

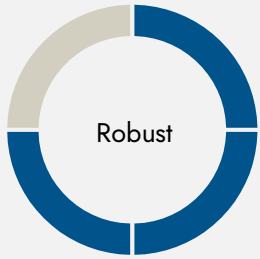
# SECOND PARTY OPINION

## on the sustainability of the National Environment Agency's Green Bond Framework

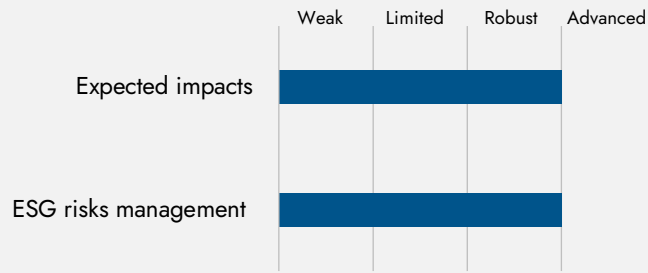
V.E is of the opinion that the National Environment Agency (NEA)'s Framework is aligned with the four core components of the Green Bond Principles 2018 ("GBP") and best practices identified by V.E.

### Framework

#### Contribution to Sustainability:



○ Advanced    ○ Limited  
○ Robust        ○ Weak



#### SDG Mapping

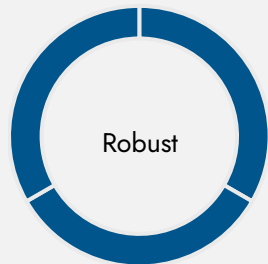


#### Characteristics of the Framework

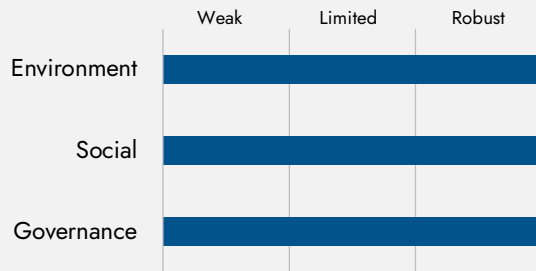
Green Project Category	⇒ Sustainable Waste Management
Project locations	Singapore
Existence of framework	Yes
Share of refinancing	No refinancing for the first issuance (unless required)
Look back period	A maximum of 24 months (in case of refinancing)

### Issuer

#### ESG Strategy as of April 2021



○ Weak    ○ Limited    ○ Robust



#### Controversies

Number of controversies	None
Frequency	NA
Severity	NA
Responsiveness	NA

#### Controversial Activities

The Issuer appears to not be involved in any of the 17 controversial activities screened under our methodology:

- |   |  |   |   |
|---|--|---|---|
| <input type="checkbox"/> Alcohol              | <input type="checkbox"/> Fossil fuels industry | <input type="checkbox"/> High interest rate lending | <input type="checkbox"/> Pornography                |
| <input type="checkbox"/> Animal welfare       | <input type="checkbox"/> Coal                  | <input type="checkbox"/> Human embryonic stem cells | <input type="checkbox"/> Reproductive medicine      |
| <input type="checkbox"/> Cannabis             | <input type="checkbox"/> Gambling              | <input type="checkbox"/> Military                   | <input type="checkbox"/> Unconventional oil and gas |
| <input type="checkbox"/> Chemicals of concern | <input type="checkbox"/> Genetic engineering   | <input type="checkbox"/> Nuclear power              | <input type="checkbox"/> Tobacco                    |
| <input type="checkbox"/> Civilian firearms    |  |   |   |

### Coherence

Coherent
Partially coherent
Not coherent

We are of the opinion that the Framework is coherent with NEA's strategic sustainability priorities and sector issues and that it contributes to achieving the Issuer's sustainability commitments.



## Keys findings

V.E is of the opinion that NEA's Framework is aligned with the four core components of the GBP and best practices identified by V.E.

### Use of Proceeds – aligned with GBP and best practices identified by V.E

- The Eligible Category is clearly defined. The Issuer has communicated the nature of the expenditures, location and eligibility criteria of Eligible Green Projects.
- The Environmental Objective is clearly defined, relevant for all the Eligible Green Projects and set in coherence with sustainability objectives defined in international standards.
- The Expected Environmental Benefits are clear and considered relevant, measurable, and will be quantified for all the Eligible Green Projects.
- The Issuer reports that there will be no refinancing for the first issuance (unless required). In addition, although not formalised in the Framework, the Issuer has committed to communicate the estimated share of refinancing at each issuance to investors. The look-back period for refinanced Eligible Green Projects will be equal or less than 24 months from the issuance date, in line with good market practices.

