

Second-Party Opinion

KOGAS Sustainability Bond

Evaluation Summary

Sustainalytics is of the opinion that the KOGAS Sustainability Bond Framework is credible and impactful, and aligns with the Sustainability Bond Guidelines 2018. This assessment is based on the following:



USE OF PROCEEDS The five eligible categories for the use of proceeds are aligned with those recognized by both the Green Bond Principles and Social Bond Principles. Sustainalytics considers green projects in the areas of renewable energy, low carbon transport, green buildings, and social projects related to job creation in local SMEs and support for underprivileged target groups to have positive environmental or social impacts and to advance the UN Sustainable Development Goals.



PROJECT EVALUATION / SELECTION KOGAS has established a dedicated Sustainability Bond Working Group (“SBWG”) to oversee the project selection process and review all funded projects annually to ensure ongoing compliance with the criteria of the Framework. This is in line with market practice.



MANAGEMENT OF PROCEEDS The net proceeds of the sustainability bonds will be deposited to KOGAS’ Treasury Portfolio, and the Treasury team will track the proceeds using its internal accounting system. Pending full allocation, proceeds may be used to re-pay outstanding indebtedness or be temporarily invested in various instruments. This is in line with market practice.



REPORTING KOGAS has committed to providing impact reporting, including relevant key performance indicators, and allocation reporting, including a breakdown of allocated funds at the category level, the balance of unallocated proceeds, the portions of financing and refinancing, and a description of sample projects, available on its website on an annual basis until full allocation. This is in line with market practice.

Evaluation date	November, 2018
Issuer Location	Daegu, South Korea

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For inquires, contact the Sustainable Finance Solutions project team:

Ankita Shukla (New York)
 Project Manager
 ankita.shukla@sustainalytics.com
 (+1) 617 603 3329

Zach Margolis (Toronto)
 Project Support
 zach.margolis@sustainalytics.com
 (+1) 647 695 4341

Nicholas Gandolfo (Singapore)
 Associate Director
 nicholas.gandolfo@sustainalytics.com
 (+65) 3157 0314

Introduction

The Korea Gas Corporation (“KOGAS” or the “Company”) is a South Korean natural gas utility, established by the Government of Korea in 1983. KOGAS provides natural gas to power generators and gas distribution companies throughout the country, operating 4,824 km of gas pipeline, and is the largest liquefied natural gas (LNG) importer in the world.

KOGAS has developed the KOGAS Sustainability Bond Framework (the “Framework”) under which it is planning to issue sustainability bonds and use the proceeds to finance or refinance, in whole or in part, existing and future projects that provide environmental or social benefits. The Framework defines eligibility criteria in five areas, three green and two social:

1. Renewable Energy
2. Low Carbon Transport
3. Green Buildings
4. Job Creation in Local SMEs
5. Support for Underprivileged Target Groups

KOGAS engaged Sustainalytics to review the KOGAS Sustainability Bond Framework and provide a second-party opinion on the alignment of the sustainability bond¹ with the Sustainability Bond Guidelines 2018 (the “SBG”), as administered by the International Capital Market Association (the “ICMA”),² and the Framework’s environmental and social credentials. This Framework has been published in a separate document.³

As part of this engagement, Sustainalytics held conversations with the lead underwriter to understand the sustainability impact of their business processes and planned use of proceeds, as well as management of proceeds and reporting aspects of the Company’s sustainability bond. Sustainalytics also reviewed relevant public documents and non-public information.

This document contains Sustainalytics’ opinion of the KOGAS Sustainability Bond Framework and should be read in conjunction with that Framework.

¹ Sustainability Bonds are aligned with the four core components of both the Green Bond Principles and Social Bond Principles, with the former being especially relevant to underlying Green Projects and the latter to underlying Social Projects.

