

Green Bond Framework

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About National Environment Agency

National Environment Agency (“NEA”) was established on 1 July 2002 by the National Environment Agency Act as a statutory board under the Ministry of Sustainability and Environment (“MSE”) (renamed from Ministry of Environment and Water Resources (“MEWR”) with effect from 27 Jul 2020). It is the public environment agency responsible for ensuring a clean and green environment, and the sustainable development of Singapore.

NEA’s five key sectors are public health, hawker centres, environmental management, energy and waste management and meteorological services. Its key roles are to maintain a high standard of public health, improve and sustain a clean environment, provide timely and reliable meteorological services and promote resource efficiency and conservation in collaboration with its partners and the community.

NEA's work is highly diverse and forms part of the Singapore Government's efforts to protect Singapore by mitigating the damaging effects of climate change, in order to sustain a quality living environment for present and future generations.

Our vision

A clean environment, towards a liveable and sustainable Singapore

Our mission

To ensure a clean and sustainable environment for Singapore, together with our partners and the community

Introduction

Singapore recognises that sustainable development is an integral part of building and sustaining a City in a Garden, with vibrant spaces to live, work and play, today and for our future generations. Maintaining the delicate balance between Singapore's economic, social, and environmental priorities requires a Whole-of-Nation approach with meaningful stakeholder collaborations. As Singapore's challenges become increasingly complex and cross-cutting, it is only through strategic partnerships, that Singapore can design innovative, sustainable solutions that will continue to shape the Singapore Story.

Singapore's approach to the United Nations 2030 Agenda for Sustainable Development and the Paris Agreement on Climate Change

The 2030 Agenda is a global development framework adopted by World Leaders at the United Nations ("UN") Sustainable Development Summit in September 2015. It comprises the [17 Sustainable Development Goals \("SDGs"\)](#) which apply to all countries in order to mobilise efforts to protect the planet and improve the lives and prospects of everyone, everywhere. Singapore's ambitions and contributions to the SDGs are disclosed in the latest publication of [Singapore's Voluntary National Review Report](#).

Building on strategies earlier reflected in the [National Climate Change Strategy 2012](#) and [Sustainable Singapore Blueprint 2015](#), Singapore launched its *Climate Action Plan* in July 2016. The first part "[A Climate-Resilient Singapore, for a Sustainable Future](#)" details Singapore's plans to adapt to the impacts of climate change, such as in coastal protection and infrastructure. The second part "[Take Action Today, for a Carbon-Efficient Singapore](#)" explains the key tenets of Singapore's approach to reduce carbon emissions up to 2030, which include: (i) improving energy efficiency; (ii) reducing carbon emissions from power generation; (iii) developing and demonstrating cutting-edge low-carbon technologies; and (iv) responding through the collective action of government agencies, individuals, businesses and the community. These steps outlined in the *Climate Action Plan* go towards fulfilling Singapore's climate pledge (i.e. [Singapore's Nationally Determined Contribution](#)) under the United Nations Framework Convention on Climate Change ("UNFCCC"). In July 2015, Singapore announced its target of reducing emissions intensity by 36 percent from 2005 levels by 2030, and stabilising emissions with the aim of peaking around 2030¹. In March 2020, the National Climate Change Secretariat published "[Charting Singapore's Low-Carbon and Climate Resilient Future](#)", mapping out a long-term low-emissions development strategy, that aspires to halve the nation's emissions from its peak to 33MtCO₂e by 2050, with a view to achieving net zero emissions as soon as viable in the second half of the century.

¹ Singapore's Government. (2015). Singapore's Intended Determined Contribution (INDC).

NEA's role in galvanising the shifts to sustainability

NEA strives to be a leading public agency in sustainable practices that benefit Singapore's environment, economy and society. Visionary leadership is important in galvanising action, with long-term planning, sound laws and policies, good infrastructure, proper governance, effective execution and diligent enforcement being the drivers of positive change. It recognises the important role it plays and endeavours to advance its strategies in order to fulfil the national sustainability vision, through the work it does.

Waste management in Singapore

Cities, as the engines of economic growth, are also the highest producers of waste and pollution. Present day Singapore is highly urbanised and industrialised, with limited land area and a high population density posing a major challenge. NEA plans, develops and administers Singapore's solid and hazardous waste management systems. Prudent management of our waste is crucial in ensuring public health, environmental sustainability and efficient use of scarce land resources. In 2003, about 4.7 million tonnes of solid waste was generated in Singapore². By 2018, this had increased to about 7.7 million tonnes³. Currently, 59% of the solid waste is recycled and 39%, which is incinerable, is managed through incineration which reduces the quantity by 90% and produces steam for running steam turbines for electricity generation⁴. The ash from the incineration plants and non-incineratable waste is transferred to Semakau Landfill for disposal. Today, Semakau Landfill receives more than 2,100 tonnes of waste – approximately 1,500 tonnes of incinerated ash and 600 tonnes of non-incinerable waste⁵. In 2019, Singapore set a national target to reduce the amount of waste sent to Semakau Landfill by 30 percent by 2030 in order to extend its lifespan⁶. To achieve this, the [Resource Sustainability Bill](#) was passed to regulate three waste streams, namely e-waste, food waste and packaging waste. Singapore is also actively studying means to utilise the incinerated ash.

