# **News Release**



# Japan Credit Rating Agency, Ltd

22-D-0455 August 1, 2022

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

Japan Credit Rating Agency, Ltd. (JCR) announces the following Green Bond Framework Evaluation Results.

# JCR Assigns Green 1(F) to the Green Bond Framework of ANA HOLDINGS INC.

Issuer : ANA HOLDINGS INC. (security code: 9202)

Subject : Green Bond Framework of ANA HOLDINGS INC.

# <Green Bond Framework Evaluation Results>

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

# Chapter 1: Evaluation Overview

# 1. Overview of ANA Holdings, Inc.

ANA HOLDINGS INC. (ANA HD, or "the Company") is a holding company which has ALL NIPPON AIRWAYS CO., LTD. (ANA), one of Japan's two major airline companies under its umbrella. The total number of passengers of ANA Group including international and domestic flights, and LCC flights, reached 23.05 million in FY2021, which was the largest in Japan. In FY2019, when the impact of COVID-19 was limited, total number of passengers of ANA Group reached 59.62 million (including the LCC business). On April 1, 2013, the company shifted to a holding company structure and changed its name from ALL NIPPON AIRWAYS to ANA HOLDINGS. Thanks to the high market share in the domestic passenger business, which is the mainstay of ANA Group, its business foundation is stable. On international routes, it has joined Star Alliance, the world's largest airline alliance, and has built efficient networks with grants of ATI (Anti-Trust Immunity) on European and American routes, etc. In addition, for nine consecutive years, ANA has been certified by Skytrax, based in the United Kingdom, as a 5-Star Airline, indicating the highest service quality rating.

In FY2021, ANA Group's results by business segment were as follows: Air Transportation 70% (domestic passenger 22%, international passenger 6%, cargo and mail 29%,LCC 3%, and Others 11%), Airline Related 16%, Travel Services 4%, Trade and Retail 6%, and Others 3% (according to ANA HD 22/3 Annual Securities Report).



#### 2. ANA Group's ESG Management and Initiatives for Carbon Decommissioning

ANA Group's Mission Statement is "Built on a foundation of security and trust, "the wings within ourselves" help to fulfill the hopes and dreams of an interconnected world." From the viewpoint of actively promoting ESG management, ANA Group has positioned "Environment," "Human Rights," "Diversity, Equity & Inclusion (DEI)," and "Regional Revitalization" as important management issues (materiality). As for the ESG management implementation structure in ANA Group, ESG Promotion Officers (EPOs) are assigned to each group company as the person responsible for promoting ESG management, and ESG Promotion Leaders (EPLs) are assigned to each group company and department as the driving force for promoting ESG management in the organization. In these committees such as the Group ESG Management Promotion Committee headed by the president of ANA HD, and the EPL Committee attended by EPLs, initiatives related to ESG management are discussed.

Among its environmental issues, ANA Group recognizes that climate change and environmental pollution are its most important issues. In April 2021, ANA Group declared Carbon Neutrality by FY2050 as its 2050 Environmental Goals, and also set targets for zero waste ratio of plastics, paper, and other resources, as well as for reduction in the food disposal. As a milestone, the 2030 Environmental Targets have also been established, which include "reducing net CO<sub>2</sub> emissions from aircraft operations by FY2030 to less than the level of FY2019." In particular, with regard to efforts to reduce CO<sub>2</sub> emissions, the transition strategies for carbon neutrality in 2050 have been formulated. The four main measures for achieving the Environmental Targets are: (i) Flight Operations and Infrastructure Improvements, Technology Developments; (ii) SAF (Sustainable Aviation Fuel) and Other Potential Cleaner Energy Sources; (iii) Emissions Trading Schemes; and (iv) Negative Emissions Technologies.

#### 3. About the Green Bond Framework

The scope of this evaluation is the Green Bond Framework established by ANA HD (this Framework). This Framework limits the use of proceeds to the procurement of SAF, investments in projects/companies aiming at increasing available SAF, and investments in utilization of Negative Emissions Technologies such as DAC (Direct Air Capture), CCS (Carbon dioxide Capture and Storage), and CCU (Carbon dioxide Capture and Utilization), which are measures that contribute to the achievement of ANA Group Environmental Targets. JCR recognizes that the eligible criteria established by ANA HD in this Framework are all highly effective in improving the environment and key measures that contribute to the realization of ANA Group Environmental Targets. JCR also evaluates that the project selection process, the fund management system, and the post-issuance reporting system have been properly established and are highly transparent.

Based on its JCR Green Finance Evaluation Methodology, JCR assigned "g1 (F)" for "Greenness Evaluation (Use of Proceeds)" and "m1 (F)" for "Management, Operation and Transparency Evaluation." As a result, it assigned "Green1 (F)" for the overall "JCR Green Bond Framework Evaluation".

The Framework meets the standards for the items required in the Green Bond Principles<sup>1</sup> and the Ministry of the Environment's Green Bond Guidelines<sup>2</sup>.

\_

ICMA (International Capital Market Association) Green Bond Principles 2021 https://www.icmagroup.org/assets/documents/Sustainable-finance/2021-updates/Green-Bond-Principles-June-2021-140621.pdf

<sup>&</sup>lt;sup>2</sup> Ministry of the Environment's Green Bond Guidelines 2022 https://www.env.go.jp/content/000047699.pdf



# Chapter 2: Current Status of the Project on Each Evaluation Factor and JCR's Evaluation

**Evaluation Phase 1: Greenness Evaluation** 

Based on the current status described below and JCR's evaluation of the subject, JCR evaluated that the use of proceeds was 100% for green projects and assigned the highest rank of "g1(F)" for Phase 1: Greenness Evaluation.

# (1) JCR's Key Consideration on This Factor

In this section, JCR first confirms whether the proceeds set out in the Framework is used for green projects that have clear environmental improvement effects. Next, in cases where the use of proceeds is expected to have a negative impact on the environment, JCR confirms whether the impact is fully examined by an internal specialist department or an external third party and whether necessary measures have been taken for its avoidance and mitigation. Finally, JCR confirms the consistency with the Sustainable Development Goals (SDGs).

# (2) Current Status of Evaluation Targets and JCR's Evaluation

# a. Environmental Improvement Effects of the Project

<The Framework for Use of Proceeds>

ANA HD has defined the use of proceeds in this Framework as follows. An amount equal to the total issuance of Green Bonds issued by the Company is expected to be used for new or existing eligible projects as new financing or refinancing. The look back period of refinancing to existing expenditures and investments shall be within 24 months before the issuance of Green Bonds.

