



SECOND PARTY OPINION

HITACHI ZOSEN CORPORATION GREEN BOND FRAMEWORK PRE-ISSUANCE

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Revision history

Revision number	Issue Date	Remarks
0	16/9/2021	Initial

Disclaimer

Our assessment relies on the premise that the data and information provided by Issuer to us as part of our review procedures have been provided in good faith. Because of the selected nature (sampling) and other inherent limitation of both procedures and systems of internal control, there remains the unavoidable risk that errors or irregularities, possibly significant, may not have been detected. Limited depth of evidence gathering including inquiry and analytical procedures and limited sampling at lower levels in the organization were applied as per scope of work. DNV expressly disclaims any liability or co-responsibility for any decision a person or an entity may make based on this Statement.

Statement of Competence and Independence

DNV applies its own management standards and compliance policies for quality control, in accordance with ISO/IEC 17021:2011 - Conformity Assessment Requirements for bodies providing audit and certification of management systems, and accordingly maintains a comprehensive system of quality control, including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. We have complied with the DNV Code of Conduct¹ during the assessment and maintain independence where required by relevant ethical requirements. This engagement work was carried out by an independent team of sustainability assurance professionals. DNV was not involved in the preparation of statements or data included in the Framework except for this Statement. DNV maintains complete impartiality toward stakeholders interviewed during the assessment process.

¹ DNV Code of Conduct is available from DNV website (www.DNV.com)

Executive Summary

Hitachi Zosen Corporation (hereafter “Hitz”) is a plant engineering company rooted in Osaka Tekkosho (Osaka Iron Works) and founded in 1881 by E.H. Hunter. Hitz has globally expanded and developed its business in the field of “Environmental systems”, “Machinery and Infrastructure” in order to provide the values for society through manufacturing and engineering technologies developed by shipbuilding technology (since the shipbuilding business division was divested in 2002). Its head office is located at Osaka in Japan.

Hitz considers creating a sustainable, safe, secure society through providing “clean energy and water”, environmental conservation” and “building a disaster-resilient, prosperous community” to every stakeholder a vital mission. Hitz are committed to continue working on “Forward 22”, the 3 year medium-term management plan which launched in 2020 and pass on to achieve their long-term goal “Hitz 2030 Vision” in 2030.

Hitz will issue the Green Bond to provide Hitz’s environmental solution technology and service (facilities and management). Hitz believes that delivering service consistent with their environmental policy in all the business phases from funding to providing technology and services to customers will achieve their mission. Hitz has established the Hitachi Zosen Green Bond Framework (hereinafter, “framework”) in order to execute this green bond in a manner that conforms to the internationally established framework.

DNV Business Assurance Japan Co., Ltd. (hereinafter “DNV”) has evaluated the eligibility of green bonds as an external review organization. Specifically, DNV provided an eligibility assessment for the green bond framework against the Green Bond Principles (ICMA 2021, hereinafter “GBP”) and the Green Bond Guidelines (Ministry of the Environment 2020, hereinafter “GBGLs”), referring to technical standards such as Climate Bond Standards (CBI, v3.0, hereinafter “CBS”) for Green Candidate Projects if applicable.

The following is a summary of the assessment results for the four elements indicated by GBP and GBGLs.

1. Use of Proceeds :

Hitz defines eligible criteria for the use of proceeds as green projects that meet the requirements of its environmental policy and related frameworks. Table 1 shows Hitz Green Bond Candidate Projects. Specifically, Energy-from-Waste facilities and equipment of energy-saving and emission saving type, a Methane fermentation system to extract biogas from solid organic waste and convert it into energy, a wind power plant project, a land aquaculture system that reduces the environmental impact of marine-aquaculture, a flood disaster countermeasure equipment that requires no electricity or manual operation using of the power of nature itself, and an equipment that generates hydrogen from electricity and water. The proceeds will be allocated to one or more of capital investment, R&D funds, business development/operation funds, working capital of these projects as new expenditures or refinancing of existing expenditures. These projects have been evaluated to bring about clear environmental benefits in accordance with the environmental policy, and are expected to contribute to the SDGs. These processes are in compliance with GBP-1.

