

Third-Party Opinion on Transition Linked Loan Framework to JX Nippon Mining & Metals Corporation

Japan Credit Rating Agency, Ltd. (JCR) has submitted a third-party opinion on the transition linked loan framework to JX Nippon Mining & Metals Corporation ("JX NMM" or the "Company").

<Executive Summary>

This third-party opinion confirmed the conformity of the Transition Linked Finance Framework (the "Framework") formulated by JX NMM with the Climate Transition Finance Handbook ("CTFH")¹, the Basic Guidelines for Climate Transition Finance ("CTF Basic Guidelines")² (CTFH and CTF Basic Guidelines collectively, "CTFH, etc."), the Sustainability Linked Loan Principles ("SLLP")³, the Green Loan and Sustainability Linked Loan Guidelines (SLLP and the Ministry of the Environment guidelines collectively, "SLLP, etc."). In order to ensure the transparency and objectivity of the valuations recommended by CTFH, etc. and SLLP, etc., JCR, as an independent third party organization, conducted third-party evaluations of the following: (1) JX NMM's Transition Strategy and Its Appropriateness, (2) JX NMM's Sustainability Strategy and Establishment of Key Performance Indicators (KPIs) and Sustainability Performance Targets (SPTs), and (3) Loan Terms and Monitoring Systems during the period.

(1) Business Overview of JX NMM, Transition Strategy and Its Appropriateness

JX NMM opened the Hitachi Mine in 1905 and started the resource development business and the metal smelting business. From its foundation to the present day, the Company has consistently conducted its business activities, seeing the stable supply of non-ferrous metal resources and materials as its social mission. In 2017, JX Holdings, Inc. and Tonen General Sekiyu K.K. established an integrated holding company, JXTG Holdings Inc. In 2020, JXTG Holdings changed its trade name to ENEOS Holdings. As one of the core operating companies of ENEOS Group, JX NMM and its consolidated subsidiaries (JX NMM Group) operate six business fields: Functional Materials, Thin film Materials, Mineral Resources, Metals & Recycling, Tantalum and Niobium, and Titanium. The JX NMM Group is globally engaged in non-ferrous metal businesses, centered on copper and rare metals, ranging from resource development and smelting to the manufacture and development of advanced materials indispensable to a society in which IoT and AI are advancing, as well as recycling of used electronic devices.

The JX NMM Group's social mission is "Ensuring a stable supply of non-ferrous resources and materials" With the purpose of "continuing its efforts to confirm the productivity of resources and materials by promoting recycling aimed at zero emissions," the JX NMM Group has established a Group Code of Conduct⁴ that should be kept in mind in the conduct of business. In all aspects of its business activities, including the production, sales, and development of minerals, from exploration, mining, refining, and smelting to metal processing and electronic materials products, the Company is pursuing technological rationality, efficiency, quality, and improvements in

¹ Established by International Capital Market Association (ICMA) in December 2020.

² Established by the Financial Services Agency, the Ministry of Economy, Trade and Industry, and the Ministry of the Environment in May 2021.

³ Established and revised by Loan Market Association (LMAs), Asia Pacific Loan Market Association (APLMA) and Loan Syndication and Trading Association (LSTA) in May 2021

⁴ <https://www.nmm.jx-group.co.jp/english/company/policy/moedl.html>

characteristics in accordance with the Code of Conduct, while continuing to work to innovate the productivity of resources and materials by promoting recycling aimed at zero emissions. At the same time, it aims to "maintain and improve coexistence relationships with various stakeholders, and through these, contribute to the sustainable development of society on a global scale." As a guideline for its activities, the Group has formulated the Group's Basic Environmental Policy, which stipulates that it will promote the formation of a carbon-free society and a recycling-oriented society in order to contribute to the conservation of the environment on a global scale.

In 2019, the JX NMM Group formulated a long-term vision 2040 as the "Vision" that the Group should aspire to be. The company has announced that it will aim to be a global company that contributes to the development and innovation of society with advanced materials. It has shifted from a "process industry-type firm" to a "technology-based firm," and its basic policy is to contribute to the realization of a sustainable society aimed by SDGs, while realizing high income amid intensifying international competition. In addition, it has identified important social issues that need to be prioritized in order to realize this long-term vision, and has set the protection of the global environment as one of them.

JX NMM set the following targets for fiscal 2050, 2040 and 2030, respectively.

- Achieving Net Zero CO₂ emissions for Scope1,2 by fiscal 2050
- Achieving 50% ratio of recycled raw materials in copper smelting by fiscal 2040
- Reducing CO₂ emissions for Scope1,2 by 50% compared to fiscal 2018 by fiscal 2030

To achieve the above targets, JX NMM plans to (1) introduce CO₂ free electricity, (2) create renewable energy, (3) reduce energy consumption, and (4) convert fuel and drastically develop processes in order to reduce CO₂ emissions.

JX NMM has established an ESG Promotion Committee chaired by the president, which meets twice a year in principle with the participation of directors, executive officers, corporate auditors, and other members of the Executive Committee to discuss ESG-related initiatives. In addition, it has established a system to promote ESG management throughout the Group by sharing the content reported and discussed at the ESG Promotion Committee at the ESG Promotion Managers' Committee, which is composed of representatives from each business site and group companies. Furthermore, in January 2021, JX NMM launched the Carbon Free Project, a group-wide cross-organizational structure, with the purpose of considering concrete initiatives for achieving the targets for fiscal 2050 and fiscal 2030 for reducing CO₂ emissions by the Group as a whole, and began preparing a roadmap for achieving the medium-to long-term CO₂ emission reduction targets and considering specific reduction measures. The project has been positioned as a subordinate organization of the ESG Promotion Committee as the Carbon Free Committee (CF Committee) since April 2022, and continues its activities.

In its medium-term management plan covering fiscal 2020 to fiscal 2022, JX NMM announced plans to allocate 160 billion yen out of a total of 300 billion yen for the three years of its investment plan to strategic investments in technology development, focus businesses, base businesses, and ESG investments. It plans to carry out capacity enhancement ahead of schedule to meet increasing demand for thin-film materials in line with growing demand for data communications, and to vitalize ESG activities such as decarbonization and resource circulation, using 20 billion yen as ESG investment quota. It also plans to disclose future investment plans in conjunction with the formulation of a medium-term management plan for fiscal 2023 and beyond.

JCR assesses that the above transition strategies and specific policies described above satisfy the four elements of CTFH, etc.

(2) JX NMM's Sustainability Strategy and Establishment of KPIs and SPTs

JCR has confirmed that JX NMM will set the following KPIs and SPTs in the Transition Linked Loan (the Loan) to be executed under the Framework.

KPI1:CO₂ emissions (on a gross basis, Scope1, 2)

SPT1: Maintain a 50% reduction in CO₂ emissions (on a gross basis, Scope1, 2) compared to fiscal 2018 by fiscal 2030

KPI2: Ratio of recycled raw materials

SPT2: Raise the ratio of recycled raw materials to 25% by fiscal 2030

In this Framework, JX NMM has set CO₂ emissions (Scope1 and 2) and recycled raw material ratio as KPIs, and has set SPTs for fiscal 2030 goals.

The above KPIs are consistent with JX NMM's mid-and long-term goals for fiscal 2040 and fiscal 2030, and are significant, because demand for electronic equipment, electric vehicles, storage batteries, etc. is expected to expand due to the progress of decarbonization and digital transformation, and efforts to reduce CO₂ emissions and improve the ratio of recycled raw materials are important for the industry as a whole in order to secure a stable supply of non-ferrous metal materials in the future. In terms of SPTs, JX NMM has set targets for reducing CO₂ emissions well above industry standards compared to its industry peers, and initiatives related to the recycled raw materials ratio require initiatives that exceed the conventional business (Business As Usual) compared to the company's own historical track records. JCR has therefore evaluated these targets as highly ambitious.

(3) Loan Terms and Monitoring System During the Period

JCR has identified in the loan's contractual documents that it has in place arrangements to alter its financial profile if it achieves SPTs. Definition of KPIs, establishment of SPTs, and the assumptions will also be described in the said contractual documents. In the event that the definition of KPIs, the establishment of SPTs, and the assumptions are changed due to circumstances that cannot be foreseen at the time of the implementation of this loan, the borrower plans to report the content of the change to the lender through a change report or other means. JX NMM plans to make annual disclosures on its website on the progress of its KPI-performance goals related to CO₂ emission reductions and recycled raw materials ratios. CO₂ emissions for scope1, 2 and ratio of recycled raw materials will be verified by a third party. Should a significant change in SPTs occur during the period, JCR will continue to review the status of compliance with CTFH, SLLP, etc. and confirm whether the initially assumed level of ambition and significance will be maintained. In the year of maturity, JX NMM, lender, and JCR will conduct a review of the individual transition-linked loans made under the Framework to assess not only the achievement of the SPTs, but also the status of realization of impact of the loans on JX NMM and society.

As a result of the above considerations, JCR has confirmed that this finance for JX NMM, which is the subject of this third-party opinion, is in compliance with the CTFH, SLLP, and other relevant requirements.

*Please refer to the following pages for details of the opinions.



Third-Party Opinion

Subject: Transition Linked Loan Framework
Borrower: JX Nippon Mining & Metals Corporation

June 29, 2022

Japan Credit Rating Agency, Ltd.

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As a result of the above considerations, JCR has confirmed that this finance for JX NMM, which is the subject of this third-party opinion, is in compliance with the CTFH, SLLP, and other relevant requirements.

I. Positioning and Purpose of Third-Party Opinions

JCR conducted a third-party evaluation of this framework in line with CTFH, SLLP, etc. CTF refers to a financial method aimed at supporting the initiatives of corporates considering measures for climate change when they are making efforts to reduce greenhouse gases in accordance with long-term strategies in order to realize a carbon-free society. SLLs are loan products, commitment lines, and other credit lines that are designed to help borrowers and lenders realize a sustainable society by incentivizing the borrower to achieve ambitious SPTs set in advance.

CTFH consists of four elements: element 1 is the transition strategy and governance of the issuer and others; element 2 is an important environmental issue in the company's business model; element 3 is based on scientific grounds; and element 4 is ensured transparency of the investment plan for the transition.

SLLP and others consists of five principles: the first principle is selection of KPIs; the second principle is calibration of SPTs; the third principle is loan characteristics; the fourth principle is reporting; and the fifth principle is verification.

The purpose of this third-party opinion is to confirm by JCR, as an independent third-party organization, conformity of this framework with the Principles 1-5 of SLLP and the Guidelines, as well as with the four elements of CTFH and the CTF Basic Guidance, in order to ensure the transparency and objectivity of the evaluation recommended in the CTF Basic Guidelines and SLLP Principle 5.

II. Outline of the Subject Matter of Third-Party Opinion

The scope of this evaluation is the Transition Linked Loan Framework prepared by JX NMM in June 2022. The following are the endpoints included in this third-party opinion.

1. The Sustainability Relationship of this Framework
2. JX NMM's Long-Term Vision and Transition Strategy
3. Consistency with items required in CTFH
4. Consistency with SLLP and others (Principle 1) Appropriateness of KPI Selection
5. Consistency with SLLP and others (Principle 2) Calibration of SPTs
6. Consistency with SLLP and others (Principle 3) Loan Characteristics (Economic Conditions)
7. Consistency with SLLP and others (Principle 4) Reporting and Verification
8. Conclusions on compliance with CTFH, SLLP, etc.

III. Confirmation of this Framework's Conformity with SLLP, CTFH, etc.

1. The Sustainability Relationship of this Framework

JX NMM established the following KPIs and SPTs related to the initiatives emphasized in its materiality when procuring funds under the Transition Linked Loan Framework. These KPIs and SPTs are among the company's most important issues in its sustainability strategy, as described in detail in the following section.