Table 1. Use of Proceeds in this Framework

Eligible criteria	Eligible projects			
Clean transportation	Procurement of Sustainable Aviation Fuel (SAF)			
	Investments in projects/companies aiming at increasing available SAF			
Circular economy adapted products, production technologies and processes, certified eco-efficient products	Investments in utilization of negative emissions technologies (*DAC/CCS/CCU, etc.)			

\*DAC: Direct Air Capture, CCS: Carbon dioxide Capture and Storage, CCU: Carbon dioxide Capture and Utilization

(Source: ANA HD Green Bond Framework)



Use of Proceeds 1: Procurement of SAF; Investments in projects/companies aiming at increasing available SAF

Use of Proceeds 1 is procurement of SAF; investments in projects/companies aiming at increasing available SAF. This use of proceeds falls under the category of "Clean transportation" in the Green Bond Principles, and "Projects for clean transportation" in the Ministry of the Environment's Green Bond Guidelines.

SAF is aviation fuel produced from sustainable sources such as waste cooking oil, animal and vegetable fats and oils other than fossil fuels. Although SAF emit CO<sub>2</sub> when they are burned as well as conventional fossil fuel, SAF is made from biomass, which CO<sub>2</sub> emissions have been reduced in the growing process, waste food and other waste, etc., and thus can drastically reduce CO<sub>2</sub> emissions throughout their lifecycle compared to conventional fossil fuel. SAF that has acquired ASTM standard <sup>3</sup> certification can be used in existing infrastructures (existing aircraft and relevant infrastructures). Therefore, SAF has low hurdles for social implementation and is expected as a key role in the decarbonization of the airline industry. Currently, SAF is classified into seven Annex in ASTM Standard by the combination of alternative fuel feedstocks and manufacturing methods (Table 2). In addition, demonstration experiments and R&D are also underway for SAF made from CO<sub>2</sub> in the air and in gas emissions (PtL; Power to Liquid), though no SAF has obtained ASTM standards yet.

Although CO<sub>2</sub> emissions saving from SAF is based on lifecycle CO<sub>2</sub> emissions, it is said that CO<sub>2</sub> emissions can be reduced by about 80% compared to conventional fossil fuel (Table3), including those from processes such as cultivation, harvesting of raw materials, and manufacturing and transportation of SAF. As ASTM standards set the upper limit of mixing SAF with conventional fuel as shown in Table 2, the actual CO<sub>2</sub> emission reduction effects are lower than the above value. SAF must acquire certification from ICAO<sup>4</sup>'s CORSIA<sup>5</sup> as eligible fuels which has CO<sub>2</sub> emission reduction effects.

Table 2. Classification of SAF by ASTM Standard

			Upper limit of	
	Main raw material Manufacturing technology		mixing with	
	Main raw material	Iain raw material Manufacturing technology		
			fuel (%)	
Annex1	Organic materials in	Synthetic parafinkerocin (FT-SPK) that is refined by	50	
	general	Fischer-Tropsch method		
Annex2	Biological oils and fats	Synthetic paraphin kerosene (Bio-SPK or HEFA)	50	
		refined by hydrogen treatment of vegetable oils, etc.		
Annex3	Biomass sugar	Iso-parafin (SIP) derived from fermented hydrogen-	10	
		processed sugars		
Annex4	Organic materials in	Synthetic kerosene (SPK/A) that has an aromatics	50	
	general	derived from non-fossil resources		

<sup>&</sup>lt;sup>3</sup> International standards for methods and feedstocks for the production of aviation fuels developed by ASTM International. In SAFs, ASTM D7556 and airplane fuels are addressed by ASTM D1655.

United Nations specialized agency established under the International Convention on Civil Aviation (purpose known as the Chicago Convention) adopted in 1944 to ensure the safety and orderly development of international civil aviation and to cooperate among countries in ensuring that international air transportation operations are operated soundly and economically on the basis of equality of opportunity

<sup>&</sup>lt;sup>4</sup> ICAO:International Civil Aviation Organization,

<sup>&</sup>lt;sup>5</sup> CORSIA:Carbon Offsetting and Reduction Scheme for International Aviation Carbon offsets and mitigation schemes for international aviation created by ICAO.



Annex5	Biomass sugar paper garbage	Synthetic parafinkerosene (ATJ-SPK) derived from alcohol jets	50
Annex6	Biological oils and fats	Catalytic Hydrothermolysis Jet (CHJ)	50
Annex7	Microalgae	Hydrocarbon-HEFA (HC-HEFA)	10

(Source: Prepared by JCR from materials from the Aviation Bureau of the Ministry of Land, Infrastructure, Transport and Tourism<sup>6</sup>)

Table 3. SAF's CO<sub>2</sub> emissions per unit energy for each raw material and manufacturing method (Examples)

	Raw materials	Manufacturing method	CO <sub>2</sub> emissions per GJ (t- CO <sub>2</sub> per GJ)	Rate of reduction from conventional fuel (%)
SAF	Forest Residuals	FT	0.0105	84
	Camelina (plant of the Brassica family)	HEFA	0.0418	38
	Sugar cane	SIP	0.0321	52
	Sugar cane isobutanol	ATJ	0.0207	69
	Waste cooking oil	HEFA	0.0148	78
	Agricultural waste	FT	0.0077	89
(F	Reference) Conventional aviation	0.0670	-	

(Source: Prepared by JCR from CORSIA materials<sup>7</sup>)

As mentioned earlier, SAF, which is expected to reduce CO<sub>2</sub> more effectively than conventional fuel, is one of the promising measures for the decarbonization of the airline industry. CORSIA also raises SAF as one of the material measures for CO<sub>2</sub> reduction. In Japan, the Ministry of Land, Infrastructure, Transport and Tourism has also positioned the promotion of introducing SAF as one of its material strategies for accelerating the decarbonization of aviation. Technological development and commercialization for the dissemination of SAF have already progressed mainly in the U.S. and Europe.

