

Korea Hydro & Nuclear Power Co., Ltd

Type of Engagement: Annual Review

Date: August 03, 2022

Engagement Team:

Nilofur Thakkar, nilofur.thakkar@sustainalytics.com

Chetna Chauhan, chetna.chauhan@sustainalytics.com

Introduction

In July 2018, Korea Hydro & Nuclear Power Co., Ltd (“KHNP” or the “Issuer”) issued a green bond¹ aimed at financing or refinancing projects that contribute to low carbon energy transition and climate change mitigation in South Korea and overseas. In 2022, KHNP engaged Sustainalytics to review the projects funded through the 2018 green bond and provide an assessment as to whether the projects met the Use of Proceeds criteria and the Reporting commitments outlined in the Korea Hydro & Nuclear Power Green Bond Framework (the “Framework”)².

Evaluation Criteria

Sustainalytics evaluated the projects and assets funded with proceeds from the 2018 green bond between 2012 - 2021 based on whether the projects and programmes:

1. Met the Use of Proceeds and Eligibility Criteria outlined in the Framework; and
2. Reported on at least one of the Key Performance Indicators (KPIs) for each Use of Proceeds criteria outlined in the Framework,

Table 1 lists the Use of Proceeds, Eligibility Criteria, and associated KPIs.

Table 1: Use of Proceeds, Eligibility Criteria, and associated KPIs

Use of Proceeds	Eligibility Criteria	Key performance indicators (KPIs)
Renewable Energy	- Development, investment, maintenance, and generation of energy from renewable sources, located in South Korea or internationally <ul style="list-style-type: none"> • Solar Photovoltaic • Offshore and Onshore wind • Hydropower projects <ul style="list-style-type: none"> ○ run of river plants of all size ○ small hydropower (with installed capacity <20MW) • Fuel cell • Biomass and geothermal • Ocean energy 	<ul style="list-style-type: none"> • Renewable energy generation (MWh)/ capacity (MW) • CO₂ (or other GHG) emissions avoided/ reduced (tonnes of CO₂e)
Low Carbon Transport	Development, construction, acquisition, operation, and maintenance of low-carbon transportation system <ul style="list-style-type: none"> • Electric and/or fuel cell vehicles • Charging stations. 	<ul style="list-style-type: none"> • Number of electric and/or fuel cell vehicles and charging stations built • CO₂ (or other GHG) emissions avoided (tonnes of CO₂e)
Energy Efficiency	Modernization of existing hydropower generation facilities to increase its safety and generation efficiency.	<ul style="list-style-type: none"> • Amount of energy saved (kWh)

¹ The issuance is in the form of Senior Unsecured Green Bond.

² Korea Hydro and Nuclear Power Green Bond Framework, (2021), is available at: <https://www.khnp.co.kr/eng/contents.do?key=461>

	<ul style="list-style-type: none"> Replacing large electric and mechanical components 	<ul style="list-style-type: none"> CO₂ (or other GHG) emissions avoided (tonnes of CO₂e)
Green Buildings	<p>Construction and renovation of green buildings that qualified for recognized Green Building Standards:</p> <ul style="list-style-type: none"> LEED Gold / BREEAM Very Good National equivalent with a minimum standard such as G-SEED (Green Standard for Energy and Environmental Design) that is based on Act on Development and Support of Green Building 	<ul style="list-style-type: none"> Amount of energy saved (kWh) CO₂ (or other GHG) emissions avoided (tonnes of CO₂e)

Issuing Entity's Responsibility

KHNP is responsible for providing accurate information and documentation relating to the details of the projects that have been funded, including description of projects, amounts allocated, and project impact.

Independence and Quality Control

Sustainalytics, a leading provider of ESG and corporate governance research and ratings to investors, conducted the verification of KHNP's Green Bond Use of Proceeds. The work undertaken as part of this engagement included collection of documentation from KHNP employees and review of documentation to confirm the conformance with the KHNP Green Bond Framework.

