//19//20/</p> <p>Interviews with stakeholders</p>	Environmental benefits will be disclosed using quantitative indicators, but will be carried out on a transition project basis or by transition project category, taking into account confidentiality and the rationality of the evaluation process. The calculation method will be disclosed to the extent necessary.

### GLGLs-5 : Internal reviews

Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
◎	5-(3)②	If the borrower performs self-certification, it should inform the lenders in advance and explain with sufficient transparency its internal expertise upon formulation of the self-certification process pertaining to the green loan framework.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//11//14//15/ Interviews with stakeholders	Osaka Gas uses reviews by external bodies as an objective assessment. In the future, when conducting self-certification, Osaka Gas plans to explain to borrowers that it follows the Framework and internal processes.
◎	5-(3)③	Borrowers are recommended to document their internal expertise. This documentation should be communicated to the lenders on request. The self-certification results should also be reported to the lenders on request.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//11//14//15/ Interviews with stakeholders	Osaka Gas has established documented internal processes for the evaluation and selection process of projects and for the management of proceeds. Osaka Gas will report on the results of these processes when requested by the lenders.
◎	5-(3)④	When appropriate, and taking into account confidentiality and competitive considerations, borrowers should make publicly available, via their website or otherwise, their decision to review the Green Loan based on self-certification as well as the parameters based on which they assess Green Projects and the internal expertise they have to assess such parameters.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//11//14//15/ Interviews with stakeholders	Osaka Gas plans to disclose to the public that it has conducted its self-assessment using loans in green/transition finance in accordance with the internal processes set out in the Framework in advance and the results of the assessment.
○	5-(3)④	For a borrower to gain public approval by expressing that the procured loans are Green Loans, they need to ensure transparency. It is therefore recommended that they make the self-	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Confirmed documents: /01//11//14//15/	Osaka Gas plans to disclose the results of its self-assessment to the general public through its website and other means when using loans



Ref.	Section	Requirements	Requirement check	Work Undertaken	DNV Findings
		certification results publicly available via their website or otherwise.		Interviews with stakeholders	for transition finance based solely on self-assessment.

## List of reference materials

- /01/ Daigas Group Green/Transition Finance Framework
- /02/ Daigas Group Medium-Term Management Plan 2023 Creating Value for a sustainable Future (March 2021)
- /03/ Daigas Group Carbon Neutral Vision (January 2021) \*includes roadmap
- /04/ Japan Gas Association Carbon Neutral Challenge 2050 Action Plan
- /05/ Ministry of Economy, Trade and Industry (METI) Technology roadmap for the gas sector on "Transition Finance".  
Ministry of Economy, Trade and Industry (METI) Technology roadmap for electricity sector on "Transition Finance".
- /06/ Green growth strategy with carbon neutrality in 2050
- /07/ The Sixth Strategic Energy Plan (October 2021)
- /08/ Daigas Group Integrated Report 2021
- /09/ Daigas Group ESG data collection
- /10/ -
- /11/ Osaka Gas Project list & estimated CO<sub>2</sub> emission reduction \*Assessed as an example of a representative project
- /12/ Osaka Gas Accounting Procedures
- /13/ Osaka Gas Document Control Procedures
- /14/ Osaka Gas Process for Project Evaluation and Selection
- /15/ Osaka Gas Management Chart of proceeds (Management Flow & Management Sheet)
- /16/ Project Information - Inami Wind Power Plant (Environmental Impact Assessment etc.)  
\*Assessed as an example of a representative project (The same applies hereinafter.)
- /17/ Project Information - Daigas Oita Mirai Solar Power Plant (Nissan Green Energy Farm in Oita)
- /18/ Project Information - Noheji Wind Farm (Environmental Impact Assessment etc.)
- /19/ Project Information - Yokohama-Town Wind Farm (Environmental Impact Assessment etc.)
- /20/ Project Information - Shikoku Central Energy Natural Gas Supply Project
- /21/ Amendment Shelf Registration Statement (Draft)

\*Other relevant information from the Daigas Group website