Figure 1: Process Chart for Promoting Decarbonization of Aviation (Conference on Reducing CO2 in the Aircraft Operation Sector)

Process Chart (3) Promotion of SAF Introduction, Carbon Credits

Please refer the website of Ministry of Land, Infrastructure, Transport and Tourism

https://www.mlit.go.jp/common/001445923.pdf (Japanese)

 $(Source: Aviation\ Bureau,\ Ministry\ of\ Land,\ Infrastructure,\ Transport\ and\ Tourism)^8$ 

While SAF is expected to play an important role in decarbonization, dissemination has challenges. First, the supply prospects for raw materials are uncertain. As of 2020, global SAF production was only 0.03% of demand, and demand for SAF is expected to grow further in the future. Therefore, securing a stable supply of raw materials

 $protection/CORSIA/Documents/CORSIA\%20Supporting\%20Document\_CORSIA\%20Eligible\%20Fuels\_LCA\%20Methodology.pdf$ 

<sup>&</sup>lt;sup>6</sup> The 1st Meeting of the Study Group on Reducing CO2 in the Aircraft Operations Sector of the Air Transport Bureau of the Ministry of Land, Infrastructure, Transport and Tourism (Material 2-1 https://www.mlit.go.jp/common/001395880.pdf on March 22, 2021)

ORSIA SUPPORTING DOCUMENT CORSIA Eligible Fuels – Life Cycle Assessment Methodology https://www.icao.int/environmental-

Schedule for Promoting Decarbonization of Aviation by the Ministry of Land, Infrastructure, Transport and Tourism (Review Meeting on Reducing CO2 in the Aircraft Operation Field) https://www.mlit.go.jp/common/001445923 December 2021.pdf



is urgently needed. For example, when a biomass sugar such as sugar cane is used as a raw material, there is a conflicts with foods demand. In addition, there are businesses that are currently making a living by waste food oils and waste, and the use of these oils for power generation, feed, and industrial use has been established. Therefore, it is a challenge how to promote the conversion from existing uses. The price aspect is another challenge. The production cost of SAF is currently said to be about 2-10 times that of conventional fossil fuel, and it is hopefully expected to be about 1.5-4 times in the future as well. Reducing manufacturing costs is essential for the dissemination of SAF. In addition, in parallel with expanding supply volumes, how to develop supply networks in each country and increase the number of refueling bases worldwide is also an important issue for the SAF in the medium-to long-term, in conjunction with the aforementioned issues.

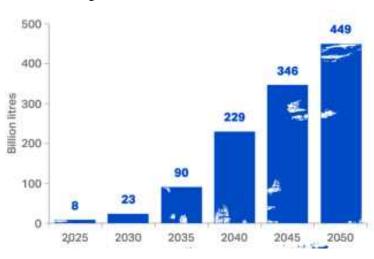


Figure 2: Global SAF Demand Outlook

(Source: IATA Net Zero 2050: sustainable aviation fuels<sup>9</sup>)

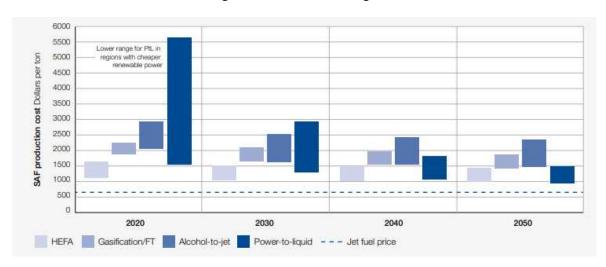


Figure 3: SAF Manufacturing Costs

(Source: WEF Clean Skies for Tomorrow: Sustainable Aviation Fuels as a Pathway to Net-Zero Aviation<sup>10</sup>)

<sup>&</sup>lt;sup>9</sup> IATA Net zero 2050: sustainable aviation fuels 2022 June https://www.iata.org/en/iata-repository/pressroom/fact-sheets/fact-sheet---alternative-fuels/

<sup>&</sup>lt;sup>10</sup> WEF Clean Skies for Tomorrow: Sustainable Aviation Fuels as a Pathway to Net-Zero Aviation 2020 November  $https://www3.weforum.org/docs/WEF\_Clean\_Skies\_Tomorrow\_SAF\_Analytics\_2020.pdf$ 



Although ANA Group plans to continue implementing energy-saving measures by improving operational methods, it has expressed the view that it would be difficult to obtain a large-scale effect toward decarbonization through energy-saving measures alone. In addition, according to the Ministry of Land, Infrastructure, Transport and Tourism's schedule for promoting decarbonization, the development of innovative technologies such as electric aircraft and hydrogen aircraft promoted by aircraft manufacturers is expected to be introduced into short-distance and small-sized aircraft by 2050. As a result, it is unlikely to be the main alternative for ANA Group, which has a large number of large- and medium-sized aircraft. Based on the above, ANA Group believes that in pursuing both environmental measures and economic growth, it is necessary to promote the use of SAF, which are expected to have an effect on the decarbonization of long-distance, large- and medium-sized aircraft. In addition, ANA Group assumes using SAF has the advantage of being able to use existing aircraft and engines, as well as continuing to use existing airport fueling facilities, and that the feasibility of social implementation is high.

ANA Group also recognizes the challenges of SAF mentioned above. ANA Group believes that although raw material constraints and technological difficulties of both stable raw material sourcing and lower manufacturing costs are different from each Annex, as none of them alone will ensure the total amount of SAF the entire airline industry needs, it needs to take advantages of all options. To this end, ANA Group requests support from the Government of Japan in order to promote the development and manufacturing of SAF and build supply chains by combining various technologies and raw materials. In addition, ANA Group is striving to strengthen partnerships between the public and private sectors, such as "ACT FOR SKY" established in 2022. It is a voluntary organization consisting of private companies. In ACT FOR SKY, industrial sectors, such as the food industry, which had not previously been involved in air transportation or energy businesses, are also participating, and progress is expected in cross-sector efforts to build the supply chain of SAF, such as the provision of raw materials such as waste food oil, city garbage, and biomass, and the creation of an efficient resource circulation mechanism.

# Use of proceeds 2: Investments in utilization of negative emissions technologies (DAC/CCS/CCU, etc.)

Use of proceeds 2 refers to investments in utilization of negative emissions technologies (DAC/CCS/CCU, etc.). This use of proceeds falls under the category of "Circular economy adapted products, production technologies and processes and/or certified eco-efficient products" in the Green Bond Principles, and "Projects concerning eco-efficient products, production technologies, and processes" in the Ministry of the Environment's Green Bond Guidelines.

The DAC, CCS, and CCU assumed by ANA HD as negative emissions technologies are outlined below. These negative emissions technologies are proclaimed in IPCC<sup>11</sup>'s Sixth Report<sup>12</sup> as essential techniques for mitigating climate change.