Sustainalytics has relied on the information and the facts presented by KHNP with respect to the Nominated Projects. Sustainalytics is not responsible, nor shall it be held liable if any of the opinions, findings, or conclusions it has set forth herein are not correct due to incorrect or incomplete data provided by KHNP.

Sustainalytics made all efforts to ensure the highest quality and rigor during its assessment process and enlisted its Sustainability Bonds Review Committee to provide oversight over the assessment of the review.

Conclusion

Based on the limited assurance procedures conducted,³ nothing has come to Sustainalytics' attention that causes us to believe that, in all material respects, the reviewed bond projects, funded through proceeds of KHNP's Green Bond, are not in conformance with the Use of Proceeds and Reporting Criteria outlined in the KHNP Green Bond Framework. KHNP has disclosed to Sustainalytics that the proceeds of the green bond were fully allocated as of 31st December 2021.

³ Sustainalytics limited assurance process includes reviewing the documentation relating to the details of the projects that have been funded, including description of projects, estimated and realized costs of projects, and project impact, which were provided by the Issuer. The Issuer is responsible for providing accurate information. Sustainalytics has not conducted on-site visits to projects.

Detailed Findings

Table 2: Detailed Findings

Eligibility Criteria	Procedure Performed	Factual Findings	Error or Exceptions Identified
Use of Proceeds Criteria	Verification of the projects funded by the green bond in July 2018 to determine if projects aligned with the Use of Proceeds Criteria outlined in the KHNP Green Bond Framework and above in Table 1.	All projects reviewed complied with the Use of Proceeds criteria.	None
Reporting Criteria	Verification of the projects funded by the green bond in July 2018 to determine if impact of projects was reported in line with the KPIs outlined in the KHNP Green Bond Framework and above in Table 1. For a list of KPIs reported please refer to Appendix 1.	All projects reviewed reported on at least one KPI per Use of Proceeds criteria.	None

Appendices

Appendix 1: Allocation Reporting by Eligibility Criteria

In July 2018, KHNP issued a green bond with a total value of USD 600 million. As of 31st December 2021, KHNP has allocated 100% of the net proceeds. Of the eligible categories, 61% of the allocated net proceeds were used to finance new projects, while 39% were used to refinance existing projects. Majority of projects were located in Korea and 3% in US. The table below provides a detailed breakup of the allocation of net proceeds.

Table 1: Allocation Reporting for Green Eligible Assets

Project Description	Amount Allocated (USD Million)			
	2012-2018	2019	2020	2021
Renewable Energy	92.50	22.89	80.77	32.08
Fuel Cell	12.42	1.61	-	3.29
Biomass	1.76	-	2.55	7.03
Solar Photovoltaic	53.06	20.29	36.70	21.76
Wind Power	25.26	0.99	41.52	0.00
Low Carbon Transport	1.91	0.16	0.02	-
Purchase of EV & Hydrogen Vehicles	0.92	0.13	-	-
Construction of EV Charging Infrass.	0.99	0.03	0.02	-
Energy Efficiency	26.94	33.39	64.31	6.65
Hydroelectric Power	18.95	0.15	1.19	0.95
Pumped Storage	7.99	33.24	63.12	5.70
Green Building	238.21	0.18	-	-
Total Allocation Year Wise	359.56	56.62	145.10	38.73
Total Allocation	600			

