

MINISTRY OF FINANCE

SECOND PARTY OPINION : SINGAPORE GREEN BOND
FRAMEWORK (DATED JANUARY 2025)



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Disclaimer

Our assessment relies on the premise that the data and information provided by the client to us as part of our review procedures are 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 be 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 17029:2019 - Conformity Assessment – General principles and requirements for validation and verification bodies, 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 Conduct during the assessment and maintain independence where required by relevant ethical requirements.

DNV'S INDEPENDENT ASSESSMENT

Scope and Objectives

In 2022, Singapore pledged to achieve zero emissions by 2050 as part of the Long-Term Low-Emissions Development Strategy ("LEDS"). Additionally, the 2030 Nationally Determined Contribution ("NDC") is also enhanced to reduce emissions to around 60 MtCO₂e in 2030 after peaking emissions earlier. In order to meet these ambitious targets, sector-specific decarbonisation plans and targets have been set to meet national commitments. To advance the national agenda on sustainable development, the Singapore Green Plan 2030 charts concrete sustainability targets, strengthening Singapore's commitments under the United Nations' ("UN") 2030 Sustainable Development Agenda and Paris Agreement, and positions Singapore to achieve the long-term net zero emissions target.

In recognition of the role that Singapore can play in green and transition finance, the Monetary Authority of Singapore ("MAS") launched the Finance for Net Zero ("FiNZ") Action Plan in April 2023, which sets out MAS' strategies to mobilise financing to catalyse Asia's net zero transition and decarbonisation activities in Singapore and the region. The Singapore government is committed to supporting the growth of Singapore's sustainable finance market, with a planned issuance of up to SGD 35 billion of public sector green bonds by 2030.

The Ministry of Finance Singapore ("MOF") published the inaugural Singapore Green Bond Framework in June 2022 and subsequently published the updated version in January 2025 (henceforth referred to as "Framework"), which governs the issuance of green bonds by the Singapore Government under the Significant Infrastructure Government Loan Act 2021 ("SINGA"). The Framework also serves as a reference for Statutory Boards' respective green bond frameworks.

The Framework is intended to be in alignment with the following standards and principles (collectively the "Standards, Schemes & Principles"):

- Green Bond Principles ("GBP") issued by the International Capital Markets Association ("ICMA") in June 2021 and updated with Appendix 1 in June 2022
- ASEAN Green Bond Standards ("ASEAN GBS") issued by the ASEAN Capital Markets Forum ("ACMF") in October 2018
- Singapore-Asia Taxonomy ("SAT") launched by MAS in December 2023

DNV Business Assurance Singapore Pte Ltd ("DNV") has been commissioned by the MOF to review its Framework and provide a Second Party Opinion on the Framework, based on the Standards, Schemes & Principles.

Our methodology to achieve this is described under 'Work Undertaken' below. We were not commissioned to provide independent assurance or other audit activities.

Responsibilities of the Management of MOF and DNV

The management of MOF 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 MOF management and other interested stakeholders in the Framework as to whether the Framework is aligned with the stated Standards, Schemes & Principles. In our work we have relied on the information and the facts presented to us by the MOF. 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 MOF's management and used as a basis for this assessment were not correct or complete.

Basis of DNV's Opinion

We have adapted our assessment methodology to create the MOF-specific Eligibility Assessment Protocol (henceforth referred to as "Protocol"). Our Protocol includes a set of suitable criteria that can be used to underpin DNV's opinion.

As per our Protocol, the criteria against which the Framework has been reviewed are grouped under the following four core components:

1. Use of Proceeds

The Use of Proceeds criteria are guided by the requirement that an issuer of a bond must use the funds raised to finance or refinance or to repay equity of eligible activities. The eligible activities should produce clear environmental benefits.

2. Process for Project Evaluation and Selection

The Project Evaluation and Selection criteria are guided by the requirements that an issuer of a 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.

3. Management of Proceeds

The Management of Proceeds criteria are guided by the requirements that a bond should be tracked within the organization, that separate portfolios should be created when necessary and that a declaration of how unallocated funds will be handled.

4. Reporting

The Reporting criteria are guided by the recommendation that at least annual reporting should be made of the use of proceeds and that quantitative and/or qualitative performance indicators should be used, where feasible.

No assurance is provided regarding the financial performance of instruments issued via the Framework, the value of any investments, or the long-term environmental benefits of the transaction. Our objective has been to provide an assessment that the Framework has met the criteria established on the basis set out below.

Work Undertaken

Our work constituted a high-level review of the available information, based on the understanding that this information was provided to us by the MOF 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:

- Creation of a Protocol, adapted to the purpose of the green bond, as described above and in Schedule 3 to this Assessment;
- Assessment of documentary evidence provided by the MOF on the green bond and supplemented by a high-level desktop research. These checks refer to current assessment best practices and standards methodology;
- Review of published materials by the MOF and on the MOF's website;
- Discussions with the MOF's management, and review of relevant documentation and evidence related to the criteria of the Protocol; and
- Documentation of findings against each element of the criteria.

Our opinion as detailed below is a summary of these findings.

Findings and DNV's Opinion

DNV's findings on the alignment with the Standards, Schemes & Principles are listed below:

1. Use of Proceeds

The MOF intends to use the net proceeds of the green bonds to finance and/or refinance eligible green projects as defined in its Framework. The Framework defines the following eligible project categories:

- Renewable Energy
- Energy Efficiency
- Green Buildings
- Clean Transportation
- Sustainable Water and Wastewater Management
- Pollution Prevention, Control and Circular Economy
- Climate Change Adaptation
- Biodiversity Conservation and Sustainable Management of Natural Resources and Land Use

DNV undertook an analysis of the associated project types to determine the eligibility as Green and in line with the Standards, Schemes & Principles. DNV concludes that the eligible project categories outlined in the Framework are consistent with the categories outlined in the Standards, Schemes & Principles.

DNV's analysis of the eligible project categories to be financed or refinanced through the MOF's Green Bonds, and an assessment of alignment with the Standards, Schemes & Principles and specifically the SAT, is set out in Schedule 1. DNV's assessment on the contribution of the eligible project categories to the UN Sustainable Development Goals ("UN SDGs") is set out in Schedule 2.

2. Process for Project Selection and Evaluation

The MOF has set up an evaluation and selection process through establishing a Green Bond Steering Committee ("GBSC"), chaired by the Second Minister for Finance, to oversee and approve the key decisions related to the green bonds issued under this Framework.

The process for project selection and evaluation is as follows:

- MOF to curate a list of potential green projects, based on agencies' input
- GBSC to review projects based on the selection and evaluation criteria in the Singapore Green Bond Framework
- GBSC to approve eligible green projects and allocation of proceeds
- Respective agencies to work on project implementation, keep track of use of allocated proceeds, and report impact
- MOF to publish annual reports on allocation and impact based on agencies' input

DNV concludes that the Framework appropriately describes the process for Project Evaluation and Selection and is aligned with the criteria in the Standards, Schemes & Principles.

3. Management of Proceeds

The MOF describes the process for management of net proceeds under this Framework as follows:

The net proceeds of the green bonds will be transferred to the Singapore Government's separate cash account maintained with MAS, which is ring-fenced for Eligible Green Expenditures. MOF will maintain an allocation register ("Green Register") to record the allocations against Eligible Green Expenditures. For each green bond issued, the Green Register will contain information including the date of issuance, principal amount of proceeds, the International Securities Identification Number and date of maturity.

The Singapore Government will allocate the net proceeds to Eligible Green Expenditures in full within 2 years. The net proceeds will only be allocated to expenditures incurred for the green categories that occurred no earlier than 2 years prior to the date of issue and no later than 2 years from the date of

issuance. The Framework also states that at least 50% of the net proceeds will be allocated to current and future expenditures.

In the event where the portfolio of Eligible Green Expenditures is smaller than the net green bond proceeds outstanding due to unforeseen circumstances (e.g. construction delays) or where a financed Eligible Green Expenditure no longer complies with this Framework (e.g. following divestment, postponement, cancellation, non-compliance with eligibility criteria or potential ESG controversies), the Singapore Government will use its best endeavours to allocate the specific proceeds to other Eligible Green Expenditures as soon as reasonably practicable.

Any unallocated proceeds will be held in cash or invested in other short-term liquidity instruments. The Singapore Government does not plan to invest such unallocated proceeds in activities that are on the exclusion list set out in Section 2.1.1 of the Framework.

DNV has reviewed the evidence presented and concludes that the Framework appropriately describes the process for Management of Proceeds and is aligned with the criteria in the Standards, Schemes & Principles.

4. Reporting

The MOF will provide timely and transparent disclosure on the use of proceeds of green bonds issued under the Framework, until the full allocation (and subsequently on needs basis).

The report will consist of relevant information with regards to the allocation of proceeds as well as quantitative reporting metrics for the purpose of impact reporting.

DNV's analysis of the alignment with the ICMA GBP and ASEAN GBS are set out in Schedule 3 and Schedule 4 respectively.