✓ DAC: A technology for the direct recovery of CO₂ from the atmosphere by processes such as liquid and solid absorbents and membrane separation. Unlike the CCS/CCU described below, low-concentration CO₂ of around 0.04% are targeted to recover CO₂ after it has diffused into the atmosphere.

According to IEA<sup>13</sup>, 18 small DAC facilities are currently in operation in the U.S., Canada and EU.

<sup>&</sup>lt;sup>11</sup> IPCC: Intergovernmental Panel on Climate Change

<sup>&</sup>lt;sup>12</sup> IPCC Sixth Assessment Report Climate Change 2022: Mitigation of Climate Change 2022 April https://report.ipcc.ch/ar6wg3/pdf/IPCC AR6 WGIII FinalDraft FullReport.pdf

<sup>&</sup>lt;sup>13</sup> IEA Direct Air Capture A key technology for net zero 2022 April https://iea.blob.core.windows.net/assets/78633715-15c0-44e1-81df-41123c556d57/DirectAirCapture\_Akeytechnologyfornetzero.pdf



Some companies are pursuing large-scale DAC projects, including Swiss-based Climeworks, which was the first company to successfully commercialize it worldwide, as well as Canadian-based Carbon Engineering and U.S.-based Global Thermostat. Although no company has yet succeeded in practical application in Japan, Kawasaki Heavy Industries, etc. are advancing research, development, and verification.

✓ CCS: A technique for separating and collecting CO₂ discharged from power plants and chemical plants prior to atmospheric dissemination, and storing and injecting it deeply into the ground at least 1,000 m. The separated and recovered CO₂ are transported to the facilities where they are injected into the ground using special pipelines or transportation vessels. CO₂ storage area is a reservoir made of sandstone with a lot of pores, and the reservoir covers oil and gas fields and deep salt water layers that have already been produced. The upper part of the reservoir must be covered with a "shielding layer" made of mudstone, etc. that does not pass through CO₂.

Twenty-seven CCS projects are in operation in the United States, which has been working on CCS for more than 40 years, as well as in North America, Europe, the Middle East and other countries around the world. Large-scale demonstration tests have also been conducted in Tomakomai in

Japan. More than 0.3 million tons of CO<sub>2</sub> have been injected<sup>14</sup>.

✓ CCU: Technologies for collecting CO₂ discharged from power plants, chemical plants, etc. by separating them from other gases and using them as raw materials for new products/services. Applications are very broad, with direct use (non-conversion) that does not chemically and biologically alter CO₂ and methods (conversion) that convert them into valuable products. Carbon recycling, which produces synthetic fuels and plastic raw materials, can also be said to be a form of CCU. Currently, 230 million tons of CO₂ are used worldwide every year. Existing uses include use in fertilizers, enhanced crude oil recovery (EOR), production of food and carbonated beverages, dry ice for cooling, and other non-conversion uses using CO₂ directly¹⁵. In the future, the use of conversion, such as the use of methane and methanol as fuel, is expected to advance as a

In order to achieve its medium- and long-term environmental targets, ANA Group has placed aviation fuel decarbonization including the use of SAF at the heart of its transition strategies, as mentioned above. While technological innovations are expected to improve the CO<sub>2</sub> emission reduction rate of SAF, the Group believes that it is essential to utilize CO<sub>2</sub> removal technologies to capture, absorb, and store and solidify CO<sub>2</sub> in the atmosphere (negative emissions technologies: DAC, CCU, CCS, etc.), in order to absorb unavoidable CO<sub>2</sub> emissions. ANA Group plans to remove 1% of CO<sub>2</sub> emissions from aircraft operations by 2030 and 10% by 2050 through the use of negative emissions technologies. In the future, the Group is also considering using captured CO<sub>2</sub> as a raw material for aviation fuel.

Some of these technologies have begun to be put to practical use, such as CCS, but international rules for certificating the CO<sub>2</sub> removal effects of negative emissions technologies and emissions trading, have not been firmly established. In order to actively utilize negative emissions technologies, it is necessary to closely monitor these trends and catch-up the situation quickly. ANA Group plans to actively participate in discussions on rule-making such as CORSIA, which stipulates the utilization of negative emissions technologies in the airline industry worldwide.

substitution of fossil fuels.

<sup>&</sup>lt;sup>14</sup> Japan CCS Co., Ltd. (JCCS) https://www.japanccs.com/en/about/

<sup>&</sup>lt;sup>15</sup> IEA Putting CO2 to Use Creating value from emissions 2019 September https://iea.blob.core.windows.net/assets/50652405-26db-4c41-82dc-c23657893059/Putting\_CO2\_to\_Use.pdf



Based on the above, the JCR evaluates the use of proceeds defined by ANA HD in this Framework as a highly environmentally beneficial project that contributes to the decarbonization of the airline industry. ANA Group acknowledges the issues of SAF and negative emissions technologies and plans to take appropriate measures.

#### b. Negative Impacts on the Environment

ANA HD specifies potential environmental and social risks for all eligible projects and measures to reduce them in the Framework as follows:

#### (2.2 Process for Project Evaluation and Selection

# < Potential Environmental and Social Risks and Activities to Offset Risks>)

SAF is produced from various raw materials such as biomass, waste cooking oil, and waste gas, etc. Sugar crops, one of the raw materials, have been pointed out as competitive risk on food and other applications. In addition, the possible negative impacts on environment such as water, air and soil, and human rights throughout the supply chain of SAF are within concern. To avoid these potential risks, ANA Group purchases EU Renewable Energy Directive qualified SAF, or \*CORSIA Eligible SAF, which meets certain criteria regarding these issues.

\*CORSIA: Carbon Offsetting and Reduction Scheme for International Aviation

The amount of CO<sub>2</sub> emissions from aircraft operations basically has no differences between the case of using SAF and of using conventional aviation fuel. The effects of using SAF on reducing CO<sub>2</sub> emissions must be evaluated in terms of lifecycle emissions, including those from processes such as the cultivation and harvesting of raw materials and the production and transportation of SAF. ANA Group purchases SAF that has obtained a third-party evaluation of the CO<sub>2</sub> emission reduction rate based on life-cycle assessment.

With regard to utilization of negative emissions technologies, potential risks are supposed to include negative impacts on ecosystems caused by earthwork during plants construction, noise pollution, etc. To mitigate these negative impacts, the Company will confirm that appropriate measures are taken to address these issues relevant to the investments.

To further strengthen the foundation of ESG management, ANA Group has established the "Social Responsibility Guidelines" which all Group employees must follow. The guidelines stipulate compliance with the laws and regulations of each country and region, respect for human rights and diversity, and consideration for the environment.

