

# Investor Newsletter

## KDB Green Bond Impact Report

April 2024



# Introduction

## KDB, the National Climate Bank leading the way in Carbon Neutrality and Green Growth

Having played a crucial role in the development of the Korean economy and industry over the past 70 years, KDB is now adapting its role to contribute to the transition of carbon neutral economy. Mandated to be policy bank driving economic growth and diversity, KDB now aims to facilitate the next phase of economic growth by providing financial support to strategic initiatives and partnerships both within Korea and beyond.

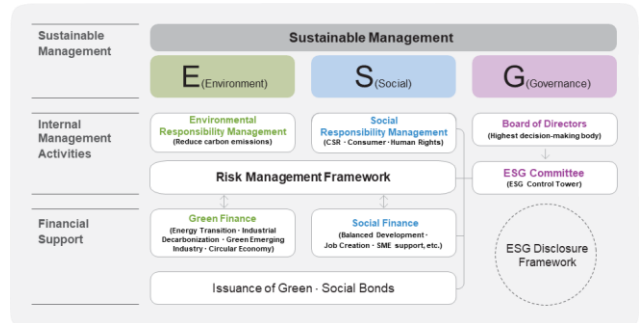
In line with the Korean government's policy on carbon neutrality and the environmental goals under K-taxonomy (one of the government's key initiatives on climate change), KDB is leading the front as the national "climate bank". KDB has selected four key areas to implement the government's initiative: 1) promoting energy transition, 2) accelerating industrial decarbonization, 3) promoting green emerging industry and 4) building a circular economy.

KDB provides patient capital to foster climate technologies, supports carbon-intensive industries' transition efforts, and catalyzes the inflow of private capital into green sectors. Not only financing major companies, KDB's venture investments to early-stage, innovative companies with climate technologies contributes to accelerating low-carbon industrial transformation.

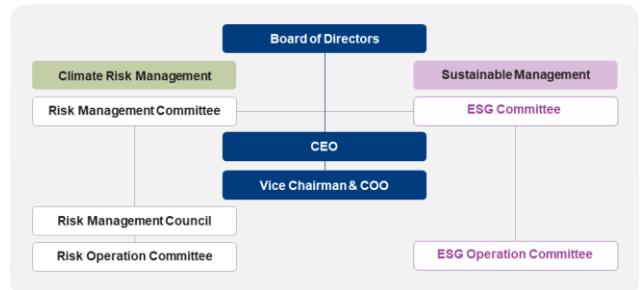
KDB also provides corporate clients with ESG consulting services to help them deal with increasing ESG-related regulations and reporting requirements and build ESG capacity.

To integrate sustainability into its business at all levels, KDB has established a sustainable management system comprising of corporate environmental and social responsibilities, green and social financing support and procurement as a financial institution, and a governance structure to incorporate ESG strategies into decision-making.

<KDB Sustainable Management System >



< Governance structure for ESG decision-making >



To reinforce its sustainability activities, KDB has been collaborating with international associations and adopted global initiatives. KDB is the first signatory of the Equator Principles and Green Climate Fund (GCF) accredited entity out of Korea. By closely following new regulatory requirements and market developments, KDB will continue to support companies across South Korea in their sustainability efforts thereby contributing to reaching regional, national, and international climate and sustainability goals.

- United Nations Global Compact:** Signed in 2007, KDB has been publishing annual reports encompassing KDB's achievement in sustainability and social responsibility activities.
- IDFC (International Development Finance Club):** Through the legacy KoFC, KDB is a founding member of International Development Finance Club ("IDFC") established in 2014.
- GREEN CLIMATE FUND:** Since December 2016, KDB has been an accredited entity elected by the Green Climate Fund (GCF) to carry out the GCF-funded projects. Re-certified in May 2022.
- EQUATOR PRINCIPLES:** KDB has been adopting the Equator Principles, benchmark for environmental/ social risks, since its membership to the Association in Jan 2017.
- TCFD (Task Force on Climate-related Financial Disclosures):** In May 2021, KDB has declared support for Task Force on Climate-related Financial Disclosures (TCFD) together with Korean FSC and financial regulators.
- P4G (Pioneering Partnerships):** In May 2021, KDB has hosted a special session at Pioneering Green Partnerships (P4G) on the topic of the role of finance for post-Covid-19 green recovery.