2. Process for Project Evaluation and Selection :

Hitz confirms that the Green Project meets the GBP-1 eligible criteria and does not conflict with the exclusion criteria defined in the framework in advance. Specifically, each responsible department that implements each eligible business and finance department evaluate and select the projects through an appropriate prescribed process, and the final decision is made by the Board of Directors. These processes are in compliance with GBP-2.

3. Management of Proceeds :

The Finance Department will allocate and manage the proceeds by the green bonds. Most of the proceeds will be allocated within three years of issuance (because often the case that large scale project that newly launched cannot be delivered within 24months limits from the order). Until the allocation of the proceeds is decided, the amount equivalent to the proceeds will be managed in cash and cash equivalents. The same amount of green bonds issued under this framework will be allocated to any of the eligible projects. These processes are in compliance with GBP-3.

4. Reporting :

Hitz plans to report annually on the status of funding until the full amount of the proceeds is allocated to projects that meet the eligible projects on the Hitz website and the integrated report. This report will include the allocated amount, unallocated amount, project outline and status for each project category. After the project will be completed, Hitz plans to disclose relevant indicators and quantified environmental benefits for each project category, focusing on quantified GHG emission reductions or percentages. In addition, if there is a significant change in the allocation status after the proceeds have been allocated, Hitz will promptly disclose it. These processes are in compliance with GBP-4.

Table-1 Hitz Green Bond Candidate Projects

Eligible Criteria		Category	Project Outline and activities to be allocated	
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 https://www.hitachizosen.co.jp/english/products/products055.html	
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 power of nature itself such as tsunamis and storm surges. (Business example): neo RiSe, Seabed-type Movable Flap-Gate type Breakwater system https://www.hitachizosen.co.jp/english/products/products026.html	
06	Hydrogen Generation System	Circular economy adapted products, production technologies and processes	equipment that generates hydrogen from electricity and water, and requires a sufficiently low amount of electricity and CO ₂ emissions. (Business example): On-site type water electro-chlorination hydrogen generator Hydrospring https://www.hitachizosen.co.jp/english/products/products056.html	

DNV has confirmed through the relevant documents and information provided by Hitz, including the Green Bond Framework, that Green Bond meets relevant standards and is expected to be properly planned and implemented.

I . Introduction

i. About the Issuer

Hitachi Zosen Corporation (hereafter “Hitz”) is a plant engineering company rooted in Osaka Tekkosho (Osaka Iron Works) and founded in 1881 by E.H. Hunter. Hitz has globally expanded and developed its business in the field of “Environmental systems”, “Machinery and Infrastructure” in order to provide the values for society through manufacturing and engineering technologies developed by shipbuilding technology (since the shipbuilding business division was divested in 2002). Hitz will commit to become an impactful corporate that devotes to achieving SDGs by providing the products and services using their experience of manufacturing and engineering and their advanced technology, and Hitz will continuously build trust with society by communicating with social stakeholders and through fair and spontaneous disclosure.

ii. ESG Initiatives of Issuer

Hitz considers creating a sustainable, safe, secure society through providing “clean energy and water”, environmental conservation” and “building a disaster-resilient, prosperous community” to every stakeholder a vital mission. Hitz are committed to continue working on “Forward 22”, the 3 year medium-term management plan which launched in 2020 and pass on to achieve their long-term goal “Hitz 2030 Vision” in 2030.

“Hitz 2030 Vision” is a long-term vision that has been laid out for Hitz to commit to boosting their own profitability through optimizing the value supplied to customers and aiming to become a corporate group that can achieve sustainable growth as the understanding of UN’s SDGs expand globally and the social movement toward the realization of sustainable development and recycling-based society. Actions that align with Hitz Value, our management stance proclaiming that quickly understanding clients’ needs and providing solutions lead to the prosperous society, is the premise for the setting of long-term management goals .

As a part of our initiatives for providing clean water and clean energy, Hitz will aim to expand the use of renewable energy that contribute to the reduction of CO2 emissions by speed up to expand capacity of Energy-from-Waste plant operations and develop wind power and biomass power generation. Also, Hitz will foster cooperation between public-private partnerships by involving local government to cover the lack of financial resources and will respond to water demand in an emergency through rental equipment. In addition, Hitz will tackle waste treatment and waste plastic issues through the Energy-from-Waste and recycling facility business to promote environmental preservation and protection, and work on maintenance and remote monitoring of infrastructure such as aging expressways, and constructing flap-gate type seawalls and GPS wave meter to mitigate natural disasters such as Tsunami.

