



SECOND PARTY OPINION

HITACHI ZOSEN CORPORATION 2ND GREEN BOND PERIODIC REVIEW (#1)

Prepared by: DNV Business Assurance Japan K.K.

Location: Kobe, Japan

Date: 28th October 2022

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Publication history

Date of issue	Contents
28 th October 2022	Hitachi Zosen Corporation 2nd Green Bond Periodic Review (#1)

Scope and Objectives

Hitachi Zosen Corporation (hereinafter "Hitz") has commissioned DNV Business Assurance Japan (hereinafter "DNV") to conduct a periodic review of the 2nd Hitachi Zosen Corporation Green Bond (hereinafter "the Bond"). The objective of the periodic review at DNV is to implement an assessment to confirm that the Bond meets the identified criteria of the Green Bond Principles (ICMA, 2021, hereinafter "GBP"), Green Bond Guidelines (Ministry of the Environment, 2020, hereinafter "GBGLs") and to provide the issuer with independent second-party opinion on the eligibility of the Bond.

After issuing its first green bond on 21st September 2018, Hitz issued its 2nd green bond, the subject of this review, on 28th October 2021. The issue amount of the Bond is JPY 10 billion. DNV's review team conducted the first periodic review under the GBP and GBGLs for the period from October 2021 to March 2022.

DNV, as independent external reviewer, has identified no real or perceived conflict of interest associated with the delivery of this second-party opinion for Hitz.

In this report, no assurance is provided regarding the financial performance of the Bond, the value of any investments in the Bond, or the long-term environmental benefits of the transaction.

Table-1 The Bond covered by this review

Name of the bond	Hitachi Zosen Corporation 27th Series Unsecured Straight Bonds (Green Bonds) with inter-bond pari passu clause.
Date of issue	28 th October 2021
Maturity Date	5 years
Total amount of issue	10 billion yen
Number of periodic reviews	1st

Standards/guidelines to be applied

No.	Standards/guidelines	Scheme owner	Applied level *1 *2
1.	The Green Bond Principles (GBP)	International Capital Markets Association (ICMA), 2021	Apply
2.	Green Bond Guidelines (GBGLs)	Ministry of the Environment, 2020	Apply
3.	Climate Bonds Standard Version 3.0 (CBSv3.0) (Sector criteria)	Climate Bond Initiative, 2019	Refer (applicable technical criteria)
4.	Green and Social Bonds: A High-Level Mapping to the Sustainable Development Goals	International Capital Markets Association (ICMA), 2020	Refer
5.	Handbook Harmonized Framework for Impact Reporting	International Capital Markets Association (ICMA), 2021.	Refer

*1 Apply: Eligibility for all four core common elements to each principle or guideline was assessed.

*2 Refer: Based on the green project and implementation plans, relevant contents were partially considered.



Responsibilities of the Issuer and DNV

Hitz has provided the information and data used by DNV during the delivery of this review. Our statement represents an independent opinion and is intended to inform Hitz management and other interested stakeholders in the Bond as to whether the established criteria have been met, based on the information provided to us.

In our work, we have relied on the information and the facts presented to us by Hitz. DNV is not responsible for any aspect of the candidate projects or assets referred to in this opinion and cannot be held liable if estimates, findings, opinions, or conclusions are incorrect. Thus, DNV shall not be held liable if any of the information or data provided by Hitz and used as a basis for this assessment were not correct or complete.



Basis of DNV's opinion

To provide as much flexibility as possible for Hitz, DNV has applied our green bond assessment methodologies, which incorporates the requirements of GBP and GBGLs, to create Hitz-specific Green Bond Eligibility Assessment Protocol (hereinafter "DNV's Protocol"). The DNV's Protocol can be applied to the green bond under GBP and GBGLs.

DNV's Protocol includes a set of suitable criteria that can be used to underpin DNV's opinion. The overarching principle behind the criteria is that a green bond should "enable capital-raising and investment for new and existing projects with environmental benefits".

As per DNV's Protocol, the criteria against which the Green Bond has been reviewed are grouped under the four Principles:

- **Principle One: Use of Proceeds.** The Use of Proceeds criteria are guided by the requirement that an issuer of a green bond must use the funds raised to bond eligible activities. The eligible activities should produce clear environmental benefits.
- **Principle Two: Process for Project Evaluation and Selection.** The Project Evaluation and Selection criteria are guided by the requirements that an issuer of a green bond should outline the process it follows when determining eligibility of an investment using green bond proceeds, and outline how the issuer consider impacts to objectives.
- **Principle Three: Management of Proceeds.** The Management of Proceeds criteria are guided by the requirements that a green bond should be tracked within the issuing organization, that separate portfolios should be created when necessary and that a declaration of how unallocated funds will be handled should be made.
- **Principle Four: Reporting.** The Reporting criteria are guided by the recommendation that at least Sustainability Reporting to the bond investors should be made of the use of bond proceeds and that quantitative and/or qualitative performance indicators should be used, where feasible.