Based on the limited assurance procedures conducted, nothing has come to our attention that causes us to believe that the green bonds to be issued are not, in all material respects, in accordance with the Pre-Issuance requirements of the associated eligible green project categories, and the Standards, Schemes & Principles. On the basis of this information, DNV is of the opinion that the Framework meets the criteria of established in the protocol and are aligned with the GBP, ASEAN GBS and SAT.

For DNV Business Assurance Singapore Pte Ltd

Singapore / 21 January 2025



Jerus D'Silva
Quality Reviewer



Vigilia Ang
Lead Verifier

Schedule 1. Description of Categories to be financed or refinanced through the MOF’s Green Bonds

Schedule 1 presents the analysis of eligible project categories to be financed or refinanced through the MOF’s Green Bonds, along with an assessment of their alignment with the Standards, Schemes, Principles, and specifically the SAT.

Eligible Green Project Categories	Eligible Criteria and Description	DNV Findings
Renewable Energy	<ul style="list-style-type: none"> • Renewable energy generation capacity (including wind power, solar power, bioenergy, geothermal energy, ocean energy and hydropower). <ul style="list-style-type: none"> o All energy generation activities from wind power, solar photovoltaic (“PV”), concentrating solar power (“CSP”) and ocean energy are directly eligible. o For bioenergy, the following criteria would apply: <ul style="list-style-type: none"> (i) Emission intensity measured during the lifecycle of the power plant is less than 100gCO₂e/kWh; and (ii) Biofuel could be from waste or non-waste¹ bioenergy feedstock, which must be sourced sustainably.² o For geothermal energy, emission intensity measured during the lifecycle of the power plant is less than 100gCO₂e/kWh. o For hydropower, the following criteria would apply: <ul style="list-style-type: none"> (i) Power density must be greater than 5W/m² or emission intensity measured during the lifecycle of the power plant is less than 100gCO₂e/kWh; and (ii) Performance of environmental and social risk assessment and incorporating mitigation measures. 	<p>DNV considers the criteria listed to be aligned with the Green classification of the following activities established in the SAT:</p> <ul style="list-style-type: none"> • 1.1. Electricity generation using solar photovoltaic and concentrating solar power • 1.2. Electricity generation from wind power • 1.3. Electricity generation from hydropower • 1.4. Electricity generation from geothermal energy • 1.5. Electricity generation from bioenergy power • 1.6. Electricity generation from ocean energy <p>All energy generation activities from solar PV, solar CSP, wind and ocean are automatically considered green.</p> <p>For energy generation activities from geothermal energy, hydropower energy and bioenergy, the criteria proposed under the MOF’s Framework is aligned with the SAT. In additional, DNV notes that an environmental risk assessment, as well as mitigation measures, would be in place for hydropower energy.</p>

¹ Non-waste feedstock excludes palm oil and peat and will not be derived from land with high biodiversity, that are in competition with food production or deplete carbon pools.

² Feedstock used for production of bioenergy should comply with one of the following standards: Forest Stewardship Council, Biomass Biofuels voluntary scheme, Bonsucro (Better Sugarcane Initiative), Roundtable of Sustainable Biomaterials, Roundtable on Sustainable Palm Oil, Round Table on Responsible Soy, International Sustainability and Carbon Certification (“ISCC” and/or ISCC plus).

	<ul style="list-style-type: none"> For electricity generation from low-carbon hydrogen or its derivatives (e.g. ammonia), the following criteria would apply: <ul style="list-style-type: none"> (i) Emission intensity measured during the lifecycle of the power plant is less than 100gCO₂e/kWh; and (ii) The power cannot be generated from renewable energy sources, based on a comparative assessment with the most cost-effective and technically feasible renewable alternative for the same capacity identified. Manufacturing, storage³ and regeneration of low-carbon hydrogen generated from renewable energy sources, with production meeting specific carbon intensity thresholds in the table below with lifecycle assessment conducted⁴. <p style="text-align: center;"><small>Table 14 — Hydrogen carbon intensity thresholds (see Appendix J for references and further details)</small></p> <table border="1" data-bbox="499 778 1294 965"> <thead> <tr> <th rowspan="2">Asset Type</th> <th colspan="4">Criteria</th> </tr> <tr> <th>2022 (kgCO₂e/kgH₂*)</th> <th>2030 (kgCO₂e/kgH₂*)</th> <th>2040 (kgCO₂e/kgH₂*)</th> <th>2050 (kgCO₂e/kgH₂*)</th> </tr> </thead> <tbody> <tr> <td>Production of hydrogen</td> <td>3</td> <td>1.5</td> <td>0.6</td> <td>0</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Transmission and distribution networks of renewable and low-carbon gases, including supporting infrastructure such as retrofit of natural gas distribution lines to allow 100% hydrogen and/or its derivatives and/or other low-carbon gases. 	Asset Type	Criteria				2022 (kgCO ₂ e/kgH ₂ *)	2030 (kgCO ₂ e/kgH ₂ *)	2040 (kgCO ₂ e/kgH ₂ *)	2050 (kgCO ₂ e/kgH ₂ *)	Production of hydrogen	3	1.5	0.6	0	<p>In conclusion, DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p> <p>DNV considers the criteria listed to be aligned with the Green classification of the following activity established in the SAT:</p> <ul style="list-style-type: none"> 1.11. Electricity generation from hydrogen or its derivatives (e.g. ammonia) <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p> <p>DNV considers the criteria listed to be aligned with the Green classification of the following activities established in the SAT:</p> <ul style="list-style-type: none"> 1.10. Storage of hydrogen or its derivatives 4.4. Manufacture of hydrogen <p>Additionally, DNV notes that the MOF has committed to complying with the applicable cross-cutting criteria listed in Appendix N of the SAT, including carrying out a life cycle assessment to demonstrate compliance with the emissions intensity threshold.</p> <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p> <p>DNV considers the criteria listed to be aligned with the Green classification of the following activity established in the SAT:</p> <ul style="list-style-type: none"> 1.8. Transmission and distribution of renewable and low-carbon gases
Asset Type	Criteria															
	2022 (kgCO ₂ e/kgH ₂ *)	2030 (kgCO ₂ e/kgH ₂ *)	2040 (kgCO ₂ e/kgH ₂ *)	2050 (kgCO ₂ e/kgH ₂ *)												
Production of hydrogen	3	1.5	0.6	0												

³ For storage of hydrogen or its derivatives, one of the following would apply: construction of hydrogen storage facilities; conversion of existing underground gas storage facilities into storage facilities dedicated to hydrogen storage; or operation of hydrogen storage facilities.

⁴ In accordance with the requirements and criteria in Appendix N of the Singapore-Asia Taxonomy (December 2023).

	<ul style="list-style-type: none"> • Transmission and distribution of electricity, including for electricity imports, dedicated to renewable energy sources,⁵ subject to one of the following criteria: <ul style="list-style-type: none"> o Transmission and distribution infrastructure dedicated to a direct connection or an expansion of connection between power plants with lifecycle emission intensity less than 100gCO₂e/kWh; or o Transmission and distribution infrastructure dedicated to an inter-country/region direct or grid connection to access existing or new power plants with lifecycle emission intensity less than 100gCO₂e/kWh; or o Transmission and distribution infrastructure that is on a decarbonisation trajectory where at least 67% of the newly connected generation capacity in the system is below the emission threshold value of 100gCO₂e/kWh measured on a Product Carbon Footprint ("PCF") basis, over a rolling five-year period; or the average system grid emissions factor is below the threshold value of 100gCO₂e/kWh measured on a PCF basis, over a rolling five-year average period. 	<p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p> <p>DNV considers the criteria listed to be aligned with the Green classification of the following activity established in the SAT:</p> <ul style="list-style-type: none"> • 1.7. Transmission and distribution of electricity <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
	<ul style="list-style-type: none"> • R&D and test-bedding for clean & renewable energy technologies. 	<p>R&D activities are considered supporting and enabling activities that is crucial to the development of renewable energy as well as contributing positively to the environment.</p> <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
Energy Efficiency	<ul style="list-style-type: none"> • Energy efficiency programmes for the commercial, public and industrial sectors, including district cooling or heating fed primarily by renewable energy, production of heat or cool from waste heat and smart grids. 	<p>DNV considers the criteria listed to be aligned with the Green classification of the following activities established in the SAT:</p> <ul style="list-style-type: none"> • 1.13. District heating and cooling system • 1.14. Production of heat or cool from waste heat

⁵ All enabling ICT systems and smart management systems and those required for the procurement of electricity that meet the green thresholds are eligible.