KPI1:CO2 emissions (on a gross basis, Scope1, 2)

SPT1: Maintain a 50% reduction in CO₂ emissions (on a gross basis, Scope1, 2) compared to fiscal 2018 by fiscal 2030

KPI2: Ratio of recycled raw materials

SPT2: Raise the ratio of recycled raw materials to 25% by fiscal 2030

2. JX NMM's Long-Term Vision and Transition Strategy

<Basic Philosophy System>

The JX NMM Group's social mission is to "Ensuring a stable supply of non-ferrous resources and materials." With the purpose of "continuing its efforts to confirm the productivity of resources and materials by promoting recycling aimed at zero emissions," the JX NMM Group has established a Group Code of Conduct that should be kept in mind in the conduct of business. In all aspects of its business activities, including the production, sales, and development of minerals, from exploration, mining, refining, and smelting to metal processing and electronic materials products, the Company is pursuing technological rationality, efficiency, quality, and improvements in characteristics in accordance with the Code of Conduct, while continuing to work to innovate the productivity of resources and materials by promoting recycling aimed at zero emissions. At the same time, it aims to "maintain and improve coexistence relationships with various stakeholders, and through these, contribute to the sustainable development of society on a global scale." As a guideline for its activities, the Group has formulated the Group's Basic Environmental Policy, which stipulates that it will promote the formation of a carbon-free society and a recycling-oriented society in order to contribute to the conservation of the environment on a global scale.

JX Nippon Mining & Metals Group Basic Environmental Policy

As a comprehensive manufacturer of nonferrous metals and advanced materials, the JX Nippon Mining & Metals Group is rising to the challenge of innovation in the productivity of resources and materials. Committed to compliance with environmental regulations, we carry out the following initiatives in order to proactively strive for environmental conservation on a global scale, including measures against global warming, and contribute to building a sustainable society.

1. We will contribute to achieving a decarbonized society by promoting technological innovation and energy transition and aiming for zero greenhouse gas emissions.
2. We will supply environmentally-friendly advanced materials to support the growth and advancement of society.
3. We will promote resource recycling and aim for zero emissions in all our business activities.
4. We will thoroughly raise each employee's awareness of environmental conservation through environmental education, leading to business activities with less environmental impact.
5. We will share information on environmental conservation activities with stakeholders and seek to operate in harmony with society.

(Source: JX NMM Group website)

<Business Overview>

JX NMM opened the Hitachi Mine in 1905 and started the resource development business and the metal smelting business. From its foundation to the present day, the Company has consistently conducted its business activities, seeing the stable supply of non-ferrous metal resources and materials as its social mission. In 2017, JX Holdings, Inc. and Tonen General Sekiyu K.K. established an integrated holding company, JXTG Holdings Inc. In 2020, JXTG Holdings changed its trade name to ENEOS Holdings. As one of the core operating companies of ENEOS Group, JX NMM and its consolidated subsidiaries (JX NMM Group) operate six business fields: Functional Materials, Thin film Materials, Mineral Resources, Metals & Recycling, Tantalum and Niobium, and Titanium. The JX NMM Group is globally engaged in non-ferrous metal businesses, centered on copper and rare metals, ranging from resource development and smelting to the manufacture and development of advanced materials indispensable to a society in which IoT and AI are advancing, as well as recycling of used electronic devices.

<2040 JX NMM Group Long-Term Vision>

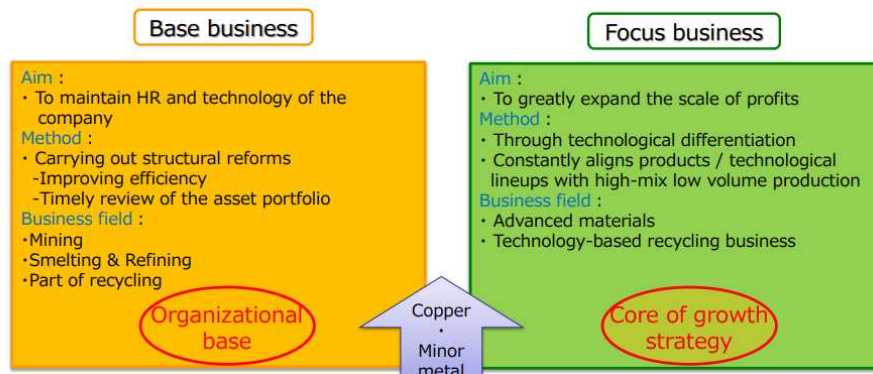
In 2019, the JX NMM Group formulated a long-term vision 2040 as the "Vision" that the Group should aspire to be. The company has announced that it will aim to be a global company that contributes to the development and innovation of society with advanced materials. It will shift from a "process industry-type firm" to a "technology-based firm," and its basic policy is to contribute to the realization of a sustainable society aimed by SDGs, while realizing high income amid intensifying international competition. In addition, it has identified important social issues that need to be prioritized in order to realize this long-term vision, and has set the protection of the global environment as one of them.

Figure 1: 2040 JX NMM Group Long-Term Vision: Basic Policy

3. Basic policy – Long-Term Vision –

✓Moving from a process industry-type to a technology-based firm
 ✓Designing to continue generating high profits as well as contributing to the realization of sustainable society

- Positioning our individual businesses as a "focus business" or a "base business"
- Positioning minor metals essential to advanced materials as central domains



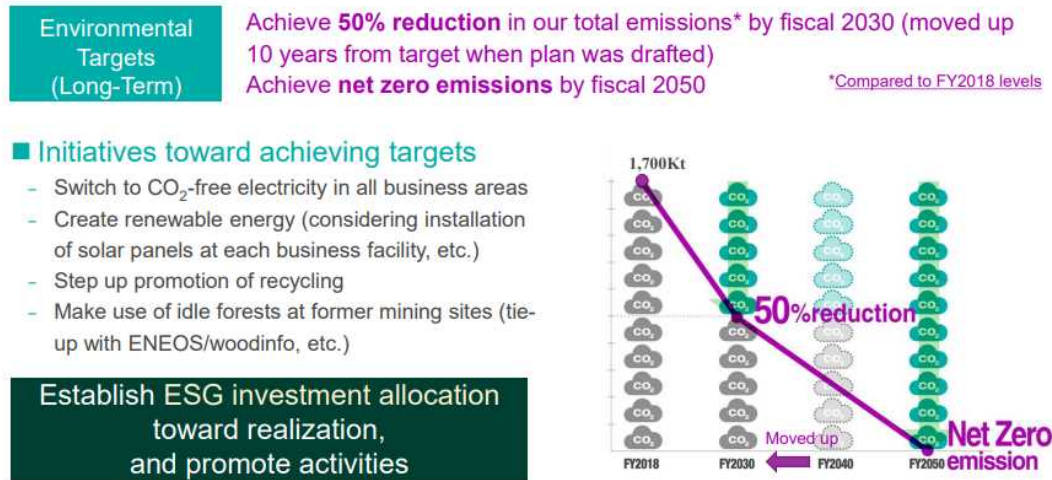
(Source: JX NMM Group FY2020-FY2022 Medium-Term Management Plan Briefing Materials)

<Medium-Term Management Plan>

In its medium-term management plan announced in July 2020, JX NMM has established basic strategies for each of its businesses and technological development based on its basic policy of promoting "realization of its long-term vision" and "transformation into a technology-driven company." The medium-term management plan calls for further promotion of ESG management, and its core measures include (1) decarbonization efforts toward net zero emissions in fiscal 2050, and (2) promotion of hybrid smelting and promotion of lithium-ion battery (LiB) recycling to realize a recycling-oriented society.

Figure 2: ESG Management Promotion: Decarbonization initiatives in the Medium-Term Management Plan

2-5-2. ESG Management Promotion: Decarbonization initiatives



(Source: JX NMM Group 2020-2022 Medium-Term Management Plan Progress Briefing Materials)

Figure 3: ESG Management Promotion: Toward establishment of a recycling-oriented society

2.5.3. ESG Management Promotion: Toward establishment of a recycling-oriented society

Promotion of hybrid smelting technology	Promotion of lithium-ion battery recycling
Aim for a recycled materials input ratio of 50% in copper smelting and refining by 2040	On the way to realizing closed-loop recycling of onboard lithium-ion batteries, work to establish mechanisms and technology
<p>Objectives</p> <ul style="list-style-type: none"> ■ Aim to reduce energy consumption and obtain stable supplies of resources by means of high-efficiency, large-scale recycling that makes effective use of excess heat generated in processing copper concentrate 	<p>Devise mechanisms</p> <ul style="list-style-type: none"> ■ Collaborate with automakers, and link to development of cathode materials for solid-state lithium-ion batteries
<p>Enhance organizational structure</p> <ul style="list-style-type: none"> ■ Newly established the Saganoseki Branch of the Technology Development Center (October 2020) ■ Merged the Smelting Technology Department and the Recycling Technology Department (April 2021) 	<p>Develop technology</p> <ul style="list-style-type: none"> ■ Carry out ton-based verification experiments at Tsuruga* [Expected start of recovery] Nickel sulfate: 2021 first half Cobalt sulfate: 2022 first half

*JX Metals Circular Solutions was established in May 2021 and is to start operation in October.

(Source: JX NMM Group 2020-2022 Medium-Term Management Plan Progress Briefing Materials)

<Materiality (Material Issues)>

In 2019, the JX NMM Group formulated a long-term vision 2040, and one of its basic policies is to contribute to the realization of a sustainable society aimed by SDGs. It has identified important social issues (materiality) that need to be prioritized in order to realize this long-term vision, and has set the protection of the global environment that is "contribution to the conservation of the

global environment through the realization of a decarbonized society and the formation of a recycling-oriented society" as one of them.

Figure 4: Materiality and Contents of Initiatives

	Materiality	Initiatives	Related SDGs
E	Contribute to Environmental Conservation	<ul style="list-style-type: none"> Contribute to global environmental conservation by creating a carbon-free and recycling-oriented society. 	
	Provide Advanced Materials That Support Lives and Lifestyles	<ul style="list-style-type: none"> Advance development of new technologies and contribute to an IoT / AI society. 	
S	Create Attractive Workplaces	<ul style="list-style-type: none"> Create a healthy, safe, and peaceful working environment for all employees. Create an environment in which diverse employees feel fulfilled and fully express their talents. 	
	Respect Human Rights	<ul style="list-style-type: none"> Conduct business activities that respect the human rights of all throughout the supply chain, including local community residents, customers, employees, and business partners. 	
	Promote Community Involvement and Development	<ul style="list-style-type: none"> Foster relationships of trust with local communities through community-based social contribution activities and communications in every business location in Japan and abroad. 	
G	Strengthen Governance	<ul style="list-style-type: none"> Ensure sound, transparent business management via thorough compliance and risk management activities. 	

(Source: JX NMM website)

<Goals established for the environment>

JX NMM set a target of reducing CO₂ emissions by 50% from fiscal 2018 level in fiscal 2040, a target of achieving a 50% recycled raw material ratio in copper smelting in fiscal 2040, and a target of achieving a net zero CO₂ emissions in fiscal 2050, which are the target of the Group's long-term vision. Recognizing that social trends require further acceleration of efforts to combat climate change, JX NMM subsequently announced in April 2021 that it would revise its goal for reducing CO₂ emissions in fiscal 2040 and bring the target year forward by 10 years.