(Source: ANA HD Green Bond Framework)

#### <JCR's Evaluation for the Framework>

In the case of SAF, the use of proceeds 1 in this Framework, ANA HD addresses the issues with regard to material sourcing and manufacturing processes of SAF. In order to mitigate these issues, ANA Group only purchases SAF which is EU Renewable Energy Directive qualified or CORSIA eligible. In addition, as the amount of CO<sub>2</sub> emissions of SAF varies from each when being assessed by lifecycle, ANA Group only purchases SAF which obtains a third party evaluation regarding CO<sub>2</sub> emission reduction rate. For negative emissions technologies, the use of proceeds 2, negative impacts on ecosystems, noise, etc. are identified as risks during construction and after starting operations of the plant. When conducting investments, it is planned to confirm that the above risks are small at the time of construction, and to confirm that the investee will take appropriate measures after commencement of operations.



Based on the above, JCR evaluates that ANA HD has appropriately identified and addressed negative environmental impacts.

# c. Consistency with SDGs

JCR evaluated the use of proceeds set out in the Framework contributes to the following SDGs goals and targets in reference to ICMA's SDGs mapping.



# Goal9: Industry, innovation and infrastructure

**Target9.4** 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



#### Goal11: Sustainable cities and communities

**Target11.2** By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons



#### Goal12: Responsible consumption and production

**Target12.5** By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse



#### Goal13: Climate action

**Target13.3** Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning



# Evaluation Phase 2: Management, Operation and Transparency Evaluation

Based on the current situation described below and JCR's evaluation of the subject, JCR evaluated that the management and operational systems have been well developed, that transparency is very high and that it can be fully expected for the project to be implemented as planned and for the proceeds to be adequately allocated. In Phase 2, JCR evaluated the management, operation and transparency to be the highest level of "m1(F)".

# 1. Appropriateness and Transparency Concerning Selection Standards and Processes for Use of Proceeds

# (1) JCR's Key Consideration on This Factor

In this section, JCR confirms the objectives to be achieved through green financing, the appropriateness of green project selection standards and processes, and whether or not a series of processes are properly disclosed to investors and others.

# (2) Current Status of Evaluation Targets and JCR's Evaluation

#### a. Goals

<The Framework for Green Finance Issuance Objectives >

# (1.1. ANA Group ESG Management and Decarbonization Approach)

In promoting ESG management, ANA Group has identified Environment, Human Rights, Diversity, Equity & Inclusion (DEI), and Regional Revitalization as four key material issues. By appropriately addressing these issues through our business activities, our policy is to contribute to the realization of a sustainable society and to enhance our corporate value.

With regard to "Environment", we have been working on reducing environmental burdens, including establishing the "ANA Group Environmental Principles" in 1998 and the "ANA Group Environmental Policies" in 2017. Recently, we have set "2050 Environmental Goals" (the "Goals"), in which achieving Carbon Neutrality by FY2050 is declared, and have established "2030 Environmental Targets" (the "Targets") as a roadmap. Furthermore, we have developed ANA Group Transition Strategies to achieve the Goals and the Targets.

<ANA Group Environmental Principles>

- The mindset to value the environment starts with recognition of the burden we place on the Earth.
- We will use natural resources and energy with care and contribute to attaining a prosperous and sustainable society.
- We will take the initiative in environment conservation activities and share our care for the Earth with people around the world.

<ANA Group Environmental Policies>

ANA Group, recognizing the global environmental issues, including global warming and the conservation of biodiversity, as a quintessential management task, aims to be an "Environmental Leading Airline Group" through all engaged activities.

1. We will precisely grasp and analyze the impact of our business activities on the environment, and disclose it to society.



- 2. We will promote environmental preservation in line with social needs that go above and beyond the pertinent laws and regulations, through widespread conversations with stakeholders.
- 3. We will promote measures to reduce the environmental impact in all related businesses and operations, and we actively pursue possibilities of new technologies and services for this purpose.
- 4. We will constantly pay close attention to the environmental consideration of supply-chains, and promote the environment-conscious procurement.
- 5. We will intensify the "3R" (Reduce, Reuse, Recycle) activities and waste management in an effort to contribute to the creation of a recycling society.
- 6. We will encourage our workforce to engage in environmental preservation activities, raising each and every employee's awareness and consciousness.

<2030 Environmental Targets>

#### By FY2030, ANA Group will:

- 1. Reduce net CO<sub>2</sub> emissions from aircraft operations to less than FY2019 levels.
- 2. Reduce CO<sub>2</sub> emissions from non-aircraft operations by 33% or more compared to FY2019 levels.
- 3. Reduce resource waste ratio (plastics, paper, etc.) by 70% or more compared to FY2019 levels.
- 4. Reduce food waste ratio (in-flight/airport lounge meals, etc.) to less than 3.8%.

<2050 Environmental Goals>

#### By FY2050, ANA Group will:

- 1. Reduce net CO<sub>2</sub> emissions from aircraft operations to zero.
- 2. Reduce net CO<sub>2</sub> emissions from non-aircraft operations to zero.
- 3. Reduce resource waste ratio (plastics, paper, etc.) to zero.
- 4. Reduce food waste ratio (in-flight/airport lounge meals, etc.) to less than 2.3%.

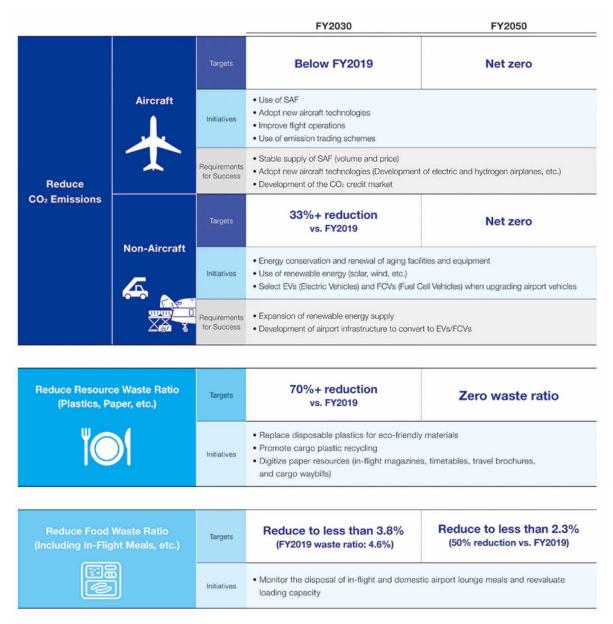
(Source: ANA HD Green Bond Framework)

# <JCR's Evaluation for the Framework>

In April 2021, ANA Group set long-term goals of achieving carbon neutrality by FY2050. The Group has also announced medium-term targets for 2030 in order to achieve the goals above at the same time. Among these medium- and long-term environmental initiatives, the use of proceeds in this Framework is particularly targeted at projects that contribute to the decarbonization of the airline business as the core business of the Group.