² ICMA’s Sustainability Bond Guidelines 2018 <https://www.icmagroup.org/green-social-and-sustainability-bonds/sustainability-bond-guidelines-sbg/>

³ <http://www.kogas.or.kr/eng/selectBbsNttlList.do?bbsNo=637&key=2885>

Sustainalytics' Opinion

Section 1: Sustainalytics' Opinion on the KOGAS Sustainability Bond Framework

Summary

Sustainalytics is of the opinion that the KOGAS Sustainability Bond Framework is credible and impactful, and aligns with the four core components of the Green Bond Principles 2018 and Social Bond Principles 2018. Sustainalytics highlights the following elements of KOGAS' sustainability bond framework:

- Use of Proceeds:
 - The use of proceeds categories – renewable energy, low carbon transport, green buildings, job creation in local SMEs, and support for underprivileged target groups – are recognized as impactful by the Green Bond Principles or the Social Bond Principles.
 - Eligible renewable energy projects include wind, solar, geothermal, and fuel cells. For geothermal power, Sustainalytics encourages KOGAS to limit projects selected to those with direct emissions of less than 100 g CO₂/kWh, in line with market norms.
 - The Framework's green buildings category lists eligible buildings as those that have received LEED Gold or higher certification or G-SEED 2 or higher certification. Sustainalytics considers these schemes to be credible, and views the minimum levels specified as representative of market practice. Please refer to Appendix 1: Comparison of Green Buildings Standards and Certifications.
 - KOGAS has based its definition of a small or medium enterprise (SME) on government definitions, specifically that of the Enforcement Decree of the Framework Act on Small and Medium Enterprises,⁴ and its definition for low-income individuals on information published by the Ministry of Health and Welfare (MOHW). Sustainalytics views favourably this alignment with official definitions.
 - The Framework includes projects related to hydrogen fuel infrastructure. Sustainalytics notes that fuel cell systems are often powered by hydrogen derived from natural gas, and as such there are carbon emissions at the point of hydrogen production that should be considered. Nevertheless, in applications where fuel cells are generally deployed, such as remote locations or electric vehicles, they represent significant emissions reductions compared to fossil fuels.
 - The Framework includes as eligible LNG bunkering facilities for natural gas-fired ships. Sustainalytics recognizes that natural gas is generally not considered to be a clean fuel; however, in the context of the shipping industry, it may be viewed as preferential (up to 20% greenhouse gas reductions) to diesel or heavy fuel oil as there are few viable options at this time. Sustainalytics also notes that green bonds including natural gas-fired ships have previously been accepted in the market, and that LNG bunkering infrastructure can help support the International Maritime Organization's goal of reducing greenhouse gas emissions across international shipping, by at least 40% by 2030 and 70% by 2050, compared to 2008.⁵ Please refer to Section 3: Impact of Use of Proceeds for additional detail.
 - The Framework specifies that proceeds will not be directed to large-scale hydro projects (>25MW), nuclear energy, fossil-fuel based electricity production or related cleanup activities, non-shipping applications of LNG, or SMEs operating in the sectors of alcohol, tobacco, gambling, weapons, munitions, or fossil fuels. Sustainalytics considers these exclusionary criteria to strengthen the Framework.
- Project Selection Process:
 - KOGAS has established a dedicated Sustainability Bond Working Group ("SBWG") to oversee the project selection process. The SBWG is made up of representatives from the Company's Risk Management, Future Strategy and Shared Growth, Planning, and Finance divisions.
 - The SBWG will review all funded projects annually to ensure ongoing compliance with the criteria of the Framework.
 - Sustainalytics considers this process to be in line with market practice.

⁴ <http://law.go.kr/LSW/eng/engLsSc.do?menuId=1&query=small+and+medium+enterprises&x=0&y=0#liBgcolor0>

⁵ http://www4.unfccc.int/sites/SubmissionPortal/Documents/201804271056---IMO%20SBSTA%2048%20submission_final_200418.pdf

- Management of Proceeds:
 - The net proceeds of the sustainability bonds will be deposited to KOGAS' Treasury Portfolio, and the Treasury team will track the proceeds using its internal accounting system and ensure that an amount equivalent to the net proceeds be allocated to finance new eligible projects or refinance eligible projects completed in the three years prior to issuance.
 - Pending full allocation, proceeds may be used to re-pay outstanding indebtedness or be temporarily invested in various instruments.
 - Sustainalytics considers these processes to be in line with market practice.
- Reporting:
 - KOGAS has committed to making impact and allocation reporting available on its website on an annual basis until full allocation.
 - Allocation reporting will include a breakdown of allocated funds at the category level, the balance of unallocated proceeds, the portions of financing and refinancing, and a description of sample projects including location, category, and progress.
 - Impact reporting information will include, where feasible, relevant key performance indicators for each category
 - Sustainalytics considers this reporting regime to be in line with market practice.