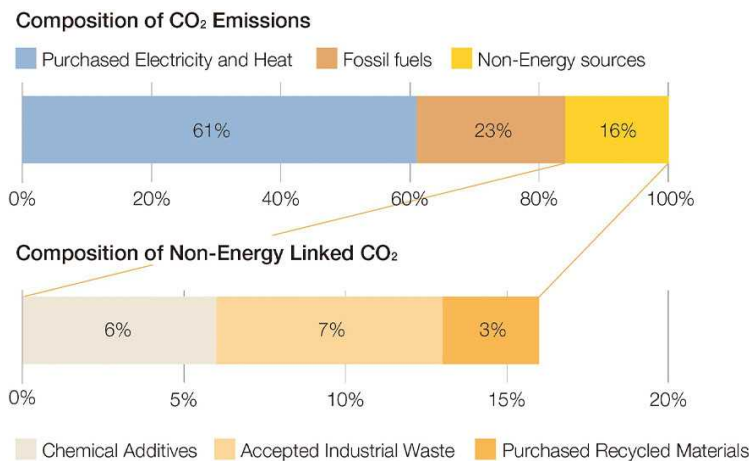
Target year	Contents of Targets
FY2050	Achievement of Net Zero CO ₂ Emissions (Scope1, 2)
FY2040	Achievement of 50% ratio for recycled raw materials in copper smelting
FY2030	Reduction of CO ₂ emissions (Scope1, 2) by 50% compared to fiscal 2018

(Source: Prepared by JCR from the JX NMM Group website)

The target for reducing JX NMM CO₂ emissions is Scope1, 2 and covers the entire JX NMM Group. The CO₂ emissions of JX NMM in the base year is approximately 1.81 million t-CO₂, and

approximately 80% are energy-derived emissions coming from electricity and fossil fuels, and the remaining 20% are non-energy-derived emissions coming from purchased recycled raw materials, industrial waste and chemical additives used in the process..

Figure 5: Breakdown of total CO₂ emissions



(Source: JX NMM website)

JX NMM is a member of International Council on Mining and Metals (ICMM)⁵, which is composed of non-ferrous metal companies worldwide, and has expressed its endorsement to ICMM Statement on Climate Change⁶ published by ICMM. ICMM states that all member companies are committed to reducing Scope 1 and Scope 2 GHG emissions to net zero by 2050, in line with the target level of the Paris Agreement, and JX NMM is promoting efforts to achieve the goals in this statement.

<Contributing to the Realization of a Recycling-Oriented Society>

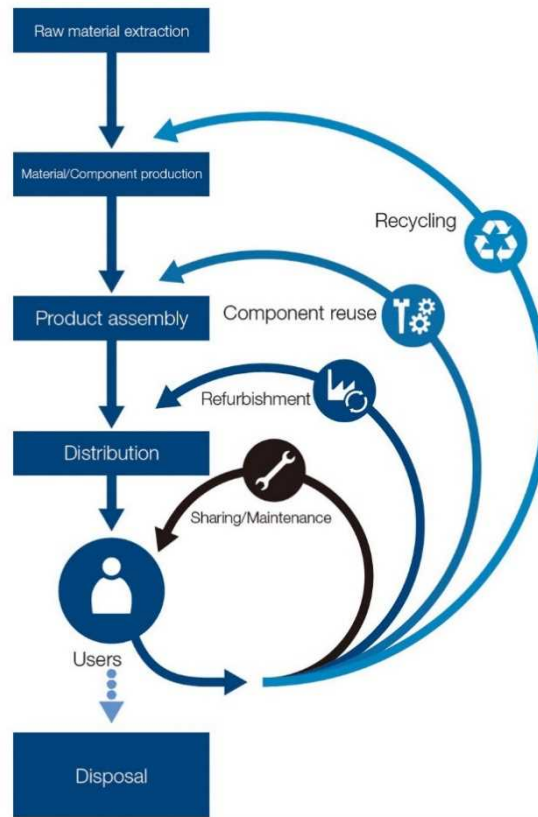
As a resource-related company, JX NMM has set its contribution to a recycling-oriented society as one of its priority items, and believes that its mission as a material industry is to minimize the amount of resources that are ultimately discarded through repeated recycling while maintaining the maximum value of resources. The company plans to focus on the following initiatives to realize a circular economy system.

1. Business and technology development in material recycling, the last bastion of resource circulation and an area where the company has been making great effort for many years
2. Reduce waste in resources and energy in the supply chain by improving the yield of mining and smelting production processes
3. Contribute to greater durability and reusability of final products and components through the supply of advanced materials with high functionality and quality
4. Contribution to the spread of digital infrastructure supporting recycling-oriented businesses

⁵ International Council on Mining & Metals <https://www.icmm.com/>

⁶ <https://www.icmm.com/en-gb/environment/climate-change/net-zero-commitment>

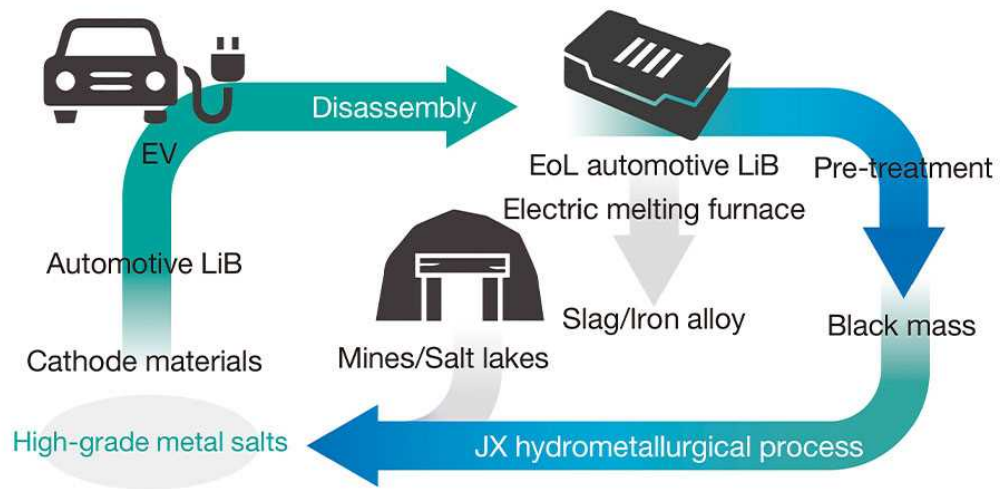
Figure 6: Conceptual Diagram of the Circular Economy



(Source: JX NMM website)

JX NMM is developing advanced activities in the area of resource circulation. In particular, in preparation for the large amount of used automotive LiBs that are expected to be generated as a result of the spread of EVs, JX NMM is developing technologies to realize "closed-loop recycling," in which rare metals contained in used batteries are used again as raw materials for automotive batteries, from the viewpoint of effective utilization and stable securing of resources. As part of this effort, JX NMM established JX NMM Circular Solutions Europe GmbH (JXCSE) in August 2021 as a base for promoting the commercialization of LiB recycling in Europe, the center of the EV shift, and is working with Germany-based TANI OBIS GmbH of the JX NMM Group to further advance its automotive LiB recycling technology. In April 2022, the project to recycle automotive LiBs through closed-loop recycling was adopted by NEDO (New Energy and Industrial Development Organization) as a "Green Innovation Fund Project."

Figure 7: Conceptual Diagram: LiB Closed-Loop Recycling



(Source: JX NMM website)

<ESG Promotion System>

In October 2020, JX NMM established the ESG Promotion Department to oversee ESG initiatives with the purpose of tackling ESG management from a company-wide perspective, and also established related committees for ESG. The ESG Promotion Committee chaired by the president, with the ESG Promotion Department in charge of the secretariat, meets twice a year in principle with the participation of directors, executive officers, corporate auditors, and other members of the Executive Committee. In addition, it has established a system to promote ESG management throughout the Group by sharing the content reported and discussed at the ESG Promotion Committee at the ESG Promotion Managers' Committee, which is composed of representatives from each business site and group companies.

Furthermore, in January 2021, JX NMM launched the Carbon Free Project with the purpose of considering concrete initiatives for achieving the targets for fiscal 2050 and fiscal 2030 for reducing CO₂ emissions by the Group as a whole. This project is a company-wide cross-organizational organization composed of representatives from headquarters-related departments such as the ESG Promotion Department, Equipment Engineering Department, Procurement Department, Environment and Safety Department, and Logistics Department, as well as from each business department and affiliated company. It began preparing a roadmap for achieving the medium-to long-term CO₂ emission reduction targets and considering specific reduction measures. The project has been positioned as a subordinate organization of the ESG Promotion Committee as the Carbon Free Committee since April 2022, and continues its activities.

Figure 8: ESG Promotion System



(Source: JX NMM website)

3. Consistency with items required in the Climate Transition Finance Handbook

3-1. Element 1: Issuer Transition Strategy and Governance

- (1) Does the issuer, etc. that raises funds have a strategy for the transition for climate change mitigation?

The JX NMM Group has made the contribution to SDGs a key management issue in its 2040 Long-Term Vision. In its medium-term management plan covering fiscal 2020 to fiscal 2022, the JX NMM Group also announced that it would promote initiatives to achieve SDGs through "Provision of advanced materials supporting daily life" and "Contributions to global environmental conservation (Helping to realize a carbon-free society)." Based on these assumptions, the following targets are set as the medium-and long-term targets for reducing CO₂ emissions.

- Zero net CO₂ emissions by fiscal 2050
- Reduce CO₂ emissions of Scope1,2 by 50% compared to fiscal 2018 by fiscal 2030

In order to achieve the above targets for fiscal 2050 and fiscal 2030, it intends to take various measures such as (1) introduction of CO₂ free electricity, (2) creation of renewable energy, (3) reduction of energy consumed, and (4) conversion of fuels and drastic process-development.

- (2) Whether the purpose of using the "Transition" label in procuring funds is to contribute to the realization of corporate strategies for issuances, etc. to move to a business model that can effectively address climate change-related risks and contribute to the achievement of the goals of the Paris Agreement.

ICMM Statement on Climate Change signed by JX NMM states that as a manager of minerals and metals essential for decarbonization and sustainable development, it is responsible for minimizing the environmental impact of its operations. The JX-NMM's annual CO₂ Emissions (Scope1, 2) was 1,350,000 t-CO₂ in fiscal 2020, and it is an urgent task to proceed with the initiative toward the 2050 Carbon Neutralization. JCR evaluate that JX-NMM intends to move to a business model that will fulfill its responsibilities as a mineral and metal company and support the decarbonization of the company's value chain as well as other industries' value chains by developing a transition strategy for climate change-related risks and advancing initiatives in line with the 2050 carbon neutral goals set out in the Paris Agreement.

- (3) Is a governance system established to ensure the effectiveness of the transition strategy?

As detailed in the ESG promotion system, JX NMM has established a system that can promote ESG throughout the group. In addition, JX NMM launched the Carbon Free Project in January 2021 with the aim of examining concrete initiatives for achieving the targets for fiscal 2050 and fiscal 2030 related to reducing CO₂ emissions throughout the JX NMM Group, and subsequently positioned the Carbon Free Committee as a subordinate organization of the ESG Promotion Committee in April 2022. The Carbon Free Committee is a cross-company organization composed of representatives from related departments at the head

office, business divisions, and affiliated companies. It prepares a roadmap for achieving medium-to long-term CO₂ emission reduction targets and promotes examination of concrete reduction measures. Accordingly, JCR evaluates that a governance system to implement the transition strategy has been established.

3-2. Element 2: Important environmental issues in a company's business model

JX NMM is a member company of ICMM, which is composed of global non-ferrous metal companies, as mentioned above, and has expressed its endorsement to ICMM statement on climate change published by ICMM. In line with the target level of the Paris Agreement, ICMM states that all member companies will commit to net-zero GHG emissions of Scope1 and Scope2 by 2050. As an initiative to achieve the goals of this statement, it is an important issue for JX NMM to promote efforts to reduce CO₂ emissions in its own Scope1 and 2 toward the achievement of its basic environmental policy and medium- to long-term targets, which are based on its mission to create a decarbonized and recycling-oriented society, in order for it to contribute to global environmental protection.

