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March 20, 2019

JCR Green Loan Evaluation by Japan Credit Rating Agency, Ltd.

Japan Credit Rating Agency, Ltd. (JCR) publishes the results of its Green Loan Evaluation as follows.

JCR Assigned Green 1 to Long-term Loan Borrowed by Nippon Yusen Kabushiki Kaisha (NYK)

― with the technical assistance of E&E Solutions ―

Subject	:	Long-term loan borrowed by NYK
Type	:	Long-term loan
Lender	:	Syndicated Loans
Amount borrowed	:	JPY 9.0 billion
Date of the loan agreement	:	March 20, 2019
Date of Borrowing	:	March 29, 2019
Repayment date	:	March 29, 2024
Repayment method	:	Lump-sum repayment on the due date
Use of proceeds	:	Investment in equipment (Environment-Related Facilities)

<Green Loan Evaluation Results>

Overall evaluation	Green 1
Evaluation of Greenness (use of proceeds)	g1
Evaluation on Management, Operation and Transparency	m1

Chapter 1: Evaluation Overview

Nippon Yusen Kabushiki Kaisha is a comprehensive logistics company mainly engaged in marine transportation, land transportation, and air transportation. It operates 755 vessels (as of March 31, 2018), making it one of the world's largest businesses, with a particular strength in automobile transportation. In 2018, NYK issued the world's first Green Bond in the international shipping industry, and is actively working to improve the environment, such as introducing LNG fuel carriers, ballast water treatment equipment, and scrubbers using the proceeds procured.

The subject of evaluation is NYK's syndicated long-term loans with Mitsubishi UFJ Bank as the arranger and the agent. JCR evaluates whether the borrowings are in line with Green Loan Principles established by Loan Market Association and Asia Pacific Loan Market Association in March 2018.[1]

The use of proceeds is expected for the cost of installing scrubbers, which are equipment to remove sulfur from the exhaust gas of vessels. The installation of scrubbers is expected to reduce sulfur oxide (SO_X) emissions and have a significant impact on environmental improvements. In terms of negative environmental effects, it is possible to increase CO_2 emissions due to the power consumption of scrubbers. However, the power consumption of scrubbers can be handled by existing generators of ships, and the installation of additional generators is not required. Therefore, the CO_2 emissions do not increase significantly due to the increase in power consumption. Based on the above, it is evaluated that the Green Project, which will be used for the proceeds to be evaluated, will contribute to the prevention of air pollution.

Internal control is ensured by reporting the allocation status to the CFO on a quarterly basis. In addition, it will be reported annually to lenders through the agent, Mitsubishi UFJ Bank, until the full amount is allocated. Based on the above, JCR believes that a high degree of transparency has been secured in the procurement of proceeds through green loans.

As a result, based on the JCR Green Finance Evaluation Methodology, long-term borrowings subject to this evaluation were defined as "g1" in the "Green Evaluation (Uses of Funds)" and "m1" in the "Management, Operation and Transparency Evaluation." Therefore, the "Overall Evaluation" was defined as "Green1." Detailed evaluation results are discussed in detail in the next chapter. The loan also satisfies the criteria for the items required under the Green Loan Principles.

Chapter 2: Current Status of the project on each evaluation factor and JCR's evaluations

Evaluation Phase 1: Greenness Evaluation

JCR assigns "g1", the highest grade, to "Evaluation phase 1: Evaluation of Greenness".
Rationale: 100% use of proceeds of this borrowing is allocated to green projects, considering the factors described below.

(1) JCR's key consideration

In this section, JCR first assesses whether the proceeds will be allocated to green projects that have explicit improvement effects on environment. Next, JCR assesses whether an internal department/division which is exclusively in charge of environment issues or a third party agency prove it sufficiently and have taken necessarily workaround or mitigation measures, in case of possibility on use of proceeds have negative impact on the environment. Finally, JCR confirms consistency with the Sustainable Development Goals (SDGs).