Alignment with Sustainability Bond Guidelines 2018

Sustainalytics has determined that KOGAS' sustainability bond aligns with the four core components of the Green Bond Principles 2018 and Social Bond Principles 2018. For detailed information please refer to Appendix 2: Sustainability Bond/ Sustainability Bond Programme External Review Form.

Section 2: Sustainability Strategy of the Issuer

Contribution of Framework to issuer's sustainability strategy

KOGAS is, at its core, a natural gas company, and as such is intrinsically involved with the fossil fuel sector. Nevertheless, as part of its sustainability strategy, KOGAS is committed to evolving to ensure a "reliable future energy world". The Company has developed a strategy known as KOGAS 2025, which embraces four strategic directions: "leading natural gas industry", "conversion to environment-friendly energy", "realization of social value", and "constitutional improvement to prepare for future". Within these areas it has identified six main tasks, which include expanding the scope of its fuel conversion program and its new energy business, as well as the creation and sharing of jobs.⁶ The eligible projects described by the Framework align with these strategic directions.

KOGAS is committed to tracking and reporting various environmental indicators, including total energy use, greenhouse gas emissions, water use, waste discharge, chemical use, and air and water pollutant emissions, as well as the amount of renewable energy generated. Although targets are not publicly disclosed, the Company states in its 2017 Sustainability Report that it has established its "own management targets at a level higher than legal standards". Additionally, for greenhouse gas emissions, KOGAS is required by government statute to track its emissions and participate in the Emissions Trading Scheme, part of South Korea's national climate change approach. KOGAS also tracks and reports on relevant social indicators, including those related to worker health and safety, relationship with SMEs, and the effectiveness of its social initiatives.⁷

Sustainalytics notes that KOGAS has not expressed any quantitative targets related to the levels of renewable energy or other sustainable investment as part of its sustainability strategy, nor has the Company committed to a transition to a low-carbon economy. Sustainalytics views this as a limitation for a fossil fuel company, and encourages KOGAS to disclose its long-term transition plans. However, the Framework describes investments that will support the diversification of the company's business activities, and contribute to providing environmental benefits. In this context, Sustainalytics is of the opinion that KOGAS is positioned to issue sustainability bonds.

⁶ http://www.kogas.or.kr/portal/downloadFile.do?FILE_NAME=Sustainability%20Report.pdf&REAL_NAME=report_2018_en.pdf

⁷ *ibid*

Well positioned to address common environmental and social risks associated with the projects

Although the eligible projects described by the Framework are expected to provide environmental and/or social benefits, there may still inevitably be environmental and social risks associated with the projects. These risks may include worker health and safety, air, water, and soil pollution, community and stakeholder support, and impacts on biodiversity. KOGAS has practices and procedures in place which will help mitigate any risks, including:

- A thorough corporate-level risk management system, based on six key principles and a “three lines of defense” model, overseen by a Risk Management Committee and the Chief Risk Officer.
- An Environment, Health, Safety & Quality (EHSQ) system, which is intended to prioritize “respecting human and nature”. As part of this system, KOGAS has obtained ISO 9001, ISO 14001, OHSAS 18001 and ISO 29001 certifications.
- A Code of Ethics and Code of Actions to which employees must subscribe, both of which support the overall vision “Realization of Clean and Transparent Global Management with Integrity”.
- A commitment to conduct environmental impact assessments and follow-up reviews to predict and evaluate the impact of construction or operational projects on the environment, as well as setting internal standards at levels more stringent than required by law for pollutant emissions to air and water.
- Workplace safety management strategies, which include a vision of “achieving accident-free and disaster-free status through advanced safety management activities”, along with several time-bound and quantitative goals such as scoring a 7.8/10 score by 2021 on the Safety Culture Index and reduce the Company’s disaster rate to below one third of the industry average.
- A Code of Conduct for Suppliers which mandates that KOGAS’ partners also comply with environmental, human rights, and safety standards. In 2018, 100% of KOGAS’ registered major equipment and materials suppliers completed a self-evaluation to demonstrate compliance. This Code is part of the Company’s broader Strategies for Supply Chain Management, which involves ESG factors in the decision-making process for selecting suppliers.