# ESG Bond Summary

**USD 3.3 billion equivalent**, outstanding balance of KDB green bonds issued in foreign currencies, as of December 31, 2023

**1,678 t CO<sub>2</sub>/USD 1mn**, annual amount of CO<sub>2</sub> emission Avoided per US\$1 million of KDB green bonds

Since the issuance of the inaugural green bond in 2017, KDB has played a pivotal role in leading South Korea's transition to carbon neutrality by supporting environmentally sustainable and socially responsible businesses, financed through its issuances of green, and social bonds (hereinafter, "ESG bonds")

KDB has issued 15 green bonds and one social bond in the international market by December 31, 2023, with a total volume of USD 4.2 billion. The outstanding volume as of December 31, 2023 amounted to USD 3.3 billion. The first green bond was aligned with KDB's Green Bond Framework 2017 while the next green and social bonds were issued in accordance with KDB's Sustainable Bond Framework 2019. Both frameworks conform to the International Capital Market Association's ("ICMA") Green Bond Principles ("GBP") and Second Party Opinions ("SPO") validated both frameworks' alignment. For more information, please find 2019 Framework and a SPO available on the official website at [www.kdb.co.kr/index.jsp](http://www.kdb.co.kr/index.jsp).

In the wake of the COVID-19 pandemic, KDB issued its inaugural social bond, ("COVID-19 Response Social bond"). KDB disclosed its framework in the offering prospectus including the four core components of the GBP: 1) use of proceeds 2) the process for project evaluation and selection, 3) management of proceeds, and 4) reporting. An extensive array of urgent financial needs prompted KDB to issue the bond and the proceeds were earmarked to support small and medium sized enterprises adversely affected by the pandemic. The social bond has been repaid in full in 2023.

KDB is forging ahead with efforts on the sustainability front, with its environmental, social, and governance (ESG) commitments being a critical aspect of its ambition to set a new benchmark in South Korea's ESG capital market. Since KDB introducing its green bond in 2017 in the international market, many other Korean banks and corporates followed suit, accelerating growth and diversity in the domestic ESG bond market. KDB successfully issued KRW-denominated ESG bonds in the domestic market, totaling KRW 4.3 trillion (approximately USD 3.3 billion) with outstanding balance to date of December 31, 2023 at KRW 1.3 trillion (approx., USD 1.0 billion). KDB will continue its commitment to create a more supportive environment for scaling up South Korea's capacity for carbon neutral technologies and products.

Please note that this Newsletter only covers the ESG Bonds issued in the international market. You can find the Newsletters for KRW-denominated ESG bonds issued in Korea on KDB's Korean official website at [www.kdb.co.kr](http://www.kdb.co.kr).

## ESG Bond Summary (Cont'd)

### Outstanding of **KDB Green Bonds** issued in international markets as of December 31, 2023

No.	Issue Year	Maturity	Size	Use of Proceeds	ISIN
2	2019	2024	EUR 500mn	Renewable Energy & Clean Transportation	XS2022179159
3	2021	2024	USD 700mn	Renewable Energy & Clean Transportation	US500630DF23
4	2021	2024	USD 300mn	Renewable Energy	US500630DK18
6	2021	2031	CHF 200mn	Renewable Energy	CH1121837228
7	2021	2051	USD 20mn	Renewable Energy & Clean Transportation	XS2395577674
8	2021	2025	USD 700mn	Renewable Energy & Clean Transportation	US500630DM73
9	2022	2024	BRL 1,285mn	Renewable Energy & Water Management & Clean Transportation	XS2452429645
10	2022	2032	USD 40mn	Clean Transportation	XS2458348294
11	2022	2027	CHF225mn	Renewable Energy & Clean Transportation	CH1179184424
12	2022	2029	HKD390mn	Renewable Energy & Clean Transportation	XS2476745430
13	2022	2029	HKD169mn	Renewable Energy & Clean Transportation	XS2478301380
14	2022	2032	HKD349mn	Renewable Energy & Clean Transportation	XS2496446845
15	2022	2026	MXN3,500mn	Renewable Energy & Clean Transportation	MXCDKD000007
<b>Total</b>			<b>USD 3,310mn</b>		