Figure 4: ANA Group Environmental Targets/Goals



(Source: Documents provided by ANA HD)

Based on the above, JCR has evaluated that the businesses covered by this Framework are consistent with ANA Group medium-and long-term environmental targets/goals.

#### b. Selection criteria

The selection criteria for the use of proceeds of ANA HD are as described in Phase 1 of the evaluation. JCR evaluates the aforementioned selection criteria as being at highly significant for environmental improvement.



#### c. Processes

#### <The Framework for Processes >

#### (2.2. Process for Project Evaluation and Selection)

The Corporate Strategy Department, Finance Department and Sustainability Department evaluated and selected the eligible criteria and projects. Final confirmation of the selection of eligible projects was made by the Group ESG Management Promotion Committee, which headed by the president and chaired by the director in charge of ESG promotion of the Company, consisted of directors, executive officers, and full-time corporate auditors of the Company and its subsidiaries including ALL NIPPON AIRWAYS CO., LTD.

(Source: ANA HD Green Bond Framework)

#### <JCR's Evaluation for the Framework>

In the process of selecting Green Projects, the eligibility is judged by the Corporate Strategy Department, the Finance Department, and the Sustainability Department, which are departments with expert knowledge of this use of proceeds. Through interviews with ANA HD, JCR confirmed that each department was responsible for the selection, planning, and implementation of this project with clear expertise and responsibilities for their assigned duties. In addition, the final confirmation was conducted at the Group ESG Management Promotion Committee with the attendance of ANA Group executives and it was confirmed that the management team was proactively involved in the selection process.

ANA HD's goals, selection criteria and processes set out in this Framework are properly structured. ANA HD will specify targets, selection criteria, and processes as requirements to be met by the Green Bonds in the Framework, and will disclose the Framework documents on the website. Therefore, transparency is ensured.



# 2. Appropriateness and Transparency of Management of the Proceeds

# (1) JCR's Key Consideration on This Factor

It is usually assumed that the management of the proceeds varies widely depending on issuers. JCR confirms whether the proceeds are surely appropriated to the green project and whether a mechanism and internal system are in place to enable easy tracking and management of the appropriation of funds.

JCR also attaches importance to whether the proceeds are scheduled to be used for a green project at an early stage and to the management and operation methods for unallocated funds.

# (2) Current Status of Evaluation Targets and JCR's Evaluation

<The Framework for Management of the Proceeds>

# (2.3. Management of Proceeds)

Finance Department of the Company will be responsible for allocating and managing the proceeds of the issued Green Bonds based on this Framework. To ensure the proceeds are/will be properly allocated to eligible projects, the Department will use an internal management system, which is able to track both allocated and unallocated proceeds. Also, the Department will check the total amount of allocated and unallocated proceeds periodically to ensure its consistency with the amount of issued Green Bonds. Until the proceeds are fully allocated to eligible projects, the outstanding proceeds will be held in cash or cash equivalents or invested in highly secured and liquid assets such as negotiable certificates of deposit.

The proceeds will be fully allocated by the end of March of the fiscal year, in which is of the 3<sup>rd</sup> anniversary of the issuance of Green Bonds.

In the event of outstanding proceeds resulted from divestment of allocated projects/companies, all of them will be reallocated to other eligible projects.

(Source: ANA HD Green Bond Framework)

#### <JCR's Evaluation for the Framework>

As described in the Framework above, ANA HD will ensure that the proceeds from Green Bonds are managed properly until fully allocated to the eligible projects. The officer in charge of finance will confirm the allocation status of proceeds on an annual basis. The outstanding proceeds from Green Bonds are maintained in safe and liquidity assets, such as cash or cash equivalents, or certificates of deposit, until they are allocated to the eligible projects.

In addition, the allocation status will be subject to internal and external audits by the Audit Department during the normal financial process. In addition, vouchers and relevant documents related to proceeds allocation will be stored for nine years in accordance with the internal accounting regulations of ANA Group.

Based on the above, JCR evaluates ANA HD's defined management of proceeds as being reasonable and transparent.



# 3. Reporting

# (1) JCR's Key Consideration on This Factor

In this section, JCR evaluates whether the disclosure system for investors before and after the issuance of green finance, which is implemented with reference to the Framework, is planned in detail and in an effective manner.

# (2) Current Status of Evaluation Targets and JCR's Evaluation

<The Framework for Reporting>

# (2.4. Reporting)

# [Allocation Reporting]

Until the proceeds are fully allocated, the Company will annually confirm the allocation status by the Chief Financial Officer, and report on its website the amount of both allocated and unallocated proceeds, and how the unallocated proceeds, if any, will be managed. In the case of the proceeds allocated for refinancing existing expenditures and investments, the amount or the percentage of that in total amount will be disclosed. If there is any major change in the allocation plan, information of the change will also be disclosed.

#### [Impact Reporting]

We will disclose the following information annually on our website until the Green Bonds are fully redeemed, within confidentiality agreements and so far as is reasonably practicable.

Eligible projects	Impact reporting items		
Procurement of SAF	Ratio of SAF used in total aviation fuel consumption (%)  Amount of SAF Consumption  Amount of total aviation fuel consumption (Conventional Aviation Fuel + SAF)  = Ratio of SAF used in total aviation fuel consumption		
Investments in projects/companies aiming at increasing available SAF	List of the projects/companies  Purpose of each investment		
Investments in utilization of negative emissions technologies  (DAC/CCS/CCU, etc.)	List of the projects/companies Purpose of each investment		

(Source: ANA HD Green Bond Framework)

#### <JCR's Evaluation for the Framework>

#### a. Reporting on the allocation status of the proceeds

ANA HD expects to disclose the allocation status of the proceeds on its website on a yearly basis until all of the proceeds are allocated to the eligible projects. In the event that there is a major change in the allocation plan of the proceeds or that there are unallocated amounts, the Company plans to disclose the fact in the same way. JCR evaluates that reporting on the fund allocation status is appropriate.