	<ul style="list-style-type: none"> Energy storage as may be necessitated by the deployment of low-carbon energy sources, including to mitigate the risk of electricity import disruption. Energy storage systems⁶ include, but are not limited to mechanical, thermal, pumped hydropower, and electrochemical. 	<p>All activities relating to district heating and cooling systems as well as the production of heat or cool from waste heat are automatically considered green.</p> <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p> <p>DNV considers the criteria listed to be aligned with the Green classification of the following activity established in the SAT:</p> <ul style="list-style-type: none"> 1.9. Storage of electricity <p>DNV notes that the activity includes, but is not limited to mechanical, thermal, pump hydropower and electrochemical systems. If the activity includes chemical energy storage, the MOF has stated that they will commit to complying with the criteria for manufacturing of the corresponding chemicals, as established in the SAT.</p> <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
	<ul style="list-style-type: none"> R&D for new energy efficiency technologies. 	<p>R&D activities are considered supporting and enabling activities that is crucial to the development of energy efficiency as well as contributing positively to the environment.</p> <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
Green Buildings	<ul style="list-style-type: none"> Buildings that meet the prevailing Building and Construction 	<p>DNV considers the criteria listed to be aligned with the Green classification of the following activities established in the SAT:</p> <ul style="list-style-type: none"> 3.1. Construction of new buildings 3.3. Renovation of existing buildings

⁶ Where the activity includes chemical energy storage, the medium of storage complies with the criteria for manufacturing of the corresponding product specified in the Singapore-Asia Taxonomy (December 2023).

	<p>Authority's ("BCA") Green Mark certification⁷ through:</p> <ul style="list-style-type: none"> o New construction o Renovation of existing buildings o Acquisition of buildings⁸ <ul style="list-style-type: none"> • Data centres that comply with all of the following criteria: <ul style="list-style-type: none"> o New facilities⁹ must comply with BCA-IMDA Green Mark Scheme for Data Centres – Platinum rating;¹⁰ o Global warming potential ("GWP") of refrigerants used in the data centre cooling system must not exceed 675, or meet applicable Singapore standards or regulations,¹¹ whichever is lower. o Projects involving construction of new facilities must also comply with prevailing BCA Green Mark Certification. • Installation of renewable energy equipment, renewable energy charging stations and regulation devices or equipment within the two highest energy efficiency classes for equipment, as determined by relevant international labelling scheme or Singapore regulation. 	<ul style="list-style-type: none"> • 3.4. Acquisition or ownership of buildings <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p> <p>DNV considers the criteria listed to be aligned with the Green classification of the following activities established in the SAT:</p> <ul style="list-style-type: none"> • 3.1. Construction of new buildings • 7.1. Data processing, storage, transmission, and management <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p> <p>DNV considers the criteria listed to be aligned with the Green classification of the following activity established in the SAT:</p> <ul style="list-style-type: none"> • 3.2. Installation, maintenance, repair of equipment <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
Clean Transportation	<ul style="list-style-type: none"> • Land transport infrastructure and mobility solutions with zero direct tailpipe CO₂ emission: <ul style="list-style-type: none"> o Electrified railway infrastructure, including rolling stock and other related assets and expenditures. 	<p>DNV considers the criteria listed to be aligned with the Green classification of the following activities established in the SAT:</p> <ul style="list-style-type: none"> • 2.1. Transport via railways

⁷ The latest certification standard as of this version of the Singapore Green Bond Framework is the BCA Green Mark 2021 ("GM: 2021"), which covers both full GM: 2021 and GM: 2021 In Operation schemes. New buildings and existing buildings with major retrofit are required to achieve energy efficiency improvement threshold of $\geq 50\%$ over 2005 baseline to attain Gold^{Plus}. More information about GM: 2021 can be found at www1.bca.gov.sg/buildsg/sustainability/green-mark-certification-scheme/green-mark-2021.

⁸ Where Green Mark certification is not available, the building must be within the top 15% of the national stock compared with relevant assets.

⁹ New facilities refer to new data centres, existing data centres undergoing major retrofit or increase in data capacity.

¹⁰ The implementation of the certification standards should be verified by an independent third-party and audited at least every three years. Re-certification has to be obtained every three years. PUE threshold should reference the latest version of the BCA-IMDA Green Mark Scheme for Data Centres – Platinum rating, and must be updated every 3 years. The latest certification standard as of this version of the Singapore Green Bond Framework is BCA-IMDA Green Mark for Data Centres (2024) ("GMDC: 2024"), which is applicable to all new applications from 1 March 2025 onwards and all projects from 1 June 2025 onwards (including GMDC: 2019 projects completing on or after this date). The PUE threshold for Platinum rating in GMDC: 2024 is 1.39 at 25% IT load. More information about GMDC standards can be found at www1.bca.gov.sg/buildsg/sustainability/green-mark-certification-scheme/green-mark-assessment-criteria-and-online-application.

¹¹ In Singapore, under the Environmental Protection and Management Act, the GWP of refrigerant used in electrically driven water-cooled chillers with cooling capacity of 1,055kW or more that is used for one or more purposes that include producing chilled water for air-conditioning must not exceed the prescribed GWP of 15. This includes water-cooled chillers that produce chilled water for the cooling of data server halls or rooms and office spaces in data centres.

	<ul style="list-style-type: none"> o Electric bus infrastructure, buses and other related assets and expenditures. o Electric vehicle (“EV”) charging infrastructure and solutions (e.g. charging points and swap stations, cabinets) and related assets including: <ul style="list-style-type: none"> • Electricity grid connection upgrades necessary to support the deployment and operation of infrastructure for charging EVs; and • All other solutions related to optimising and/or providing the necessary electrical capacity to support the deployment and operation of EV charging solutions. o Personal mobility and cycling infrastructure and solutions (e.g. cycling tracks, pedestrian zones, parking provisions for active mobility modes, electrical charging and hydrogen refuelling installations for personal mobility devices). • Other relevant infrastructure or assets that help to increase accessibility and connectivity of public transport and active mobility networks, which support zero direct emission mobility solutions, to increase its usage and ultimately reduce reliance on private vehicle transportation and greenhouse gas emissions. 	<ul style="list-style-type: none"> • 2.3. Urban and suburban passenger land transport • 2.5. Low-carbon transport infrastructure <p>Land transport with zero direct tailpipe CO₂ emissions, infrastructure supporting electric vehicles and electrified railways, and personal mobility and cycle logistics are automatically considered green under the SAT.</p> <p>Infrastructure that promotes the use of public transport and reduces reliance on personal vehicles are also considered green under the SAT.</p> <p>In conclusion, DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
	<ul style="list-style-type: none"> • For water transport infrastructure, infrastructure to be within the scope of at least one of the following: <ul style="list-style-type: none"> o Electricity charging or hydrogen-based refuelling; or o Infrastructure dedicated to the provision of shore-side electrical power to vessels at berth; or o Infrastructure dedicated to the performance of the port’s own operations with zero direct tailpipe CO₂ emissions; or o Infrastructure and installations dedicated to transshipping freight between the modes: terminal infrastructure and superstructures for loading, unloading and transshipment of goods. • For sea and coastal water transport of passengers or freight (that is not dedicated to the transport of fossil fuels), vessel must comply with one of the following criteria: <ul style="list-style-type: none"> o Vessel has zero direct tailpipe CO₂ emissions, with an emphasis on tank-to-wake emissions and in line with the International Maritime Organization (“IMO”)’s guidelines on lifecycle analysis of fuels; or 	<p>DNV considers the criteria listed to be aligned with the Green classification of the following activities established in the SAT:</p> <ul style="list-style-type: none"> • 2.5. Low-carbon transport infrastructure • 2.6. Sea and coastal water transport • 2.7. Inland water transport <p>Infrastructure that supports low-carbon or zero-emission water transportation is considered green. The criteria listed for water transport is also aligned to the Green classification for the above-mentioned activities in the SAT.</p> <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>

	<ul style="list-style-type: none"> o Vessel derives 100% of the energy used onboard from fuels or other energy carriers which achieve at least 80% greenhouse gas emission savings compared to their fossil fuel equivalent on a tank-to-wake basis; or o Vessel complies with emission intensity thresholds (in Energy Efficiency Operational Index (“EEOI”)¹² and Annual Efficiency Ratio (“AER”)¹³)¹⁴ throughout its economic life. o If vessels are using biofuels, these must meet the Singapore-Asia Taxonomy’s Green criteria for biofuels (indicated in the Energy section) and be recognised by the IMO as relevant and eligible fuels/energy carriers used for propulsion and operation of ships taking into account the IMO’s Guidelines on the Lifecycle GHG Intensity of Marine Fuels. 	
	<ul style="list-style-type: none"> • For inland water transport of passengers or freight, vessel has zero direct tailpipe CO₂ emissions. • For airport and air transport infrastructure, infrastructure to be within the scope of at least one of the following: <ul style="list-style-type: none"> o Infrastructure dedicated to the provision of fixed electrical ground power and preconditioned air to stationary aircraft, as well as electrical charging and hydrogen refuelling for aircraft and ground handling vehicles and equipment at the airport; or o Infrastructure dedicated to support and enable zero emission aviation including electric charging points, electricity grid upgrades, hydrogen refuelling stations, resource circularity, renewable energy, optimise energy and systems efficiency to reduce emissions from the airport’s own operations; or o Air traffic management infrastructure or processes or activities dedicated to enable zero-emission aviation;¹⁵ or o Airport ground handling vehicles and equipment with zero direct tailpipe CO₂ emissions. 	<p>DNV considers the criteria listed to be aligned with the Green classification of the following activities established in the SAT:</p> <ul style="list-style-type: none"> • 2.2. Other passenger land transport • 2.5. Low-carbon transport infrastructure • 2.8. Air Transport <p>Infrastructure that supports low-carbon or zero-emission air transportation is considered green. The criteria listed for air transport also aligned to the Green classification for the above-mentioned activities in the SAT.</p> <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>

¹² EEOI represents the CO₂ emitted per tonne-nautical mile for a voyage or specific time period. It can either be calculated from fuel consumption measurements and information on cargo carried and distance travelled or estimated using satellite tracking data and fleet technical specifications. EEOI therefore accounts for the real operating conditions of the vessel and their impact on fuel consumption (e.g., speed, weather, draught).