Based on the above, Sustainalytics is of the opinion that KOGAS is well-positioned to mitigate environmental or social risks associated with the implementation of the eligible projects funded by sustainability bonds.

Section 3: Impact of Use of Proceeds

All five use of proceeds categories are recognized as impactful by the Green Bond Principles 2018 or the Social Bond Principles 2018. Sustainalytics has focused below on several where the impact is specifically relevant in the local context.

Shipping

As part of the Low Carbon Transport category, KOGAS’ Framework considers the use of proceeds for liquefied natural gas (LNG) bunkering facilities for LNG-fueled ships. Although LNG provides environmental benefits when contrasted with heavy fuel oil, it is still a fossil fuel which contributes to climate change. In assessing the impacts of this use of proceeds, Sustainalytics considers the following:

Calculated on a per tonne or per km-tonne basis, maritime shipping is more environmentally efficient than other forms of bulk shipping.⁸ Nevertheless, due to the scale of the global shipping industry, it is estimated that marine transport is responsible for approximately 2.5% of all greenhouse gas emissions; these emissions are projected to increase 50-250% by 2050.⁹ To address these concerns, the International Maritime Organization (IMO) has adopted a series of binding and aspirational targets to address the climate impact of the shipping industry, with the goal of reducing the carbon intensity of shipping by 40% by 2030 and reduce the total annual CO₂ emissions from the sector by 50% by 2050.¹⁰ Emissions performance in the shipping sector can be improved, broadly, by either improvements in design or substitution of less polluting fuels.¹¹

⁸ <http://www.ics-shipping.org/shipping-facts/environmental-performance/comparison-of-co2-emissions-by-different-modes-of-transport>

⁹ https://ec.europa.eu/clima/policies/transport/shipping_en

¹⁰ <http://www.ics-shipping.org/docs/default-source/resources/reducing-co2-emissions-to-zero-the-paris-agreement-for-shipping.pdf>

¹¹ https://www.theicct.org/sites/default/files/publications/ICCTpolicyupdate15_EEDI_final.pdf

The substitution of LNG for heavy fuel oil is estimated to produce total greenhouse gas savings of up to 20%, which accounts for a CO₂ reduction of 30% coupled with the risk of methane leakage.¹² A 20% emissions reduction is a notable improvement over a business as usual scenario, however, it would not on its own be sufficient to achieve long-term climate goals. As KOGAS is not a shipping company, they are not able to realize energy savings from vessel design or operational optimization; Sustainalytics considers the contribution of LNG bunkering as one part of a solution that should be complemented by other measures to achieve more significant greenhouse gas reductions. Furthermore, while Sustainalytics recognizes the potential risks of technology “lock-in”, at this time there is no viable alternative to fossil fuels for the global shipping industry, and in this context, LNG must be seen as an acceptable transition technology. This position has previously been endorsed by the Climate Bonds Initiative in the context of Nippon Yusen Kaisha’s green bond.¹³

Overall, Sustainalytics considers KOGAS’ LNG bunkering use of proceeds as impactful, and is of the opinion that it will provide net positive environmental benefits.

