

JCR Green Bond Framework Evaluation by Japan Credit Rating Agency, Ltd.

Japan Credit Rating Agency, Ltd. (JCR) announces the following annual review of Green Bond Framework Evaluations.

JCR Reviewed Green Bond Framework of NGK INSULATORS, LTD.

Issuer : NGK INSULATORS, LTD. (Security Code : 5333)
Subject : Green Bond Framework of NGK INSULATORS, LTD.

<Green Bond Framework Evaluation Review Results>

Overall Evaluation	Green 1 (F)
Greenness Evaluation (Use of Proceeds)	g1(F)
Management, Operation and Transparency Evaluation	m1(F)

1. Overview

NGK INSULATORS, LTD. (NGK) was established in 1919 as a spin-off of the insulators department from Nippon Toki (now Noritake Company Limited) to produce special high-voltage insulators, which were indispensable for the popularization of electricity, in Japan. Since its inception, NGK has been developing a series of ultra-high-voltage and strong insulators to respond to expanded demand for electricity along with economic growth and enriched life while focusing on social mission to contribute to the nation. Having capability to develop ceramic technologies, NGK has rolled out various products, which meet new social needs, including the world's first large capacity storage battery, products to eliminate air pollutant from vehicle exhaust gas, precision equipment to support development of communication and electronics in addition to insulators. JCR released the Green Bond Framework Evaluation "Green 1(F)" to the NGK's Green Bond Framework (the "Framework") on November 12, 2021. An overview of the evaluation of the Framework is as follows.

(Excerpt from the evaluation report on November 12, 2021)

NGK Group, to which NGK belongs, has passed down the company's founding spirit through the generations, guided by the corporate philosophy of creating new value through products that contribute to a better society. In 2019, the NGK Group celebrated its 100th year. NGK has taken a new look at the philosophical Framework that has guided it up to now, and established the NGK Group Philosophy; "Enriching Human Life by Adding New Value to Society" as its mission under the NGK Group's philosophy. As its goals, NGK set out "Quality of people Embrace challenges and teamwork." "Quality of Product Exceed expectations," and "Quality of management Social trust is our foundation." NGK Group Vision: Road to 2050 was formulated based on this philosophy, and it envisioned "what we want to be" in 30 years from now is "contributing to carbon neutrality (CN) and digital society (DS) with our unique ceramic technologies." To achieve this aspiration, NGK has set a target of raising CN and DS-related sales to 80% of the total by 2050. At the same

time, the NGK Group has also formulated the NGK Group Environmental Vision for 2050, a long-term vision of the environment. The vision aims to contribute to the realization of society's demands of "carbon neutrality," "a recycling-oriented society," and "harmony with nature" through NGK's business activities. The goal for 2050 is net zero CO2 emissions from the entire group. As a milestone target to achieve this goal, NGK set emissions at 550,000 tons (a reduction of 25% compared with the base year of fiscal 2013) in fiscal 2025 and 370,000 tons (a reduction of 50% compared with the base year of fiscal 2013) in fiscal 2030. JCR evaluates that the goals set for these long-term visions as ambitious.

In order to promote sustainability-related initiatives, NGK established the ESG Committee, chaired by the president, in fiscal 2019 to discuss management issues from an ESG viewpoint based on the Group Philosophy. In addition, through the collaboration among the R&D relating divisions, the department in charge of the environment, etc. manages specific measures to achieve the long-term vision and the goals set as milestones.

The scope of this evaluation is the Green Bond Framework (the Framework) to allocate the proceeds to environmentally effective products and services, R&D expenses, capital expenditure and production costs relating to initiatives for carbon neutrality in NGK's business and production activities among the measures for achieving goals set under the NGK's Group Vision and Environmental Vision by NGK. JCR recognizes that any of the eligibility criteria established by NGK in this Framework will contribute significantly to curbing global warming faced by Japan and the world as a whole. JCR also evaluates that the project selection process, the fund management system, the post-issuance reporting system, etc. have been properly established and are highly transparent.

(Excerpt ends)

This review was undertaken in response to the update of the Framework established by NGK. The main updates are the changes to ESG promotion system and partial changes in the use of proceeds. NGK changed its ESG promotion system to strengthen the handling of the Group's sustainability issues, including ESG/SDGs-related topics, at the management level, and therefore updated the relevant part of the Framework. Regarding the use of proceeds, "Procurement of carbon-neutral fuel" has been removed from the examples of projects in order to clarify eligibility criteria. In addition, the use of proceeds and the reporting items are described in consistent with the Japanese translation of the latest version of the Green Bond Principles¹².

