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## Second Party Opinion

# Housing & Development Board Green Bonds

Sept. 25, 2025

**Location:** Singapore

**Sector:** Real Estate

### Alignment Summary

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✗

- ✓ Green Bond Principles, ICMA, 2025
- ✓ ASEAN Capital Markets Forum Green Bond Standards

See [Alignment Assessment](#) for more detail.

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Light green

Activities representing transition steps in the near-term that avoid emissions lock-in but do not represent long-term low-carbon climate resilient solutions.

Our [Shades of Green Analytical Approach](#) >

## Strengths

**The company is helping make Singapore's buildings and towns more sustainable by 2030.** The Housing & Development Board (HDB) is the largest master planner and housing developer in Singapore and a public housing authority. Its Green Towns Program initiatives include energy use reduction, rainwater recycling, and solar deployment. HDB will also prioritize using green and low-carbon materials in construction and works closely with contractors to reduce reliance on fossil fuel use for machinery.

## Weaknesses

No weaknesses to report.

## Areas to watch

**Green buildings certifications do not necessarily offer a complete assessment of a building's environmental performance throughout its lifecycle.** Certifications may, for example, fail to capture physical climate risks and embodied emissions. However, HDB focuses on financing projects that meets Building and Construction Authority (BCA) Green Mark certification of Gold<sup>Plus</sup> or above, which has a prerequisite requirement on energy savings.

## Shades of Green Projects Assessment Summary

This SPO covers green bonds issued by HDB worth Singapore dollar (S\$) 800 million on April 30, 2024, S\$965 million on July 23, 2024, S\$900 million on Oct. 30, 2024, and S\$950 million on Jan. 21, 2025. Net proceeds were solely invested in green buildings, with 60% allocated to new financing and 40% to refinancing.

Previously, HDB had issued five green bonds totaling S\$4.84 billion following the development of its green finance framework in January 2022. See related SPO [here](#).

Based on the project category's Shades of Green detailed below, and consideration of environmental ambitions reflected in HDB's green bonds, we assess the green bonds Light green.

### Green Buildings

### Light green

For new public housing developments:

- Obtain BCA Green Mark Gold <sup>Plus</sup> or higher
- Provide smart lighting for indoor and outdoor common areas
- Provide regenerative lifts for all residential blocks
- Provide solar-ready roofs

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See [Analysis Of Eligible Projects](#) for more detail.

## Issuer Sustainability Context

This section provides an analysis of the issuer's sustainability management and the embeddedness of the financing framework within its overall strategy.

### Company Description

The Housing & Development Board (HDB), a statutory board under the Ministry of National Development, was established on Feb. 1, 1960.

HDB aims to provide quality and affordable public housing, create vibrant and sustainable towns, and foster cohesive communities. Beyond the development, upgrading, and redevelopment of towns and estates, HDB also manages the sale and rental of residential and commercial properties, provides mortgage financing, and oversees the management of public housing and related facilities.

Over the decades, HDB has completed over 1.25 million flats in 24 towns and three estates across the island. Today, close to 80% of Singapore's population live in HDB flats.

### Material Sustainability Factors

#### Physical Climate Risk

Real estate assets are exposed to physical climate risks. While varying by location, these could include acute risks--such as wildfires, floods, and storms--which are becoming more frequent and severe, as well as chronic risks--such as long-term changes in temperature and precipitation patterns and sea levels. Acute and chronic risks could damage properties or place tenant health and safety at risk, as well as require investments to manage potential effects or, in severe cases, relocation of tenants. While aggregate impact is moderate--since the type, number, and magnitude of these risks varies by region--highly exposed regions may be subject to material physical climate risk exposure. Most participants have some insurance coverage, but it could become more difficult to secure insurance for the most exposed assets in the future, absent adaptation. According to the World Bank, Singapore is vulnerable to the consequences of climate change, such as rising sea levels, intense rainfall, dry spells, and other extreme weather events.

#### Climate Transition Risk

Increased energy use in buildings has been a major contributor to climate change, representing around a third of global greenhouse gas emissions on a final-energy-use basis, according to the International Energy Agency (IEA). This leaves the sector highly susceptible to the growing public, political, legal, and regulatory pressure to accelerate climate goals. Building occupiers and operators may face higher energy bills as power prices rise, and higher capital expenditures as upgrades are required to accommodate the energy transition and meet more stringent efficiency standards. This could affect household purchasing power and the competitive strengths of commercial and industrial properties. Incremental climate-related investments can require significant capital outlays but will potentially reduce the risk of obsolescence due to changes in regulation or climate goals. In addition, low-carbon properties may achieve higher cost efficiencies or attract premium rents in the longer term, therefore enhancing their value. In 2021, five government ministries launched the Singapore Green Plan 2030, in which the country aims to install 1.5 gigawatt-peak (GWp) of solar power as well as 200 megawatt-hour (MWh) energy storage systems by 2025 to support the transition to clean energy.