(2) Current status of evaluation targets and JCR evaluation

Overview of Use of Proceeds

[1] LMA (Loan Market Association/Asia Pacific Loan Market Association)

The use of proceeds for this loan is the installation of scrubbers, which are exhaust gas treatment equipment for vessels. Scrubbers have the following social and environmental significance:

- The MARPOL Convention (International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto), which stipulates measures to prevent environmental pollution caused by ship navigation, regulates SO_X emissions and greenhouse gas emissions, and gradually raises the regulated values. Among these, SO_X emissions are currently required to be reduced to 0.5% from January 2020, while fuels with a sulfur content of 3.5% or less are currently required to be used in sea areas. The installation of scrubbers meets the requirements of these SO_X emission regulations.
- SO_X in exhausted gases, and PM2.5, which is generated secondary to SO_X in the atmosphere, cause risks of human health effects such as respiratory and cardiovascular diseases when taken up by the human body. In addition, SO_X is converted to sulfuric acid by photochemical reactions in the atmosphere, causing acid rain. The SO_X regulations contribute to reduce the damage to the health of respiratory diseases caused by air pollution and to reducing the environmental impact caused by acid rain.

All the proceeds are new investment. . However, even if proceeds are to be allocated for refinancing due to changes in the funding plan, the proceeds are expected to be allocated to scrubbers. Therefore, it does not affect the expected environmental improvement effects of the Loan.

a. On the environmental improvement effects of the project

i. 100% of the proceeds are used for the installation of scrubbers, which are highly effective in improving the environment.

The proceeds will be used for the installation costs of scrubbers. The scrubber installed this time is an open-loop system that sprays seawater into exhaust gases containing sulfur oxides (SO_X) emitted from engines and desulfurizes the gases. Some of the vessels planned to be installed include hybrid ready vessels equipped with hybrid scrubbers that can be switched to closed-loop scrubbers. The installation of scrubbers is expected to reduce emissions by 86% compared to the absence of scrubbers. These reductions are derived from current regulations under Rule 14 of Annex IV of the MAPROL Convention and from 2020 and beyond.

The scrubbers shall operate in accordance with Rule 14 of Annex VI to the MAPROL Convention. NYK has adopted a ship management system that includes the management procedures for installed equipment and ensures compliance with regulations. Based on the management system described above, scrubbers are considered to be properly operated and managed.

Ii. The use of proceeds falls under the category of "pollution prevention and control" and "clean transportation" services among the qualified green project categories in the Green Loan Principles.

The use of proceeds is considered to fall under the category of "pollution prevention and control" and "clean transportation" businesses, which have the effect of reducing SO_X, among the qualified green project categories in the Green Loan Principles.

b. Negative impact on the environment

As a negative effect of this project, electricity consumption will increase due to the operation of scrubbers, and CO_2 emissions will increase accordingly. However, because the energy consumption of the scrubber is small compared to the total energy consumption of the ship, and the amount of energy that can be handled by the existing generators of the ship, it was confirmed from the results of the estimation that the contribution rate of the scrubber to the total CO_2 emissions of the Vessel is small.

Regarding the drainage from scrubbers, the International Maritime Organization (IMO) has established international standards for scrubber drainage (pH, nitrate, polycyclic aromatic hydrocarbons, etc.), and it was confirmed that equipment conforming to these standards will be adopted and continuously monitored during operation. In addition, no residue such as sludge is generated due to the operation of the scrubber.

As a result of the above, the possibility that the establishment of scrubbers will have an impact on the environment of marine organisms and water quality is considered to be extremely low in the short and long term.

c. Consistency with SDGs goals and Targets

Referring to ICMA's SDGs mappings, JCRs evaluates it as contributing to the following SDGs objectives and targets:

3 GOOD HEALTH AND WELL-BEING

Objective 3: Good health and well-being

Target 3.9. By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

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.

Evaluation Phase 2: Evaluation on Management, Operation, and Transparency

JCR assigns "m1", the highest rating on JCR evaluation Phase 2: Evaluation on Management and Operation and Transparency.

Rationale: These projects have allocated the funding and implemented the business as planner through a firmly equipped management and operation system and high transparency as described below.

1. Validity and Transparency of the Criteria for Selection of use of proceeds and their Processes

(1) JCR's key consideration

This section confirms that the objectives to be achieved through the green loan, the criteria for selecting green projects, the appropriateness of the process, and the series of processes are appropriately disclosed to investors.

(2) Current status of evaluation targets and JCR evaluation

a. Goal

The volume of SO_X emitted from ships is defined in MARPOL Convention. In the past, it was stipulated that fuel with sulfur content of 3.5% or less should be used in the general sea area, but from January 2020, it will be lowered to 0.5% or less. To comply with these environmental regulations, NYK is working to reduce SO_X emissions by shifting to fuels with lower sulfur content and by installing scrubbers.