In addition, copper materials, functional materials and thin film materials for semiconductor materials, handled by JX NMM, are used in electronic equipment, electric vehicles, and storage batteries, and demand for these materials is expected to increase in the future with the progress of decarbonization of society through the spread of renewable energy such as offshore wind and electric vehicles and also digital transformation through the use of IoT and AI technologies, etc. According to the Ministry of Economy, Trade and Industry⁷, copper demand is expected to increase as various initiatives to achieve carbon neutrality are promoted, and Japan's technological capabilities are expected to make a significant contribution, presenting a great opportunity.

Figure 9: Progress of carbon neutrality and increase of copper demand

Please refer the website of Ministry of Economy, Trade and Industry

https://www.meti.go.jp/shingikai/sankoshin/seizo_sangyo/pdf/012_s01_00.pdf (Japanese)

In its 2040 long-term vision, JX NMM recognizes the worsening of resource shortages and depletion and the expansion of needs for advanced materials as social trends, and intends to position its advanced materials and recycling businesses as the core of its growth strategy as its focus businesses and to build a structure for them. The company's medium-term business plan also states that based on its long-term vision, it will promote initiatives to contribute to achieving SDGs by "Provision of advanced materials supporting daily life" and "Contributions to global environmental conservation (Helping to realize a carbon-free society)."

In addition, JX NMM also declares that it will contribute to global environmental conservation as its materiality, through the realization of a decarbonized society and the formation of a

⁷ https://www.meti.go.jp/shingikai/sankoshin/seizo_sangyo/pdf/012_s01_00.pdf

recycling-oriented society.

Based on the above, JCR evaluates JX NMM's initiatives to realize a decarbonized society are positioned as a top business priority.

3-3. Element 3: Based on scientific evidence

Does the transition roadmap meet the following requirements?

- (1) It is quantitatively measurable and covers Scope 1 and 2. (it is desirable that Scope 3 be set as a target to the extent feasible)

JX NMM has measured CO₂ emissions related to Scope 1, 2 for domestic and overseas group companies and obtained third-party certification. The roadmap on transitions for JX NMM has stated that it aims to reduce Scope 1, 2 by 50% from the fiscal 2018 level by fiscal 2030 and to achieve zero net CO₂ emissions by fiscal 2050. The company is also assessing Scope 3 calculation methods and emissions. It plans to publish emissions and set reduction targets for Scope 3 in the future, and promote measures to reduce CO₂ emissions throughout the supply chain.

- (2) Consistent with generally accepted scientific evidence-based target setting

The targets for JX NMM to reduce CO₂ emissions by 50% compared to fiscal 2018 by fiscal 2030 and CO₂ net emissions by fiscal 2050 are consistent with the Japanese government's goal of becoming carbon neutral by 2050 and a 46% reduction in greenhouse gases by 2030 compared to fiscal 2013, as well as the target-setting methodology required by ICMM Statement on Climate Change published by ICMM, an international organization for non-ferrous metals (setting Scope 1, 2 targets, accelerating Scope 3 efforts to reduce greenhouse gas emissions, covering all significant sources, aiming to reduce absolute volumes, using methodologies for setting targets in line with the Paris Agreement targets, publicizing and external verification of Scope 1 to 3 progress, and reporting in accordance with TCFD recommendations as a guarantee of transparency in disclosures). Therefore, JCR has assessed that the JX NMM's CO₂ reduction targets are consistent with industry-wide objectives and the SBTs and other scientific-based CO₂ reduction targets that have been set to achieve the goals of Japanese policies and the Paris Agreement.

- (3) Published (including midpoint milestones)

JX NMM has announced on its website the targets of reducing CO₂ emissions by 50% from the fiscal 2018 level by fiscal 2030 and achieving zero net CO₂ emissions by fiscal 2050, as well as single-year targets and results aimed at achieving medium-to long-term targets.

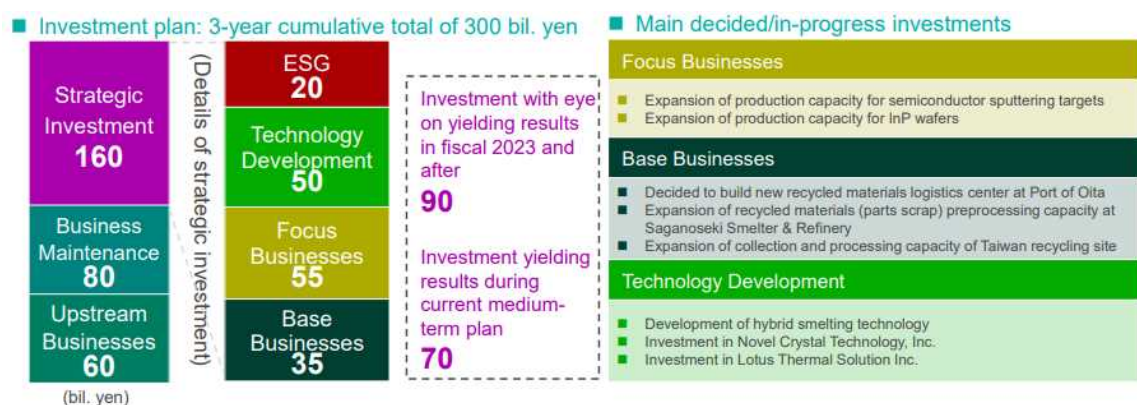
- (4) Certification and verification by an independent third party

JX NMM has obtained third-party certification for its environmental data, including actual CO₂ emissions.

3-4. Element 4: Transparency is assured in the investment plan for transition

In its medium-term management plan covering fiscal 2020 to fiscal 2022, JX NMM announced plans to allocate 160 billion yen out of a total of 300 billion yen for the three years of its investment plan to strategic investments in technology development, focus businesses, base businesses, and ESG investments. It plans to carry out capacity enhancement ahead of schedule to meet increasing demand for thin-film materials in line with growing demand for data communications, and to vitalize ESG activities such as decarbonization and resource circulation, using 20 billion yen as ESG investment quota. It also plans to disclose future investment plans in conjunction with the formulation of a medium-term management plan for fiscal 2023 and beyond.

Figure 10: Investment Strategy



(Source: JX NMM Group 2020-2022 Medium-Term Management Plan Progress Briefing Materials)

As stated above, JX NMM has a policy of disclosing concrete investment plans for achieving the targets for reducing CO₂ emissions in fiscal 2030 and 2050, together with the medium-term management plan going forward. JCR evaluates that the company's transparency is high.

With the implementation of the transition strategy for JX NMM, JCR confirmed that there was no negative impact on employment or on society other than climate change, and that appropriate measures were being taken in the environmental aspect, such as the development of technology for material recycling to contribute to a recycling-oriented society. With regard to the possibility of lock-in to fossil fuels, it expects the use of CO₂-free power sources at mines, smelters, factories, and other business sites, use of renewable energy off-site and on-site, energy-saving efforts, fuel conversion, and development of process technologies in order to achieve the medium-to long-term CO₂ reduction target. Therefore, there is no possibility of a lock-in to fossil fuels. Furthermore, the investment program for the transition in this framework is not expected to materially harm other environmentally beneficial projects (Do No Significant Harm), and the impact of the

investment on just transition is not currently anticipated.

Based on the above, JCR has evaluated that this framework satisfies the four elements required by the Climate Transition Finance Handbook.

4. Consistency with SLLP, etc.: Principle 1 Appropriateness of KPI selection

4-1. Evaluation perspective

In this section, JCR assesses the significance of selected KPIs of the borrower, focusing on whether they contain the following elements as illustrated in SLLP and elsewhere.

- 1) Are the KPIs relevant, core and material to the borrower's overall business, and of high strategic significance to the borrower's current and/ or future operations?
- 2) Are they measurable or quantifiable based on a consistent methodological basis and can be externally verifiable?
- 3) Can be benchmarked (i.e. as much as possible using an external reference or definitions to facilitate the assessment of the SPT's level of ambition)?

4-2. Current Situation of Evaluation Targets and Evaluation of JCR

(Evaluation Results)

The KPIs defined in this framework include all the elements required by SLLP, etc., and significant KPIs that contribute to the achievement of the medium and long-term goals for JX NMM have been selected.

All of KPIs selected in this framework are consistent with JX NMM's long-term environmental objectives. As a manufacturer of non-ferrous and advanced materials that support society, JX NMM believes that its mission is to promote ESG responses in its own business activities and to fulfill its responsibility to provide a stable supply of materials to society as a whole. The company positions ESG as one of the most important management issues for the group, and intends to make company-wide efforts to address climate change, contribute to a recycling-oriented society, and comply with international norms and initiatives as high-priority issues.

(1) Significance of KPI 1

The company's efforts to decarbonize its own activities in response to climate change are essential to its business model, in light of the introduction of a carbon tax in the future, in addition to its active contribution to the global environment. These KPIs are important for the company's business activities, as taking the lead in promoting decarbonization initiatives by the JX NMM Group as a major non-ferrous metal group may have a ripple effect in the industry.

(2) Significance of KPI 2

With regard to many of the resources handled by JX NMM, a shortage of raw material supply as a society challenge is expected in the future, due to an increase in demand for electronic devices, electric vehicles, and storage batteries, in line with progress of decarbonization of society through the spread of renewable energy such as offshore wind and electric vehicles and also digital transformation through the use of IoT and AI

technologies, etc. JX NMM considers its mission is to provide a stable supply of non-ferrous metal materials over the long term in order to support the decarbonization of society as a whole. As one of the measures to cope with the tightening of raw materials, establishment of horizontal recycling and closed-loop recycling systems by increasing the recycling rate, as described in these KPIs, is expected to contribute to the promotion of decarbonization not only in the non-ferrous metals industry, but also in other sectors.

Both KPIs 1 and 2 are measured based on consistent methods and are externally verified. In addition, the numbers used are comparable, using countries, international initiatives, peer companies, etc. as benchmarks. Based on the above, JCR has evaluated that the KPIs selected in this framework are significant.

5. Consistency with SLLP, etc.: Principle 2 Calibration of SPTs

5-1. Evaluation perspective

In this section, JCR assesses the level of ambition and significance of the borrower's established SPTs, focusing on whether they include the following factors illustrated in SLLP and elsewhere:

- 1) Are SPTs represent a material improvement in the respective KPIs and be beyond a "Business as Usual" trajectory?
- 2) (Where possible) can be compared to a benchmark or an external reference?
- 3) Are they consistent with the borrowers' overall strategic sustainability / ESG strategy?
- 4) Are they determined on a predefined timeline, set before (or concurrently with) the issuance of the loan?

Next, JCR examines the benchmarks and other factors taken into account when setting the borrower's SPTs. The following elements are illustrated in SLLP and others.