#### Access & Affordability

Low housing stock and a lack of affordable options can severely influence people's livelihoods, especially the vulnerable, low-income segment of the population. Access and affordability are especially important for residential tenants where rents can account for a large portion of incomes. Lack of accessibility and affordability of commercial properties can also hinder the

sustainable growth of local communities. According to the 2025 Asia-Pacific Home Attainability Index report released by the Urban Land Institute, the affordability ratio of median property price to median annual income in Singapore is 16.9x for private property and 4.3x for public housing (indicating it would take 4.3 years of income, making public housing more affordable than private property).

## Impact On Communities

Properties, and by extension their owners, are inherently part of communities in which they are located because they provide an essential service and can shape neighborhoods both economically and socially. The residential sector is particularly impactful on communities, where gentrification pressures can alter communities' social fabric and can be challenging to remediate. Hotels, retail, and offices draw an influx of people into a community, which can support the local economy but can also affect community dynamics. Real estate institutions such as HDB, which houses about 80% of Singapore's resident population, have a vital role in creating and building sustainable and thriving communities.

## Issuer And Context Analysis

**Green buildings address HDB's most material sustainability factors.** They address climate mitigation risk, and indirectly factors such as access and affordability and impact on communities. On the other hand, physical climate risks are relevant as HDB's assets in Singapore are exposed to rising sea levels, intense rainfall, and dry spells.

**HDB has strengthened its disclosure on emissions associated with its construction activities through its inaugural sustainability report published in December 2024.** It monitors and reports its scope 1 and 2 emissions and plans to include scope 3 emissions, with a focus on contractors' activities. Embodied emissions from construction materials are not currently covered by the plan. HDB's Green Towns Program is a 10-year plan to make its HDB towns sustainable by 2030. It focuses on reducing energy consumption, recycling rainwater, cooling towns, promoting green commutes, and reducing waste to enhance residents' quality of life. For example, the program targets a 15% reduction in energy consumption in HDB towns by 2023 from 2020 levels, alongside a 10% reduction in Energy Utilization Index (EUI) in HDB-managed complexes such as shopping malls compared to the 2018–2020 average. Additionally, HDB commits to achieve a 540 megawatt-peak (MWp) of total solar capacity by 2030, with a 325 MWp already installed as of March 31, 2024. Moreover, HDB advances its transition efforts by adopting green construction materials such as low-carbon concrete and recycled aggregates such as ground granulated blast-furnace slag.

**HDB incorporates physical climate risk mitigation in its property project planning.** HDB is working with the Resilience Working Group (RWG) in studying Singapore's climate change vulnerability and developing long-term resilience plans. At the same time, it ensures that its projects comply with regulations from the Public Utilities Board (PUB), Singapore's National Water Agency and National Environment Agency (NEA) to mitigate flooding risks and control greenhouse gas emissions, demonstrating their commitment to climate change and extreme weather. However, HDB is not conducting climate scenario analysis to identify physical risks at property level.

**HDB provides a diverse range of housing options, with new flats priced at below market rates to maintain affordability.** As the largest master planner and housing developer in Singapore, HDB provides housing loans to eligible purchasers of flats under the public housing schemes and heavily subsidized rental flat for lower-income individuals and those requiring housing assistance. The buyers of HDB flats receive subsidies such as housing grants, with more than S\$4.5 billion disbursed since 2020. Additionally, HDB provides financial calculators, allowing customers to review their finances and determine how much they can allocate each month for housing loan repayments and expenses before searching for a flat.

**HDB's commitment to sustainable building practices ensures limited disruption to the environment and local communities.** The issuer sets up regular meetings with stakeholders,

## **Second Party Opinion: Housing & Development Board Green Bonds**

such as residents, and formulates appropriate and necessary actions to address any raised concerns. HDB, in collaboration with Urban Redevelopment Authority (URA) and National Parks Board (NParks), assesses land use changes for new buildings. This process ensures a balance between development needs and preserving biodiversity. The company commits to environmental stewardship in its greenfield site development by conducting Environmental Impact Assessment (EIA) and Environmental Management and Monitoring Plan (EMMP) to assess environmental impacts. Additionally, HDB may require more detailed environmental studies for developments near sensitive nature areas.

# Alignment Assessment

This section provides an analysis of the framework's alignment to Green Bond principles.

## Alignment Summary

Aligned = ✓    Conceptually aligned = ○    Not aligned = ✗

- ✓ Green Bond Principles, ICMA, 2025
- ✓ ASEAN Capital Markets Forum Green Bond Standards

We assess alignment on the green bonds covered under HDB's Green Finance Report as of March 31, 2025, which were issued under its Green Finance framework of January 2022.