# b. Reporting on environmental improvement effects

ANA HD is scheduled to disclose the impact reporting on its website annually, as described above until the Green Bonds are fully redeemed. The contents of this reporting include concrete and quantitative data on the effects of environmental improvement, and JCR evaluates that it is appropriate to fully disclose the indicators for the effects of environmental improvement regarding the items to be disclosed and the frequency of disclosure stipulated in this report plan.



# 4. Organization's Environmental Initiatives

# (1) JCR's Key Consideration on This Factor

In this section, JCR evaluates whether the management of the issuer regards environmental issues as a matter of high priority for management and whether the green finance policy, process and selection criteria for green projects are clearly positioned through the establishment of a department specializing in environmental issues or in collaboration with external organizations.

# (2) Current Status of Evaluation Targets and JCR's Evaluation

ANA Group's Mission Statement is "Built on a foundation of security and trust, "the wings within ourselves" help to fulfill the hopes and dreams of an interconnected world." Based on this management philosophy, the Group has identified four key management issues (materiality): "Environment," "Human Rights," "Diversity, Equity & Inclusion (DEI)," and "Regional Revitalization". By addressing appropriately to these items, the Group's policy is to simultaneously create "social value" and "economic value" and increase corporate value. ANA Group formulated materiality in 2016, and since then every year it reconfirms the validity of these materiality while having dialogue with a variety of stakeholders, including institutional investors. Although there was a change in 2022 from Diversity & Inclusion (D&I) to Diversity, Equity & Inclusion (DEI), these four items are the issues that ANA Group has consistently emphasized to improve social and economic value since 2016.

Contribution to the For the ANA Group For Society Major Initiatives SDGs · Suppression of fu el expenses · Suppression of fu Introduction of fu ture emissions cr el-efficient aircraf edit purchasing c Reducing environ Environment mental footprint • Introduction of su Maintaining / imp stainable aviation fuel (SAF) roving evaluation s by avoiding env ironmental risk Executing human Maintaining / imp rights due diligen Realizing a world roving evaluation Human Rights s through avoidin that respects hu Developing and tr g human rights ri man rights aining group emp loyees · Improving profita bility by generati ng new inbound t · Strategic use of a ourism demand roup resources Revitalize regiona Maintaining / imp Social contributio Regional Revitalizati Leconomies roving profitabilit n activities in inte **\*\*\*** · Promoting intern y of domestic airli rnational and do ational exchange mestic service re ne business · Improving profits gions of international ai rline business · Improving profita Developing / impl bility by generati ementing service ng new demand s focusing on cus Diversity & Inclusio Realizing an inclu · Providing an issu tomer diversity e resolution syste · Developing and tr m to strengthen c aining group emp apacity to respon loyees d to customers

Figure 5: Materiality of ANA Group and Reasons for Selection

(Source: ANA Group website)

<sup>\*</sup>As of July 2022, "Diversity & Inclusion" in the chart has been changed to "Diversity, Equity & Inclusion."



In ANA Group, a wide range of departments throughout the Group address these important issues in accordance with the division of operations of each department. The Sustainability Department of ANA HD is mainly responsible for coordinating the efforts of each department, acting as a liaison with external parties, and acting as the secretariat for committees related to the promotion of ESG management. In addition, in order to promote ESG management throughout the group, ESG Promotion Officers (EPOs) are assigned to each group company as responsible persons for promoting ESG management and members of the Group ESG Management Promotion Committee, and ESG Promotion Leaders (EPLs) are assigned to each group company and department as the driving force behind the promotion of ESG management in the organization.

Major conferences for promoting ESG management include the Group ESG Management Promotion Committee and the EPL Committee under its umbrella. The Group ESG Management Promotion Committee is headed by the president of ANA HD and chaired by the director in charge of the Sustainability Promotion (CEPO: Chief ESG Promotion Officer), and consisted of directors and executive officers of ANA HD and Group companies, and full-time corporate auditors. The ongoing discussions on important policies and measures related to the promotion of ESG management throughout the Group, including risk management and compliance, have held four times in FY2021. All of the discussions are reported to the Board of Directors and the Board of Corporate Auditors, and particularly important issues directly linked to management are submitted to the Group Management Committee and reported to the Board of Directors and the Board of Corporate Auditors. The EPL Committee is held twice a year attended by EPLs. At the Committee, information on ESG-related initiatives in each group company is shared comprehensively, and it is linked to the promotion of initiatives in each group company and department.



Figure 6: ANA Group ESG Management Implementation Structure

(Source: ANA Group website)

Furthermore, in April 2021, ANA Group declared carbon neutrality by FY2050 as its "2050 Environmental Goals", and established "2030 Environmental Targets" as its roadmap. In formulating the medium- and long-term environmental targets, ANA Group referred to opinions of experts such as WWF Japan. ANA Group also formulated the transition strategies to achieve these goals. The transition strategies are based on not only roadmap by ATAG<sup>16</sup>,

ATAG:Air Transport Action Group Global alliance that promotes the sustainability of the airline industry



an international expert organization of airline industry focusing on issues of sustainable development, but also information by TPI<sup>17</sup>, IPCC<sup>11</sup>, and the Schedule for Promoting Decarbonization of Aviation published by the Ministry of Land, Infrastructure, Transport and Tourism<sup>8</sup>, as well as The Long-Term Strategy of United States published by the United States Government<sup>18</sup> and other national and international scenarios. ANA Group Transition Strategies set forth four important measures ((i) Flight Operations and Infrastructure Improvements, Technology Development, (ii) SAF and Other Potential Cleaner Energy Sources, (iii) Emission Trading Schemes, (iv) Negative Emissions Technologies). The use of proceeds in this Framework is all an initiative that contributes to important measures in the Transition Strategies.