Hydrogen

As part of the Low Carbon Transport category, KOGAS’ Framework contemplates the use of proceeds for hydrogen fuel infrastructure, including fuel reformers, charging stations, supply pipes, and logistics centers. Hydrogen is a clean fuel, with no carbon emissions at the point of consumption, well-suited for transportation and remote power applications. While hydrogen can be produced in a number of ways, current industrial production is dominated by steam-methane reforming, a process by which natural gas is heated and converted to hydrogen gas (H₂) and carbon dioxide (CO₂).¹⁴ As the ultimate source of the hydrogen is a fossil fuel, there are still lifecycle carbon emissions even though hydrogen gas emits only water vapour when combusted. When used in passenger vehicles, it is estimated that replacing gasoline engines with hydrogen fuel cells generates greenhouse gas emissions reductions of 34%.¹⁵ Furthermore, hydrogen can also be produced by electrolysis, where electricity is used to convert water to hydrogen and oxygen gasses; if this system were powered by renewable energy the resulting hydrogen fuel is 100% greenhouse gas free.¹⁶ Based on the short-term reductions in emissions, and the potential that hydrogen infrastructure can be used to transition to even lower-carbon fuels in the future, Sustainalytics views this use of proceeds category as environmentally impactful.

Renewable energy in South Korea

South Korea currently obtains approximately 7% of its energy supply from renewable sources, and as part of the New and Renewable Energy Plan 2030 has set a national target of increasing this share to 20% by 2030.¹⁷ The Green Energy Strategy Institute, a research wing of the Korean Society for New and Renewable Energy¹⁸, estimates that South Korea’s renewable energy share target is ambitious given the country’s limited total solar PV and wind generation capacities of 6.6GW, indicating that the 20% target is ambitious in nature. Additionally, as part of their commitments under the Paris Agreement, South Korea intends to reduce greenhouse gas emissions 37% by 2030 compared to a business as usual scenario.¹⁹

In this context, KOGAS’ investment in renewable energy facilities can play an important role in supporting the country’s clean energy transition. As of March 31st, 2018, KOGAS has installed renewable energy systems at 83 of their Company’s sites, providing a total of approximately 5,000 kW of electrical generating capacity. These investments, while limited in scale at this time, provide a basis for KOGAS’ future efforts to mitigate its climate impact, which in 2017 totaled 623,639 tonnes of CO₂ equivalent, in line with both its corporate strategy and requirements of the government’s emissions trading scheme. Sustainalytics considers the renewable energy use of proceeds category to provide positive environmental impacts.

Job creation and SMEs

¹² <https://www.itf-oecd.org/sites/default/files/docs/decarbonising-maritime-transport.pdf>

¹³ https://www.climatebonds.net/files/reports/cbi_briefing_nyk_shipping_green_bond_june_2018_0.pdf

¹⁴ <https://www.energy.gov/eere/fuelcells/hydrogen-production-natural-gas-reforming>

¹⁵ <https://www.ucusa.org/sites/default/files/attach/2014/10/How-Clean-Are-Hydrogen-Fuel-Cells-Fact-Sheet.pdf>

¹⁶ <https://www.energy.gov/eere/fuelcells/hydrogen-production-electrolysis>

¹⁷ http://www.unescap.org/sites/default/files/Session%201-6.%20Sanghoon%20Lee_GESI.pdf

¹⁸ More information on the publications of the Korean Society for New and Renewable Energy available at: <http://journalksnre.com/>

¹⁹ <https://climateactiontracker.org/countries/south-korea/pledges-and-targets/>

KOGAS Sustainability Bond

KOGAS has a goal of creating 18,000 jobs annually in the private sector by 2025, and through its Shared Growth initiatives includes SMEs within this target. The Company operates a Shared Growth Fund, valued at approximately KRW 50 billion (USD 44 million), which provides liquidity support to SMEs through low-interest loans with the dollar-to-dollar support of the Industrial Bank of Korea. In 2017, the fund supported KRW 77.3 billion (USD 68 million) in loans to 182 SMEs that are KOGAS suppliers, local to the Daegu area, or involved in manufacturing shipbuilding components. KOGAS also provides technological support to local SMEs seeking experience in certain high-tech sectors. In 2017, the Company participated in 22 R&D projects and provided over KRW 900 million (USD 800,000) in development cost funding.

Within the Framework's job creation category, providing support to startups through the Shared Growth Fund and joint R&D project with local SME technology are considered. Sustainalytics considers investments in these areas to support KOGAS' job creation strategies and provide social benefits to the SME sector in South Korea.