「Hitz 2030 Vision」 - Business Policy

Technology for People, the Earth, and the Future
 Aim to achieve SDGs through our Company's products, services and activities



Contribution for Realization of Sustainable and Safe & Secure Society

iii. Environmental Policy of Issuer

Since the 1970s, Hitz has been working on environmental conservation measures for offices, factories and local communities. In 1992, Hitz established its "Basic Environmental Protection Policies and Action Guidelines" for its employees as a good corporate citizen. In 1993, Hitz have also established the "Hitachi Zosen Environmental Protection Promotion Plan" by the Environmental Protection Promotion Committee, built on the prior policies with a concrete agenda based on the Action Guidelines. It adds breadth to our previous regional environmental protection activities, with additional focus on areas like ozone layer protection, global warming prevention, waste reduction and recycling. In this environmental policy, Hitz have established an ISO14001 management system, and set up their "Environment Policy" to carry out their business activities;

- ① Regarding our company products, service and business activity, Hitz tries to improve environmental load-reducing and improve global environmental protection.
- ② Observe statutory and regulatory requirements, agreements and the other requirements that the organization has agreed to and also their company's self-imposed controls.
- ③ Set environmental objectives, and environmental targets for the year (an Environment Management Program), and make a continuous commitment to reducing burden on the environment and preventing environmental pollution.
- ④ Review regularly, make continuing improvements and maintain operations of Environment Management System effectively.

All factories located in Japan and the two business headquarters of Environment, Machinery and Infrastructure have acquired ISO14001 certificate. Also, ISO14001 periodical environmental audits are conducted by an external reviewer in ISO14001 acquiring offices at all the sites.

iv. Issuer’s Initiatives for SDGs

As awareness towards SDGs surges globally, the world has been working together to create a sustainable and circular society. This trend aligns with their corporate vision which aims to contribute to the realization of sustainable, safe and secure society through products and businesses.

Hitz approaches SDGs in two different ways: “Directly through products and businesses”, and “Internally through sustainability efforts”. These two types of approaches resonate with each other and contribute to SDGs as whole corporate activities.

The contribution of the Green Bond Framework to the SDGs is shown in Schedule-1.

1. Directly through products and businesses

<p>Renewable energy (Reducing CO2 emission)</p> <p>Our energy-from-waste plant, which is our main product, conducts sanitary waste treatment and generates electricity at the same time, contributing to the reduction of greenhouse gas emissions. In addition to above, we aim to contribute to the society in the field of energy by providing clean energy through means such as methane fermentation, wind power as well as development of SOFC, and the use of surplus power from these renewable energy sources to generate hydrogen and methane to develop methanation system.</p>	<ul style="list-style-type: none"> Energy-from-waste plant Methane fermentation system On/off shore wind power
<p>Water shortage/prevention of environmental deterioration</p> <p>Hitz support people’s living industrial growth through water supply. Seawater desalination plants provide drinking water to areas where natural water cycle is hard to occur, and our water treatment system prevents contamination from inflow of industrial water into natural system.</p>	<ul style="list-style-type: none"> Seawater desalination system Water treatment
<p>Food security, food loss</p> <p>By using our image recognition technology, it allows judge the state of a parking area (full or empty), to determine the combustion state of refuse incineration power generation facilities, to automatically detect any cracks on pavement, and to streamline quality control of food production line. Also we apply water treatment technology to developing fish farms which will lead to robust food security.</p>	<ul style="list-style-type: none"> Production line image recognition technology Contamination detection Water treatment for fish farms
<p>Making disaster-resilient city; saving lives from natural disaster</p> <p>We have been involved in building many suspension bridges, cable-stayed bridges, and truss bridges for more than 100 years in Japan. By utilizing technology that we cultivated through developing seawalls, we are currently developing flap-gate type flood prevention systems and which occur in higher frequency than ever due to climate change as well as due to Tsunami. In addition, our technology is incorporated into satellite system that helps people to navigate evacuation route under Tsunami emergency, and underground spaces that expand underneath the ground has been used to prevent flooding.</p>	<ul style="list-style-type: none"> Flap-gate type seawall against flood disaster