- ✓ Establish quantitative measures based on the borrower's own recent performance level (select KPIs with at least the last three years' track records whenever possible) and also disclose forward-looking information on KPIs as much as possible.
- ✓ Relative positioning of established SPTs relative to peers (e.g., average level of performance, industry-leading level, etc.)
- ✓ Scientific-based scenario analyses and absolute values (e.g., carbon budgets), national and regional or international targets (e.g., the Paris Agreement, CO₂ Zero Emissions Targets, SDGs, etc.), recognized BATs (best available technologies) and other indicators that determine relevant targets across ESG topics

5-2. Current Situation of Evaluation Targets and Evaluation of JCR

(Evaluation Results)

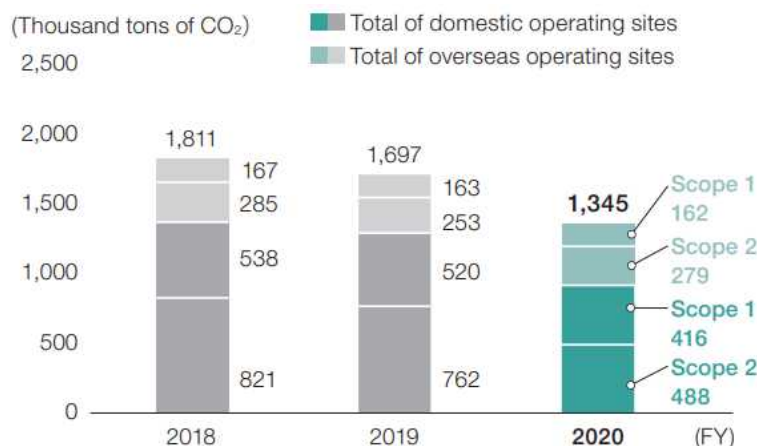
SPTs set by JX NMM are ambitious relative to the Company's historical performance and those of its peers.

- (1) Comparison with the company's historical track record

About KPI 1 Track Records

The following illustration shows JX-NMM's CO₂ emissions over the last three years. In the most recent fiscal years of 2019 and 2020, there was a downward trend due to reduced economic activity from the second half of fiscal 2019, following the global pandemic of the new Corona Virus, as well as changes in business platforms arising from the sale of businesses and energy-saving measures in fiscal 2020.

Figure 11: Actual Scope1, 2's CO₂ Emissions and Breakdown



(Source: JX NMM website)

On the other hand, the following chart shows the estimates of CO₂ emissions for 2030 and 2050. JX NMM announced the construction of a new plant in Hitachi City, Ibaraki Prefecture⁸ in December 2021 and a new plant in Hitachinaka City, Ibaraki Prefecture⁹ and Arizona, U.S.¹⁰ in March 2022. The company plans to expand its focus business such as functional materials, thin film materials, and other products in the future, so energy consumption is expected to increase in line with business expansion. In addition, along with efforts to increase the ratio of recycled raw materials in SPT 2, it is expected that Scope 1 emissions of CO₂ will increase due to increased fuel such as plastics when conducting pretreatment of recycled raw materials. Therefore, SPT 1's numerical targets, when compared with the track record to date and the anticipated growth in CO₂ emissions associated with future business growth, require initiatives that go beyond the conventional business (Business As Usual), and JCR evaluates them as having ambitions.

Figure 12: Estimates of CO₂ emissions

Please refer the website of JX NMM website

https://www.nmm.jx-group.co.jp/newsrelease/upload_files/2022/06/29/6018119_01_20220629_02.pdf

Regarding the recycled raw material ratio of SPT 2, the actual results of JX NMM in the last 3 years have been hovering at the level of about 12~13%. Aiming for 25% of recycled raw materials ratio in fiscal 2030, in order to increase it to about twice the current level,

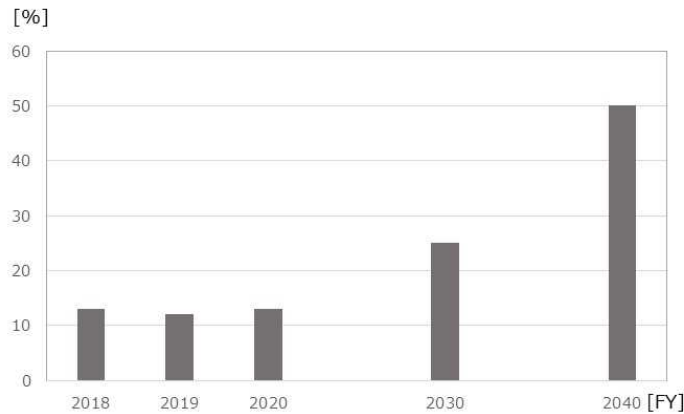
⁸ https://www.nmm.jx-group.co.jp/newsrelease/2021/20211208_01.html

⁹ https://www.nmm.jx-group.co.jp/newsrelease/2021/20220316_01.html

¹⁰ https://www.nmm.jx-group.co.jp/newsrelease/2021/20220310_01.html

it is necessary to significantly change the flow of goods and the system in the conventional supply chain in order to strengthen the collection and treatment capacity of recycled raw materials. Therefore, JCR also assesses that SPT 2's numerical targets require initiatives that go beyond the conventional business (Business As Usual) and have ambitions.

Figure 13: Actual and Target Ratio of Recycled Raw Materials



(Source: Prepared by JCR based on information provided by JX NMM)

(2) Comparison with benchmarks

With regard to the FY2030 CO₂ emission reduction targets set in SPT1, compared to the targets set by other companies in the same industry engaged in non-ferrous smelting and refining, the reduction ratio of JX NMM is high, and the base year is also set for FY2018 that is close to the present fiscal year. In addition, when compared to the Japanese government's target of reducing CO₂ of 46% compared to fiscal 2013, the reduction ratio is similarly high, and the base year is close to the present. Thus, JCR has evaluated the company's CO₂ reduction target for FY2030 as ambitious relative to the goals of its industry peers and national policies.

The lack of identical indicators for peer companies and national policies with respect to the recycled raw material ratio targets set in SPT2 makes it difficult to assess the level of ambition of JX NMM relative to the initiatives of peers and national policies.

(3) JX NMM's Initiatives to Achieve SPTs

The following measures will be taken to achieve the JX-NMM's CO₂ emissions reduction target and the recycled raw material ratio targets.

<SPT1: Target for Reducing CO₂ Emissions>

1. Use of CO₂-free electricity

Electricity used at mines, smelters, plants, and other business sites account for 61% of JX

NMM's CO₂ emissions. In fiscal 2020, JX began introducing CO₂-free electricity derived from renewable energy and nuclear power in order to achieve its medium-to long-term targets for reducing CO₂ emissions. In January 2021, the company completed a 100% switchover to CO₂-free electricity at the Cacerones copper mine, which accounted for about 20% of the group's total electricity consumption. The company is also switching the electricity used to the CO₂-free electricity at the Isohara and Kurami works, and other major sites in Japan and overseas.

Switchover Period	Location	Business Area
June 2020	Kasuga Mines Co., Ltd.	Mineral Resources Business
January 2021	Cacerones Copper Mine	Mineral Resources Business
	Goslar Works, TANIOBIS GmbH	Tantalum and Niobium Business
April 2021	Kurami Works, JX Nippon Mining & Metals Corporation	Functional Materials Business
	Isohara Works, JX Nippon Mining & Metals Corporation	Thin Film Materials Business
May 2021	Tsuruga Plant, JX Nippon Mining & Metals Corporation	Metals & Recycling Business
June 2021	Saganoseki Smelter & Refinery, JX Metals Smelting Co., Ltd.	Metals & Recycling Business
July 2021	Tatebayashi Works, JX Metals Precision Technology Co., Ltd.	Functional Materials Business
October 2021 (Scheduled)	Hitachi Works, JX Nippon Mining & Metals Corporation	Metals & Recycling Business, Functional Materials Business, etc.
	Mito Plant, TANIOBIS Japan Co., Ltd.	Tantalum and Niobium Business

(Source: JX NMM website)

2. Expansion of use of renewable energy

JX NMM is investigating is not only introducing CO₂ free electricity, but is also considering ways to generate and use renewable energy on its own. As the aforementioned CO₂-free electricity needs to be procured every fiscal year, and prices are expected to soar in the future along with an increase in demand for this electricity, the company believes that it is necessary to strengthen its system for procuring renewable energy in order to stably reduce CO₂ emissions derived from electricity in the medium to long term. The company has introduced solar power generation facilities at its domestic and overseas business sites. Going forward, it plans to expand the use of renewable energy by developing on-site power sources that generate power on the premises of its own business sites through PPAs (power purchase agreements) and off-site power sources that transmit electricity generated in-house to its other business sites through its transmission and distribution network.

Facilities	Power generation method	Electricity generated (thousands of kWh)
Kakinosawa Power Plant, JX Nippon Mining & Metals Corporation	Hydroelectric	27,067
Takegawa Works of JX Metals Precision Technology Co., Ltd.	Solar	683
Shimoda Hot Springs Co., Ltd.	Binary	583
Nikko Metals Taiwan Co., Ltd.	Solar	234

(Source: JX NMM website)

3. Energy conservation through fuel conversion and process innovation in production processes

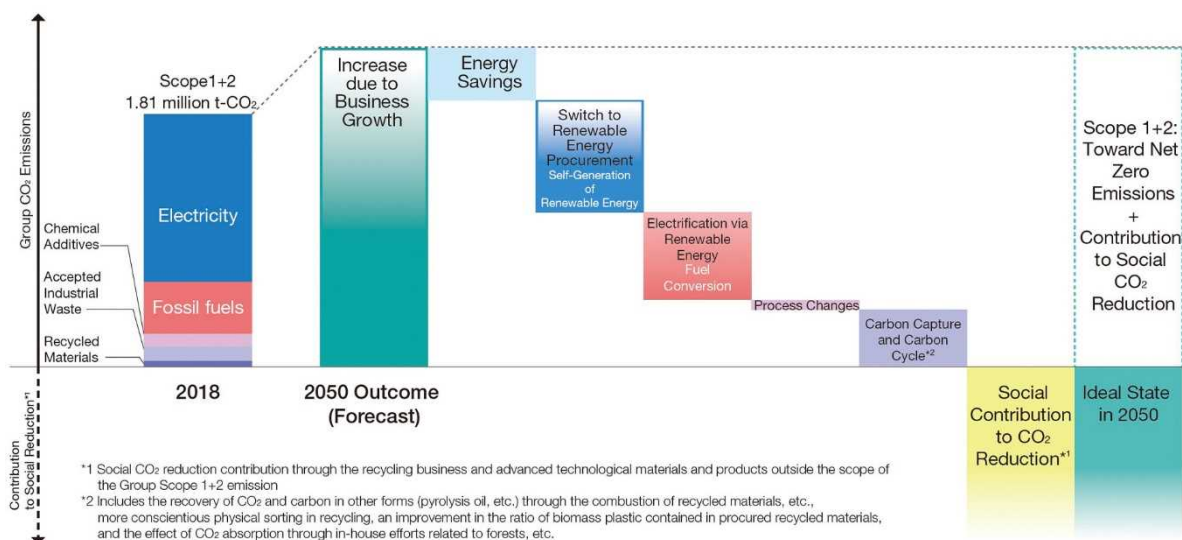
JX NMM uses energy other than electric power, such as heavy oil and natural gas, in the production process. As a measure to reduce CO₂ emissions, JX NMM is considering conversion of industrial furnace burners, boilers, cogeneration power generators, etc. that use heavy oil and natural gas as fuels to electrification, hydrogen, ammonia, etc. As a process innovation initiative, the company is considering initiatives to replace carbon-based raw materials such as coke with other raw material as reducing agents. In addition to smelting, the company plans to study alternatives to reducing agents in the smelting of copper and tantalum.

4. Further promotion of decarbonization of vehicles including mining heavy machinery and energy saving activities

JX NMM solicits opinions from all group employees, mainly from members of the Carbon Free Committee, in order to achieve its medium-to long-term CO₂ emission reduction targets. JX NMM is upgrading facilities and reviewing facilities management methods with a focus on reducing CO₂ beyond cost reductions. As one of these measures, the company is considering switching to electric vehicles and fuel cell vehicles for passenger cars, trucks, forklifts and mining heavy machinery used at its business sites.

JX NMM Group's image of achieving CO₂ net zero emissions in fiscal 2050 including the above measures is shown in the following chart.