Sustainable finance, a catalyst for climate action

For the nation and the world to achieve its sustainable development goals, large investments will need to be mobilised. Sustainable financing will play a key role in driving action to meet these goals, including mitigating and adapting to the adverse impacts of climate change. NEA aims to support the development of Singapore's green finance market with the issuance of green bonds, with the view to inspire others to follow suit and build critical mass to the market.

^{2,3} <https://www-nea.gov.sg-admin.cwp.sg/docs/default-source/our-services/waste-management/waste-stats---2003---2017e44f4011546a42c2b736db5193758791.pdf>

⁴ Solid Waste Management Infrastructure. Retrieved from <https://www-nea.gov.sg/our-services/waste-management/3r-programmes-and-resources/waste-management-infrastructure/solid-waste-management-infrastructure>.

⁵ The Straits Times. (2019). Singapore aims to send one-third less waste to Semakau Landfill by 2030: Amy Khor. <https://www.straitstimes.com/singapore/environment/spore-aims-to-send-one-third-less-waste-to-semakau-landfill-by-2030-amy-khor>.

⁶ Foreword. Towardszerowaste.sg. (2019). Retrieved from <https://www.towardszerowaste.sg/zero-waste-masterplan/foreword/>.

Green Bond Framework

The NEA Green Bond Framework (the “Framework”) aligns with the voluntary guidelines of the Green Bond Principles (“GBP”) formulated by the International Capital Market Association (“ICMA”), framed by four core components: (1) Use of Proceeds, (2) Process for Project Evaluation & Selection, (3) Management of Proceeds and (4) Reporting.

For the avoidance of doubt, the green bonds raised under this Framework may be in any currency, tenor or on such terms and conditions in accordance with the financing strategy of NEA and in consultation with the dealer banks and having regard to market expectation of the green bond investors.

1. Use of Proceeds

The net proceeds from each green bond issuance under this Framework will be allocated to finance or refinance new or existing Green Projects which meet the Eligibility Criteria outlined below, with a two-year lookback period for refinancing projects. Such projects are defined as “Eligible Green Projects” under this Framework.

Eligibility Criteria

Green Project Categories	Eligible Green Projects	Environmental Benefits	Contribution to the UN SDG Targets
Sustainable waste management	<ul style="list-style-type: none"> Design, construction, operation, management and capacity building, and/or upgrade of infrastructure, assets and/or plant relating to activities such as: Waste-to-energy with 26% gross waste-to-energy efficiency¹ Food Waste Treatment that treats food waste into high-quality bio-pulp Sludge Incineration with 70% thermal efficiency Material Recovery of Recyclables including waste collection and sorting (including pre-sorting) Waste Processing and Recycling (for non-hazardous waste only) 	<ul style="list-style-type: none"> Pollution Prevention and Control Energy/Emission-efficient Energy Recovery Resource Recovery Minimise Environmental Impact Optimise Land Use Minimise landfill 	 <p>11.6</p>  <p>12.3, 12.5</p>

¹ Only solid waste collected from domestic and commercial and industrial waste sources (Type A & Type B) will be treated. Refer to NEA’s [website](#) for more details.

For the avoidance of doubt, the Eligible Green Projects shall in all cases exclude fossil fuel-based electric power generation or improvement in the efficiency of fossil fuel-based electric power generation.

2. Process for Project Evaluation & Selection

Environmental Sustainability Objectives

The process for evaluating and selecting Eligible Green Projects aligns with NEA's key roles in providing a safe, healthy and conducive living environment, as well as building a resource efficient and sustainable Singapore.

Governance

NEA has established a governance process for project evaluation and selection as follows:

- **Green Bond Working Group** comprising representative members from various functions and is responsible for identifying and proposing Green Projects using the Eligibility Criteria. In addition, the Green Bond Working Group will be responsible for managing any future updates of the Framework, including any expansion of requirements of use of proceeds.
- **Green Bond Committee** comprising senior leadership of NEA and is responsible for reviewing and endorsing the Eligible Green Projects proposed by the Green Bond Working Group to ensure compliance with the Framework.
- **Board Finance Committee** comprising key members of the Board and will approve the Eligible Green Projects to be financed by green bond issuances drawn under the Framework.

Additionally, the Green Bond Committee will review the approved Eligible Green Projects annually until the maturity of the green bond and endorse the compliance of these projects according to the Eligibility Criteria set out in the Framework.