NGK's changes in ESG promotion system will further strengthen the company's activities related to ESG than ever before, and JCR does not see any problem with the changes. The eligibility criteria continue to cover projects with environmental improvement effects. The management and operation system related to green finance was also confirmed to be properly operated, unchanged from the time of the previous evaluation.

As a result, based on JCR Green Finance Evaluation Methodology, JCR assigned "g1(F)" to the Greenness Evaluation, "m1(F)" to the Management, Operation and Transparency Evaluation, and "Green 1(F)" to the JCR Green Finance Framework Evaluation for the Green Bond Framework subject to this review.

JCR has assessed that the Framework meets the criteria for the items required in the "Green Bond Principles¹" and the "Green Bond Guidelines³."

¹ ICMA Green Bond Principles 2021 Version

<https://www.icmagroup.org/green-social-and-sustainability-bonds/green-bond-principles-gbp/>

² ICMA Green Bond Principles 2021 Voluntary Guidelines for the Issuance of Green Bonds June 2021 (Revised Appendix I in June 2022)

https://www.icmagroup.org/assets/documents/Sustainable-finance/Translations/Japanese-GBP-2021_Appendix-1-2022-010822.pdf

³ Ministry of the Environment Green Bond Guidelines 2022 <https://www.env.go.jp/content/000062495.pdf>

2. Review items

In this section, JCR describes the items to be confirmed in the review. The review focuses on items whose contents have changed compared with the previous evaluation time.

(1) Use of Proceeds (Eligibility Criteria)

JCR evaluates whether green finance eligibility criteria and uses of proceeds are still eligible after the change.

(2) Selection Standard and Processes of the Use of Proceeds

JCR evaluates whether the goals to be realized through green finance, the standards for selecting green projects, and the validity of the process remain appropriate after the change.

(3) Management of the Proceeds

JCR evaluates whether NGK has developed a mechanism and an internal system that allow funds procured through green finance to continue to be allocated to the green project without fail after the change, and that the allocation status can be easily tracked and managed.

(4) Reporting

JCR evaluates whether the environmental improvement effects resulting from the green projects financed by the green finance have continued to be appropriately calculated in a manner specified by the issuer at the time of the assignment of the Green Finance Evaluation after the change.

(5) Organization's Environmental Initiatives

JCR evaluates whether the issuer's management continues regarding environmental issues as a high priority issue.

3. Contents of Review

(1) Use of Proceeds (Eligibility Criteria)

NGK has not updated the use of proceeds (eligibility criteria) in the Framework. However, its ICMA GBP Category is described in line with the latest version of the Japanese translation of the Green Bond Principles². In addition, some of the project examples in the Eligibility Criteria for "B. The NGK Group's business and manufacturing activities for carbon neutral initiatives" have been updated. The descriptions of the project examples before and after the update are as follows.

<Framework before Change>

B. The NGK Group's business and manufacturing activities for carbon neutral initiatives

Eligible project categories / ICMA GBP Category	Eligibility criteria and examples of projects
<p>Clean energy utilization</p> <p>Renewable energy</p>	<p>Development and introduction of carbon neutral technologies and facilities for possible applications to the NGK Group's manufacturing activities (including demonstrations and test operations).</p> <p><Examples of projects></p> <ul style="list-style-type: none"> › Development of firing processes for ceramics, using hydrogen and ammonia as fuel › Demonstration testing of a firing kiln for ceramics, using hydrogen and ammonia as fuel <hr/> <p>Installation of facilities to switch to green electricity for use in the NGK Group's business activities.</p> <p><Examples of projects></p> <ul style="list-style-type: none"> › Installation of solar power generation facilities using NAS[®] batteries and zinc rechargeable batteries › Installation of solar power generation facilities › Procurement of green electricity › Procurement of carbon-neutral fuel
<p>Energy-efficient manufacturing</p> <p>Energy efficiency</p>	<p>Installation of high-efficiency facilities to improve energy efficiency of the NGK Group's manufacturing activities.</p> <p><Examples of projects></p> <ul style="list-style-type: none"> › Investment in high-efficiency facilities with excellent energy-saving performance to achieve carbon-neutral targets › R&D of new energy-efficient manufacturing processes