¹³ AER measures carbon emissions associated with transport work, but it uses a ship’s size (deadweight) as a proxy for cargo carried and assumes that the ship is fully loaded on all journeys.

¹⁴ The fleet type and size category median values in EEOI and AER for each decade starting from 2020 to 2050 are provided in Table 3 (Emissions intensity thresholds for shipping) of the Singapore-Asia Taxonomy.

¹⁵ Possible measures include but are not limited to those captured in Appendix M4 of the International Civil Aviation Organization’s (“ICAO”) Report on the Feasibility of a Long-term Aspirational Goal. These measures are also in line with ICAO’s Global Air Navigation Plan and the Aviation System Block Upgrades.

	<ul style="list-style-type: none"> For air transport of passengers or freight (that is not dedicated to the transport of fossil fuels), aircraft has zero exhaust CO₂ emission such as those powered by electricity or hydrogen meeting the relevant taxonomy criteria.¹⁶ R&D for low- and zero-emission transportation technologies. 	<p>R&D activities are considered supporting and enabling activities that is crucial to the development of low-carbon transportation as well as contributing positively to the environment.</p> <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
Sustainable Water and Wastewater Management	<ul style="list-style-type: none"> Water collection, treatment and supply systems: <ul style="list-style-type: none"> Distribution networks: Distribution loss is less than 10% for the segment of the network. Abstraction and treatment systems:¹⁷ Net average energy consumption¹⁸ is equal to or lower than 0.5 kWh/m³ of water produced for supply. 	<p>DNV considers the criteria listed to be aligned with the Green classification of the following activities established in the SAT:</p> <ul style="list-style-type: none"> 9.1. Construction, extension and operation of new water collection and treatment systems (abstraction and treatment systems) 9.2. Renewal of water collection, treatment and supply systems 9.3. Construction, extension and operation of water collection, treatment and supply systems (distribution networks) 9.4. Renewal of water collection, treatment and supply systems (distribution networks) <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
	<ul style="list-style-type: none"> Desalination systems: <ul style="list-style-type: none"> The average carbon intensity of energy used must be at or below 350gCO₂/m³ of potable water produced; or the 	<p>DNV considers the criteria listed to be aligned with the Green classification of the following activity established in the SAT:</p>

¹⁶ Green criteria in the Singapore-Asia Taxonomy is pending further development of credible, science-based, and 1.5°C-aligned pathway by ICAO, which will be reviewed for inclusion in the future.

¹⁷ The activity excludes energy consumption associated with pumping potable water from the water treatment plant to the distribution network or pumping used water from the Deep Tunnel Sewerage System to the wastewater treatment plant.

¹⁸ Net energy consumption may take into account measures that decrease energy consumption relating to source control (reduction of pollutant load inputs), and, as appropriate, onsite or offsite renewable energy generation. Based on the definitions in the Singapore-Asia Taxonomy, the green threshold for wastewater treatment plant capacities above 100,000 population equivalent ("p.e.") is 20 kWh/p.e. per annum. 1 p.e. is defined as 200L/day and 1 p.e. per annum is hence 73 m³ of used water treated. The ratio of 20 kWh to 73 m³ of used water treated is about 0.27 kWh/m³.

	<p>energy used must have carbon intensity less than 100gCO₂/kWh over the remaining lifetime of the asset.</p>	<ul style="list-style-type: none"> 9.5. Desalination systems <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
	<ul style="list-style-type: none"> Wastewater collection and treatment systems¹⁹: <ul style="list-style-type: none"> Net energy consumption is equal to or lower than 0.27 kWh/m³ ²⁰. 	<p>DNV considers the criteria listed to be aligned with the Green classification of the following activities established in the SAT:</p> <ul style="list-style-type: none"> 9.6. Construction, extension and operation of wastewater collection and treatment 9.7. Renewal of wastewater collection and treatment <p>The criteria listed is aligned to the threshold for water treatment plant capacity, of greater than 100,000 population equivalent.</p> <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
	<ul style="list-style-type: none"> NEWater²¹ treatment systems: <ul style="list-style-type: none"> Reduce specific energy consumption from baseline and conserve resources through recovery of treated wastewater to NEWater. 	<p>The NEWater process recycles treated used water into ultra-clean, high-grade reclaimed water, cushioning Singapore’s water supply against dry weather and moving Singapore towards water sustainability.</p> <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
<p>Pollution Prevention, Control and Circular Economy</p>	<ul style="list-style-type: none"> Collection and transportation of non-hazardous waste that is segregated at source or at an intermediate sorting facility that is intended for preparation for reuse or recycling operations, and waste collection containers, transfer stations, transportation vehicles and other related infrastructure. 	<p>DNV considers the criteria listed to be aligned with the Green classification of the following activity established in the SAT:</p> <ul style="list-style-type: none"> 8.1. Collection and transport of non-hazardous waste

¹⁹ The activity excludes energy consumption associated with pumping potable water from the water treatment plant to the distribution network or pumping used water from the Deep Tunnel Sewerage System to the wastewater treatment plant.

²⁰ Net energy consumption may take into account measures that decrease energy consumption relating to source control (reduction of pollutant load inputs), and, as appropriate, onsite or offsite renewable energy generation. Based on the definitions in the Singapore-Asia Taxonomy, the green threshold for wastewater treatment plant capacities above 100,000 population equivalent (“p.e.”) is 20 kWh/p.e. per annum. 1 p.e. is defined as 200L/day and 1 p.e. per annum is hence 73 m³ of used water treated. The ratio of 20 kWh to 73 m³ of used water treated is about 0.27 kWh/m³.

²¹ NEWater is Singapore’s local supply of high-grade reclaimed water that is produced from treated wastewater.

	<ul style="list-style-type: none"> • Processing and recycling of non-hazardous waste. <ul style="list-style-type: none"> • For biowaste treatment (composting of biowaste), the activity should comply with the following criteria: <ul style="list-style-type: none"> o The biowaste that is composted is source segregated and collected separately; and o Ensure efficient operations to avoid methane leakage (e.g. improper aeration or mixing); and o The compost produced is used as fertiliser or soil improver. • For biowaste treatment (anaerobic digestion), the activity should comply with the following criteria: <ul style="list-style-type: none"> o The biowaste that is used for anaerobic digestion is source segregated and collected separately; and o The produced biogas is used directly for the generation of electricity or heat or upgraded to bio-methane for injection in the grid or used as vehicle fuel or as feedstock in chemical industry; and o The produced digestate – <ul style="list-style-type: none"> • from biowaste (excluding sewage sludge) from single digestion facilities is used as fertiliser or soil improver, either directly or after composting or any other treatment as permitted by the applicable regulations; or • from anaerobic digestion of sewage sludge will be further processed and not disposed directly in landfills. Sludge incineration needs to have thermal efficiency of 70% and allow energy recovery, and after incineration this gets converted to ash which can be landfilled; or • from co-digestion facilities must be processed further to ensure resource recovery and cannot be disposed directly; and o A monitoring and contingency plan is in place to minimise methane leakage at the facility, and o Woody waste must be segregated before or after processing and sent to an eligible treatment plant (such as composting or biomass-based energy plants). 	<p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p> <p>DNV considers the criteria listed to be aligned with the Green classification of the following activities established in the SAT:</p> <ul style="list-style-type: none"> • 8.2. Biowaste treatment: composting of biowaste • 8.3. Biowaste treatment: anaerobic digestion <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
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<ul style="list-style-type: none"> Waste-to-energy (“WTE”) for residual or pre-sorted waste, with gross plant efficiency of at least 25%,²² and on-site or off-site bottom ash recovery with at least 75% recovery of metal from ash. R&D investments related to developing and testing new and emerging WTE technologies, including but not limited to pyrolysis and gasification that can produce alternate and sustainable fuels or chemicals. 	<ul style="list-style-type: none"> Material recovery of recyclables including waste collection and sorting (including pre-sorting), with recovery efficiency of at least 50%. The sorted waste may then be used as secondary raw materials that are suitable for the substitution of virgin materials in production processes. All facilities and equipment such as conveyor belts, compactors, pelletizers, air classifiers, magnetic belts, and other infrastructure required for material recovery are eligible. Reusing and recycling used EV batteries. 	<p>DNV considers the criteria listed to be aligned with the Green classification of the following activity established in the SAT:</p> <ul style="list-style-type: none"> 8.4. Waste to energy (incineration) <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
<ul style="list-style-type: none"> Food waste treatment that treats food waste into high-quality bio-pulp. 	<ul style="list-style-type: none"> R&D and innovation for low-carbon technologies, including those dedicated to carbon capture, transportation and storage including point source or direct air carbon capture technologies. 	<p>DNV considers the criteria listed to be aligned with the Green classification of the following activity established in the SAT:</p> <ul style="list-style-type: none"> 8.6. Material recovery facilities <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
<ul style="list-style-type: none"> Food waste treatment that treats food waste into high-quality bio-pulp. 	<ul style="list-style-type: none"> R&D and innovation for low-carbon technologies, including those dedicated to carbon capture, transportation and storage including point source or direct air carbon capture technologies. 	<p>DNV considers the criteria listed to be aligned with the Green classification of the following activity established in the SAT:</p> <ul style="list-style-type: none"> 4.7. Manufacture of batteries <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
<ul style="list-style-type: none"> Food waste treatment that treats food waste into high-quality bio-pulp. 	<ul style="list-style-type: none"> R&D and innovation for low-carbon technologies, including those dedicated to carbon capture, transportation and storage including point source or direct air carbon capture technologies. 	<p>Converting food waste into bio-pulp is an activity that reduce waste and promote circularity.</p> <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
<ul style="list-style-type: none"> Food waste treatment that treats food waste into high-quality bio-pulp. 	<ul style="list-style-type: none"> R&D and innovation for low-carbon technologies, including those dedicated to carbon capture, transportation and storage including point source or direct air carbon capture technologies. 	<p>DNV considers the criteria listed to be aligned with the Green classification of the following activity established in the SAT:</p> <ul style="list-style-type: none"> 6.4. Research, development, and innovation for CCS-related technologies, including direct air capture