2. Internally through making sustainability efforts

<p>Diversity management</p> <p>At the Hitachi Zosen Group, we promote diversity management and strive to create a corporate culture that encourages women employees to participate in business, and moreover, helps all employees live up to their full potential. We hope to generate innovations by enabling employees to reach across attributes and respect one another’s different senses of value.</p>
<p>Work style reforms</p> <p>Work-at-home, satellite office, "super flexible" work hours, company-wide focus time, and designated days for leaving the office on time—we are introducing various schemes toward creating workplace environments that are friendly to all employees. By using the Internet of things (IoT) and artificial intelligence (AI) to improve productivity, we are promoting work style reforms that offer employees a sense of reward both at work and in private.</p>
<p>Environmental education</p> <p>The Energy-from-Waste plants and other environment-related facilities we operate throughout Japan organize plant tours and environmental lessons for the community. Outside Japan, in Laos we organize environmental education events for high school and college students, and compile learning materials for elementary school pupils, in efforts to relay the significance of protecting the environment through hygienic waste treatment and recycling. We have a permanent exhibit on environmental education at the Osaka Science & Technology Center (OSTEC) Exhibition Hall.</p>

* The relevance to SDGs is complementary to the issuance of green bonds, and would not be intended directly related to the funding purposes.



v. About the Green Bond Framework

For the purpose of issuing green bonds, Hitz has formulated the framework in accordance with the four pillars set forth in the Green Bond Principles 2021 (Use of Proceeds, Process for Project Evaluation and Selection, Management of Proceeds and Reporting). This framework will be disclosed on Hitz's website, and in the legal documents related to green bonds issued based on this framework and the documents and materials to be disclosed to stakeholders Hitz will describe the contents stipulated in this framework and will inform to stakeholders.

II. Scope and Objectives

Hitz commissioned DNV to conduct pre-issuance assessment and periodical review for its Green Bond. The objective of the pre-issuance assessment and periodical review of DNV is to conduct assessment in order to confirm that the Hitz Green Bond meets the criteria such as GBP, GBGLs and related technical standards of CBS, which will be described later, and other related standards or guidelines (refer to the table below), and is to provide a second party opinion on this green bond eligibility.

DNV, as an independent external review body, declares that it has no interest in the facts and perceptions with Hitz in providing its second party opinion.

In this paper, 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.

(1) Scope of review

The review assessed the following items and confirmed their alignment with four core elements in GBP.

- Use of Proceeds
- Process for Project Evaluation and Selection
- Management of Proceeds
- Reporting

(2) Role(s) of review provider

- Consultancy (incl. 2nd opinion)
- Certification
- Verification
- Rating
- Other (please specify): Providing review as a green bond issuance supporter (External Review Division)

(3) Standards/guidelines to be applied

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

*1Apply: Eligibility for all four core common elements to each handbook, principle and guideline was evaluated*2

*2Refer : Based on the green project and execution plan, the related contents were partially considered.

III. Responsibilities of the Management of the Issuer and DNV

Hitz has provided the information and data used by DNV during the delivery of this review. DNV's statement represents an independent opinion and is intended to inform Hitz and other interested stakeholders in the Green 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 and 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.

IV. 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 has capacity for potential application of 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 are 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 proceeds to 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 any impact objectives it will consider.
- **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.

V. Work Undertaken

Our work constituted a high level of 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:

i. Pre-Issuance verification of Green Bond

- Creation of the Hitz-specific DNV's Protocol;
- Assessment of evidential documents provided by Hitz before issuance of the Bond, and supplemental assessment with desk review from a higher perspective;
- Interview with key personnel of the Hitz, and review of the relevant documentation; and
- Reporting of findings against each element of the eligibility criteria

VI. Findings and DNV's opinion

DNV's findings and opinion are as follows.