<Framework after Change >

B. The NGK Group's business and manufacturing activities for carbon neutral initiatives

Eligible project categories / ICMA GBP Category	Eligibility criteria and examples of projects
<p>Clean energy utilization</p> <p>Renewable energy</p>	<p>Development and introduction of carbon neutral technologies and facilities for possible applications to the NGK Group's manufacturing activities (including demonstrations and test operations).</p> <p><Examples of projects></p> <ul style="list-style-type: none"> › Development of firing processes for ceramics, using hydrogen and ammonia as fuel › Demonstration testing of a firing kiln for ceramics, using hydrogen and ammonia as fuel <hr/> <p>Installation of facilities to switch to green electricity for use in the NGK Group's business activities.</p> <p><Examples of projects></p> <ul style="list-style-type: none"> › Installation of solar power generation facilities using NAS® batteries and zinc rechargeable batteries › Installation of solar power generation facilities › Procurement of green electricity
<p>Energy-efficient manufacturing</p> <p>Energy efficiency</p>	<p>Installation of high-efficiency facilities to improve energy efficiency of the NGK Group's manufacturing activities.</p> <p><Examples of projects></p> <ul style="list-style-type: none"> › Investment in high-efficiency facilities with excellent energy-saving performance to achieve carbon-neutral targets › R&D of new energy-efficient manufacturing processes

In this update, "Procurement of carbon-neutral fuel" has been removed from the project examples in order to clarify the eligibility criteria. JCR assesses that the eligibility criteria of the Framework and NGK's remaining projects are all targeted at projects that have environmental impact.

The use of proceeds falls under the categories of "Circular economy adapted products, production technologies and processes and/or certified eco-efficient products," "Renewable Energy," and "Energy efficiency" in the Green Bond Principles, and categories of "Projects concerning eco-efficient products, production technologies, and processes," "Projects for Renewable energy" and "Projects for energy efficiency" in the Green Bond Guidelines. Note that all solid-state batteries, which are listed as an example of batteries projects in "A. Distribution of environmentally friendly products and services" will also contribute to the "clean transportation" field in the Green Bond Guidelines.

(2) Selection Standard and Processes of the use of Proceeds

NGK has partially updated the selection process for eligible criteria in the Framework in line with changes to ESG promotion system. The selection processes before and after the change are as follows.

<Framework before Change>

Candidate projects, for which use of proceeds of green bonds are allocated, will be specified by NGK's ESG Management Department based on the conformity to the eligible criteria set forth in 2.1 Use of the proceeds. The executive officer in responsible for the ESG Management Department makes a final decision that specified projects are qualified from the viewpoint of consistency with NGK Group's basic environmental policy and environmental vision. The results are reported to the ESG Committee, which is chaired by President and consisting members of the general managers of each business division.

We will confirm that the following measures are taken for each eligible project in order to reduce environmental and social risks if necessary:

- Complying with environmental relating laws and regulations of Japan and local governments of the project location, and implementation of environmental impact studies as necessary
- Proving sufficient explanations to local residents in carrying out businesses
- Procurement of materials, prevention of environmental pollution, and consideration for the working environment and human rights in accordance with the NGK Group's philosophy and policies for global environmental conservation activities, basic purchasing policy, etc.

<Framework after Change >

Candidate projects, for which use of proceeds of green bonds are allocated, will be specified by NGK's ESG Management Department based on the conformity to the eligible criteria set forth in 2.1 Use of the proceeds. The executive officer in responsible for the ESG Management Department makes a final decision that specified projects are qualified from the viewpoint of consistency with NGK Group's basic environmental policy and environmental vision. The results are reported to the ESG Management Committee, which is chaired by President.

We will confirm that the following measures are taken for each eligible project in order to reduce environmental and social risks if necessary:

- Complying with environmental relating laws and regulations of Japan and local governments of the project location, and implementation of environmental impact studies as necessary
- Proving sufficient explanations to local residents in carrying out businesses
- Procurement of materials, prevention of environmental pollution, and consideration for the working environment and human rights in accordance with the NGK Group's philosophy and policies for global environmental conservation activities, basic purchasing policy, etc.