²² Only solid waste collected from domestic and commercial and industrial waste sources (Type A & Type B) will be treated.

<p>Climate Change Adaptation</p>	<ul style="list-style-type: none"> • Information support systems, such as climate observation and early warning systems. • Climate change resilient infrastructure, flood defence systems that reduce the impact of climate change (e.g. flooding, sea level rise, stronger winds) and other risk mitigation programmes. • Reduce flood risks through stormwater management. • Technical consultancy and subsequent engineering activities and full lifecycle costs dedicated to climate change adaptation. • Modelling system, for simulating, evaluating, and forecasting flood risks. • R&D relating to coastal protection. • Nature-based solutions to support climate resilience such as coastal and inland flood resilience. • Measures to achieve heat resilience such as the use of cool paints and urban greenery to reduce heat absorption 	<p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p> <p>The activities and criteria listed in this eligible category supports climate change adaptation.</p> <p>These efforts include making infrastructure more resilient to the impacts of climate change and enhancing information support systems.</p> <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
<p>Biodiversity Conservation and Sustainable Management of Natural Resources and Land Use</p>	<ul style="list-style-type: none"> • For conservation, restoration, and maintenance of natural or pristine forests, the following activities would be eligible: <ul style="list-style-type: none"> o Land acquisition for the purpose of conservation, restoration and maintenance, and equipment and costs incurred by the activities must be powered by renewable energy or appear amongst the most energy efficient in Singapore, as certified by Singapore energy efficiency standards; o Use of organic and biofertilisers (only relevant for restoration or replanting of natural forest); o Use of physical and biocontrol²³ of pathogens, pests and weeds; o Nurseries²⁴ with the adoption of Integrated Farm Management²⁵ practices and the seeds and seedlings are sourced from native species in sustainably managed areas; o Adoption and maintenance of monitoring technology that enables the tracking of the forest extracts and its conservation status. 	<p>DNV considers the criteria listed to be aligned with the Green classification of the following activity established in the SAT:</p> <ul style="list-style-type: none"> • 5.3. Conservation, restoration and maintenance of natural/pristine forests <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>

²³ It is expected that all types of biological management required by the forestry project are guided by credible technical assistance.

²⁴ Refer to any facility designated to produce tree seedlings grown under favourable conditions until they are ready for planting.

²⁵ Refer to a site-specific farm business approach that uses the best of modern technology and traditional methods, as defined by Integrated Farm Management Association.

Biodiversity Conservation and Sustainable Management of Natural Resources and Land Use	<ul style="list-style-type: none"> Other activities related to the improvement in sustainability and liveability of the urban environment, such as habitat restoration, species recovery, terrestrial and aquatic biodiversity conservation (e.g. habitat enhancement, nature corridors and nature ways for ecological connectivity). 	<p>The activities and criteria listed in this eligible category relate to the conservation of terrestrial and aquatic biodiversity and the environmentally sustainable management of living natural resources and land use.</p> <p>DNV considers the proposed activity to be aligned with the criteria for eligible green projects under the Standards, Schemes & Principles.</p>
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Exclusion Criteria

The MOF has indicated in its Framework, that financing proceeds shall not be utilized towards the following activities:

- Fossil fuel, fossil fuel-based electric power generation projects, and energy efficiency improvement projects for fossil fuel-based electric power generation
- Vehicles powered through fossil fuel combustion
- Non-certified sustainable palm oil
- Nuclear energy
- Lethal defence goods
- Weaponry
- Gambling
- Alcoholic beverages
- Tobacco products
- Conflict minerals
- Activities or projects associated with child labour or forced labour

Do No Significant Harm (DNSH) Assessment

DNV notes that the SAT currently does not mandate DNSH assessments for activities classified and assessed under the SAT, in the early implementation phase of the SAT. As a result, DNV did not provide an opinion on DNSH for the listed/proposed activities.

- The MOF has stated that, *"It is intended that all Eligible Green Expenditures financed under this Framework shall not significantly undermine the Environmental Objectives stated in the Green Categories [of the SAT], and will adhere to internationally recognised principles and guidelines, as well as applicable national laws and regulations in Singapore."*

Schedule 2. Contributions to UN SDGs

Eligible Project Categories	UN SDGs	DNV Findings
Renewable Energy	SDG 7: Affordable and clean energy SDG 13: Climate action	DNV is of the opinion that the eligible project categories outlined in the Framework contributes to the achievement of the listed UN SDGs.
Energy Efficiency	SDG 11: Sustainable cities and communities SDG 12: Responsible consumption and production SDG 13: Climate action	
Green Buildings	SDG 7: Affordable and clean energy SDG 11: Sustainable cities and communities	
Clean Transportation	SDG 11: Sustainable cities and communities	
Sustainable Water and Wastewater Management	SDG 6: Clean water and sanitation SDG 11: Sustainable cities and communities SDG 12: Responsible consumption and production	
Pollution Prevention, Control and Circular Economy	SDG 11: Sustainable cities and communities SDG 12: Responsible consumption and production	
Climate Change Adaptation	SDG 13: Climate action	
Biodiversity Conservation and Sustainable Management of Natural Resources and Land Use	SDG 8: Decent work and economic growth SDG 14: Life below water SDG 15: Life on land	

Schedule 3. Eligibility Assessment Protocol (ICMA GBP)