Figure 14: Image of Achieving CO₂ Net Zero in FY2050



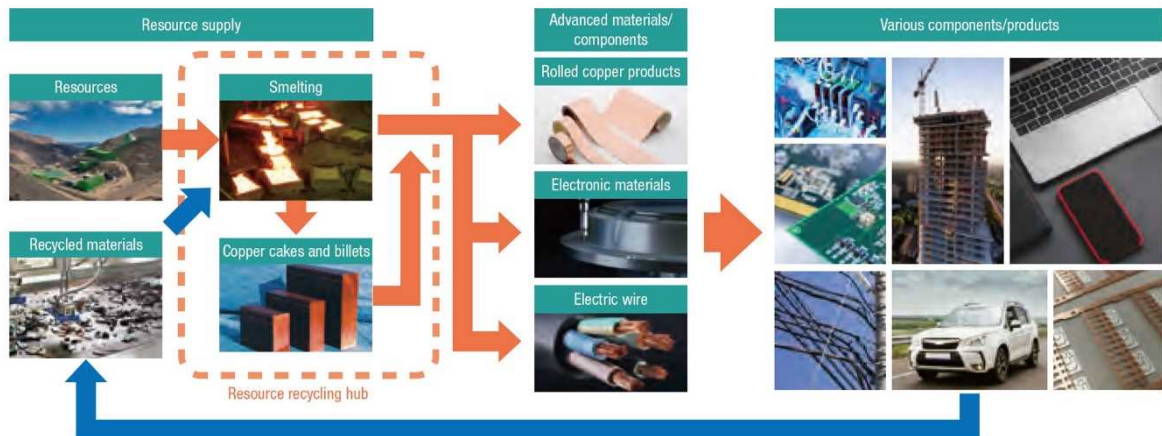
(Source: JX NMM website)

<SPT 2: Increase in the ratio of recycled raw materials>

1. Development of technologies for hybrid smelting

JX NMM aims at establishing hybrid smelting which is a smelting technique of copper with excellent energy efficiency, in order to attempt further improvement of material recycling technology and contribute to a stable supply of materials and the realization of a resource-recycling society. The copper smelting at the Saganoseki Smelter & Refinery of JX Metals Smelting Co., Ltd., a JX NMM group company, employs the flash furnace method, a smelting method that melts raw materials without relying on external heat sources by utilizing the reaction heat of ore, and since there is a margin in the amount of heat generated in the process, the company feeds recycled raw materials together with copper concentrate and smelts them together to recover copper, precious metals, rare metal raw materials, etc. Hybrid smelting is a method that further evolves the method of smelting and recycling ore at the same time, in which the ratio of recycled raw materials is significantly increased. Hybrid smelting is expected to produce copper materials in a more energy-efficient manner by combining ores and recycled materials such as scrap as raw materials under optimal conditions, compared to methods that process each separately.

Figure 15: Overview of hybrid smelting



(Source: JX NMM website)

JX NMM established the Saganoseki Branch Office of the Technology Development Center in October 2020 for the purpose of technological development of hybrid smelting, and in April 2021 integrated the Smelting Technology Department and the Recycling Technology Department to establish a technology development system for hybrid smelting. Technical issues to be resolved for increasing the recycling raw material ratio include the changes in heat balance and impurities that occur when the feed of recycled raw materials is increased, and it is necessary to introduce new equipment to control impurities and conduct analysis to optimize operating methods. The Saganoseki Branch Office is studying these issues.

2. Strengthen collection and processing capability of recycled raw materials

In 2021, JX NMM strengthened its Changpin Recycle Center in Taiwan and established the Oita Recycling Logistics Center of JX Metals Smelting Co., Ltd. in Oita City, where the Saganoseki Smelter & Refinery is located. In this way, JX NMM is strengthening its ability to collect and process recycled raw materials. By collaborating among the group companies in charge of the pre-recycling processing process, the company is working to achieve targets related to an increase in the ratio of recycled raw materials.

Based on the above, JCR assesses that SPTs set by JX NMM are ambitious in terms of setting SPTs in the two areas of climate change and resource circulation, in addition to aiming at goals for reduction rates that go beyond conventional scenarios and also exceeding industry-level targets.

5-3. Impact assessment by JCR

JCR examined the degree of impact of SPTs in line with the five elements (diversity, effectiveness, efficiency, multiplicity, and additionality) of the impact assessment criteria illustrated in Principle 4 of the Positive Impact Finance (PIF) principle formulated by the United Nations Environmental Programme in order to ensure that SPTs established in the Framework are ambitious and significant and contribute to the sustainable growth of JX NMM and the enhancement of social value, as well as to maximize positive impact and avoid, manage, and reduce negative impact.

(1) Variety: Variety of positive impacts delivered

KPIs defined in this Framework are expected to have a positive impact in the following diverse aspects.

KPI 1: CO₂ Emissions

- SPTs are set to Scope1 and 2
- Target the entire business segment
- Target domestic and overseas business sites

KPI 2: Ratio of recycled raw materials

- Target the Metals & Recycling Business
- Target domestic business sites

(2) Magnitude: Magnitude of the impacts delivered

This financing has a significant impact in the non-ferrous metal industry from the following perspectives.

JX NMM is one of the largest companies in Japan in the non-ferrous metals industry, and when it pursues initiatives related to decarbonization and resource recycling, it collaborates with a variety of different industries through the formation of consortiums. As a result, the impact of the Company's initiatives on the market is relatively large.

KPI 1's goal of maintaining CO₂ emissions at 50% of the fiscal 2019 level by fiscal 2030 is ambitious compared to the targets set by Japan and the SBT, and is expected to have a ripple effect on the non-ferrous metal industry.

JCR evaluates the efforts to improve the recycling raw material ratio under KPI 2 as an initiative to realize closed-loop recycling of copper and rare metals, for which recycling technologies have not yet been established, and to contribute to the recycling of scarce resources and the establishment of a recycling-oriented society for scarce resources in Japan and abroad.

(3) Efficiency: Scale of impacts delivered relative to amount of funds spent

This financing is highly efficient from the following perspectives.

JX NMM has set SPTs to reduce CO₂ emissions of Scope 1 and 2 by 50% by fiscal 2030 compared to fiscal 2018 and to increase the ratio of recycled raw materials to 25% by fiscal 2030 as a milestone for the goal of raising the ratio of recycled raw materials to 50% by fiscal 2040. As measures for achieving the goal, in order to reduce CO₂ emissions, JX NMM intends to (i)

utilize CO₂-free electricity; (ii) expand the use of renewable energy; (iii) energy conservation through fuel conversion and process innovation in production processes; and (iv) further promote carbon decarbonization of vehicles, including mining heavy machinery, and in order to increase the ratio of recycled raw material, (i) develop technologies for hybrid smelting and (ii) strengthen the collection and treatment capacity of recycled raw materials. JX NMM's proactive efforts to contribute to the environment are important for maintaining and expanding business in the future, and the impact of non-ferrous metals such as copper, which are essential for the progress of decarbonization and digital transformation, on other industries is also expected to be significant. JX NMM has identified "Contribution to Global Environmental Preservation" in the environmental field as a materiality, and has positioned ESG as one of the most important management issues in the Group, and is advancing efforts across the company, and has decided investment plans related to ESG. Based on the above, a large impact on the invested capital is expected.

(4) Leverage: Degree of leverage of private funds relative to public funds and/or donations

This item is not included in the evaluation because public funds are not used in this case.

(5) Additionality: Level of additionality

Each indicator is expected to have additional impact on several of the 17 SDG goals and 169 targets, as follows:



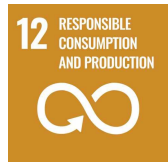
Goal 7: Affordable and clean energy

Target 7.3 By 2030, double the global rate of improvement in energy efficiency



Goal 9: Industry, innovation and infrastructure

Target 9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities



Goal 12: Responsible consumption and production

Target 12.2 By 2030, achieve the sustainable management and efficient use of natural resources

Target 12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment

Target 12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

Target 12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle



Goal 13: Climate action

Target 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

Target 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

6. Consistency with SLLP, etc.: Principle 3 Loan Characteristics (Economic Conditions)

6-1. Evaluation perspective

In this section, JCR confirms the following details.

- (1) Are there arrangements under which the financial and structural characteristics of the loan will change depending on whether or not the selected KPIs achieve pre-established SPTs?
- (2) Are the definitions of KPIs and SPTs and variability of the financial and structural characteristics of sustainability-linked loans included in the loan's contractual documents?
- (3) Are there plans to mention the responses in the event of unexpected events that could have a material impact on the method of measuring KPIs, setting of SPTs and assumptions, and scope of KPIs (such as important M&A activities, significant changes in regulations or other systems, or the occurrence of unusual events, etc.) in the loan's disclosure documents?

6-2. Current Situation of Evaluation Targets and Evaluation of JCR

(Evaluation Results)

The Loans have arrangements that change their financial profile depending on whether or not the Company achieves pre-established SPTs with respect to selected KPIs. Such volatility is included in the loan's contractual documents and the target year is expected to be disclosed in the framework, resulting in a high degree of transparency. How to measure KPIs, setting of SPTs, and assumptions will be mentioned in the loan's contractual documents.

JCR has confirmed that the loan's contractual documents provide for arrangements to alter its financial profile if it achieves SPTs. Definition of KPIs, setting of SPTs, and assumptions are also included in the contract documents. In the event that the definition of KPIs, setting of SPTs, and assumptions change due to circumstances that cannot be foreseen at the time of the implementation of this loan, the borrower plans to report the content of the change to the lender through a change report or other means.

Based on the above, JCR confirmed that necessary arrangements are scheduled to be made for linkage with loan conditions, etc., and that the items to be stated in the contract documents are also appropriate.

7. Consistency with SLLP, etc.: Principles 4 and 5 Reporting and Verification

7-1. Evaluation perspective

In this section, JCR confirms whether the following items are planned to be included in the report content after financing, and whether the method of disclosure and third-party verification are planned.

i. Items to be disclosed

Are the following items planned to be disclosed at least once a year?

- ✓ Update on selected KPI performance, including baseline assumptions
- ✓ Useful information for borrower fundraisers to measure their SPTs ambitions (e.g. information on the borrower's most recent sustainability strategies and related KPI/ESG governance, as well as information on analyzing KPIs and SPTs)

Disclosure of the following information to the extent possible:

- ✓ Qualitative and quantitative explanations of the main factors contributing to the improvement in performance/KPIs (including M&A activities, etc.)
- ✓ Explanation of how improved performance impacts borrowers' sustainability
- ✓ Presence of revaluation of KPIs, revision of set SPTs, and changes in baseline assumptions and scope of KPIs

ii. Verification

Are the verification details (status of achievement of SPTs, impacts on changes in financial and structural characteristics, timing of such changes, etc.) plan to be disclosed?

7-2. Current Situation of Evaluation Targets and Evaluation of JCR

(Evaluation Results)

JX NMM has an appropriate plan for the content, frequency, and method of disclosure in reporting after loan disbursement, and plans to receive third-party verification of the content required by the Principles, including the progress of the SPTs.

JX NMM plans to make annual disclosures on its website on the progress of its KPI-performance goals related to CO₂ emission reductions and recycled materials ratios. The CO₂ emissions for Scope1, 2 and ratio of recycled raw materials will be verified by a third party. In the event of a significant change in the SPTs during the period, JCR will review and continue to confirm compliance with CTFH, SLLP, etc. and whether the initially assumed level of ambition and significance will be maintained. In the year of maturity, JX NMM, the lender, and JCR will review the individual transition-linked loans made under the Framework to assess the achievement of SPTs as well as the impact on JX NMM and on society.

8. Conclusions on conformity with CTFH, SLLP, etc.

Based on the above considerations, JCR has confirmed that this Framework, which is the subject of this third-party opinion, conforms to CTFH, SLLP, etc.