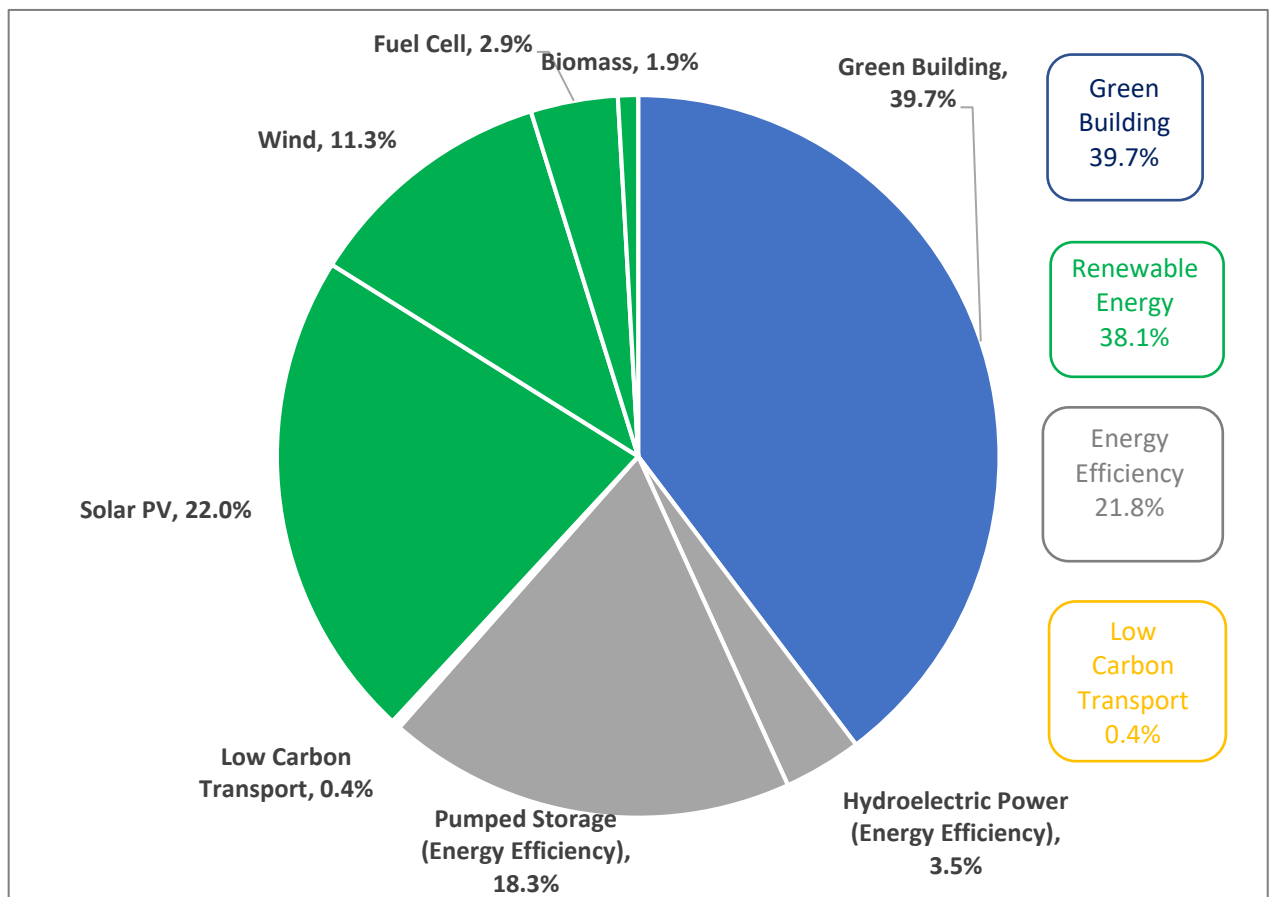


Chart 1: Green Bond Allocation

Table 2: Impact Reporting for Green Eligible Assets^{4,5}

Majority of the projects are located in Korea and 3% of the projects are located in the USA.

I. Renewable Energy^{6,7}

Project	Installed Capacity (MW)	KHNP's Share	
		Exp. Energy Generation (MWh/year)	Exp. CO ₂ Avoided (ton/year)
Biomass ⁸	100.0	39,858.0	12,089.1
Solar Photovoltaic	59.4	77,656.9	36,731.7
Wind Power	931.5	425,833.4	153,367.3
Total	1,090.9	543,348.3	202,188.1

II. Low Carbon Transportation

Project	Impact
Purchase of EV & Hydrogen Vehicles	<ul style="list-style-type: none"> No. of purchase = 28 Exp. CO₂ Avoided (tCO₂e) = 72.1
Construction of EV Charging Infrs.	<ul style="list-style-type: none"> Exp. CO₂ Avoided (tCO₂e) = 267.9

III. Energy Efficiency⁹

Project	Average Energy Efficiency Improvement	Exp. CO ₂ Avoided (tCO ₂ e)
Hydroelectric Power	4.8%	5,304.7
Pumped Storage	6.0%	25,358.0
Total	5.9%	30,662.70

⁴ The calculation methodology for green impact is available in the KHNP Green Bond Progress Report available on KHNP's website at: <https://www.khnp.co.kr/eng/content/957/main.do?mnCd=EN01040105>

⁵ KHNP has communicated to Sustainalytics that for green projects which have not commenced, impact reporting data is not present on this report.