In the updated Framework, the committees involved have been changed in response to the NGK's reorganization. This is in response to the strengthening of the company's sustainability promotion system, as described below. JCR continues to assess that the updated selection process remains appropriate, as the management still participates in the ESG Management Committee.

(3) Management of the Proceeds

JCR assessed the fund managements described in this Framework as appropriate at the time of the previous assessment. JCR has confirmed that there are no changes in this updated Framework. Therefore, JCR believes that fund management system has been appropriately constructed and that the transparency will be ensured as in the previous evaluation.

(4) Reporting

As with its use of proceeds, its ICMA GBP Category is described in line with the latest version of the Japanese translation of the Green Bond Principles². In addition, in order to increase the accuracy, some updates have been made in this Framework as follows. The selection processes before and after the change are as follows.

<Framework before Change>

We will report on the status of allocation to eligible projects and impacts on the environment annually on the company's website and/or integrated report. The initial report will be published within one year after issuance of the green bonds.

<Framework after Change >

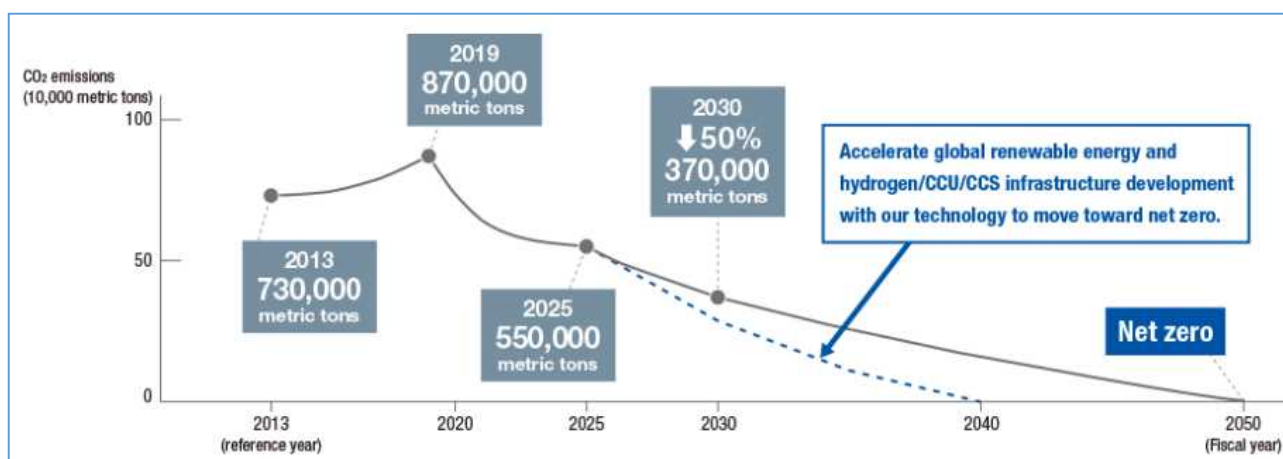
We will report on the status of allocation to eligible projects and impacts on the environment annually on the company's website and/or integrated report. The initial report will be published within one year after issuance of **each green bond**.

JCR evaluated the reporting system described in this Framework as appropriate at the time of the previous assessment. There were no changes to the reporting system in this update, which is intended to increase the accuracy, and JCR does not see any problem with the changes. Therefore, JCR believes that the reporting system has been appropriately constructed and that transparency is also ensured as in the previous evaluation. .

(5) Organizational Environmental Initiatives

In 2019, the NGK Group celebrated its 100th year. NGK has reviewed its philosophical Framework that has guided them up to now, and raised the NGK Group Philosophy; "Enriching Human Life by Adding New Value to Society" as its mission. As its goals, the Group set out "Quality of people Embrace challenges and teamwork," "Quality of Product Exceed expectations." and "Quality of management Social trust is our foundation." NGK Group Vision: Road to 2050 was formulated under this philosophy, and the ideal image for 30 years from now is "contributing to carbon neutrality (CN) and digital society (DS) with our unique ceramic technologies." To achieve this aspiration, the Group has set a target of raising CN and DS-related sales volume to 80% of the total by 2050. To achieve this long-term target, it has announced that it will make capital investment of JPY250 billion and research and development investment of JPY130 billion under the investment plan for fiscal 2021-2025.