Work Undertaken

Our work is constituted by a comprehensive review of the available information, based on the understanding that this information was provided to us by Hitz in good faith. We have not performed an audit or other tests to check the veracity of the information provided to us.

The work undertaken to form our opinion included:

Initial (Pre-Issuance) Assessment: *Not included in this report

- Creation of the Hitz-specific Protocol, adapted to the purpose of the Bond, as described above and in Schedule-2 to this Assessment.
- Assessment of documentary evidence provided by Hitz on the Bond and supplemented assessment by a comprehensive desktop research. These checks refer to current assessment best practices and standard methodology;
- Discussions with Hitz, and review of relevant documentation;
- Documentation of findings against each element of the criteria.

Periodic (annual) review * Contents of this report

- Evaluation of the supporting documents provided by Hitz related to the Bond, high-level desktop surveys, document reviews, and interviews with key personnel of the issuer. These checks refer to current assessment best practices and standard methodologies.
- Discussion with key personnel of Hitz and review of relevant documentation.
- Field survey and inspection, if necessary.
- Review of the nominated projects and assets as at the time of periodic review
- Documentation of findings for periodic review as detailed in this document.

The DNV's opinion statement (see below for details) summarises these.

Findings and DNV’s opinion

Principle One: Use of Proceeds.

DNV has confirmed that, as at the end of March 2022, part of the proceeds raised by Hitz (10 billion yen) had been allocated to the following project.

Mutsu Ogawara Onshore Wind Farm Project - 660 million yen allocated

Details of the Mutsu Ogawara onshore wind farm project are shown in Table-2. The Mutsu Ogawara onshore wind farm project is carried by a joint venture between Hitachi Zosen Corporation, ITOCHU Corporation, ENEOS Corporation, with Hitachi Zosen as the construction contractor and the operation and maintenance management company after operation starts. DNV has confirmed that the project is progressing smoothly and that no significant delays are envisaged at this stage.

Table-2: Overview of Mutsu Ogawara onshore wind farm projects

Location	Rokkasho Village, Kamikita District, Aomori Prefecture
Targeted tasks	Design, construction and post-construction operation of onshore wind power facilities
Number of wind turbines	4.3 MW turbines × 15 units
Maximum output	57,000 kW
Completion of construction	2024 onwards.
Status quo	Various studies underway at Mutsu Ogawara Wind Power LLC. Awaiting construction orders



Principle Two: Process for Project Evaluation and Selection.

DNV confirmed that the following project evaluation and selection process had been established within Hitz, and that it had been applied to the Bond, based on the evidence from the minutes of board meeting and other sources.

In evaluating and selecting the green projects, each responsible department implementing each eligible project and the Finance Department of Hitz confirmed that the project were eligible projects. Final approval for project selection was given by the Board of Directors, the highest decision-making body in business execution.

In addition, DNV confirmed that Hitz had targeted projects that met the following requirements.

- The environmental impact assessment by the country of residence or local government is carried out appropriately, if necessary.
- The overview of the projects is explained to the residents around the projects location and efforts are made to get the understanding of the projects from local residents.
- Making efforts to decrease the environmental risks through management of emissions by setting voluntary standards and target values that are stricter than the law on the emission of pollutants to the environment in the equipment manufacturing process.
- Thorough work according to work standards and reliable implementation of equipment inspection and of maintenance, preventing the occurrence of environmental problems in business activities and minimizing environmental risks.
- Establishing response procedures to minimize pollution in the event of an environmental accident and conducting regular training in the event of an abnormality or emergency.



Principle Three: Management of Proceeds.

DNV reviewed the evidence presented on how Hitz has managed the proceeds raised from the bond issuance to 31st March 2022.

DNV confirmed that the Finance Department of Hitz managed the proceeds by the number assigned to each eligible project and tracked the budget and actual expenditure in the internal control system in accordance with the stipulated cash management flow. DNV also confirmed that the allocation of proceeds was as shown in Table-3 and that unallocated proceeds were managed in cash or cash equivalents.

As mentioned above, no assurance is provided regarding the financial performance of the green bond, the value of any investments, or the long-term environmental benefits of the transaction.