NYK has formulated a "Roadmap for Ship Technology and Innovation," which sets out its R&D and timeframes through 2050. Responses to SO_X regulations are also described in the above roadmap under the heading "Group compliance with environmental regulations for international shipping." By promoting the installation of scrubbers through this borrowing, initiatives toward regulatory compliance will be further advanced.

b. Selection criteria

NYK' selects its eligible projects from the list in the Green Loan Principles' project category. This case falls under the category of "pollution prevention and control" and "clean transportation" projects, and is selected in accordance with the selection criteria.

c. Process

NYK evaluates and selects eligible projects through the following processes.

① NYK's Finance Group interviewed the Planning Group, which manages the entire investment, and the Sales Department, which is in charge of each project, to select candidates for the project.

② NYK's Finance Group confirmed with Environmental Group and Engineering Group the validity of projects that were candidates in the process described in (1).

③ After JCR, a third-party organization, verified the validity of the above-mentioned project, the final decision was made by NYK,

JCR evaluates that the selection criteria are conducted with validity because the roles of each organization are clear and the selection criteria are conducted through departments with expertise in the decision-making process.

These selection criteria and selection and evaluation processes will be disclosed to the lenders by distributing this report.

2. Appropriateness and Transparency of management of the proceeds

(1) JCR's key consideration

The management method of the proceeds is usually assumed to be diverse by the borrower. JCR assesses whether the proceeds firmly allocated to the green project, the project have internal systems to easily track the allocation of the proceeds and the money funded by the loan will be allocated to the green project at once. JCR also considers the evaluation of asset management of unallocated money.

It also attaches importance to evaluating the management and operation of the unallocated funds, as well as to confirming that the funds procured from the loan will be allocated to the green projects at an early stage.

(2) Current status of evaluation targets and JCR evaluation

a. The use of proceeds for long-term borrowings subject to this evaluation will be fully allocated for the cost of installing scrubbers. It is planned that the funds will be fully allocated within two years.

b. As for the fund management method, NYK's treasurer manages the amount of proceeds procured and the cumulative amount of funds allocated to the Project in an electronic file. With the latter reaching the former, it is planned to confirm that the funding was used for the project.

c. The above fund allocation status is reported to the CFO on a quarterly in-house reporting system, and internal controls are maintained. The report will be stored permanently on the system.

d. The Company's policy is to invest unallocated funds as cash or cash equivalents.

JCR evaluates cash management to be appropriate given that this loan will be properly allocated to the Green Project, that the proceeds will be managed in an appropriate manner within the company, that the internal control system is in place, and that there are no particular concerns about the operation of the funds that have not been allocated.

3. Reporting

(1) JCR's key consideration

This section evaluates whether the disclosure system for investors before and after borrowing is planned in a detailed and effective manner at the time of green loan borrowing.

(2) Current status of evaluation targets and JCR evaluation

a. Reporting on the funds allocation

The Company intends to report the amount allocated for the Project to all lenders through the agent Mitsubishi UFJ Bank once a year by the completion of proceeds allocation. NYK plans to use e-mail or Fax for reporting. NYK's policy is to report the amount of proceeds to be allocated for refinancing as well.

b. Reporting on environmental improvement effects

With regard to environmental improvement effects, the theoretical values confirmed by NYK's Environmental Group and the Construction Schedules Group will be presented to agents and all lenders at the time of loan disbursement. NYK also plans to report to agents and all lenders annually the amount of proceeds allocated, methods of managing unallocated funds, and expected environmental improvements until fully allocated. It was confirmed through a hearing that NYK will disclose the basis for calculation if requested by the lender. NYK also intends to review the theoretical values and will report them to the agent and all lenders when conditions change and the theoretical values change significantly.

4. Organization's environmental activities

(1) JCR's key consideration

This section evaluates whether the borrower’s management positions environmental issues as a high-prioritized, and whether the borrower’s green loan policy, the process and the selection criteria for green projects are clearly identified through the establishment of a department specializing in environmental issues or collaboration with external organizations.