(Responsible analysts for this evaluation) Atsuko Kajiwara and Takahiro Yamauchi

Important explanation of this third-party opinion

1. Premises, significance, and limitations of the JCR Third-Party Opinion

Third-party opinions granted and provided by the Japan Credit Rating Agency, Ltd. (JCR) are representations of JCR's overall opinion at the present time regarding the evaluation target, the Climate Transition Finance Handbook (CTFH), the Sustainability Linked Bond Principles (SLBP), the basic guidelines for Climate Transition Finance established by the Financial Services Agency, the Ministry of Economy, Trade and Industry and the Ministry of the Environment in May 2021, and the conformity of JCR to the Green Loan and Sustainability Linked Loan Guidelines formulated by the Ministry of the Environment in March 2020. These statements do not fully depict the extent of positive impact that such appraisal targets may have.

This Third Party Opinion evaluates current plans or circumstances based on information provided by the Client and information independently collected by JCR and does not guarantee an evaluation of future status. Also, this Third Party Opinion does not quantitatively prove the positive effects of the Transition Linked Bond and is not responsible for its effects. JCR confirms that the funding raised by this project is measured quantitatively and qualitatively by the issuer or by a third party requested by the issuer in terms of the degree of achievement of the impact indicators established by the Company, but in principle, this is not directly measured.

2. International initiatives, principles, etc. referred to in carrying out this evaluation

In conducting this evaluation, JCRs refer to the following principles and guides formulated by ICMA, UNEP FI and its ministries and agencies.

- Climate Transition Finance Handbook
- Basic Guidelines for Climate Transition Finance of the Financial Services Agency, the Ministry of Economy, Trade and Industry, and the Ministry of the Environment
- Principles of Sustainability Linked Bonds
- Ministry of the Environment's Green Loan and Sustainability Linked Loan Guidelines
- Positive impact financial principle
- Positive Impact Finance Model Framework without Limited Use of Funds

3. Relationship with activities related to credit rating business

The conduct of providing this Third-Party Opinion is conducted by JCR as a related business and is different from the conduct related to the credit rating business.

4. Relationship with credit ratings

This evaluation differs from credit ratings and does not constitute a commitment to provide or inspection a predetermined credit rating.

5. Third-party nature of JCR

There are no capital or personal relationships, etc. between the parties subject to this evaluation and JCR that may give rise to conflicts of interest.

■Points of Attention

The information in this document has been obtained by JCR from issuers and accurate and reliable sources. However, this information may contain errors due to human, mechanical or other reasons. Accordingly, JCR makes no representation, express or implied, as to the accuracy, consequences, accuracy, timeliness, completeness, marketability or fitness for any particular purpose of such information, nor does JCR assume any liability for any error, omission or consequence of the use of such information. JCR shall not under any circumstances be liable for any special, indirect, incidental or consequential damages of any kind, including loss of opportunity or financial loss, which may arise from any use of such information, whether contractual liability, tort liability, negligent liability or other cause of liability, and whether such damages are foreseeable or unforeseeable. This third-party opinion does not express an opinion on various risks (credit risk, price fluctuation risk, market liquidity risk, etc.) related to Positive Impact Finance, which is the subject of evaluation. In addition, this third-party opinion represents JCR's overall opinion at this time and is not a representation of facts, and does not constitute any recommendation as to risk judgments or any decision to purchase, sell or hold individual debt securities, commercial paper or the like. This Third Party Opinion may be changed, suspended or withdrawn due to changes in information, lack of information or other reasons. All rights associated with this document are reserved by JCR. Any reproduction, adaptation, or modification of this document, in whole or in part, without the permission of JCR is prohibited.

■Glossary of Terms

Third-party Opinion: This report was prepared by International Capital Market Association and expresses an opinion from an independent, neutral and equitable standpoint on the Transition Linked Bonds to be conducted by the issuer, as requested by the client, as well as on the conformity of Climate Transition Finance Handbook to the Sustainability Linked Bonds Principles.

■Registration status as an external evaluator of sustainable finance, etc.

- Members of the Working Group on the Impact Financial Initiative for the United Nations Environment Programme
- Registered as External Reviewer of Green Bonds, Ministry of the Environment
- Climate Bonds Initiative Approved Verifier (Accreditation Verification Agency for the Climate Bond Initiative)
- ICMA (registration with the International Capital Markets Association as an observer) Principles for Social Bonds, Members of Climate Transition Finance Working Group

■In addition, the status of registration as a credit rating agency, etc.

- Director-General of the Financial Services Agency (Credit Rating) No. 1
- EU Certified Credit Rating Agency
- NRSRO: JCR is registered in the following four classes of five credit rating classes of NRSRO (Nationally Recognized Statistical Rating Organization as defined by the U.S. Securities and Exchange Commission. (1) Financial institutions, broker-dealers, (2) insurance companies, (3) general business corporations, and (4) government and local governments. When subject to disclosure under Section 17g-7(a) of the Securities and Exchange Commission, such disclosure is attached to the news release appearing on JCR's website (<https://www.jcr.co.jp/en>).

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Check Sheet for Consistency with Basic Guidelines on Climate Transition Finance

June 29, 2022

Japan Credit Rating Agency, Ltd.

Company to be evaluated: JX Nippon Mining & Metals Corporation (JX NMM)

The following are the check results of the consistency of the Finance with respect to the items recommended in the Basic Guidelines on Climate Transition Finance (the "Guidelines") published by the Financial Services Agency, the Ministry of Economy, Trade and Industry, and the Ministry of the Environment.

The Guidelines use three expressions: "should," "recommended," and "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 the Guidelines although instruments which do not have these items can also be labeled as transition finance.
- Items described with the word "be considered" or "possible" are elements that they are not considered problematic even if financial instruments labeled as transition finance do not have them.

Element 1: Fundraiser's Climate Transition Strategy and Governance

a) Financing through transition finance **should** aim to implement or incentivize the achievement of transition strategies. 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.

Consistency: ✓

In its 2040 Long-Term Vision, JX NMM has made contributing to SDGs a key management issue. In the Medium-Term Management Plan (covering fiscal 2020-2022), it also states that it will promote initiatives to achieve SDGs through "Provision of advanced materials supporting daily life" and "Contributions to global environmental conservation (Helping to realize a carbon-free society)." Based on these assumptions, it has announced its goals for FY2050: net zero CO2 emissions; FY 2040: achievement of 50% recycled raw material ratio in copper smelting and refining, and FY 2030 target: 50% reduction in CO2 emissions (Scope 1 and 2) compared to FY2018. KPI 1 and SPT 1 for this financing are the FY2030 goals themselves, and KPI 2 and SPT 2 are goals that will contribute to the FY 2040 goals and contribute to the implementation of the Transition Strategy.

This Transition Strategy and Targets are consistent with the Japanese government's goal of 2050 carbon neutrality and its target of 46% reduction of greenhouse gases in 2030 compared to FY2013, as well as the targeting methodology required by the ICMM Statement on Climate Change, an international group of non-ferrous metals.

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. 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.

Consistency: ✓
JX NMM has identified possible climate-related risks and opportunities, and as required by the ICMM statement on climate change, has set medium- and long-term environmental targets using methodologies for target setting consistent with the goals of the Paris Agreement.
In order to achieve the targets for FY2050 and FY2030, the following measures will be taken: (1) introduction of CO2-free electricity, (2) creation of renewable energy, (3) reduction of energy consumption, and (4) fuel conversion and drastic process development.

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.

Consistency: ✓
With the implementation of the JX NMM Transition Strategy, JCR confirmed that there were no negative impacts on employment and society other than climate change, and that appropriate measures have been taken in the environmental aspect, such as technological development of material recycling to contribute to a recycling-oriented society.

d) Climate change-related scenarios **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.

Consistency: ✓

Identified possible climate-related risks and opportunities. The targets set are consistent with the Japanese government's goal of 2050 carbon neutrality and a 46% reduction in greenhouse gases in 2030 compared to 2013, as well as the target-setting methodology required by the ICMM Statement on Climate Change, an international group of non-ferrous metals.

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 Business Plans.

Consistency: ✓

In its 2040 Long-Term Vision, JX NMM has made contributing to SDGs a key management issue. In the Medium-Term Management Plan (covering fiscal 2020-2022), it also states that it will promote initiatives to achieve SDGs through "Provision of advanced materials supporting daily life" and "Contributions to global environmental conservation (Helping to realize a carbon-free society)." The transition strategy is based on these efforts. Furthermore, the medium-term management plan calls for further promotion of ESG management, and as its core measures, (1) decarbonization efforts to achieve net zero emissions in fiscal 2050, (2) promotion of hybrid smelting and promotion of lithium-ion battery (LiB) recycling to realize a resource recycling-oriented society. These efforts are linked to the transition strategy.

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 major change in the assumed external environment and so on.

Consistency: ✓

In May 2021, JX NMM revised its CO2 reduction target for fiscal 2040 and announced that it would move the target year forward by 10 years. And also, the Company will continue to revise the content appropriately in the future.

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.

Consistency: ✓

All matters that are considered "should" in the Basic Guidelines satisfy their requirements. In addition, almost all items identified as "recommended" and "considered/possible" have met their requirements or are expected to be implemented in the future.

h) In order to secure the effectiveness of the transition strategy, the fundraiser **should** establish an

organizational structure 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.

Consistency: ✓

JX NMM reviews and discusses basic policies and action plans concerning responses to ESG and their monitoring at the ESG Promotion Committee, which is chaired by the president and attended by members of the Executive Committee, including directors, executive officers, and corporate auditors. In addition, it has established a system to promote ESG management throughout the Group by sharing the content reported and discussed at the ESG Promotion Committee at the ESG Promotion Managers' Committee, which is composed of representatives from each business site and group companies. Furthermore, in January 2021, JX NMM launched the Carbon Free Project, a group-wide cross-organizational structure, with the purpose of considering concrete initiatives for achieving the targets for fiscal 2050 and fiscal 2030 for reducing CO₂ emissions by the Group as a whole, and subsequently positioned the Project as a subordinate organization of the ESG Promotion Committee as the Carbon Free Committee in April 2022. The Carbon Free Committee is a cross-company organization composed of representatives from related departments at the head office, business divisions, and affiliated companies. It prepares a roadmap for achieving medium-to long-term CO₂ emission reduction targets and promotes examination of concrete reduction measures.

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.

Consistency: ✓

JX NMM also analyzes emissions not only within the JX Group but also in the supply chain, including the production and logistics of various raw materials purchased. The framework specifies that JX NMM will contribute to the reduction of CO₂ emissions, resource recycling, and stable supply of materials for society as a whole, while making use of the results of comprehensive analysis and evaluation of CO₂ emissions throughout the production process.

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.

Consistency: ✓

Transition Strategies are announced in the Sustainability Report and the JX NMM Group's 2020-2022 Medium-Term Management Plan.

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).

Consistency: ✓

Following the endorsement and signing of the TCFD Recommendations by its parent company ENEOS Holdings, JX NMM has been making efforts to disclose climate-change information in line with the objectives of TCFD Recommendations.

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 approaches, etc. to address such impacts and disclose how the strategy on the whole contributes to achieving the Sustainable Development Goals (SDGs) so that the effects can be appropriately evaluated by the financier.

Consistency: ✓

In addition to contributing to "Provision of advanced materials supporting daily life" and "Contributions to global environmental conservation (Helping to realize a carbon-free society)" as priority issues (materiality) for contributing to the realization of a sustainable society aimed by SDGs, the company considers the respect for human rights, coexistence and co-prosperity with local communities as areas of challenge and is promoting initiatives with the aim of achieving SDGs.