KOGAS' support programs for underprivileged groups

KOGAS states, in their 2018 Sustainability Report,²⁰ that they are "committed to taking full responsibility as a corporate citizen by engaging in [...] activities which contribute to the livelihood of the public and returning corporate profits to society." A key part of this corporate strategy is the Onnuri Project, which KOGAS has operated since 2010. This initiative helps improve energy efficiency and standard of living for low-income households as well as social welfare facilities by repairing floor heating units, flooring, wall insulation, windows, and wall coverings. As of 2017, the Program has been expanded to provide efficiency improvements for social enterprises. As part of the Program, vocational training is provided for underprivileged individuals to develop skills in these areas and job possibilities in the construction industry.

The Framework specifies that sustainability bond proceeds may be directed to the aforementioned project, or other social initiatives sponsored by KOGAS which provide medical and educational programs for low income targets groups, as defined by the Ministry of Health and Welfare. Due to the linkage of these activities with KOGAS' core business, as well as the social benefits which will accrue to targeted populations, Sustainalytics considers this use of proceeds category to provide positive impacts.

Alignment with and contribution to the UN Sustainable Development Goals

The Sustainable Development Goals (SDGs) were set in September 2015 and form an agenda for achieving sustainable development by the year 2030. This sustainability bond advances the following SDG goals and targets:

Use of Proceeds Category	SDG	SDG Target
Renewable Energy	7. Affordable and Clean Energy	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix
Low Carbon Transport	11. Sustainable Cities and Communities	11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
Green Buildings	11. Sustainable Cities and Communities	11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries
Job Creation in Local SMEs	8. Decent Work and Economic Growth	8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services

²⁰ <http://www.kogas.or.kr/eng/contents.do?key=2191>

Support for Underprivileged Target Groups	1. No Poverty	1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions
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Conclusion



KOGAS has developed the KOGAS Sustainability Bond Framework, under which it intends to issue sustainability bonds, and use the proceeds to finance or refinance eligible green and social investments in the areas of renewable energy, low carbon transport, green buildings, job creation in local SMEs, and support for underprivileged target groups which will deliver environmental and/or social benefits. Sustainalytics highlights in particular the alignment of KOGAS' social programs with government definitions and the reference of its LNG bunkering projects with the International Maritime Organization's greenhouse gas reduction goals.

The use of proceeds categories specified in the Framework are aligned with those of the Sustainability Bond Guidelines 2018; KOGAS has described a process by which proceeds will be tracked, allocated, and managed, and commitments have been made for reporting on the allocation, and where feasible, the impacts of proceeds. Furthermore, Sustainalytics believes that the investments funded by the sustainability bonds will contribute to the advancement of the UN Sustainable Development Goals, in particular 1, 7, 8, and 11.

Based on the above, Sustainalytics is confident that KOGAS is well-positioned to issue sustainability bonds, and that the KOGAS Sustainability Bond Framework is robust, transparent, and in alignment with the Sustainability Bond Guidelines 2018.

Appendices

Appendix 1: Comparison of Green Buildings Standards and Certifications

	LEED	G-SEED
Background	Leadership in Energy and Environmental Design (LEED) is a US Certification System for residential and commercial buildings used worldwide. LEED was developed by the non-profit U.S. Green Building Council (USGBC) and covers the design, construction, maintenance and operation of buildings.	G-SEED (Green Standard for Energy and Environmental Design) is a green building certification standard used in Korea. First implemented in 2002, and later expanded in 2016, G-SEED is administered by the Korean Government under the authority of the Green Building Act (2006).
Certification levels	Certified Silver Gold Platinum	Green 4 Green 3 Green 2 Green 1
Areas of Assessment	Energy and atmosphere Sustainable Sites Location and Transportation Materials and resources Water efficiency Indoor environmental quality Innovation in Design Regional Priority	Land Use & Transportation Energy & Environmental Pollution Materials & Resources Water Management Maintenance Ecology Indoor Environment Innovative Design
Requirements	Prerequisites (independent of level of certification) + Credits with associated points These points are then added together to obtain the LEED level of certification There are several different rating systems within LEED. Each rating system is designed to apply to a specific sector or construction type.	Prerequisites (independent of level of certification) + Credits with associated points Individual credits are achieved in a number of areas; category scores are then weighted to achieve an overall grade. Different ratings systems exist with G-SEED for new buildings, existing buildings, and green-remodelling buildings.
Performance display		
Accreditation	LEED AP BD+C LEED AP O+M	Certification Bodies, appointed by the Ministry of Environment (MOE) and the Ministry of Land, Infrastructure and Transportation (MLIT) review and certifies projects.
Qualitative considerations	Widely recognised internationally, and strong assurance of overall quality.	Widely used in Korea, and aligned with government standards. Strong overall qualifications. Little international recognition.