### Evaluation and Selection – aligned with GBP and best practices identified by V.E

- The process for Project Evaluation and Selection has been clearly defined by the Issuer and is considered structured. The roles and responsibilities are clear and include relevant internal expertise. The Process is publicly disclosed in the Framework.
- Eligibility criteria (selection and exclusion) for project selection have been clearly defined and detailed by the Issuer.
- The process applied to identify and manage potentially material E&S risks associated with the projects is publicly disclosed in NEA's Integrated Sustainability Report, in the herewith SPO and in the Framework. The Process is considered robust: it combines monitoring, identification and corrective measures for all the Eligible Green Projects (see detailed analysis on pages 16-19).

### Management of Proceeds - aligned with GBP and best practices identified by V.E

- The Process for the Management and Allocation of Proceeds is clearly defined and is publicly available in the Framework.
- The allocation period will be 24 months or less.
- Net proceeds of the Bonds will be placed in a segregated bank account and tracked by the Issuer in an appropriate manner and attested in a formal internal process.
- Information on the intended types of temporary placement for the balance of the unallocated net proceeds is publicly disclosed.
- The Issuer has committed that as long as the Bond is outstanding, the balance of the tracked net proceeds will be periodically adjusted to match allocations to Eligible Green Projects made during that period.
- The Issuer has provided information on the procedure that will be applied in case of project divestment or postponement and it has committed to reallocate divestment proceeds to projects that are compliant with the bond framework.

### Reporting - aligned with GBP and best practices identified by V.E

- The Issuer has committed to report on the Use of Proceeds annually, until full allocation and on a timely basis in case of material developments. The report will be publicly available until bond maturity.
- The reporting will cover relevant information related to the allocation of Bond proceeds and to the expected environmental benefits of the Eligible Green Projects, as well as any material developments or ESG controversies.
- The reporting methodology and assumptions used to report on environmental benefits of the Eligible Green Projects will be publicly disclosed.
- An external auditor will verify the allocation of funds, and the indicators to report on the environmental benefits of the Eligible Green Projects until full allocation and in case of material changes.

## Contact

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# SCOPE

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V.E was commissioned to provide an independent opinion (thereafter “Second Party Opinion” or “SPO”) on the sustainability credentials and management of the Green Bonds<sup>1</sup> (“Bonds”) to be issued by the National Environment Agency (“NEA” or the “Issuer”) in compliance with the Framework (the “Framework”) created to govern their issuance.

Our opinion is established according to V.E’s Environmental, Social and Governance (“ESG”) exclusive assessment methodology and to the voluntary guidelines of the latest version of the ICMA’s Green Bond Principles (“GBP”) - edited in June 2018.

Our opinion is built on the review of the following components:

- Framework: we assessed the Framework, including the coherence between the Framework and the Issuer’s environmental commitments, the Bonds’ potential contribution to sustainability and its alignment with the four core components of the GBP 2018.
- Issuer: we assessed the Issuer’s ESG strategy, its management of potential stakeholder-related ESG controversies and its involvement in controversial activities<sup>2</sup>.

Our sources of information are multichannel, combining data (i) gathered from public sources, press content providers and stakeholders, (ii) from V.E’s exclusive ESG rating database, and (iii) information provided from the Issuer, through documents and interviews conducted with the Issuer’s managers and stakeholders involved in the Bonds issuance, held via a telecommunications system.

We carried out our due diligence assessment from September 28<sup>th</sup>, 2020 to April 14<sup>th</sup>, 2021. We consider that we were provided with access to all the appropriate documents and interviewees we solicited. To this purpose we used our reasonable efforts to verify such data accuracy.

## Type of External Reviews supporting this Framework

<input checked="" type="checkbox"/>	Pre-issuance Second Party Opinion	<input checked="" type="checkbox"/>	Independent verification of impact reporting
<input checked="" type="checkbox"/>	Independent verification of funds allocation	<input type="checkbox"/>	Climate Bond Initiative Certification

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<sup>1</sup> The “Green Bond” is to be considered as the bond to be potentially issued, subject to the discretion of the Issuer. The name “Green Bond” has been decided by the Issuer: it does not imply any opinion from V.E.

<sup>2</sup> The 17 controversial activities screened by V.E are: Alcohol, Animal welfare, Cannabis, Chemicals of concern, Civilian firearms, Coal, Fossil Fuels industry, Unconventional oil and gas, Gambling, Genetic engineering, Human embryonic stem cells, High interest rate lending, Military, Nuclear Power, Pornography, Reproductive Medicine and Tobacco.