The framework refers to the 2021 version of the ICMA Green Bond Principles. Still, we have assessed the institution's green bonds alignment with the latest 2025 version of the Principles. This report does not cover HDB's June 2025 Green Finance framework.

### ✓ Use of proceeds

The framework's green building project category has a green shade, and the issuer commits to allocating the net proceeds issued under the framework exclusively to eligible green projects. Please refer to the Analysis Of Eligible Projects section for more information on our analysis of the environmental benefits of the use of proceeds. HDB discloses the proportion of financing versus refinancing in its allocation reporting. The look-back period of two years for refinancing projects is considered by the market to be better practice than the commonly used period of three years.

### ✓ Process for project evaluation and selection

HDB's Design Development Group is responsible for identifying the list of eligible projects according to the criteria specified in the framework. The list of projects needs to be endorsed by the Deputy Chief Executive Officer (Building) to be included in the Green Project Register. The Board's Finance Group presents, on an annual basis, the register to the CEO for review and approval. HDB conducts environmental studies to identify and manage potential environmental and social impacts arising from building development, such as construction noise, water pollution, health, and welfare of the workers.

### ✓ Management of proceeds

HDB's Finance Group has an internal Green Project Register to keep track of the proceeds from the green financing transactions. The issuer commits to periodically adjust the balance of the tracked proceeds to match allocations to the eligible projects on a portfolio basis. It has not needed to do it so far, as all invested projects have preserved their eligibility. Pending allocation, net proceeds are managed as part of HDB's cash management process, which includes short-term balances. Short-term balances may be held by the Accountant-General's Department under the government of Singapore's Centralized Liquidity Management Framework for Statutory Board.

### ✓ Reporting

HDB has produced allocation and impact reporting annually and commits to do so until full allocation of the net proceeds and in case of material developments. The issuer publishes a green finance report for green bonds on its website. Reports include the allocated and unallocated amount, share of financing and refinancing for each bond, brief descriptions of financed projects, and the expected environmental impacts.

# Analysis Of Eligible Projects

This section provides details of our analysis of eligible projects, based on their environmental benefits and risks, using the "[Analytical Approach: Shades Of Green Assessments](#)".

## Overall Shades of Green assessment

Based on the project category shades of green detailed below, and the consideration of environmental ambitions reflected in HDB's framework, we assess the green bonds Light green.

Light green

Activities representing transition steps in the near-term that avoid emissions lock-in but do not represent long-term low-carbon climate resilient solutions.

Our [Shades of Green Analytical Approach](#) >

## Green project category

### Green Buildings

#### Assessment

 Light green

#### Description

For new public housing developments:

- Obtain BCA Green Mark Gold<sup>Plus</sup> or higher
- Provide smart lighting for indoor and outdoor common areas
- Provide regenerative lifts for all residential blocks
- Provide solar-ready roofs

#### Analytical considerations

- The IEA emphasizes that reaching net-zero emissions in buildings demands major strides in energy efficiency and fossil fuel abandonment. All properties must achieve high energy performance. New properties should also cut emissions from building materials and construction. Additionally, addressing physical climate risks is crucial for strengthening climate resilience across all buildings.
- HDB allocated the proceeds to finance and refinance new residential projects. All projects must achieve BCA Green Mark certification of Gold<sup>Plus</sup> or above to be eligible. We view such commitment as a strength as such certification level ensure building projects obtain at least 50% energy saving compared to the local building stock, and this goes beyond regulatory requirements. Nevertheless, the building certification's point-based system implies that the targeted certification could be achieved without thoroughly addressing other environmental aspects such as physical climate risks and embodied emissions. We thus assign the project category a Light green shade.
- Although green building certifications cover a broad set of environmental issues, they differ considerably in their requirements for energy efficiency, embodied emissions of construction materials, and climate resilience. Typically, their point-based systems do not guarantee low carbon new construction nor highly energy efficient existing buildings. BCA Green Mark certification of Gold<sup>Plus</sup> has a mandatory requirement for building projects to achieve at least 50% energy savings, while it is optional to meet the requirements for reducing building's embodied emissions and conducting physical risk assessments.