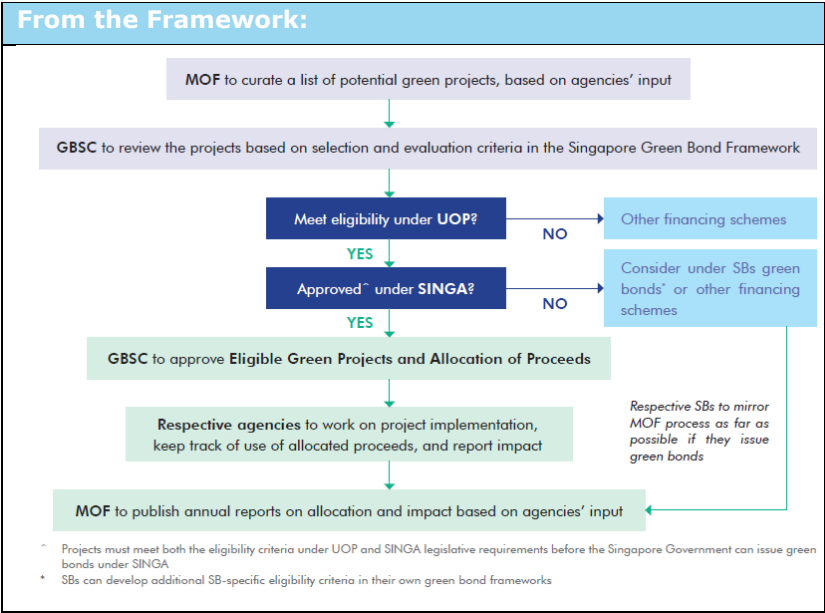
1. Use of Proceeds

Ref.	Criteria	Requirements	DNV Findings
1a	Type of Bond	<p>The Bond must fall in one of the following categories, as defined by the Standards, Schemes & Principles:</p> <ul style="list-style-type: none"> • Green Use of Proceeds Bond • Green Use of Proceeds Revenue Bond • Green Project Bond • Green Securitized Bond • Loan instrument made available for Green project (Green use of loan proceeds) 	<p>The Framework states that the proceeds of the issuance of the green bond must be utilised for eligible green expenditures which contribute to the environmental objectives established by the MOF in its Framework.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>From the Framework:</p> <p><i>Potential green expenditures are expenditures that fall under the eligible Green Categories defined in the section below, and may include:</i></p> <ul style="list-style-type: none"> (a) <i>Infrastructure capital expenditures;</i> (b) <i>Operational and maintenance expenditures for public infrastructure;</i> (c) <i>Expenditures on associated ancillary activities necessary for the construction, operation or maintenance of the infrastructure;</i> (d) <i>Intangible assets (research and innovation, human capital and organisation);</i> (e) <i>Tax expenditures (subsidies and tax exemptions); and</i> (f) <i>Capital transfers to public or private entities.</i> </div> <p>The Framework governs the issuance of green bonds by the Singapore Government under the Significant Infrastructure Government Loan Act 2021 ("SINGA"). The reviewed evidence confirms that the green bonds to be issued under the MOF's Framework, meets the criteria under the GBP, and DNV confirms this process to be well aligned with the Standards, Schemes & Principles.</p>
1b	Green Project Categories	<p>The cornerstones of Green Bonds are the utilization of the proceeds of the bonds which should be appropriately described in the legal documentation for the security.</p>	<p>Eligible project categories presented by the MOF in its Framework, are as follows:</p> <ul style="list-style-type: none"> • Renewable Energy • Energy Efficiency • Green Buildings • Clean Transportation • Sustainable Water and Wastewater Management

			<ul style="list-style-type: none"> • Pollution Prevention, Control and Circular Economy • Climate Change Adaptation • Biodiversity Conservation and Sustainable Management of Natural Resources and Land Use <p>The above-mentioned project categories meet the criteria to be considered as Eligible Green Projects in the GBP. DNV confirms this to be well aligned with the Standards, Schemes & Principles.</p>																
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.	<p>The eligible green project categories are mapped to the 5 Key Pillars under the Singapore Green Plan 2030.</p> <div data-bbox="1151 512 1973 799" style="border: 1px solid black; padding: 5px;"> <p>From the Framework:</p> <p><i>The Singapore Green Plan 2030 ("Green Plan") is a whole-of-nation movement to advance the national agenda on sustainable development. The Green Plan charts concrete sustainability targets, strengthening Singapore's commitments under the United Nations' ("UN") 2030 Sustainable Development Agenda and Paris Agreement, and positioning us to achieve our long-term net zero emissions target.</i></p> </div> <p>The eligible green project categories are mapped to the Green Plan Pillars as follows:</p> <table border="1" data-bbox="1151 890 1973 1378"> <thead> <tr> <th>Eligible Green Category</th> <th>Green Plan Pillar</th> </tr> </thead> <tbody> <tr> <td>Renewable Energy</td> <td> <ul style="list-style-type: none"> • Energy Reset • Green Economy </td> </tr> <tr> <td>Energy Efficiency</td> <td> <ul style="list-style-type: none"> • Energy Reset • Green Economy </td> </tr> <tr> <td>Green Buildings</td> <td> <ul style="list-style-type: none"> • Energy Reset </td> </tr> <tr> <td>Clean Transportation</td> <td> <ul style="list-style-type: none"> • Sustainable Living • Energy Reset </td> </tr> <tr> <td>Sustainable Water and Wastewater Management</td> <td> <ul style="list-style-type: none"> • Sustainable Living • Energy Reset </td> </tr> <tr> <td>Pollution Prevention, Control and Circular Economy</td> <td> <ul style="list-style-type: none"> • Sustainable Living • Resilient Future </td> </tr> <tr> <td>Climate Change Adaptation</td> <td> <ul style="list-style-type: none"> • Resilient Future </td> </tr> </tbody> </table>	Eligible Green Category	Green Plan Pillar	Renewable Energy	<ul style="list-style-type: none"> • Energy Reset • Green Economy 	Energy Efficiency	<ul style="list-style-type: none"> • Energy Reset • Green Economy 	Green Buildings	<ul style="list-style-type: none"> • Energy Reset 	Clean Transportation	<ul style="list-style-type: none"> • Sustainable Living • Energy Reset 	Sustainable Water and Wastewater Management	<ul style="list-style-type: none"> • Sustainable Living • Energy Reset 	Pollution Prevention, Control and Circular Economy	<ul style="list-style-type: none"> • Sustainable Living • Resilient Future 	Climate Change Adaptation	<ul style="list-style-type: none"> • Resilient Future
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1d	Refinancing Share	In the event that a proportion of the proceeds may be used for refinancing, it is recommended that issuers provide an estimate of the share of financing vs. re-financing, and where appropriate, also clarify which investments or project portfolios may be refinanced.	<p data-bbox="1039 630 2045 687">The MOF has provided details on the intended refinancing vs. financing share from the issuance of green bonds under its Framework.</p> <table border="1" data-bbox="1151 703 1973 1102"> <tr> <td data-bbox="1151 703 1973 756"> <p data-bbox="1160 710 1458 735">From the Framework:</p> </td> </tr> <tr> <td data-bbox="1151 756 1973 1102"> <p data-bbox="1160 762 1957 1096"><i>The Singapore Government may also issue green bonds under the SINGA to refinance maturing green bonds that were previously issued under the SINGA to finance past Eligible Green Expenditures. Green nationally significant infrastructure projects under the SINGA will have useful life of at least 50 years, while the tenor of green bonds issued will vary based on structural and cyclical drivers, including market absorption capacity for long-tenor bonds. Refinancing will be necessary when the tenors of the maturing green bonds are shorter than the useful lives of the green assets. In such cases, the Singapore Government will disclose this information at the time of refinancing.</i></p> </td> </tr> </table> <p data-bbox="1039 1139 2038 1225">The proposed management of net proceeds from the green bonds is confirmed by DNV to meet the criteria under the GBP and is aligned with the process for management of proceeds under the Standards, Schemes & Principles.</p>	<p data-bbox="1160 710 1458 735">From the Framework:</p>	<p data-bbox="1160 762 1957 1096"><i>The Singapore Government may also issue green bonds under the SINGA to refinance maturing green bonds that were previously issued under the SINGA to finance past Eligible Green Expenditures. Green nationally significant infrastructure projects under the SINGA will have useful life of at least 50 years, while the tenor of green bonds issued will vary based on structural and cyclical drivers, including market absorption capacity for long-tenor bonds. Refinancing will be necessary when the tenors of the maturing green bonds are shorter than the useful lives of the green assets. In such cases, the Singapore Government will disclose this information at the time of refinancing.</i></p>
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2. Process for Project Selection and Evaluation

Ref.	Criteria	Requirements	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"> The environmental objectives of the eligible Green Projects; The process by which the issuer determines how the projects fit within the eligible Green Projects categories; and Complementary information on processes by which the issuer identifies and manages perceived environmental and social risks associated with the relevant project(s). 	<p>The MOF has in place a process for which it will follow appropriate project selection and evaluation.</p> <div data-bbox="1151 387 1973 1002" data-label="Diagram">  <pre> graph TD A[MOF to curate a list of potential green projects, based on agencies' input] --> B[GBSC to review the projects based on selection and evaluation criteria in the Singapore Green Bond Framework] B --> C{Meet eligibility under UOP?} C -- NO --> D[Other financing schemes] C -- YES --> E{Approved under SINGA?} E -- NO --> F[Consider under SBs green bonds or other financing schemes] E -- YES --> G[GBSC to approve Eligible Green Projects and Allocation of Proceeds] G --> H[Respective agencies to work on project implementation, keep track of use of allocated proceeds, and report impact] H --> I[MOF to publish annual reports on allocation and impact based on agencies' input] F --> I J[Respective SBs to mirror MOF process as far as possible if they issue green bonds] -.-> I </pre> <p><small> [†] Projects must meet both the eligibility criteria under UOP and SINGA legislative requirements before the Singapore Government can issue green bonds under SINGA. [*] SBs can develop additional SB-specific eligibility criteria in their own green bond frameworks. </small></p> </div> <p>The MOF has established a Green Bond Steering Committee (“GBSC”) to oversee and approve the key decisions related to the green bonds issued under this Framework. The GBSC is chaired by the Second Minister for Finance and members comprised of senior government representatives across different ministries, statutory board and departments. The GBSC is supported by a working-level group (“GBSC Secretariat”). The responsibility of GBSC includes:</p> <ul style="list-style-type: none"> Design and maintenance of the Framework Selection and evaluation of Eligible Green Expenditures Management of green bond proceeds Reporting on allocation and impact of green bonds issued