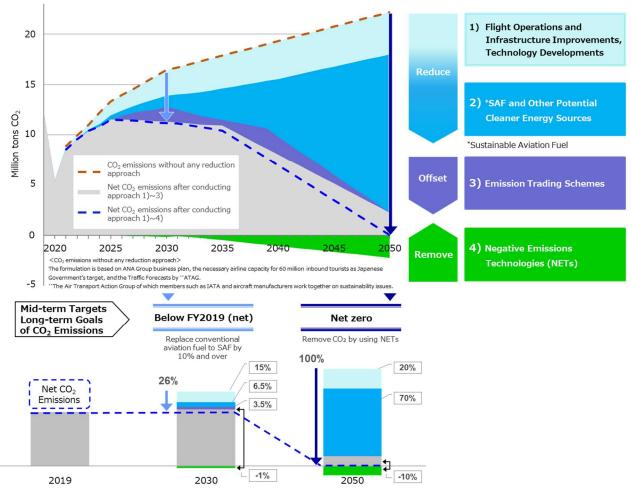


Figure 7: ANA Group Transition Strategies

(Source: Documents provided by ANA HD)

Recognizing the importance of climate-related financial disclosures, ANA Group became the first airline group in Japan to support the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD) in March 2019, and discloses information in April 2022. Furthermore, in 2021, it obtained an "A-" rating from the Carbon Disclosure Project (CDP), which provides a high level of transparency in climate-related disclosures among airline industry. ANA HD also actively involves in sustainable finance, issuing green bonds in 2018, social bonds in 2019, and sustainability-linked bonds in 2021. In April 2022, ANA Group newly established a specialized department called the Decarbonization Team in the Corporate Strategy Department in order to accelerate efforts toward carbon neutrality in 2050.

-

<sup>&</sup>lt;sup>17</sup> TPI: Transition Pathway Initiative

Low Carbon Economic Promotion Initiative Formulated in 2017 with the Participation of More than 120 Large Institutional Investors

THE LONG-TERM STRATEGY OF THE UNITED STATES Pathways to Net-Zero Greenhouse Gas Emissions by 2050,2021 November https://www.whitehouse.gov/wp-content/uploads/2021/10/US-Long-Term-Strategy.pdf



Based on the above, JCR evaluated that ANA Group's management considers environmental issues as one of the highest prioritized issues for its business, and that internal and external experts with specialized knowledge are involved in sustainability initiatives as an organization.



# ■Evaluation result

Based on its JCR Green Finance Evaluation Methodology, JCR assigned "g1 (F)" for the "Greenness Evaluation (Use of Proceeds)" and "m1 (F)" for the "Management, Operation and Transparency Evaluation." As a result, it assigned "Green 1 (F)" for the "JCR Green Bond Framework Evaluation". The Framework meets the standards for the items required in the Green Bond Principles, and the Green Bond Guidelines

[JCR Green Bond Framework Evaluation Matrix]

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

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



#### Important explanations of this Evaluation

#### 1. Assumptions, Significance and Limitations of JCR Green Bond Framework Evaluation

JCR Green Bond Framework Evaluation, which is determined and provided by Japan Credit Rating Agency, Ltd. (JCR), covers the policies set out in the Green Bond Framework, and expresses JCR's comprehensive opinion at this time regarding the appropriateness of the Green Project as defined by JCR and the extent of management, operation and transparency initiatives related to the use of funds and other matters. Therefore, it is not intended to evaluate the effects of specific environmental improvements and the management, operation and transparency of individual bonds and borrowings, etc. to be implemented based on these policies. In the event an individual bond or individual borrowing based on this Framework is subject to a green finance evaluation, it is necessary to conduct a separate evaluation. JCR Green Bond Framework Evaluation does not prove the environmental improvement effects of individual bonds or borrowings implemented under this Framework, and does not assume responsibility for their environmental improvement effects. JCR confirms the environmental improvement effects of funds procured under the Green Bond Framework measured quantitatively and qualitatively by the issuer or by a third party nominated by the issuer, but in principle it does not directly measure such effects.

#### 2. Method used to conduct this evaluation

The methodologies used in this assessment are described in "JCR Green Finance Evaluation" on the "Sustainable Finance ESG" section of the JCR website (https://www.jcr.co.jp/en).

#### 3. Relationship with Acts Concerning Credit Rating Business

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

#### 4. Relationship with Credit Ratings

The Evaluation is different from the Credit Rating and does not promise to provide or make available for inspection a predetermined credit rating.

5. Third-Party Evaluation of JCR Green Bond Framework Evaluation

There are no capital and/or personnel relationships that may result in a conflict of interest between the subject of this evaluation and JCR.

#### ■ Matters of Attention

The information contained in this document was obtained by JCR from the issuer and from accurate and reliable sources. However, such information may be mistaken for human, mechanical or other reasons. Therefore, JCR makes no representation or warranty, whether express or implied, as to the accuracy, result, appropriateness, timeliness, completeness, marketability or fittingness for any particular purpose of such information, and assumes no responsibility for any errors, omissions or consequences of using such information. JCR shall not be liable for any loss of opportunity and extraordinary, indirect, incidental or consequential damages of any kind, including any loss of money, which may result from any use of such information under any circumstances, whether contractual liability, tort liability, negligence or other causes of liability, and whether or not such damages are foreseeable or unforeseeable. JCR Green Finance Evaluation does not express any opinion on various risks (credit risk, price fluctuation risk, market liquidity risk, price fluctuation risk, etc.) related to green finance, which is the target of the evaluation. Furthermore, it is an expression of JCR's opinion at the present time and does not represent facts nor does it make any recommendation regarding risk assessment or decisions on the purchase, sale or holding of individual bonds, commercial paper, etc. JCR Green Finance Evaluation may be modified, suspended or withdrawn due to changes in information, lack of information or other reasons. All rights pertaining to this document, including data from JCR Green Finance Evaluation, are held by JCR. All or part of this document, including data from JCR Green Finance evaluation, is prohibited from being reproduced, modified or otherwise altered without the permission of JCR.

#### ■ Glossary

JCR Green Bond Framework Evaluation: This evaluates the extent to which the funds procured through green finance are appropriated for green projects as defined by JCR and the degree to which the management, operation and transparency of the green finance are ensured. Evaluations based on a 5-point scale are given from top to bottom using the Green1 (F), Green2 (F), Green3 (F), Green4 (F), and Green5 (F) symbols.

#### ■ Status of Registration as an External Evaluator of Green Finance

- · Registered as an External Reviewer of Green Bonds by the Ministry of the Environment
- ICMA (registered as an observer with the Institute of International Capital Markets)

# ■ 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 U.S. Securities and Exchange Commission's Nationally Recognized Statistical Rating Organization (NRSRO): (1) financial institutions, broker-dealers, (2) insurance companies, (3) general business corporations and (4) governments and municipalities. If the disclosure is subject to Section 17g-7 (a) of the Securities and Exchange Commission Rule, such disclosures are attached to the news releases appearing on the JCR website (https://www.jcr.co.jp/en/).

#### ■For further information, contact

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

Japan Credit Rating Agency, Ltd.

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

Copyright © Japan Credit Rating Agency, Ltd. All rights reserved.