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- HDB utilizes smart lighting and regenerative lifts in its ongoing building projects to reduce energy use. The issuer shared that smart lighting could achieve up to 60% energy savings, compared with conventional lighting, with the incorporation of motion sensors and smart analytics to reduce lighting in areas with lower traffic; regenerative lifts have the potential to reduce energy consumption by an average of 20% through reusing the energy generated during lift motions and braking. For solar-ready roofs, financed projects may include optimizing the available roof space for solar panel installation and maintenance, providing support structure for the placement of solar panels, as well as provisioning electrical infrastructure for future wiring connection. However, the lack of performance thresholds for these energy-saving initiatives limits the insight of the project's actual impacts.
- HDB has not explicitly excluded buildings with fossil fuel-based cooling from financing. Cooling of eligible projects is primarily sourced from the regional power grids with partial contributions from solar energy. This means the actual emissions will depend on the country's electricity grid energy profile. Currently, Singapore's power grids are still largely dependent on fossil fuels, with about 94 percent of electricity generated using imported natural gas. It is the national objective to import up to 4 gigawatts of low-carbon electricity by 2035, roughly 30% of the country's projected electricity supply. HDB says fossil fuel-based generators will be used for emergency purposes only, and that it is seeking alternative solutions such as battery packs.
- Buildings are exposed to physical climate risks, including rising sea levels, flooding, and increased rainfall in Singapore. HDB ensures buildings comply with codes set by the PUB, which is also Singapore's national water authority, to manage potential physical climate risks. While HDB is working with the RWG on developing long-term resilience plans to mitigate nationwide climate-related risks, the issuer itself does not separately analyze nor conduct climate-related scenario analysis.
- Construction of new building requires raw materials with considerable embodied emissions and associated climate impacts. HDB will prioritize using green and low embodied carbon materials in construction, and works closely with contractors to reduce the reliance on fossil fuel use for machinery. Specific details regarding the building's lifecycle emissions are not yet available.
- HDB works with URA and NParks to conduct biodiversity and land use change risks evaluations when the projects take place in largely urbanized areas developments. For projects on greenfield sites, studies are required to assess environmental impacts and site context such as topography, flora, fauna, and hydrology. If construction proceeds after balancing the government's development needs and retaining natural areas, detailed studies will be conducted to minimize environmental impacts.

S&P Global Ratings' Shades of Green

Assessments					
 Dark green	 Medium green	 Light green	 Yellow	 Orange	 Red
Description					
Activities that correspond to the long-term vision of an LCCR future.	Activities that represent significant steps toward an LCCR future but will require further improvements to be long-term LCCR solutions.	Activities representing transition steps in the near-term that avoid emissions lock-in but do not represent long-term LCCR solutions.	Activities that do not have a material impact on the transition to an LCCR future, or, Activities that have some potential inconsistency with the transition to an LCCR future, albeit tempered by existing transition measures.	Activities that are not currently consistent with the transition to an LCCR future. These include activities with moderate potential for emissions lock-in and risk of stranded assets.	Activities that are inconsistent with, and likely to impede, the transition required to achieve the long-term LCCR future. These activities have the highest emissions intensity, with the most potential for emissions lock-in and risk of stranded assets.
Example projects					
 Solar power plants	 Energy efficient buildings	 Hybrid road vehicles	 Health care services	 Conventional steel production	 New oil exploration

Note: For us to consider use of proceeds aligned with ICMA Principles for a green project, we require project categories directly funded by the financing to be assigned one of the three green Shades.

LCCR--Low-carbon climate resilient. An LCCR future is a future aligned with the Paris Agreement; where the global average temperature increase is held below 2 degrees Celsius (2 C), with efforts to limit it to 1.5 C, above pre-industrial levels, while building resilience to the adverse impact of climate change and achieving sustainable outcomes across both climate and non-climate environmental objectives. Long term and near term--For the purpose of this analysis, we consider the long term to be beyond the middle of the 21st century and the near term to be within the next decade. Emissions lock-in--Where an activity delays or prevents the transition to low-carbon alternatives by perpetuating assets or processes (often fossil fuel use and its corresponding greenhouse gas emissions) that are not aligned with, or cannot adapt to, an LCCR future. Stranded assets--Assets that have suffered from unanticipated or premature write-downs, devaluations, or conversion to liabilities (as defined by the University of Oxford).

# Mapping To The U.N.'s Sustainable Development Goals

Where the financing documentation references the Sustainable Development Goals (SDGs), we consider which SDGs it contributes to. We compare the activities funded by the financing to the International Capital Markets Association (ICMA) SDG mapping and outline the intended linkages within our SPO analysis. Our assessment of SDG mapping does not affect our alignment opinion.

The green bonds intend to contribute to the following SDGs:

**Use of proceeds**

**SDGs**

Green Buildings



**7. Affordable and clean energy**

\*The eligible project categories link to these SDGs in the ICMA mapping.

## Related Research

- [Analytical Approach: Second Party Opinions](#), March 6, 2025
- [FAQ: Applying Our Integrated Analytical Approach For Second Party Opinions](#), March 6, 2025
- [Analytical Approach: Shades Of Green Assessments](#), July 27, 2023

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## Second Party Opinion: Housing & Development Board Green Bonds

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