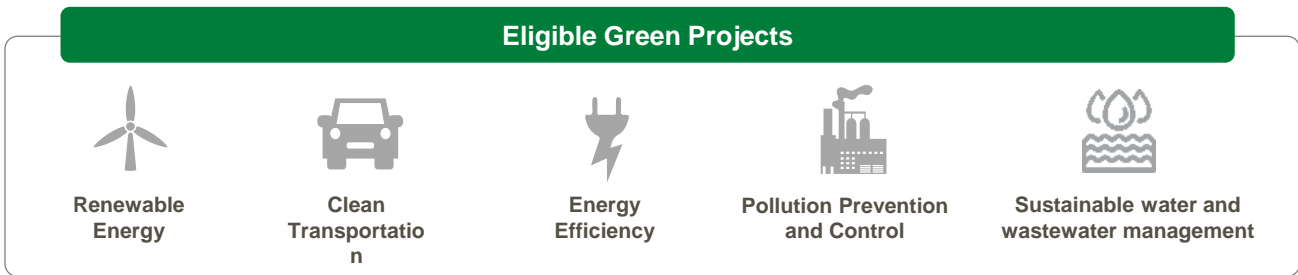
\* Social Bond has been repaid in full in 2023

# Allocation Reporting

## Allocation Overview & Highlights

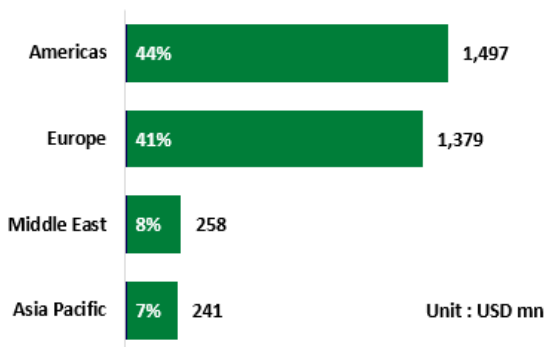
Total outstanding amount of the green bonds as of December 31, 2023 was approximately USD 3.3billion equivalent, out of which USD 2.6 billion were allocated. During the year 2023, some of projects that KDB had loaned to were fully or partially repaid earlier than the originally scheduled maturity and KDB endeavored to actively source eligible projects. KDB will do its best to source eligible projects and allocate the repaid funds and unused proceeds to them throughout the year 2024.

### < Eligible Projects for Green classified in KDB’s Sustainable Bond Framework >

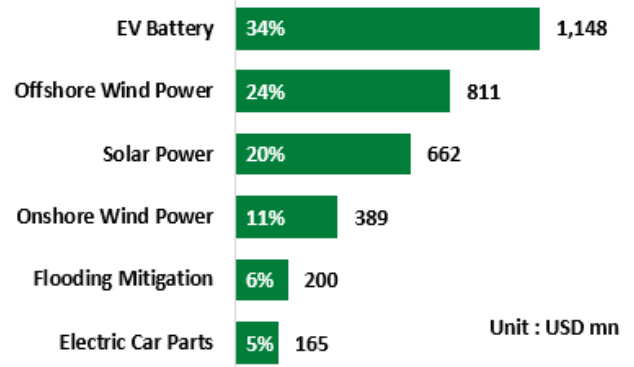


Following illustrates the green portfolio distribution in terms of use of proceeds that were already disbursed and were to be disbursed. Geographically, Americas accounted for the largest part, followed by Europe, Middle East and Asia Pacific in order. The biggest project category that the proceeds were used is renewable energy taking 55%, which is further divided into offshore wind power (24%), solar power (20%) and onshore wind power (11%). Clean transportation accounted for 39%, which is divided into rechargeable battery for electric vehicles (34%) and electric car parts (5%)