Table-3: Allocation status (as of 31st March 2022)

Green bond allocated amount	10,000 million yen
Allocated to investments in special purpose companies	660 million yen
Capital construction costs of power generation facilities	0 million yen
Unallocated balance	9,340 million yen



Principle Four: Reporting.

DNV has confirmed that Hitz plans to disclose the allocation status in Table-3 and the environmental benefits in Table-4 on the Hitz website. As the Mutsu Ogawara onshore wind farm project has not yet started operation, the environmental benefits are stated in the form of the planned maximum output, rather than CO₂ emission reductions.

Table-4 Environmental benefits

Mutsu Ogawara onshore wind farm project (Awaiting construction orders)	
Maximum output	57,000 kW (4.3 MW turbines × 15 units)



Assessment Conclusion

On the basis of the information provided by Hitz and the work undertaken, it is DNV's opinion that the Hitz green bond meets the criteria established in the Protocol and that it is aligned with the stated definition or purpose of green bond within the GBP and GBGLs, which is to "enable capital-raising and investment for new and existing projects with environmental benefits".

DNV Business Assurance Japan K.K.

28th October 2022

Mark Robinson.

Manager, Sustainability Services
DNV Business Assurance, Australia.

Naoki Maeda

Managing Director
DNV Business Assurance Japan K.K.

Masato Kanedome

Project Leader
DNV Business Assurance Japan K.K.

Jun Chokai

Assessor
DNV Business Assurance Japan K.K.

About DNV












Driven by our purpose of safeguarding life, property and the environment, DNV enables organisations to advance the safety and sustainability of their business. Combining leading technical and operational expertise, risk methodology and in-depth industry knowledge, we empower our customers' decisions and actions with trust and confidence. We continuously invest in research and collaborative innovation to provide customers and society with operational and technological foresight. With our origins stretching back to 1864, our reach today is global. Operating in more than 100 countries, our 16,000 professionals are dedicated to helping customers make the world safer, smarter and greener.



Disclaimer

Responsibilities of the Management of the Issuer and the Second-Party Opinion Providers, DNV: The management of Issuer has provided the information and data used by DNV during the delivery of this review. Our statement represents an independent opinion and is intended to inform the Issuer management and other interested stakeholders in the Bond as to whether the established criteria have been met, based on the information provided to us. In our work we have relied on the information and the facts presented to us by the Issuer. DNV is not responsible for any aspect of the nominated assets referred to in this opinion and cannot be held liable if estimates, findings, opinions, or conclusions are incorrect. Thus, DNV shall not be held liable if any of the information or data provided by the Issuer's management and used as a basis for this assessment were not correct or complete.

Schedule - 1 Hitz Green Bond Allocated Project

Of the project categories listed in Schedule-1 under the Hitz Green Bond Framework, the proceeds have been allocated to onshore wind power projects in the 2nd Hitz Green Bond.

Project		Category	Project overview and Activities to be allocated		Contribution to SDGs
01	Energy-from-Waste	Pollution prevention and control	Energy-from-Waste facilities and equipment of energy-saving and emission saving type	Activities to be allocated : Capital investment and costs related to facility / equipment development, manufacturing, construction, installation, operation, and maintenance	 
02	Methane fermentation systems		equipment that extracts biogas from solid organic waste such as food waste and pruned branches and converts it into energy (business example) Hitz Kompogas system, WTM system		 
03	Onshore and offshore wind power	Renewable energy	onshore and offshore wind power facilities.		 
04	Land aquaculture system	Environmentally sustainable management of living natural resources and land use	Land-aquaculture facilities and equipment that are implemented in consideration of reducing the environmental impact of marine-aquaculture while supplementing the sustainable use of natural resources.		 
05	Flap-Gate	Climate change adaptation	flood disaster countermeasure equipment that requires no electricity or manual operation, using of the		  

			<p>power of nature itself such as tsunamis and storm surges. (Business example): neo RiSe, Seabed-type Movable Flap-Gate type Breakwater system</p>		
06	Hydrogen Generation System	<p>Circular economy adapted products, production technologies and processes</p>	<p>equipment that generates hydrogen from electricity and water, and requires a sufficiently low amount of electricity and CO₂ emissions. (Business example): On-site type water electro-chlorination hydrogen generator Hydrospring</p>		 



Schedule-2 Green Bond Eligibility Assessment Protocol

The checklist below (GBP-1 to GBP-4) is a DNV evaluation procedure created for the Hitz Green Bond Eligibility Assessment based on the requirements of GBP.