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 disclosed together with the underlying reason in a timely manner.

Consistency: ✓

In May 2021, JX NMM revised its CO2 reduction target for fiscal 2040 and announced that it would move the target year forward by 10 years. And also, the Company will continue to revise the content appropriately in the future.

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.

Consistency: ✓

JX NMM reviews and discusses basic policies and action plans concerning responses to ESG and their monitoring at the ESG Promotion Committee, which is chaired by the president and attended by members of the Executive Committee, including directors, executive officers, and corporate auditors. In addition, it has established a system to promote ESG management throughout the Group by sharing the content reported and discussed at the ESG Promotion Committee at the ESG Promotion Managers' Committee, which is composed of representatives from each business site and group companies. Furthermore, in January 2021, JX NMM launched the Carbon Free Project, a group-wide cross-organizational structure, with the purpose of considering concrete initiatives for achieving the targets for fiscal 2050 and fiscal 2030 for reducing CO₂ emissions by the Group as a whole, and subsequently positioned the Project as a subordinate organization of the ESG Promotion Committee as the Carbon Free Committee in April 2022. The Carbon Free Committee is a cross-company organization composed of representatives from related departments at the head office, business divisions, and affiliated companies. It prepares a roadmap for achieving medium-to long-term CO₂ emission reduction targets and promotes examination of concrete reduction measures. These governance structures are disclosed in the Sustainability Report, website, etc.

o) In cases where the fundraiser determines the need for an objective assessment regarding the transition strategy, it is **recommended** that a review, assurance and verification by an external organization for its transition strategy.

Consistency: ✓

For the purpose of objective evaluation, JX NMM has obtained reviews by Japan Credit Rating Agency, Ltd. (JCR), etc. for this framework.

p) It is **recognized** useful to obtain a review particularly concerning the following in connection with the transition strategy:

- Alignment of short-term, mid-term and long-term targets (for targets, refer to Element 3) with the overall scenario
- Credibility of the fundraiser's strategy to reach the targets
- Appropriateness of the management process and governance for the transition strategy

Consistency: ✓

JCR confirmed the above three items and provided this evaluation report.

Element 2: Environmental Materiality (Priority) in Business Models

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.

Consistency: ✓

Copper materials, functional materials and thin film materials for semiconductor materials, handled by JX NMM, are used in electronic equipment, electric vehicles, and storage batteries, and demand for these materials is expected to increase in the future with the progress of decarbonization of society through the spread of renewable energy such as offshore wind and electric vehicles and also digital transformation through the use of IoT and AI technologies, etc. In the context of worsening situations of resource shortages and depletion and growing needs for advanced materials, (1) decarbonization efforts toward net zero emissions in fiscal 2050 and (2) promotion of hybrid smelting and promotion of lithium-ion battery (LiB) recycling to realize a recycling-oriented society that are cited as core measures in its transition strategy are both positioned as the most important issues for the company's business.

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.

Consistency:

JX NMM has identified possible climate-related risks and opportunities, but has not considered multiple scenarios.

c) In terms of considering materiality, it is **possible** to apply existing guidance provided by an organization that creates standard criteria concerning sustainability reporting.

Consistency: ✓

JX NMM uses outside consultants to set materiality through extracting expectations and requests from stakeholders. For items set as KPIs, the setting is maintained for three years, and the need to update the target values is examined annually. Evaluation of the degree of achievement of KPIs is conducted by the ESG Promotion Committee and used for activities in the following fiscal year and beyond. There is no particular application of existing guidance.

d) The fundraiser **should** indicate that climate change is an environmentally material part of business activities.

Consistency: ✓

In modern society, where global climate change and resource shortages and depletion are serious problems, and as a company with global operations ranging from resources and smelting to advanced materials and recycling, JX NMM recognizes that efforts to decarbonize and recycle resources are an urgent issue, and clearly states it in the Framework.

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.

Consistency: ✓

JX NMM is a member of the International Council on Mining and Metals (ICMM), which is composed of non-ferrous metal companies worldwide, and has expressed its endorsement to ICMM statement on climate change published by ICMM. The target setting is therefore also consistent with that required by ICMM statement on climate change. In its Sustainability Report, the Company states that it has established a code of conduct based on the ICMM's basic principles and is working to resolve the various issues listed in the ICMM Statement as a member company.

Element 3: Science-based Climate Transition Strategies (Including Targets and Pathways)

a) The fundraiser **should** reference science-based targets in developing its transition strategies.

Consistency: ✓

Identified the climate-related risks and opportunities assumed in developing the transition strategy. The targets set are consistent with the Japanese government's goal of 2050 carbon neutrality and a 46% reduction in greenhouse gases in 2030 compared to FY2013, as well as the target-setting methodology required by ICMM Statement on Climate Change, an international group of non-ferrous metals.

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.

Consistency: ✓

The target for fiscal 2050 is to achieve net-zero CO2 emissions, and the medium-term target for fiscal 2030 is to reduce CO2 emissions (Scope1, 2) by 50% compared to fiscal 2018. As for the ratio of recycled raw materials, as a milestone for the target of raising the ratio to 50% by fiscal 2040, the target of raising the raw material ratio to 25% was set as a SPT.

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.

It is also **possible** to disclose the avoided emissions as necessary.

Consistency: ✓

Targets are set for Scope 1 and 2, and third-party certification has been obtained. The company is in the process of determining the calculation method and emission amount for Scope 3, and plans to announce the emission amount and set reduction targets for Scope 3 in the future to promote CO2 emission reduction measures throughout the entire supply chain.

d) 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.

- Scenarios widely recognized in the international community (Examples include the Sustainable Development Scenario (SDS) outlined by the International Energy Agency (IEA))

- Objectives verified under the Science Based Targets Initiative (SBTi) and such like
- Nationally Determined Contributions (NDC) of countries aligned with the goals of the Paris Agreement, roadmaps by industry sector, industries set out plans that are science-based achieving the Paris Agreement and so on.

Consistency: ✓

Identified possible climate-related risks and opportunities. The targets set are consistent with the Japanese government's goal of 2050 carbon neutrality and a 46% reduction in greenhouse gases in 2030 compared to FY2013, as well as the target-setting methodology required by ICM Statement on Climate Change, an international group of non-ferrous metals.

- e) Short- to mid-term targets (with a term of three to fifteen years) **should** be set by referencing the aforesaid trajectories or on the pathway toward the long-term targets planned as benchmarks.

Consistency: ✓

The target for fiscal 2050 is to achieve net-zero CO2 emissions, and the medium-term target for fiscal 2030 is to reduce CO2 emissions (Scope1, 2) by 50% compared to fiscal 2018. As for the ratio of recycled raw materials, as a milestone for the target of raising the ratio to 50% by fiscal 2040, the target of raising the raw material ratio to 25% was set as a SPT.

- 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.

Consistency: ✓

Targets have been set taking into account a variety of factors in addition to the decarbonization roadmap, such as investment plans and resulting returns. As a result, it is assumed that the pathway is not always linear with the same slope.

- g) The fundraiser **should** disclose the short- to mid-term and long-term targets they have set, including the base years, etc.

Consistency: ✓

The target of 50% reduction of in net CO2 emissions of Scope1,2, which is the short-and medium-term target, has set the base year as FY2018.

- 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.

Consistency: ✓

It is consistent with Japan's policies, the Paris Agreement, and ICMM Statement on Climate Change, an international organization of non-ferrous metals.

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.

Consistency: ✓

In its medium-term management plan covering fiscal 2020 to fiscal 2022, JX NMM announced plans to allocate 160 billion yen out of a total of 300 billion yen for the three years of its investment plan to strategic investments in technology development, focus businesses, base businesses, and ESG investments. It plans to carry out capacity enhancement ahead of schedule to meet increasing demand for thin-film materials in line with growing demand for data communications, and to vitalize ESG activities such as decarbonization and resource circulation, using 20 billion yen as ESG investment quota. It also plans to disclose future investment plans in conjunction with the formulation of a medium-term management plan for fiscal 2023 and beyond.

j) Concerning targets and trajectories, obtaining expert reviews on the following is **considered** to be particularly useful:

- Whether the long-term target is aligned with science-based targets
 - > Whether the disclosed information explains the alignment with the Paris Agreement
- Whether the short- to mid-term targets are determined using a GHG emissions forecast calculated based on a climate change scenario analysis
 - > Whether scenarios, etc. widely recognized in the international community are used or referenced
- Whether the actual values of the indicators used for the targets are quantitatively measured using consistent measurement methods
 - > Whether a specific GHG emissions reduction measure has been developed to achieve short- to mid-term targets aligned with long-term goals

Consistency: ✓

JCR has confirmed that all of the above items have been met in this assessment report.

Element 4: Transparency of Implementation

a) In implementing transition strategies, the fundraiser **should** provide transparency of the basic investment plan to the extent practicable.

Consistency: ✓

In its medium-term management plan covering fiscal 2020 to fiscal 2022, JX NMM announced plans to allocate 160 billion yen out of a total of 300 billion yen for the three years of its investment plan to strategic investments in technology development, focus businesses, base businesses, and ESG investments. It plans to carry out capacity enhancement ahead of schedule to meet increasing demand for thin-film materials in line with growing demand for data communications, and to vitalize ESG activities such as decarbonization and resource circulation, using 20 billion yen as ESG investment quota. It also plans to disclose future investment plans in conjunction with the formulation of a medium-term management plan for fiscal 2023 and beyond.

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.

Consistency: ✓

The investment plan incorporates costs and investments related to the implementation of the transition strategy.

c) It is **recommended** that the investment plan outline the assumed climate-related outcomes and impacts in a quantitative fashion where possible, along with the calculation methods and prerequisites. If quantification is difficult, the use of external certification systems **can** be considered as a substitute for qualitative assessment.

Consistency: ✓

Regarding KPIs' performance, annual reports on the progress of CO2 emission reduction plans (achievement of medium-and long-term goals) are scheduled to be disclosed on JX NMM's website. CO2 emissions of Scope1, 2 will be verified by a third-party organization.

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" is incorporated into the transition strategy.

Consistency: Not applicable

JX NMM's implementation of the Transition Strategy does not require any just transition considerations.

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.

Consistency: ✓

With the implementation of the transition strategy for JX NMM, JCR confirmed that there was no negative impact on employment or on society other than climate change, and that appropriate measures were being taken in the environmental aspect, such as the development of technology for material recycling to contribute to a recycling-oriented society.

f) Moreover, the outcomes arising from investments included in the investment plan **should** align with the targets.

Consistency: ✓

JX NMM will strive to achieve its goal of "contribution to the conservation of the global environment through the realization of a decarbonized society and the formation of a recycling-oriented society" through its ESG investment quota of 20 billion yen for vitalizing ESG activities such as decarbonization and resource circulation, which is the current plan.

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.

Consistency: Not Applicable

General corporate purpose instruments.

h) It is **recommended** that investment plans be disclosed by linking the outcomes and impacts with the expenditures to the extent practicable.

Consistency:

For the entire transition strategy, each investment target and the total investment amount are disclosed, but it is difficult at present to link the results and impact individually, and they are not disclosed. In the future, it is assumed that specific individual plans will be disclosed as soon as they are finalized.

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.

Consistency: ✓

The differences between the original plan and actual expenditures, results and impacts of this financing will be disclosed in the Impact Reporting, which is scheduled to be implemented on a regular basis after the implementation of the loan.

j) In cases where the Use of Proceeds loans 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.

Consistency: Not applicable

The issuance of loans is planned.

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 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.

Consistency: Not applicable

General corporate purpose instruments

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.

Consistency: Not applicable

Although JX NMM does not fall under the category of SMEs, it is under consideration to disclose the content of the report to the extent practicable by the project.