### < Breakdown by regions >



### < Breakdown by project categories >



# Allocation Reporting (Cont'd)

## Allocation Details

Green Bond Series	Sector	Total Project Size (USD mn)	KDB Share (USD mn)			Status of Projects	
			Total share size	Disbursed Outstanding Amount	To be Disbursed	Operation	Construction
2 <sup>nd</sup> Green Bond EUR 500mn	Solar	950	447	292	-		
	Offshore Wind	22,794	682	396	114		
3 <sup>rd</sup> Green Bond USD700mn	Onshore Wind	445	137	107	-		
	EV Battery	2,024	243	243	-		
	<b>Sub Total</b>	<b>26,213</b>	<b>1,509</b>	<b>1,038</b>	<b>114</b>	<b>55%</b>	<b>45%</b>
4 <sup>th</sup> Green Bond USD300mn (US500630DK18)	Offshore Wind	2,724	39	37	-		
	Onshore Wind	1,691	249	189	1		
	<b>Sub Total</b>	<b>4,415</b>	<b>288</b>	<b>226</b>	<b>1</b>	<b>84%</b>	<b>16%</b>
6 <sup>th</sup> Green Bond CHF 200mn (CH1121837228)	Solar	618	57	52	-		
	Offshore Wind	4,061	120	107	6		
	<b>Sub Total</b>	<b>4,679</b>	<b>177</b>	<b>159</b>	<b>6</b>	<b>32%</b>	<b>68%</b>
7 <sup>th</sup> Green Bond USD 20mn (XS2395577674)	Electric Car Parts	92	20	20	-		
	<b>Sub Total</b>	<b>92</b>	<b>20</b>	<b>20</b>	<b>-</b>	<b>100%</b>	<b>0%</b>
8 <sup>th</sup> Green Bond USD 700mn (US500630DM73)	Solar	1,494	234	179	53		
	EV Batteries	1,853	404	404	-		
	<b>Sub Total</b>	<b>3,347</b>	<b>638</b>	<b>583</b>	<b>53</b>	<b>17%</b>	<b>83%</b>
9 <sup>th</sup> Green Bond BRL 1,285mn (XS2452429645)	Flooding Mitigation	1,422	200	52	148		
	Offshore Wind	1,498	109	83	23		
	Electric Car Parts	233	70	34	36		
	<b>Sub Total</b>	<b>3,153</b>	<b>379</b>	<b>169</b>	<b>207</b>	<b>16%</b>	<b>84%</b>
10 <sup>th</sup> Green Bond USD 40mn (XS2458348294)	EV Battery	500	40	40	-		
	<b>Sub Total</b>	<b>500</b>	<b>40</b>	<b>40</b>	<b>-</b>	<b>100%</b>	<b>0%</b>
11 <sup>th</sup> Green Bond CHF 225mn (CH1178184424)	EV Battery	1,328	111	111	-		
	Offshore Wind	504	93	55	38		
	<b>Sub Total</b>	<b>1,832</b>	<b>204</b>	<b>166</b>	<b>38</b>	<b>54%</b>	<b>46%</b>
12 <sup>th</sup> Green Bond	Offshore Wind	3,724	67	39	5		
13 <sup>th</sup> Green Bond	Electric Car Parts	205	75	75	-		
14 <sup>th</sup> Green Bond	<b>Sub Total</b>	<b>3,929</b>	<b>142</b>	<b>114</b>	<b>5</b>	<b>37%</b>	<b>63%</b>
15 <sup>th</sup> Green Bond MXN 3,500mn (MXCDKD000007)	Solar	4,810	100	73	13		
	EV Battery	2,700	350	14	336		
	<b>Sub Total</b>	<b>7,510</b>	<b>450</b>	<b>87</b>	<b>349</b>	<b>15%</b>	<b>85%</b>
	<b>Grand Total</b>	<b>55,670</b>	<b>3,847</b>	<b>2,602</b>	<b>773</b>		



# Impact Reporting

## Impact Highlights

**1,678 CO<sub>2</sub>e/USD 1mn**

the amount of CO<sub>2</sub>e Avoided per year per USD 1 million of KDB Share

**6,594 GWh/year**

the expected total energy production per year under KDB share

**920,118**

the number of electric vehicles annually manufactured under KDB share

## CO<sub>2</sub>e Avoided by the green portfolio under KDB Share

The CO<sub>2</sub> emission equivalent avoided by using renewable energy and/or by replacing internal combustion vehicles with electric vehicles serves as an indicator of environmental impact.