⁶ Considering KHNP's share for each project.

⁷ KHNP follows European Investment Bank Project Carbon Footprint Methodology to assess the carbon impact of renewable energy and low carbon transportation projects. More details at : https://www.eib.org/attachments/publications/eib_project_carbon_footprint_methodologies_2022_en.pdf

⁸ KHNP has confirmed to Sustainalytics that wood pellets that are utilized in the biomass project are certified by SGS (Member of Societe Generale de Surveillance Group). Also, the wood pellets are approved by Act on the Sustainable Use of Wood by Korea Forest Service

⁹ As communicated to Sustainalytics, 3 hydroelectric power facilities increased their installed capacity and 2 hydro power facilities improved renewable energy production through the energy efficiency projects.

IV. Green Building¹⁰

Project	Green Building Certification Achieved	Exp. CO ₂ Avoided (tCO ₂ e)
Headquarter	<ul style="list-style-type: none"> • Certified by G-SEED • 1st Grade Green Building 	808.0

Disclaimer

Copyright ©2022 Sustainalytics. All rights reserved.

The information, methodologies and opinions contained or reflected herein are proprietary of Sustainalytics and/or its third party suppliers (Third Party Data), and may be made available to third parties only in the form and format disclosed by Sustainalytics, or provided that appropriate citation and acknowledgement is ensured. They are provided for informational purposes only and (1) do not constitute an endorsement of any product or project; (2) do not constitute investment advice, financial advice or a prospectus; (3) cannot be interpreted as an offer or indication to buy or sell securities, to select a project or make any kind of business transactions; (4) do not represent an assessment of the issuer's economic performance, financial obligations nor of its creditworthiness; and/or (5) have not and cannot be incorporated into any offering disclosure.

These are based on information made available by the issuer and therefore are not warranted as to their merchantability, completeness, accuracy, up-to-dateness or fitness for a particular purpose. The information and data are provided "as is" and reflect Sustainalytics' opinion at the date of their elaboration and publication. Sustainalytics accepts no liability for damage arising from the use of the information, data or opinions contained herein, in any manner whatsoever, except where explicitly required by law. Any reference to third party names or Third Party Data is for appropriate acknowledgement of their ownership and does not constitute a sponsorship or endorsement by such owner. A list of our third-party data providers and their respective terms of use is available on our website. For more information, visit <http://www.sustainalytics.com/legal-disclaimers>.

The issuer is fully responsible for certifying and ensuring the compliance with its commitments, for their implementation and monitoring.

In case of discrepancies between the English language and translated versions, the English language version shall prevail.

¹⁰ G-SEED (Green Standard for Energy and Environmental Design) is operating in Korea as a certification system to evaluate the environmental friendliness of buildings.

About Sustainalytics, a Morningstar Company

Sustainalytics, a Morningstar Company, is a leading ESG research, ratings and data firm that supports investors around the world with the development and implementation of responsible investment strategies. For more than 30 years, the firm has been at the forefront of developing high-quality, innovative solutions to meet the evolving needs of global investors. Today, Sustainalytics works with hundreds of the world's leading asset managers and pension funds who incorporate ESG and corporate governance information and assessments into their investment processes. Sustainalytics also works with hundreds of companies and their financial intermediaries to help them consider sustainability in policies, practices and capital projects. With 17 offices globally, Sustainalytics has more than 1500 staff members, including more than 500 analysts with varied multidisciplinary expertise across more than 40 industry groups.

For more information, visit www.sustainalytics.com

Or contact us contact@sustainalytics.com