Appendix 2: Sustainability Bond / Sustainability Bond Programme - External Review Form

Section 1. Basic Information

Issuer name:	Korea Gas Corporation
Sustainability Bond ISIN or Issuer Sustainability Bond Framework Name, if applicable: <i>[specify as appropriate]</i>	KOGAS Sustainability Bond Framework
Review provider's name:	Sustainalytics
Completion date of this form:	November 12, 2018
Publication date of review publication: <i>[where appropriate, specify if it is an update and add reference to earlier relevant review]</i>	

Section 2. Review overview

SCOPE OF REVIEW

The following may be used or adapted, where appropriate, to summarise the scope of the review.

The review assessed the following elements and confirmed their alignment with the GBPs and SBPs:

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

ROLE(S) OF REVIEW PROVIDER

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

Note: In case of multiple reviews / different providers, please provide separate forms for each review.

EXECUTIVE SUMMARY OF REVIEW and/or LINK TO FULL REVIEW *(if applicable)*

Please refer to Evaluation Summary above.

Section 3. Detailed review

Reviewers are encouraged to provide the information below to the extent possible and use the comment section to explain the scope of their review.

1. USE OF PROCEEDS

Overall comment on section *(if applicable)*:

The five eligible categories for the use of proceeds are aligned with those recognized by both the Green Bond Principles and Social Bond Principles. Sustainalytics considers green projects in the areas of renewable energy, low carbon transport, green buildings, and social projects related to job creation in local SMEs and support for underprivileged target groups to have positive environmental or social impacts and to advance the UN Sustainable Development Goals.

Use of proceeds categories as per GBP:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Renewable energy | <input type="checkbox"/> Energy efficiency |
| <input type="checkbox"/> Pollution prevention and control | <input type="checkbox"/> Environmentally sustainable management of living natural resources and land use |
| <input type="checkbox"/> Terrestrial and aquatic biodiversity conservation | <input checked="" type="checkbox"/> Clean transportation |
| <input type="checkbox"/> Sustainable water and wastewater management | <input type="checkbox"/> Climate change adaptation |
| <input type="checkbox"/> Eco-efficient and/or circular economy adapted products, production technologies and processes | <input checked="" type="checkbox"/> Green buildings |
| <input type="checkbox"/> Unknown at issuance but currently expected to conform with GBP categories, or other eligible areas not yet stated in GBPs | <input type="checkbox"/> Other <i>(please specify)</i> : |

If applicable please specify the environmental taxonomy, if other than GBPs:

Use of proceeds categories as per SBP:

- | | |
|--|--|
| <input type="checkbox"/> Affordable basic infrastructure | <input type="checkbox"/> Access to essential services |
| <input type="checkbox"/> Affordable housing | <input checked="" type="checkbox"/> Employment generation (through SME financing and microfinance) |
| <input type="checkbox"/> Food security | <input checked="" type="checkbox"/> Socioeconomic advancement and empowerment |
| <input type="checkbox"/> Unknown at issuance but currently expected to conform with SBP categories, or other eligible areas not yet stated in SBPs | <input type="checkbox"/> Other (please specify): |

If applicable please specify the social taxonomy, if other than SBPs:

2. PROCESS FOR PROJECT EVALUATION AND SELECTION

Overall comment on section (if applicable):

KOGAS has established a dedicated Sustainability Bond Working Group ("SBWG") to oversee the project selection process and review all funded projects annually to ensure ongoing compliance with the criteria of the Framework. This is in line with market practice.