Portfolio category	KDB Share (USD mn)	Estimated CO <sub>2</sub> e Avoided: (t CO <sub>2</sub> /Year)	CO <sub>2</sub> e Avoided* (t CO <sub>2</sub> /USD 1.0mn)
Renewable Energy	2,334	2,526,564	1,083
Clean Transportation	1,313	3,591,145	2,735
<b>Total</b>	<b>3,647</b>	<b>6,117,709</b>	<b>1,678</b>

\* Weighted average CO<sub>2</sub>e Avoided among the projects

### 1. Breakdown of CO<sub>2</sub>e Avoided from Renewable Energies

Green Bond Series	Total Project		KDB Share		
	Expected Energy Production (GWh/Year)	Estimated CO <sub>2</sub> e Avoided (t CO <sub>2</sub> /Year)	Expected Energy Production (GWh/Year)	Estimated CO <sub>2</sub> e Avoided (t CO <sub>2</sub> /Year)	CO <sub>2</sub> e Avoided (t CO <sub>2</sub> /USD 1.0mn)
2-3	27,606	9,665,921	5,159	1,929,082	1,523
4	4,517	1,996,881	449	193,987	674
6	2,777	977,476	120	42,379	239
8	2,219	1,009,490	343	151,321	647
9	3,457	1,312,764	130	57,783	535
11	715	223,023	131	40,960	440
12-14	4,735	1,515,241	86	27,456	410
15	6,938	3,451,300	176	83,596	836
<b>Total</b>	<b>52,964</b>	<b>20,152,097</b>	<b>6,594</b>	<b>2,526,564</b>	<b>1,083</b>

## Impact Reporting (Cont'd)

### CO<sub>2</sub>e Avoided by the green portfolio under KDB Share (Cont'd)

#### 2. Breakdown of CO<sub>2</sub>e Avoided from Clean Transportation

Green Bond Series	Total project		KDB Share		
	Annual Production of Electric Vehicles	Annual CO <sub>2</sub> e Avoided	Annual Production of Electric Vehicles	Annual CO <sub>2</sub> e Avoided	CO <sub>2</sub> e Avoided per USD mn
3	650,000	2,536,897	78,815	305,149	1,256
7	620,000	2,419,810	134,783	526,049	26,302
8	445,375	1,738,263	97,912	382,142	946
9	650,000	2,536,897	197,041	769,036	10,989
10	340,000	1,326,993	27,200	106,159	2,654
11	184,626	720,580	15,386	60,048	541
12-14	540,000	2,107,576	333,315	1,300,903	17,345
15	280,000	1,092,817	36,296	141,662	405
<b>Total</b>	<b>3,710,001</b>	<b>14,479,834</b>	<b>920,118</b>	<b>3,591,145</b>	<b>2,735</b>

\*The life-cycle CO<sub>2</sub>e is based on 10-year lifetime of an average mid-size car by powertrain

### Sustainable Water Management – Flooding Mitigation

Affected area	The number of protected residents	Estimated costs for flood damages prevented	The number of jobs created for the project
44,000 acres	245,000	194.8 million per year	4,185

\* Source: US Environmental Protection Agency



## Methodology

### Methodology for Calculation of the Impact Indicators

#### The Renewable Energy

- The Methodology for the Assessment of Project GHG Emissions and Emission Variations (the version 11.3) released in January 2023 by the European Investment Bank was used to calculate the CO<sub>2</sub>e Avoided per each renewable energy project.

Source: [https://www.eib.org/attachments/lucalli/eib\\_project\\_carbon\\_footprint\\_methodologies\\_2023\\_en.pdf](https://www.eib.org/attachments/lucalli/eib_project_carbon_footprint_methodologies_2023_en.pdf)

- For the capacity factors of renewable energies by country, we first used the Projected Costs of Generating Electricity published in 2020<sup>1)</sup> & 2015<sup>2)</sup> by the International Energy Agency. If factors for certain countries are not available from IEA references, the capacity factors provided by International Renewable Energy Agency<sup>3)</sup> were used.