			<p>In consultation with other public sector agencies, The GBSC secretariat will compile an initial list of potential green projects and expenditure for review by the GBSC based on the eligibility criteria listed in the Framework. The projects would also have to fulfil the additional legislative requirements under the SINGA, the Development Fund Act, the Financial Procedure Act and the Financial Regulations.</p> <p>The GBSC will endorse and approve the projects and expenditures as eligible under the Framework, if all GBSC members are in consensus that the project meets both the eligibility criteria in this Framework as well as the legislative requirements under the SINGA.</p> <p>The relevant public sector agencies have the responsibility of implementation and monitoring of the eligible green projects and expenditure and inform the GBSC of any potential non-compliance with the Framework or ESG controversies. The GBSC will then review and may remove the project from the eligible projects and expenditure list.</p> <p>DNV confirms this process for project selection and evaluation to be well aligned with the Standards, Schemes & Principles.</p>
<p>2b</p>	<p>Issuer’s Environmental and Governance Framework</p>	<p>Issuers are also encouraged to:</p> <ul style="list-style-type: none"> • Position the relevant information within the context of the issuer’s overarching objectives, strategy, policy and/or processes relating to environmental sustainability. • Provide information, if relevant, on the alignment of projects with official or market-based taxonomies, related eligibility criteria • Have a process in place to identify mitigants to known material risks of negative environmental and/or social impacts from the relevant project(s). 	<p>Singapore has made strong commitments to sustainable development and combating climate change. The Singapore Green Plan 2030 was launched in 2021 and is a countrywide movement to advance the national agenda on sustainable development which brought together sustainability efforts across many sectors. Singapore aims to achieve net zero emissions by 2050 and will accelerate low-carbon transition for the industry, economy and society through 4 key thrusts. This transition will also be enabled by a broad-based carbon tax.</p> <p>As an international financial hub, Singapore is well-placed to support a more sustainable economy and catalyse Asia’s net zero transition. The Singapore Government is committed to supporting the growth of Singapore’s sustainable finance market, with a planned issuance of up to SGD 35 billion of public sector bonds by 2030.</p> <p>DNV confirms that MOF’s environmental, social, and governance (ESG) strategies and grouping of projects with eligibility criteria, are well aligned with the Standards, Schemes & Principles.</p>

3. Management of Proceeds

Ref.	Criteria	Requirements	DNV Findings
3a	Tracking Procedure	<ul style="list-style-type: none"> (Bond) 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. 	<p>The Framework explains the tracking procedure for the net proceeds of the Green Bonds.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>From the Framework:</p> <p><i>The net proceeds of the green bonds will be transferred to the Singapore Government's separate cash account maintained with MAS, which is ring-fenced for Eligible Green Expenditures. MOF will maintain an allocation register ("Green Register") to record the allocations against Eligible Green Expenditures. For each green bond issued, the Green Register will contain information including the date of issuance, principal amount of proceeds, the International Securities Identification Number and date of maturity.</i></p> </div> <p>DNV confirms that the Framework outlines processes to track proceeds and allocations to the nominated projects, that are well aligned with the Standards, Schemes & Principles.</p>
3b	Tracking Procedure	So long as the Green Bonds are outstanding, the balance of the tracked proceeds should be periodically reduced by amounts matching eligible green investments made during that period.	<p>The Singapore Government will take a portfolio approach of net proceeds from the green bonds.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>From the Framework:</p> <p><i>The Singapore Government will allocate the net proceeds²⁶ to Eligible Green Expenditures in full within 2 years.</i></p> </div> <p>Additionally, it is stated that the net proceeds will only be allocated to expenditures incurred for the green categories that occurred no earlier than 2 years prior to the date of issuance, and no later than 2 years from the date of issuance. The Framework also states that at least 50% of the net proceeds will be allocated to current and future expenditures.</p>

²⁶ For green bonds issued by the Singapore Government under the SINGA, net proceeds refer to the amount equivalent to the face value of the bonds.

			<p>From the Framework:</p> <p><i>In the event where the portfolio of Eligible Green Expenditures is smaller than the net green bond proceeds outstanding due to unforeseen circumstances (e.g. construction delays) or where a financed Eligible Green Expenditure no longer complies with this Framework (e.g. following divestment, postponement, cancellation, non-compliance with eligibility criteria or potential ESG controversies), the Singapore Government will use its best endeavours to allocate the specific proceeds to other Eligible Green Expenditures as soon as reasonably practicable.</i></p> <p>DNV confirms that the Framework outlines processes to track proceeds and allocations to the nominated projects, that are aligned with the Standards, Schemes & Principles.</p>
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.	<p>The Framework explains the intended types of temporary investment instruments for the balance of unallocated proceeds.</p> <p>From the Framework:</p> <p><i>Any unallocated proceeds will be held in cash or invested in other short-term liquidity instruments. The Singapore Government does not plan to invest such unallocated proceeds in activities that are on the exclusion list set out in Section 2.1.1.</i></p> <p>DNV confirms that the Framework outlines instruments to which unallocated proceeds will be invested, that are well aligned with the Standards, Schemes & Principles.</p>



4. Reporting

Ref.	Criteria	Requirements	DNV Findings
4a	Periodical Reporting	<ul style="list-style-type: none"> • Issuers should make, and keep, readily available up to date information on the use of proceeds to be renewed annually until full allocation, and on a timely basis in case of material developments. • The annual report should include a list of the projects to which Green Bond proceeds have been allocated, as well as a brief description of the projects, the amounts allocated, and their expected impact. • Where confidentiality agreements, competitive considerations, or a large number of underlying projects limit the amount of detail that can be made available, the GBP recommend that information is presented in generic terms or on an aggregated portfolio basis (e.g. percentage allocated to certain project categories). 	<p>The MOF will provide timely and transparent disclosure on the use of proceeds of green bonds issued under the Framework, until the full allocation (and subsequently on needs basis).</p> <p>The report will consist of both allocation and impact reporting and will be published on the Singapore Government’s website: www.go.gov.sg/greenbonds</p> <p>For allocation reporting, the MOF will report on the following information.</p> <ul style="list-style-type: none"> • The total amount of green bonds outstanding • Breakdown of allocation by Eligible Green Expenditure sub-categories • List of Eligible Green Expenditures with descriptions and the amount that has been allocated • Share of allocation of proceeds for refinancing versus financing of Eligible Green Expenditures, and percentage of co-financing if applicable • The remaining balance of proceeds yet to be allocated at the end of the reporting period, with confirmation that the temporarily unallocated proceeds were held as cash or invested in other short-term liquidity instruments <p>The MOF will also prepare an impact report, which will be aligned to the <i>ICMA Handbook – Harmonised Framework for Impact Reporting</i> (June 2024), subjected to the availability of information. The Framework also depicts the way reporting would be done in case of co-financing.</p> <div data-bbox="1223 1067 2040 1272" style="border: 1px solid black; padding: 5px;"> <p>From the Framework:</p> <p><i>In case of co-financing, MOF will aim to report on the pro rata share of the overall impact or provide the share of financing from the green bond proceeds as a percentage of total project financing if the overall impact is being reported.</i></p> </div> <p>DNV confirms that the proposed reporting criteria is consistent with the criteria set out in the Standards, Schemes & Principles.</p>

Schedule 4. Eligibility Assessment Protocol (ASEAN GBS)

Summary criteria for assertions of compliance with the ASEAN Green Bond Standards 2018 and compliance conclusion.

The criteria against which the Singapore Green Bond Framework has been reviewed prior to inclusion in the Bond, are grouped under the requirements as detailed within the ASEAN Green Bond Standards 2018.

3.0: Criteria for ASEAN Green Bonds

Criteria	Requirements	Demonstrated Compliance
3.1	(i) Must be an ASEAN Issuer, or; (ii) In the case of a Non-ASEAN Issuer, the eligible Green and Social Projects must be located in any of the ASEAN countries.	The issuer is the Government of Singapore, an ASEAN Member State.
3.2	ASEAN Green Bonds issuances must be originated from any of the ASEAN member countries.	The bonds are to be originated from Singapore, an ASEAN Member State.

4.0: Guidance for the Four Components of the GBP

4.1 Use of Proceeds

Criteria	Requirements	Demonstrated Compliance
4.1.1	The utilisation of proceeds from the ASEAN Sustainable Bonds must be described in the documentation for issuance of the ASEAN Sustainable Bonds.	The MOF has set out the criteria for its Use of Proceeds in its Singapore Green Bond Framework. Refer to Schedule 3 for further details.
4.1.2	In relation to 4.1.1, the Issuer must disclose the following information: (i) The categories of eligible Green Projects to which the ASEAN Green Bonds proceeds will be allocated; and/or (ii) The information on specific Green Projects in the case where the Issuer has identified the specific Green Projects to which the ASEAN Green Bonds proceeds will be allocated.	(i) The MOF has set out the Eligible Green Project categories in the Use of Proceeds section of the Framework. (ii) The MOF has detailed the criteria for the specific green project types which qualify as 'Eligible Projects' in its Green Bond Framework.