GBP-1 Use of Proceeds

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings														
1a	Type of bond	<p>The bond must fall in one of the following categories, as defined by the GBP:</p> <ul style="list-style-type: none"> Standard Green Use of Proceeds Bond Green Revenue Bond Green Project Bond Others 	<p>Confirmed documents:</p> <ul style="list-style-type: none"> Green Bond Framework <p>Interview with Hitz</p>	<p>The Bond falls into the category below:</p> <ul style="list-style-type: none"> Standard Green Use of Proceeds Bond 														
1b	Green project categories	<p>The cornerstone of a green bond is the utilization of the proceeds of the bond which should be appropriately described in the legal documentation for the security.</p>	<p>Confirmed documents:</p> <ul style="list-style-type: none"> Green Bond Framework Green Project related documents <p>Interview with Hitz</p>	<p>DNV has confirmed that Hitz has allocated 660 million yen of the proceeds through this Green Bond as of 31st March 2022 as a new investment in an onshore wind power generation project, one of six green candidate projects that meet the following representative eligible project categories as indicated in the GBP and GBGLs.</p> <table border="0"> <thead> <tr> <th>Project</th> <th>Category</th> </tr> </thead> <tbody> <tr> <td>01 Energy-from-Waste</td> <td>Pollution prevention and control</td> </tr> <tr> <td>02 Methane fermentation systems</td> <td>Pollution prevention and control</td> </tr> <tr> <td>03 Onshore and offshore wind power</td> <td>Renewable energy</td> </tr> <tr> <td>04 Land aquaculture system</td> <td>Environmentally sustainable management of living natural resources and land use</td> </tr> <tr> <td>05 Flap-Gate</td> <td>Climate change adaptation</td> </tr> <tr> <td>06 Hydrogen Generation System</td> <td>Circular economy adapted products, production technologies and processes</td> </tr> </tbody> </table>	Project	Category	01 Energy-from-Waste	Pollution prevention and control	02 Methane fermentation systems	Pollution prevention and control	03 Onshore and offshore wind power	Renewable energy	04 Land aquaculture system	Environmentally sustainable management of living natural resources and land use	05 Flap-Gate	Climate change adaptation	06 Hydrogen Generation System	Circular economy adapted products, production technologies and processes
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Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
1c	Green benefits	All designated Green Project categories should provide clear greenly sustainable benefits, which, where feasible, will be quantified or assessed by the issuer.	Confirmed documents: - Green Bond Framework - Green Project related documents Interview with Hitz	The green project has environmental benefits such as reduction of CO ₂ emissions through low carbonization and decarbonization by project classification and category projects shown in 1b which contributing to Hitz's environmental policy and goals based on the medium- to long-term vision. DNV confirmed that the environmental benefits were quantitatively evaluated based on CO ₂ emission reduction amount, outline of installed facilities, power generation output, etc., and reported annually.
1d	Refinancing share	In the event that a proportion of the proceeds may be used for refinancing, it is recommended that issuers provide an estimate of the share of financing vs. re-financing, and where appropriate, also clarify which investments or project portfolios may be refinanced.	Confirmed documents: - Green Bond Framework Interview with Hitz	DNV confirmed that 660 million yen of the proceeds by Hitz through green bonds up to 31 st March 2022 had been allocated as new investment for onshore wind power projects among the eligible candidate projects shown in Schedule-1, and not for refinancing.



GBP-2 Process for Project Evaluation and Selection

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
2a	Investment-decision process	<p>The issuer of a Green bond should outline the decision-making process it follows to determine the eligibility of projects using Green bond proceeds. This includes, without limitation:</p> <ul style="list-style-type: none"> • A process to determine how the projects fit within the eligible Green Projects categories; • The criteria making the projects eligible for using the Green bond proceeds; and • The environmental sustainability objectives 	<p>Confirmed documents:</p> <ul style="list-style-type: none"> - Green Bond Framework - Green Project related documents <p>Interview with Hitz</p>	<p>Through the review, DNV has confirmed that the onshore wind power project for which the proceeds are being allocated is in conformity with the group philosophy and group vision of Hitz, has been evaluated and selected through appropriate and prescribed processes by the relevant departments of Hitz (the responsible departments implementing each eligible project, the Finance Department), and has been finally approved by the Board of Directors, the highest decision-making body in business execution.</p> <p>In selecting a project, it shall meet the eligible criteria shown in the “Standards/guidelines to be applied in Scope and Objectives” and meet the following requirements.</p> <ul style="list-style-type: none"> - The environmental impact assessment by the country of residence or local government is carried out appropriately, if necessary. - The overview of the projects is explained to the residents around the project location and efforts are made to get the understanding of the projects from local residents. - Making efforts to decrease the environmental risks through management of emissions by setting voluntary standards and target values that are stricter than the law on the emission of pollutants to the environment in the equipment manufacturing process. - Thorough work according to work standards and reliable implementation of equipment inspection and of maintenance, preventing the occurrence of environmental problems in business activities and minimizing environmental risks. - Establishing response procedures to minimize pollution in the event of an environmental accident and conducting regular training in the event of an abnormality or emergency.



Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
2b	Issuer's environmental, social and governance framework	In addition to information disclosed by an issuer on its Green bond process, criteria and assurances, Green bond investors may also take into consideration the quality of the issuer's overall framework and performance regarding green sustainability.	Confirmed documents: - Green Bond Framework - Hitz Management Philosophy, Medium-Term Management Plan, etc. - Hitz Integrated Report 2021 - Hitz's Website Interview with Hitz	DNV confirmed that the green project implemented by Hitz is in line with the issuer's management and environmental policies. DNV confirmed through the documents such as framework etc., and through interview that Hitz is working on the conservation of the surrounding environment in each related department and is carrying out regular monitoring in the PDCA cycle when operating and implementing the project. DNV also confirmed that the green project implemented by Hitz based on the framework is an effective project for the realization of a sustainable society.

GBP-3 Management of proceeds

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
3a	Tracking procedure-1	The net proceeds of Green bond should be credited to a sub-account, moved to a sub- portfolio or otherwise tracked by the issuer in an appropriate manner and attested to by a formal internal process that will be linked to the issuer’s lending and investment operations for Green Projects.	Confirmed documents: - Green Bond Framework - Hitz Internal Management Documents (Cash management table, fund management flow) Interview with Hitz	DNV confirmed that the Finance Department allocated and managed the proceeds by the green bonds and confirmed that the proceeds are managed by the number assigned to each eligible project, and the budget and actual expenses are tracked and managed by the internal management system according to the prescribed fund management flow. DNV also confirmed that Hitz has implemented internal control tracking management based on the above process.
3b	Tracking procedure-2	So long as the Green bond outstanding, the balance of the tracked proceeds should be periodically reduced by amounts matching eligible green investments made until green benefit appearance or completion of proceeds allocation.	Confirmed documents: - Green Bond Framework - Hitz Internal Management Documents (Cash management table) Interview with Hitz	DNV confirmed that Hitz regularly checks that the sum of the allocated and unallocated balances matches the proceeds.
3c	Temporary holdings	Pending such investments or disbursements to eligible Green Projects, the issuer should make known to investors the intended types of temporary investment instruments for the balance of unallocated proceeds.	Confirmed documents: - Green Bond Framework - Hitz Internal Management Documents (Cash management table) Interview with Hitz	DNV confirmed through the assessment that Hitz managed the unallocated amount in cash and cash equivalents until the allocation of the proceeds is completed. It also confirmed that the balance of the unallocated amount will be clarified through the reporting of the allocation status.

GBP-4 Reporting.

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
4a	Periodical reporting	<p>In addition to reporting on the use of proceeds and the temporary investment of unallocated proceeds, issuers should provide at least annually a list of projects to which Green bond proceeds have been allocated including</p> <ul style="list-style-type: none"> - when possible, with regards to confidentiality and/or competitive considerations - a brief description of the projects, as well as the expected greenly sustainable impact. 	<p>Confirmed documents:</p> <ul style="list-style-type: none"> - Green Bond Framework - Hitz Integrated report 2021 - Hitz's Website <p>Interview with Hitz</p>	<p>DNV confirmed that Hitz will carry out an annual report on green bonds through its website and integrated report until the allocation of the proceeds is completed and will disclose information on the allocation status and environmental benefits.</p> <p>Regarding the environmental benefits, it was confirmed that one or more of the following tables will be disclosed to the extent possible in consideration of confidentiality and as long as it is reasonably feasible.</p> <p><Allocation status></p> <ul style="list-style-type: none"> ◆ Allocated amount ◆ Balance of unallocated amount <p><Environmental benefits></p> <ul style="list-style-type: none"> ◆ Number of facilities constructed or installed and description of each facility (including whether under construction or completed) ◆ Annual power output (capacity) of constructed and installed facilities since they become operational (MW/year) ◆ Actual annual electricity output (MWh/year) of constructed and installed facilities since they become operational. ◆ Annual CO₂ emission reductions based on actual annual power output (tCO₂ /year)