The NGK Group also established its environmental vision at the same time. The vision aims to contribute to the realization of society's demands of "carbon neutrality," "a recycling-oriented society," and "harmony with nature" through NGK's business activities. The goal for 2050 is net zero CO₂ emissions for the entire group. As a milestone target to achieve this goal, NGK set emissions at 550,000 tons (down 25% from the base year of fiscal 2013) in fiscal 2025 and 370,000 tons (down 50% from the previous fiscal year) in fiscal 2030. In addition, four strategies (development and provision of carbon neutrality (CN)-related products/services, top-down enhancement of energy-saving, promotion of technical innovation, and expanded use of renewable energy) have been established to achieve a series of targets, and these strategies have been incorporated into the plan by the time of launching specific measures. On October 14, 2021, NGK announced its intention to switch the total amount of electricity used at overseas bases to renewable energy sources by fiscal 2025. As of fiscal 2025, approximately 60% of the electricity consumption of the NGK Group will be sourced from renewable energy and will contribute to reduce 330,000 tons of CO₂ per year. The target of reducing emissions in fiscal 2025 by 25% of fiscal 2013 level will be achieved through this initiative.



(Source: NGK Green Bond Framework)

In the Fifth Five-Year Environmental Action Plan (fiscal 2021-2025), in addition to carbon neutrality, management indicators are set for each of the other important environment-related issues, namely, a recycling-oriented society, harmony with nature, environmental social contribution, and promotion of environmental communication, with the aim of achieving them.⁴

In order to centralize discussions on ESG, NGK established ESG Committee, chaired by the president, in fiscal 2019, to discuss management issues from an ESG perspective across the company. However, the ESG Committee was reorganized in April 2022 to the ESG Management Committee, as it became increasingly necessary for the committee

⁴ NGK's website (Fifth Five-Year Environmental Action Plan) <https://www.ngk-insulators.com/en/sustainability/environment-management03.html>

to not only discuss but also deliberate on ESG-related themes. This has strengthened the management of NGK Group's sustainability issues, including ESG/SDGs elements, and has created a system in which the Board of Directors appropriately supervises the activities of the committee. Under the ESG Management Committee, five subcommittees have been established: Environmental Action Subcommittee, Governance Subcommittee, Supply Chain Subcommittee, TCFD Subcommittee, and Social Contribution Activities Subcommittee. The name "ESG Management Committee" is used to express the function of supervising the lower subcommittees. As in the ESG Committee, the ESG Management Department serves as the secretariat for the ESG Management Committee. In addition to serving as the secretariat of the Committee, the ESG Management Department handles the NGK Group's activities related to ESG and SDGs in a cross-sectional manner.

ESG Action System



(Source: NGK Green Bond Framework)

In promoting ESG initiatives, NGK actively participates in external initiatives such as the Global Compact and TCFD. Specifically, since April 2022, NGK has been publishing information on its website regarding the results of scenario analysis in line with the four items of the TCFD: "Governance," "Strategy," "Risk Management," and "Metrics and Targets."⁵ In addition, NGK applied for certification of SBTi (Science Based Targets initiative)⁶ in April 2022 to demonstrate that NGK's greenhouse gas reduction target is consistent with the 1.5°C target of the Paris Agreement. In developing new technologies, the company is actively engaged in industry-government-academia collaboration and joint R&D with different industries.

⁵ NGK's website <https://www.ngk-insulators.com/en/sustainability/environment-effort07.html>

⁶ SBTi is a joint initiative by WWF, CDP (formerly Carbon Disclosure Project), World Resources Institute (WRI), and the United Nations Global Compact. Promote corporates to set reduction targets consistent with scientific knowledge toward the goal of keeping global average temperature increases from climate change to 1.5 degrees, compared with pre-industrial levels. It emphasizes and recommends setting corporate visions and targets for greenhouse gas reduction based on long-term perspectives, such as 2050. Guidance and tools to support this goal setting have also been developed. In October 2020, more than 1000 companies worldwide committed to setting ambitious reduction targets under SBTi, making it a global standard for setting targets in line with the Paris Agreement.

Based on the above, JCR evaluates that, as in the previous evaluation, the management has positioned environmental issues as a high priority management issue, and that internal and external experts with specialized knowledge continue to be involved in the company's organizational efforts for sustainability.

4. Conclusion

As a result of verifying the matters described in the previous section, JCR confirmed that the contents of this Framework, including the revised part, are expected to have a significant environmental improvement effect in the green projects, which are the intended use of the proceeds. This Framework is considered to meet the standards for the items required by the Green Bond Principles and the Green Bond Guidelines.