4.1.3	All designated Green and Social Projects must provide clear environmental and social benefits, which will be assessed and, where feasible, quantified by the Issuer.	As per Clause 1c in Schedule 3, these project types would present clear and demonstrated environmental benefits.
4.1.4	In the event that all or a proportion of the proceeds are or may be used for refinancing, it is recommended that Issuers provide an estimate of the share of financing and refinancing, and where appropriate, also clarify which investments or project portfolios may be refinanced and, to the extent relevant, the expected look-back period for refinanced Green and Social Projects.	As per Clause 1d in Schedule 3, the MOF have clarified the type of investment that may be refinanced in the Framework.
4.1.5	Green Bond Categories	Eligible project categories presented by MOF are as follows: <ul style="list-style-type: none"> • Renewable Energy • Energy Efficiency • Green Buildings • Clean Transportation • Sustainable Water and Wastewater Management • Pollution Prevention, Control and Circular Economy • Climate Change Adaptation • Biodiversity Conservation and Sustainable Management of Natural Resources and Land Use
4.1.6	For clarification purposes, fossil fuel power generation projects are excluded from the ASEAN GBS.	Fossil fuel, fossil fuel electric power generation projects, and energy efficiency improvement projects for fossil fuel-based electric power generation are excluded from the list of Eligible Green Project categories.

4.2 Process for Project Evaluation and Selection

Criteria	Requirements	Demonstrated Compliance
4.2.1	The Issuer of ASEAN Green Bonds must clearly communicate to investors– (i) the environmental objectives; (ii) the process by which the Issuer determines how the projects fit within the eligible Green Projects categories identified above; and	The MOF has communicated through their Framework: (i) the environmental objectives of the Singapore Green Bond Framework; (ii) the process for project evaluation and selection is fully and clearly described in the Framework; and

	(iii) the related eligibility criteria, including, if applicable, exclusion criteria or any other process applied to identify and manage potentially material environmental risks associated with the Green Projects.	(iii) Eligibility criteria has been set out in sections of “Use of Proceeds” and “Process for Project Selection and Evaluation” of the Singapore Green Bond Framework.
4.2.2	The Issuer must establish the process for project evaluation and selection prior to the issuance of the ASEAN Green Bonds and disclose the same to investors in the documentation for the issuance of the ASEAN Green Bonds.	As per Clause 2a in Schedule 3, the process for project evaluation and selection is fully and clearly described in the Framework prior to bond issuance.
4.2.3	Issuers are encouraged to position this information within the context of the Issuers’ overarching objectives, strategy, policy and/or processes relating to environmental sustainability. Issuers are also encouraged to disclose any green standards or certifications referenced in project selection.	As per Clause 2b in Schedule 3, the information presented in the Singapore Green Bond Framework are in the context of the Singapore Government’s sustainable development strategy and policies.
4.2.4	It is recommended that the Issuer’s process for project evaluation and selection be supported by an external review	MOF will engage an independent provider to provide annual external verification on the proceed allocation, which will include the process for project evaluation and selection.
4.2.5	The Issuer must make the following publicly available on a website designated by the Issuer at the time of the issuance and throughout the tenure of ASEAN Green Bonds: (i) The process for project evaluation; (ii) The use of proceeds; and (iii) External review report on the process (if any).	The MOF will make publicly available on its website: (i) Singapore Green Bond Framework, which includes the process for project selection and evaluation; (ii) Use of Proceeds; and (iii) This external review report.

4.3 Management of Proceeds

Criteria	Requirements	Demonstrated Compliance
4.3.1	Prior to the issuance of the ASEAN Green Bonds, the Issuer must disclose to investors in the documentation for the issuance of the ASEAN Green Bonds the process for managing the net proceeds from the ASEAN Green Bonds.	The MOF has in its Framework, disclosed the process for managing the net proceeds from green bonds and has communicated its intention to document this process in the bond issuance documentation (where necessary) that is consistent with its Framework.
4.3.2	The net proceeds from the ASEAN Green Bonds, or an amount equal to these net proceeds, must be credited into a sub-account, moved to a sub-portfolio or otherwise tracked by the	The MOF has presented the tracking and monitoring of proceeds and allocation reporting in the Singapore Green Bond Framework.

	Issuer in an appropriate manner and attested to by a formal internal process linked to the Issuer’s lending and investment operations for Green Projects. The total amount deployed from the net proceeds for the eligible Green Projects need not occur simultaneously.	
4.3.3	As long as the ASEAN Green Bonds are outstanding, the balance of tracked proceeds must be periodically adjusted to match allocations to eligible Green and Social Projects made during that period.	The MOF has defined how proceeds are to be tracked and reported to match the allocation to eligible green projects.
4.3.4	The Issuer must also disclose to investors in the documentation for the issuance of the ASEAN Green Bonds the intended types of temporary placement for the balance of unallocated proceeds.	The MOF has disclosed that any unallocated proceeds will be held in cash or invested in other short-term liquidity instruments. The Singapore Government does not plan to invest such unallocated proceeds in activities that are on the exclusion list set out in the Framework.
4.3.5	It is recommended that the Issuer’s management of proceeds be supplemented by the use of an auditor, or other third party to verify the internal tracking method and the allocation of funds from the ASEAN Green Bonds proceeds.	DNV understands that the MOF will commit to externally verifying its allocation reporting, ensuring an independent third party will provide the verification for internal tracking of the proceeds. This is to be assessed Post-Issuance at the Annual Verification stage.
4.3.6	Where the Issuer appoints an auditor or other third party to verify the Issuer’s management of proceeds, the Issuer must make the report produced by the auditor or other third party publicly available on a website designated by the Issuer at the time of the issuance of the ASEAN Green Bonds.	Refer to Clause 4.3.5.

4.4 Reporting

Criteria	Requirements	Demonstrated Compliance
4.4.1	Issuers must report to investors at least on an annual basis and encouraged to make more frequent reporting on the use of proceeds until full allocation, and as necessary thereafter in the event of material developments. This should include a list of the projects to which the ASEAN Green Bonds proceeds have been allocated, as well as a brief description of the projects and the amounts allocated and their expected impact.	The MOF has confirmed that it will provide annual reporting, in the form of both allocation and impact reporting, until full allocation of the proceeds have been made, and subsequently on needs basis.
4.4.2	Where confidentiality agreements, competitive considerations, or a large number of underlying projects limit the amount of detail that can be made available, the Issuer may present the	The MOF reserves the right to manage confidentiality obligations with regards to green bond reporting.

	information in generic terms or on an aggregated portfolio basis.	
4.4.3	It is recommended that Issuers use qualitative performance indicators, and where feasible, quantitative performance measures and disclosure of the key underlying methodology and/or assumptions used in the quantitative determination	The MOF intends to provide qualitative, and where possible, quantitative impact reporting, with reference to the ICMA’s Handbook – Harmonised Framework for Impact Reporting, published in June 2024.
4.4.4	It is recommended that the Issuer’s annual reporting on the use of proceeds be supplemented by a confirmation of such use of proceeds by an external reviewer along with any relevant updates of the external review.	The MOF intends to engage an independent provider to provide annual external verification on the alignment of the allocation reporting with the Framework, until full allocation and in case of material changes.
4.4.5	The Issuer must provide to investors the annual reporting and the external review on the annual reporting, if any, through a website designated by the Issuer and/ or annual reports throughout the tenure of the ASEAN Sustainable Bonds	The annual report, covering both allocation and impact reporting, and the post-issuance verification report will be available publicly on the Singapore Government’s website at www.go.gov.sg/greenbonds .

5.0 External Review

Criteria	Requirements	Demonstrated Compliance
5.1	Issuers are recommended to appoint external review providers for their ASEAN Sustainable Bonds issuances	DNV has been appointed to provide a pre-issuance Second Party Opinion on the Singapore Green Bond Framework (dated January 2025).
5.2	The external review may be partial, covering only certain aspects of the Issuer’s ASEAN Sustainable Bonds framework or full, assessing alignment with all four core components as stated in the ASEAN GSSBS	The scope of this assurance service is for full alignment with the four components as stated in the ASEAN GBS.
5.3	The external review provider must have the relevant expertise and experience in the components of the ASEAN Sustainable Bonds which they are reviewing.	DNV is an Accredited Verifier under the Climate Bonds Standard and recognized under the ICMA for providing assurance services in line with international standards.
5.4	The external review provider must also disclose their relevant credentials and expertise, and the scope of the review conducted in the review report.	DNV’s credentials and expertise have been disclosed in this Opinion. The scope of this Assurance Service has been detailed in the “Scope and Objective” section.
5.5	There are a variety of ways for Issuers to obtain outside input into the formulation of their ASEAN Sustainable Bonds process and there are several levels and types of review that can be conducted.	This Assurance has been conducted as an independent external review and verification against the criteria set out in the ASEAN GBS.



5.6	Independent external reviews may vary in scope and may address an ASEAN Sustainable Bonds framework/programme, an individual ASEAN Sustainable Bonds issuance, the underlying assets and/or procedures.	This Assurance has been conducted as an independent external review and verification against the criteria set out in the ASEAN GBS.
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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 group. All rights reserved.