Risk Management

NEA adopts its Enterprise Risk Management ("ERM") Framework for its activities to manage risks and opportunities, including those of Environment, Social and Governance ("ESG"), in a structured, integrated and effective manner. The ERM programme enables NEA to proactively identify, assess, prioritise, treat and monitor key strategic and operational risks on an ongoing basis. Any potential negative environmental and social impacts of the selected Eligible Green Projects will be carefully assessed and managed under the ERM programme.

More information on the ERM programme can be obtained from NEA's Annual Sustainability Report.

3. Management of Proceeds

The net proceeds of green bonds will be allocated in full to Eligible Green Projects, which are selected in accordance with the Eligibility Criteria and using the evaluation and selection process as described above.

NEA's Finance team will track the proceeds of the green bonds in a segregated bank account and periodically adjust the balance of the tracked proceeds to match allocations to the Eligible Green Projects.

Where the allocation of the proceeds is pending, such amounts will be held in a portfolio of liquid instruments including cash and cash equivalents, in accordance with NEA's treasury policy. Any unallocated amount will not be used to directly finance projects or activities, or knowingly invested in any securities, which may contribute to any carbon intensive activities or facilities. NEA expects to allocate the net green bond proceeds to Eligible Green Projects within 24 months from the date of issuance.

Where the Eligible Green Projects portfolio is smaller than the net green bond proceeds outstanding or where a financed Eligible Green Project no longer complies with this Green Bond Framework (e.g. following divestment, postponement or cancellation), NEA will use its best endeavours to allocate the proceeds to Eligible Green Projects as soon as reasonably practicable.

4. Reporting

NEA will provide information on the allocation of proceeds towards the Eligible Green Projects and environmental impact of those projects on an annual basis.

In connection, NEA will engage an external auditor to provide independent assurance on our reporting of the allocation and impact reports in accordance with the Framework, until full allocation and in case of material changes.

Allocation Report

Until the maturity of the green bonds, NEA will provide information on:

- List of Eligible Green Projects with descriptions and allocated amount;
- Information about the share of green bond proceeds between new Eligible Project and re-financing, if applicable;
- Percentage of co-financing for projects financed by green bond proceeds and other financing sources, if any;
- Remaining balance of proceeds yet to be allocated at the end of the reporting period; and
- Types of temporary unallocated funds placements and uses.

Where confidentiality limits the amount of detail that can be made available, NEA may choose to present the information in generic terms.

Impact Report

To the extent relevant and practicable, NEA will provide information on qualitative and quantitative environmental impact indicators resulting from each Eligible Green Projects, including any material developments or ESG controversies. Example list of indicators are outlined in Table 1 below:

Environmental aspect	Example performance indicators
Energy Recovery	<ul style="list-style-type: none"> • Overall Gross Power Efficiency for WTE (%)¹ • Energy recovery from waste and sludge incineration (MWh per annum or MJ per annum)
Resource Recovery	<ul style="list-style-type: none"> • Incineration Bottom Ash (IBA) sent to off-site facility for recovery of Ferrous metals and Non-Ferrous metals (tonnes per annum) • Recovery of Recyclables consisting of Ferrous metals, Non-Ferrous metals, Plastics and Paper (tonnes per annum)
Reduced Environmental Impact	<ul style="list-style-type: none"> • Compliance with Singapore's air emissions requirements as per statutory requirements • Reduction in Carbon Emission (tonnes of CO2 equivalent per annum)
Landfill avoidance	<ul style="list-style-type: none"> • Bottom Ash Recovery (tonnes per annum) • Diversion of IBA from landfill (tonnes per annum)

¹ Figure of Overall Gross Power Efficiency is subject to change based on calorific value of waste, actual load during operations and power degradation curve.

Any key underlying methodologies and assumptions used in the quantitative determination will be included in the impact report.

The Green Bond Committee will review and approve the allocation report and the impact report to be made available on NEA's website. The opinion of the external auditor will also be made available at NEA's website.

External Review

This Green Bond Framework has been reviewed by V.E who has issued an independent Second Party Opinion. The Second Party Opinion documents are made available at NEA's website.

Disclaimer

This Green Bond Framework contains certain forward-looking statements that reflect NEA's current views with respect to future events and its financial and operational performance. These forward-looking statements are based on NEA's current expectations and projections about future events. Because these forward-looking statements are subject to risks and uncertainties, actual future results or performance may differ materially from those expressed in or implied by these statements due to any number of different factors, many of which are beyond the ability of NEA to control or estimate precisely, including changes in the regulatory environment, future market developments, fluctuations in price and other risks. You are cautioned not to place undue reliance on the forward-looking statements contained herein, which are made only as of the date of this document. This Green Bond Framework does not constitute a recommendation regarding any securities of NEA. This Green Bond Framework is not, does not contain and may not be intended as an offer to sell or a solicitation of any offer to buy any securities issued by NEA. In particular, neither this document nor any other related material may be distributed or published in any jurisdiction in which it is unlawful to do so, except under circumstances that will result in compliance with any applicable laws or regulations. Persons into whose possession such documents may come must inform themselves about, and observe, any applicable restrictions on distribution.