[JCR Green Finance Framework Evaluation Matrix]

		Management, Operation and Transparency Evaluation				
		m1(F)	m2(F)	m3(F)	m4(F)	m5(F)
Greenness Evaluation	g1(F)	Green 1(F)	Green 2(F)	Green 3(F)	Green 4(F)	Green 5(F)
	g2(F)	Green 2(F)	Green 2(F)	Green 3(F)	Green 4(F)	Green 5(F)
	g3(F)	Green 3(F)	Green 3(F)	Green 4(F)	Green 5(F)	Not qualified
	g4(F)	Green 4(F)	Green 4(F)	Green 5(F)	Not qualified	Not qualified
	g5(F)	Green 5(F)	Green 5(F)	Not qualified	Not qualified	Not qualified

(Responsible analysts for this evaluation) Atsuko Kajiwara and Haruna Goto

Important explanation of this Evaluation

1. Assumptions, Significance, and Limitations of JCR Green Bond Evaluation
JCR Green Finance Framework Evaluation, which is granted and provided by the Japan Credit Rating Agency (JCR), is a comprehensive expression of JCR's current opinion on the extent to which the funds procured from the execution of green finance, which are subject to evaluation, are allocated to green projects defined by JCR and the extent to which the management, operation system, and transparency of the use of green bonds are ensured. JCR Green Finance Framework Evaluation does not fully indicate the extent to which the funds procured from such green finance are allocated and the management, operation, and transparency of the use of the funds are ensured.
JCR Green Finance Framework Evaluation assesses the plan or status of the appropriation of funds at the time of the green finance execution plan or at the time of execution, and does not guarantee the status of the appropriation of funds in the future. In addition, JCR Green Finance Framework Evaluation does not prove the environmental effects of green finance and is not responsible for their environmental effects. JCR confirms that the effects of the funds procured from the execution of green finance on the environment are measured quantitatively and qualitatively by the issuer or by a third party requested by the issuer, but in principle it does not directly measure the effects.
2. Method used to conduct this evaluation
The methods used in this evaluation are listed on JCR's website (Sustainable Finance & ESG in <https://www.jcr.co.jp/en>) as JCR Green Finance Evaluation Methodology.
3. Relationship with Acts Concerning Credit Rating Business
JCR Green Finance Framework Evaluation is determined and provided by JCR as a related business, which is different from the activities related to the credit rating business.
4. Relationship with Credit Ratings
The evaluation differs from the credit rating and does not promise to provide or make available for inspection a predetermined credit rating.
5. Third-Party Evaluation of JCR Green Finance Framework
There is no conflict of interest related to capital or human resources relationships between the subject of this evaluation and JCR.

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■Glossary

JCR Green Finance Framework Evaluation: JCR Green Finance Framework Evaluation evaluates the extent to which the funds procured from the Green finance are allocated to the Green Project as defined by JCR, and the extent to which the management, operation, and transparency of the Green Loan are ensured. Evaluations are graded on a scale of 5, beginning with the top, using the Green1(F), Green2(F), Green3(F), Green4(F), and Green5(F) symbols.

■Status of registration as an external assessor of green finance

- Ministry of the Environment's external green bond reviewer registration
- ICMA (registered as an observer with the International Capital Markets Association)

■Status of registration as a credit rating agency, etc.

- Credit Rating Agency: the Commissioner of the Financial Services Agency (Rating) No.1
- EU Certified Credit Rating Agency
- NRSRO: JCR has registered with the following four of the five credit rating classes of the Securities and Exchange Commission's NRSRO(Nationally Recognized Statistical Rating Organization. (1)Financial institutions, broker dealers, (2) insurance companies, (3) general business corporations, and (4) government and local governments. If the disclosure is subject to Section 17g-7(a) of the Securities and Exchange Commission Rule, such disclosure is attached to the news releases posted on the JCR website (<https://www.jcr.co.jp/en/>).

■For further information, contact

Information Services Dept. TEL: 03-3544-7013 FAX: 03-3544-7026

Japan Credit Rating Agency, Ltd.

Jiji Press Building, 5-15-8 Ginza, Chuo-ku, Tokyo 104-0061, Japan
Tel. +81 3 3544 7013, Fax. +81 3 3544 7026

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