# COHERENCE

Coherent
Partially coherent
Not coherent

We are of the opinion that the Framework is coherent with NEA's strategic sustainability priorities and Singapore's key environmental issues and that it contributes to achieving the Issuer's sustainability commitments.

Companies operating waste management projects have a major role to play in climate change mitigation by limiting GHG emissions from wastewater treatment, waste incineration and landfilling by minimising energy use. Waste management activities must be handled carefully to avoid fires, flooding, accidental pollution or soil contamination. Meanwhile, waste recovery strategy is critical in mitigating environmental impacts and creating new business opportunities. In addition, management of by-products from waste or wastewater treatment (sludge, ashes, biogas, clinkers) is also crucial.

Singapore's current solid waste management consists of two main flows: 1) at source where the waste is generated, recyclables are sorted and retrieved for processing to conserve resources; 2) the remaining waste is collected and sent to waste-to-energy plants for incineration. Both the incineration ash and other non-incinerable wastes are transported to the landfill for final disposal.<sup>3</sup> In terms of waste recycling, Singapore is already ranked in the top 3 globally with a recycling rate of 61%, according to the World Bank.<sup>4</sup> According to the Sustainable Singapore Blueprint (2015), the government has committed to reach an overall recycling rate of 70% by 2030.<sup>5</sup> Currently, Singapore has at least four waste-to-energy (WTE) plants: Tuas, Senoko, Tuas South and Keppel Seghers Tuas Plant.<sup>6</sup> In 2019, Singapore announced its inaugural Zero Waste Masterplan, which sets a new waste reduction target to reduce the waste sent to Semakau Landfill each day by 30% by 2030, which will help to extend Semakau Landfill's lifespan beyond 2035.<sup>7</sup>

A Solid Waste Management Technology Roadmap has been developed by a consulting firm commissioned by NEA, which identified a list of shortlisted technologies covering different aspects of waste managements from waste collection, sorting & separation, upcycling, to thermal treatment.<sup>8</sup>

To meet Singapore's future waste management needs, NEA has announced the development of an Integrated Waste Management Facility (IWMF), which seeks to maximise both energy and resource recovery from solid waste. The IWMF will be constructed in phases with the first phase targeted for completion by 2024.<sup>9</sup> Moreover, the IWMF and the Tuas Water Reclamation Plant (TWRP), which is managed by the Public Utilities Board (PUB), will be co-located at the same Tuas View Basin site to form the Tuas Nexus.<sup>10</sup>

By creating a Framework to issue green bonds intended to finance or refinance Eligible Green Projects under the Sustainable Waste Management category, the Issuer coherently aligns with its sustainability strategy and commitments, and addresses important sustainability issues of the sector and country it serves.

<sup>3</sup> <https://www.nea.gov.sg/our-services/waste-management/overview>

<sup>4</sup> <https://datacatalog.worldbank.org/dataset/what-waste-global-database>

<sup>5</sup> <https://www.mewr.gov.sg/ssb>

<sup>6</sup> <https://www.nea.gov.sg/our-services/waste-management/3r-programmes-and-resources/waste-management-infrastructure/solid-waste-management-infrastructure>

<sup>7</sup> <https://www.towardszerowaste.gov.sg/zero-waste-masterplan/>

<sup>8</sup> <https://www.nccs.gov.sg/docs/default-source/default-document-library/solid-waste-management-technology-roadmap.pdf>

<sup>9</sup> <https://www.nea.gov.sg/docs/default-source/resource/iwfm.pdf>

<sup>10</sup> <https://www.nea.gov.sg/our-services/waste-management/3r-programmes-and-resources/waste-management-infrastructure/integrated-waste-management-facility>

# FRAMEWORK

The Issuer has described the main characteristics of the Bonds within a formalized Green Bond Framework which covers the four core components of the GBP 2018 (the last updated version was provided to V.E on April 14<sup>th</sup>, 2021). The Issuer has committed to make this document publicly accessible on its website<sup>11</sup>, in line with good market practices.

## Alignment with the Green Bond Principles

### Use of Proceeds



The net proceeds of the Bonds will exclusively finance or refinance, in part or in full, projects falling under one Green Project Category (“Eligible Category”), as indicated in Table 1.

- The Eligible Category is clearly defined. The Issuer has communicated the nature of the expenditures, location and eligibility criteria of Eligible Green Projects.
- The Environmental Objective is clearly defined, relevant for all the Eligible Green Projects and set in coherence with sustainability objectives defined in international standards.
- The Expected Environmental Benefits are clear and considered relevant, measurable, and will be quantified for all the Eligible Green Projects.
- The Issuer reports that there will be no refinancing for the first issuance (unless required). In addition, although not formalised in the Framework, the Issuer has committed to communicate the estimated share of refinancing at each issuance to investors. The look-back period for refinanced Eligible Green Projects will be equal or less than 24 months from the issuance date, in line with good market practices.