Source 1) <https://www.iea.org/reports/projected-costs-of-generating-electricity-2020>

2) <https://www.oecd-neo.org/ndd/pubs/2015/7057-proj-costs-electricity-2015.pdf>

3) <http://www.irena.org/Data/Energy-Profile>

#### Clean Transportation:

- The Methodology for the Assessment of Project GHG Emissions and Emission Variations (the version 11.3) released in January 2023 by the European Investment Bank was used to calculate the CO<sub>2</sub>e Avoided by replacing internal combustion vehicles with electric vehicles.

Source: [https://www.eib.org/attachments/lucalli/eib\\_project\\_carbon\\_footprint\\_methodologies\\_2023\\_en.pdf](https://www.eib.org/attachments/lucalli/eib_project_carbon_footprint_methodologies_2023_en.pdf)

- The average annual miles of driving per driver released by the Federal Highway Administration of the U.S. Department of Transportation was also used for calculating the annual amount of CO<sub>2</sub>e.

Source: <http://fhwa.dot.gov/ohim/onh00/bar8.htm>

**Note: that any difference in CO<sub>2</sub>e avoided from the previous Investor Newsletter is due to applying different versions of the aforementioned methodologies and exchange rates.**

## Featured Projects

### “Today’s sun is tomorrow’s power”

- KDB provided USD170million facility loan to Hanwha Q cells USA, a subsidiary of Hanwha Solutions, for expansion of its solar power module production facility in Dalton, Georgia.
- Hanwha Q cells USA possesses the largest solar module manufacturing facility in the U.S and leads the U.S market in both residential and commercial solar module sales. Through this project, Hanwha Q cells USA will increase its solar module manufacturing capacity by 2.0GW/year.
- Carbon emission reduction effect of the project is 1,418,419tCO<sub>2</sub>/year.



### LG Energy Solution “Power Today. Preserve Tomorrow” Michigan, Inc.

- KDB approved USD350million facility loan to LG Energy Solution Michigan, a subsidiary of LG Energy Solution, for expansion of its secondary battery production facility for EVs in Michigan.
- LG Energy Solution Michigan is the first EV battery plant in the U.S and leads the U.S EV transition by supplying secondary batteries to its local, national, and global automotive partners. Through this project, LG Energy Solution Michigan will increase its EV battery manufacturing capacity by 20GWh, which corresponds to 280,000 units of EV/year.
- Carbon emission reduction effect of the project is 1,092,817tCO<sub>2</sub>/year.



# Appendix. ESG Framework

## KDB Sustainable Bond Framework

In June 2019, KDB updated its Sustainable Bond Framework to meet increasing global standards on ESG. The Framework is available [here](#).



### Use of Proceeds

- Proceeds from any KDB Green Bonds/ Social Bonds/ Sustainability Bonds will exclusively be used to finance and/or refinance projects under the Eligible Green Categories & Social Categories




### Project Evaluation & Selection

- The Business Planning Department annually establishes budget of fund-supply and the business units select projects or business falling under the target industry and/or corporations.
- The evaluation on the project/the new business starts with preliminary assessment of E&S risk and impact of a proposed project.
- For credit approval KDB's Credit Review Division reviews whole matters including the appropriateness of mitigation measures to deal with identified E&S impacts.
- KDB's Credit Committee meeting is held to approve the proposed project.



### Management of Proceeds

- The proceeds of the Bonds will be managed by KDB's Treasury Department. Upon receipt of eligible projects for the use of proceeds through KDB's internal information system, the Treasury Department will allocate the proceeds to the projects in accordance with the financing schedule of the projects.
- Pending/unallocated proceeds of the Bond will be invested in cash, cash equivalents and/or marketable securities, in accordance with KDB's cash management policies.



### Reporting

- KDB will provide an annual "Investor Newsletter" with the information of allocation of the proceeds of the Bonds. The report shall be posted to KDB's official website.

## Second Party Opinion

"... Sustainalytics is of the opinion that the Korea Development Bank Sustainable Bond Framework is credible and impactful, and aligns with the four core components of the GBP, SBP and SBG..."



\* SPO is available at [https://www.kdb.co.kr/wcmscontents/pdf/Second\\_Party\\_Opinion\\_by\\_Sustainalytics\\_2019.pdf](https://www.kdb.co.kr/wcmscontents/pdf/Second_Party_Opinion_by_Sustainalytics_2019.pdf)