Principle one : Use of Proceeds

DNV has confirmed that Hitz planned to allocate the net proceeds except expenses from all proceeds by green bond to six green bond candidate projects (Table-2) that meet the following representative eligible project categories represented by GBP and GBGLs as new investment and refinancing.

" Pollution prevention and control"

" Renewable energy"

" Environmentally sustainable management of living natural resources and land use"

" Climate change adaptation"

" Circular economy adapted products, production technologies and processes"

Specifically, the projects covered by this Green Bond are classified into the six green projects shown in Tables 01 to 06 below, and net proceeds will be allocated to capital investment and expenses related to the development, manufacturing, construction, installation, operation and maintenance of facilities and equipment. Please refer to the next page and Schedule-1 for the outline of the green project.

Table-2 Hitz Green Bond Candidate Projects

Eligible Criteria		Category	Project outline and activities to be allocated	
01	Energy-from-Waste*¹	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*²		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 power of nature itself such as tsunamis and storm surges. (Business example): neo RiSe, Seabed-type Movable Flap-Gate type Breakwater system	
06	Hydrogen Generation System*³	Circular economy adapted products, production technologies and processes	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	

*** 1 : Energy-from-Waste**

The target facility is an energy-saving / emission-saving type, and the process, incinerator ash management, etc. are implemented in accordance with laws / regulations, etc., which corresponds to the eligibility requirements.

*** 2 : Methane fermentation systems**

CO₂ emissions are sufficiently low compared to standards, and waste type, manufacturing process, and biogas quality are controlled based on domestic laws and regulations. Also, the residue after methane fermentation is recovered as energy and corresponds to the eligibility requirements.

*** 3 : Hydrogen Generation System**

It is electrolyzed by electricity derived from renewable energy, and the amount of electricity required for hydrogen production and direct or indirect CO₂ emissions and electricity consumption are sufficiently small, which meets the eligibility requirements.

Use of proceeds categories as per GBP:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Renewable energy | <input type="checkbox"/> Energy efficiency |
| <input checked="" type="checkbox"/> Pollution prevention and control | <input checked="" type="checkbox"/> Sustainable management of living natural resources and land use |
| <input type="checkbox"/> Terrestrial and aquatic biodiversity conservation | <input type="checkbox"/> Clean transportation |
| <input type="checkbox"/> Sustainable water management | <input checked="" type="checkbox"/> Climate change adaptation |
| <input checked="" type="checkbox"/> Eco-efficient products, production technologies and processes | <input type="checkbox"/> Green buildings with regional, national or internationally recognized standards and certifications |
| <input checked="" type="checkbox"/> Other (<i>please specify</i>) ; Strengthening disaster prevention functions such as tsunami and storm surge | |

Principle two : Process for Project Evaluation and Selection

DNV has confirmed through the review that the six Green Bond Candidate Projects listed in Schedule-1 meet the issuer’s Group Philosophy and Group Vision, and are evaluated and selected by the relevant department (Each responsible department implementing each eligible project and Finance Department) of the issuer through an appropriate prescribed process, and the Board of Directors, the highest decision-making body in business execution, will give final approval.

In selecting a project, it shall meet the eligible criteria shown in "(3) Standards/guidelines to be applied in the section ‘II Scope and Objectives’ " and meet the following requirements.

- The environmental impact assessment by the country of residence or local government is carried out appropriately, if necessary.
- Providing adequate explanations to local residents when conducting business.
- Making efforts to decrease the environmental risks through management of emissions by setting voluntary standards and target values that are more strict than the law on the emission of pollutants to the environment in the equipment manufacturing process.
- To prevent environmental problem and minimize environmental risks, make sure employees are strictly following manuals when at work and also all the equipment are thoroughly checked on a regular basis.
- Being aware of the risk of bringing environmental disaster, and prepare manual that demonstrate procedures to minimize the effect of the disaster. Also, conduct emergency drills on a regular basis.