Evaluation and selection

- | | |
|---|--|
| <input type="checkbox"/> Credentials on the issuer's social and green objectives | <input checked="" type="checkbox"/> Documented process to determine that projects fit within defined categories |
| <input checked="" type="checkbox"/> Defined and transparent criteria for projects eligible for Sustainability Bond proceeds | <input type="checkbox"/> Documented process to identify and manage potential ESG risks associated with the project |
| <input checked="" type="checkbox"/> Summary criteria for project evaluation and selection publicly available | <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 (<i>please specify</i>): | |

3. MANAGEMENT OF PROCEEDS

Overall comment on section (*if applicable*):

The net proceeds of the sustainability bonds will be deposited to KOGAS' Treasury Portfolio, and the Treasury team will track the proceeds using its internal accounting system. Pending full allocation, proceeds may be used to re-pay outstanding indebtedness or be temporarily invested in various instruments. This is in line with market practice.

Tracking of proceeds:

- | |
|---|
| <input checked="" type="checkbox"/> Sustainability Bond proceeds segregated or tracked by the issuer in an appropriate manner |
| <input checked="" type="checkbox"/> Disclosure of intended types of temporary investment instruments for unallocated proceeds |
| <input type="checkbox"/> Other (<i>please specify</i>): |

Additional disclosure:

- | | |
|--|---|
| <input type="checkbox"/> Allocations to future investments only | <input checked="" type="checkbox"/> Allocations to both existing and future investments |
| <input 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 type="checkbox"/> Other (<i>please specify</i>): |

4. REPORTING

Overall comment on section (if applicable):

KOGAS has committed to making impact reporting, including relevant key performance indicators, and allocation reporting, including a breakdown of allocated funds at the category level, the balance of unallocated proceeds, the portions of financing and refinancing, and a description of sample projects, available on its website on an annual basis until full allocation. This is in line with market practice.

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"/> Sustainability Bond financed 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 (please specify): | |

Impact 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 checked="" type="checkbox"/> Other (please specify): renewable energy generated, number of charging stations built |

Frequency:

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

Information reported (expected or ex-post):

- | | |
|---|--|
| <input checked="" type="checkbox"/> GHG Emissions / Savings | <input checked="" type="checkbox"/> Energy Savings |
| <input type="checkbox"/> Decrease in water use | <input checked="" type="checkbox"/> Number of beneficiaries |
| <input checked="" type="checkbox"/> Target populations | <input checked="" type="checkbox"/> Other ESG indicators (please specify): |

Means of Disclosure

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

Where appropriate, please specify name and date of publication in the useful links section.

USEFUL LINKS (e.g. to review provider methodology or credentials, to issuer's documentation, etc.)

SPECIFY OTHER EXTERNAL REVIEWS AVAILABLE, IF APPROPRIATE

Type(s) of Review provided:

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

Review provider(s):

Date of publication:

ABOUT ROLE(S) OF REVIEW PROVIDERS AS DEFINED BY THE GBP AND THE SBP

- i. Consultant Review: An issuer can seek advice from consultants and/or institutions with recognized expertise in environmental and social sustainability or other aspects of the issuance of a Sustainability Bond, such as the establishment/review of an issuer's Sustainability Bond framework. "Second Party Opinions" may fall into this category.
- ii. Verification: An issuer can have its Sustainability Bond, associated Sustainability Bond framework, or underlying assets independently verified by qualified parties, such as auditors. In contrast to certification, verification may focus on alignment with internal standards or claims made by the issuer. Evaluation of the environmentally and socially sustainable features of underlying assets may be termed verification and may reference external criteria.
- iii. Certification: An issuer can have its Sustainability Bond or associated Sustainability Bond framework or Use of Proceeds certified against an external green and social assessment standard. An assessment standard defines criteria, and alignment with such criteria is tested by qualified third parties / certifiers.
- iv. Rating: An issuer can have its Sustainability Bond or associated Sustainability Bond framework rated by qualified third parties, such as specialised research providers or rating agencies. Sustainability Bond ratings are separate from an issuer's ESG rating as they typically apply to individual securities or Sustainability Bond frameworks / programmes.

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