(2) Current status of evaluation targets and JCR evaluation

NYK Sustainability and ESG and ESG-related Initiatives

"Staying Ahead 2022 with Digitalization and Green", a medium-term management plan started in FY18, calls for the integration of ESG elements into management strategies. NYK's policy is to promote both efforts to maximize earnings and realize sustainable societies and environments. In addition, NYK has formulated the "Formulating a Vessel Technology/Innovation Road Map" and clearly discloses the details and timeframes of its efforts to achieve its goals on its website and in NYK Report. Since 2014, NYK has been a leader in the shipping industry in efforts to improve the environment, such as conducting R&D on scrubber technologies ahead of other companies. In terms of green financing, in May 2018 NYK issued the world's first green bond in the international shipping industry, and in December the same year it borrowed a green loan for construction of methanol-fueled vessel. Through the use of Green Finance, NYK intends to further accelerate its efforts to improve the environment and actively contribute to the resolution of environmental issues such as climate change, prevention of air pollution, and conservation of biodiversity. Based on the above, JCR regards NYK as a company that is actively engaged in sustainability and ESG activities throughout the organization.

As described in Chapter 2.1(2).c, it is also evaluated that departments specializing in the environmental field are clarified, and that project evaluation/selection criteria and selection processes are clarified.

■Evaluation result

Based on the JCR Green Finance Evaluation Method, the target long-term borrowings were "g1" in the Green Evaluation and "m1" in the Management, Operation System and Transparency Evaluation, and the "Comprehensive Evaluation" was "Green 1."This loan is considered to meet the criteria for items in Green Loan Principle and MOE's Green Bond Guidelines.

[JCR Green Finance Evaluation Matrix]

		Management, operation, and transparency				
		m1	m2	m3	m4	m5
Greenness	g1	Green 1	Green 2	Green 3	Green 4	Green 5
	g2	Green 2	Green 2	Green 3	Green 4	Green 5
	g3	Green 3	Green 3	Green 4	Green 5	Not qualified
	g4	Green 4	Green 4	Green 5	Not qualified	Not qualified
	g5	Green 5	Green 5	Not qualified	Not qualified	Not qualified

■ Subject

Borrower: Nippon Yusen Kabushiki Kaisha (Ticker : 9101)

[Assignment]

Type	Amount borrowed	Date of Borrowing	Maturity date	Evaluation
Long-term loan	JPY 9.0 billion	March 29, 2019	March 29, 2024	JCR Green Loan Evaluation :Green1 Greenness evaluation :g1 Management, operation, and transparency evaluation :m1

Sustainable Finance Analysts in charge of this evaluation: Atsuko Kajiwara and Akihiro Kondo

Important explanation of the Green Loan Evaluation

1. Assumptions, Significance, and Limitations of JCR Green Evaluation

JCR Green Loan Evaluation, which is granted and provided by the Japan Credit Rating Agency (JCR), is a comprehensive expression of JCR's current opinion on the extent to which the funds procured green loans, which are subject to evaluation, are allocated to green projects defined by JCR and the extent to which the management, operation, and transparency of the use of green loans are ensured. JCR Green Loan Evaluation does not fully indicate the extent to which the funds procured from such green loans are allocated and the management, operation, and transparency of the use of the funds are ensured.

JCR Green Loan Evaluation evaluates the allocation of funds at the time of the Green Loan program or at the time of the loan execution. It does not guarantee the allocation of funds in the future. In addition, JCR Green Loan Evaluation does not prove the environmental effects of green loans and is not responsible for their environmental effects. JCR confirms that the effects of the funds procured green loans on the environment are measured quantitatively and qualitatively by the borrower or by a third party requested by the borrower, but in principle it does not directly measure the effects.

2. Methods used in the conduct of this evaluation

The methods used in this evaluation are listed on the JCR website (Green Finance ESG in https://www.jcr.co.jp/greenfinance)) as JCR Green Finance Evaluation Method.

3. Relationship with Acts Related to Credit Rating Business

JCR Green Loan Evaluation is determined and provided by JCR as a related business, which is different from the activities related to the credit rating business.

4. Relationship with Credit Ratings

The Assessment differs from the Credit Rating and does not promise to provide or make available for inspection a predetermined Credit Rating.

5. Third-Party Evaluation of JCR's Green Finance

There are no equity or personnel relationships between the evaluator and JCR that may create conflicts of interest.

6. Technical Cooperation from E&E Solutions

We invited environmental experts from E&E Solutions, our business partner, to verify the effectiveness of environmental improvements in this evaluation. E&E Solutions is an environmental and energy technology consulting company founded in 1972. E&E Solutions has many experts, and provided environmental consulting services to financial institutions for many years. E&E Solutions also has hundreds of experience in solar and wind power generation.

■Glossary

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

■Status of registration as an external assessor of green finance

- Registration of Green Bond Issuance Supporters by the Ministry of the Environment
- ICMA (Registered as an observer of the International Capital Markets Association)

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

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

■For further information, contact

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