Evaluation and Selection

- | | |
|--|---|
| <input checked="" type="checkbox"/> Conforms to the issuer’s achievement of environmental contribution goals | <input checked="" type="checkbox"/> Documented process to determine that projects fit within defined categories |
| <input checked="" type="checkbox"/> The project is eligible for use of proceeds by green bond and transparency is ensured. | <input checked="" type="checkbox"/> Documented process to identify and manage potential ESG risks associated with the project |
| <input checked="" type="checkbox"/> The project is evaluated and selected based on the published standard summary | <input type="checkbox"/> Other (please specify): |

Information on Responsibilities and Accountability:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Evaluation / Selection criteria subject to external advice or verification | <input checked="" type="checkbox"/> In-house assessment |
| <input type="checkbox"/> Other (please specify): | |

Principle three :

DNV confirmed through a review of its plans for how Hitz will track and manage payments from bonds since the bond was issued. DNV also confirmed that the plan for managing total funds was appropriate and clear.

The Finance Department is in charge of allocation of the proceeds to eligible projects and managing the proceeds. The budget and actual outlay of the proceeds from the Green Bond issuance will be traced and managed using an internal management system on a monthly basis in accordance with Hitz's cash management flow by numbering each eligible project.

In addition, Hitz will preserve cash management related documents complying with Hitz's accounting rule defining the range of accounting documents and preservation of the documents, and manage the documents with document saving books. Hitz intends to allocate most of the proceeds of the Green Bonds within 3 years of the issue date. Until the allocation of the proceeds is decided, unallocated proceeds will be managed in cash or cash equivalent forms.

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.

Tracking of proceeds:

- Some or all of the proceeds by green bonds that are planned to be allocated are systematically distinguished or tracked by the issuer.
- Disclosure of intended types of temporary investment instruments for unallocated proceeds
- Other (please specify):

Additional disclosure:

- | | |
|--|--|
| <input type="checkbox"/> Allocations to future investments only | <input checked="" type="checkbox"/> Allocations to both existing and future investments |
| <input type="checkbox"/> Allocation to individual disbursements | <input checked="" type="checkbox"/> Allocation to a portfolio of disbursements |
| <input type="checkbox"/> Disclosure of portfolio balance of unallocated proceeds | <input checked="" type="checkbox"/> Other (<i>please specify</i>): Percentage and amount of existing and new investment in candidate projects subject to green bond allocation will be disclosed at the time of periodical reporting |

Principle four : reporting

DNV confirmed that the issuer will report annually on allocation status for eligible projects and their environmental impact. Specifically, it will be as follows.

During construction of the eligible projects, Hitz will only disclose allocation of the net proceeds. After completion of the eligible projects, Hitz will report environmental impact from the year starting operation until the redemption of the green bond.

Reporting of allocation status

Hitz will provide information of both allocated amount and unallocated amount annually on their website or integrated report until net proceeds are fully allocated. In addition, Hitz will disclose allocation breakdown in proportion by each project level subject to the clients' approval. For long-term assets that will be continuously refinanced by using several green bonds, we will report the elapsed years, remaining durable year as well as refinancing amount in the possible extent at the time of green bond issuance.

The first allocation report will be made public within 1 year from the date of the Green Bond issuance. In case of material developments, we will renew the information on the use of proceeds on a timely basis even after the full allocation of the proceeds.

Impact reporting

Table-3 shows the indicators (examples) in impact reporting. Hitz commits to report on the any of or several of the following impact indicators related to eligible projects on an annual basis until the redemption of the Green Bond on the company's website or the integrated report to the extent practicably feasible considering confidentiality.

Table-3 Indicators for impact reporting(example)

Eligible Project	ICMA GBP Category	Indicators for environmental impact (example)
Energy-from-Waste	Pollution prevention and control	<ul style="list-style-type: none"> > Outline of each facility constructed / installed (including processing capacity, whether it is under construction or completed) > Annual power generation output after the start of operation of the constructed and installed facility (MWh / year) > Annual GHG emission reduction based on annual power generation output (t CO₂/ year)
Methane fermentation systems		<ul style="list-style-type: none"> > Outline of each facility constructed / installed (including processing capacity, whether it is under construction or completed) > Biogas generation capacity > Annual CO₂ emission reduction based on annual biogas generation capacity (tCO₂/ year)
Onshore and offshore wind power	Renewable energy	<ul style="list-style-type: none"> > Number of facilities constructed / installed and outline of each facility (including whether under construction or completed) > Annual power generation output (capacity) after the start of operation of the constructed and installed facility (MWh / year) > Annual power generation output after the start of operation of the constructed and installed facility (MWh / year) > Annual GHG emission reduction based on annual power generation output (tCO₂/ year)
Land aquaculture system	Environmentally sustainable management of living natural resources and land use	<ul style="list-style-type: none"> > Outline of each facility constructed / installed (Including certification acquisition / preparation status, whether under construction or completion status, and response status to nature conservation outside the farm)
Flap-Gate	Climate change adaptation	<ul style="list-style-type: none"> > Number of facilities constructed / installed and outline of each facility (including installation purpose, assumed disaster prevention target area / population, whether under construction or completion) > Operation status and disaster prevention effect at the time of disaster (disaster reduction status)
Hydrogen Generation System	Circular economy adapted products, production technologies and processes	<ul style="list-style-type: none"> > Outline of each facility constructed / installed (including installation purpose, hydrogen production capacity (Nm³ / h), whether under construction or completion)

Hitz plans to conclude a review agreement with DNV to evaluate whether the eligible projects conform to this framework before one year has passed since the issue date of the green bond. This review will be conducted annually until all proceeds by the green bond have been allocated.

Use of proceeds reporting:

- Project-by-project On a project portfolio basis
- Linkage to individual bond(s) Other (please specify):

Information reported:

- Allocated amounts GB refinanced share of total investment
- Other (please specify):

Frequency:

- Annual Semi-annual
- Other (please specify):in case of a major change in allocation status occurs after the proceeds have been allocated

Impact reporting (Environmental benefits):

- Project-by-project On a project portfolio basis
- Linkage to individual bond(s) Other (please specify):

Frequency:

- Annual Semi-annual
- Other ESG indicators (please specify):

Information reported (expected or ex-post):

- GHG Emissions / Savings Energy Savings
- Other ESG indicators (please specify):
 - Outline of each facility constructed and installed (certification acquisition / preparation status, response status to conservation of the natural environment outside the farm, assumed disaster prevention target area / population, etc.)
 - Operation status and disaster prevention effect at the time of disaster (disaster reduction status)
 - Hydrogen production capacity (Nm³/h)

Means of Disclosure

- Information published in financial report (Integrated Report) Information published in sustainability report
- Information published in ad hoc documents Other (please specify): Hitz’s web site
- Reporting reviewed (if yes, specify which parts of the reporting are subject to external review)

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".

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16th Sep. 2021



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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 Candidate Project

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 power of nature itself such as tsunamis and storm surges. (Business example): neo RiSe, Seabed-type Movable Flap-Gate type Breakwater system		  
06	Hydrogen Generation System	Circular economy adapted products, production technologies and processes	equipment that generates hydrogen from electricity and water, and requires a sufficiently low amount of electricity and CO ₂ emissions. (Business example): On-site type water electro-chlorination hydrogen generator Hydrospring		 

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 Green Bond Principles:</p> <ul style="list-style-type: none"> • Green Use of Proceeds Bond • Green Use of Proceeds Revenue Bond • Green Project Bond • Other 	<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"> • Green Use of Proceeds Bond 						
1b	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 planned to allocate the net proceeds except expenses from all proceeds by green bond to six green bond candidate projects that meet the following representative eligible project categories represented by GBP and GBGLs as new investment and refinancing.</p> <p>Specifically, for the projects described in Schedule-1, net proceeds from green bond will be allocated to capital investment and expenses related to the development, manufacturing, construction, installation, operation and maintenance of facilities and equipment.</p> <table border="0"> <tr> <td>Project</td> <td>Category</td> </tr> <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> </table>	Project	Category	01 Energy-from-Waste	Pollution prevention and control	02 Methane fermentation systems	Pollution prevention and control
Project	Category									
01 Energy-from-Waste	Pollution prevention and control									
02 Methane fermentation systems	Pollution prevention and control									

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
				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
1c	Environmental benefits	All designated Green Project categories should provide clear environmentally 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 Hitachi Zosen's environmental policy and goals based on the medium- to long-term vision. It was confirmed that the environmental impact was quantitatively evaluated based on CO ₂ emission reduction amount, introduction facility outline, 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. refinancing, and where appropriate, also clarify which investments or project portfolios may be refinanced.	Confirmed documents: - Green Bond Framework Interview with Hitz	Of the proceeds by the green bond, net proceeds will be allocated to projects selected from eligible candidate projects included in Schedule-1 as new investment or refinancing. The specific refinancing amount, ratio, etc. for each project will be clarified in the annual report after the bond issuance.

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 identified in the Green Bond Principles; • The criteria making the projects eligible for using the Green Bond proceeds; and • The environmental green objectives 	<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 through the review that the six Green Bond Candidate Projects listed in Schedule-1 meet the issuer's Group Philosophy and Group Vision, and are evaluated and selected by the relevant department (Each responsible department implementing each eligible project and Finance Department) of the issuer through an appropriate prescribed process, and the Board of Directors, the highest decision-making body in business execution, will give final approval.</p> <p>In selecting a project, it shall meet the eligible criteria shown in "(3) Standards/guidelines to be applied in the section 'II 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. - Providing adequate explanations to local residents when conducting business. - Making efforts to decrease the environmental risks through management of emissions by setting voluntary standards and target values that are more strict than the law on the emission of pollutants to the environment in the equipment manufacturing process. - To prevent environmental problem and minimize environmental risks, make sure employees are strictly following manuals when at work and also all the equipment are thoroughly checked on a regular basis. - Being aware of the risk of bringing environmental disaster, and prepare manual that demonstrate procedures to minimize the effect of the disaster. Also, conduct emergency drills on a regular basis.

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
2b	Issuer's environmental 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 environmental sustainability.	<p>Confirmed documents:</p> <ul style="list-style-type: none"> - Green Bond Framework - Hitz Management Philosophy, Medium-Term Management Plan, etc. - Hitz Integrated Report 2020 - Hitz's Website <p>Interview with Hitz</p>	<p>DNV confirmed that the green project implemented by the issuer is in line with the issuer's management and environmental policies.</p> <p>DNV confirmed through the confirmed 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 conducting or planning to carry out regular monitoring in the PDCA cycle when operating and implementing the project.</p> <p>It was also confirmed that the green project implemented by Hitz based on the framework is an effective project for the realization of a sustainable society.</p>

GBP-3 Management of proceeds

Ref.	Criteria	Requirements	Work Undertaken	DNV Findings
3a	Tracking procedure-1	The net proceeds of Green Bonds 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	The Finance Department is in charge of allocation of the proceeds to eligible projects and managing the proceeds. The budget and actual outlay of the proceeds from the Green Bond issuance will be traced and managed using an internal management system on a monthly basis in accordance with Hitz's cash management flow by numbering each eligible project. DNV confirmed that Hitz carried out tracking management by internal control based on the above process.
3b	Tracking procedure-2	So long as the Green Bonds are outstanding, the balance of the tracked proceeds should be periodically reduced by amounts matching eligible green investments or loan disbursements made during that period.	Confirmed documents: - Green Bond Framework - Hitz Internal Management Documents (Cash management table) Interview with Hitz	Hitz can confirm regularly (at the end of each month) that the total of the allocated amount and the unallocated balance match the proceeds, and DNV confirmed that Hitz has a system to manage the proceeds separately from other balances.
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	Through the confirmation process based on the internal management system, it was confirmed that the balance of unallocated amount is recognized sequentially. It was confirmed through the framework and assessment that the amount equivalent to the proceeds will be managed in cash and cash equivalents until the allocation of the proceeds is decided. It was confirmed that the balance of 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 and the amounts disbursed, as well as the expected environmentally sustainable impact. 	<p>Confirmed documents:</p> <ul style="list-style-type: none"> - Green Bond Framework - Hitz Integrated report 2020 - Hitz's Website <p>Interview with Hitz</p>	<p>DNV confirmed that the issuer will carry out an annual report on green bonds through its website and integrated report until the proceeds are allocated, and will disclose information on the allocation status and environmental impacts. Regarding the environmental impacts, 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 and operation method ◆ Allocation ratio for each project, etc. <p><Environmental impact></p> <ul style="list-style-type: none"> ◆ Outline of installed facilities ◆ Power generation output ◆ GHG emission reduction etc.