#### BEST PRACTICES

- ⇒ Content, eligibility and exclusion criteria are clear and in line with international standards for all project categories.
- ⇒ Relevant environmental benefits are identified and measurable for all project categories.
- ⇒ The look-back period for refinanced assets is equal or less than 24 months, in line with good market practices.

<sup>11</sup> <https://www.nea.gov.sg> (note: the exact web page has not been created yet)



Table 1. V.E’s analysis of Eligible Category, Sustainability Objectives and Expected Benefits as presented in the Issuer’s Framework

- Nature of expenditures: Design, construction, operation, management and capacity building, and/or upgrade of infrastructure, assets and/or plant
- Location of Eligible Green Projects: Singapore.

ELIGIBLE CATEGORY	ELIGIBLE GREEN PROJECT / SUB-CATEGORIES	SUSTAINABILITY OBJECTIVES AND BENEFITS	V.E’S ANALYSIS
Sustainable waste management	Waste-to-energy with 26% gross waste-to-energy efficiency <sup>12</sup>	<p><u>Pollution Prevention and Control</u></p> <p>Energy/emission- efficient energy recovery</p> <p>Minimise landfill</p>	<p>The definition of the Eligible Category is clear:</p> <ul style="list-style-type: none"> <li>- <u>Waste-to-energy</u>: the Issuer has committed to a gross energy recovery efficiency of 26%. This is higher than the minimum efficiency of waste-to-energy facility (i.e. 25%) set by the Climate Bonds Initiative (CBI)’s Waste Management Criteria<sup>13</sup>, which is deemed as one of the relevant international standards/best practice guidelines.</li> </ul> <p>The Issuer reports that during normal operations of the whole waste management system, waste-to-energy facilities will use solid waste collected from domestic, commercial and industrial waste sources (Class A and Class B as defined under the Environmental Public Health (General Waste Collection) Regulation). The solid waste will not include any hazardous or non-incinerable waste. According to NEA’s waste classification:<sup>14</sup></p> <ul style="list-style-type: none"> <li>o Class A refers to “Inorganic waste (e.g. construction and renovation debris, tree trunks and branches, furniture disposal, electrical appliances, wooden crates, pallets and other bulky items for disposal) and Recyclable waste (excluding food waste)”;</li> <li>o Class B refers to “Organic waste (e.g. food and other putrefiable waste from domestic, trade and industrial premises, markets and food centres (excluding used cooking oil))”.</li> </ul> <p>The Issuer also reports that relevant measures have been put in place to avoid recyclable waste ending up in the waste-to-energy projects. For instance:</p> <ul style="list-style-type: none"> <li>• NEA has developed a range of initiatives and programmes to curb waste growth and transition into a circular economy that reuses resources endlessly in accordance with Singapore’s Zero Waste Master Plan (ZWMP).<sup>15</sup> NEA has reported that currently nearly</li> </ul>

<sup>12</sup> 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.

<sup>13</sup> <https://www.climatebonds.net/files/files/standards/Waste%20Management/Crit%20Waste%20Management%20Criteria.pdf>

<sup>14</sup> <https://www.nea.gov.sg/our-services/waste-management/waste-collection-systems>

<sup>15</sup> [https://www.towardszerowaste.gov.sg/images/zero\\_waste\\_masterplan.pdf](https://www.towardszerowaste.gov.sg/images/zero_waste_masterplan.pdf)



			<p>100% recycling rate for construction and demolition waste and metals has been achieved.<sup>16</sup> Under ZWMP, food waste, e-waste, and packaging waste (including plastics) have been designated as the three priority waste streams for closing the resource loop. The proper management of these three priority waste streams will be supported by the Resource Sustainability Act, a legislation introduced in 2019.<sup>17</sup> Relevant measures under the legislation include the Extended Producer Responsibility (EPR) framework on producers and retailers of electrical and electronic equipment (EEE), which will be implemented by NEA in Singapore by 1 July 2021.</p> <ul style="list-style-type: none"> <li>• NEA has also put in place the National Recycling Programme<sup>18</sup> to collect paper, plastic, glass and metal recyclables for sorting. Recyclables collected will be sent to Material Recovery Facilities (MRFs) for further processing as part of the commitment to incinerate waste that cannot be recycled or reused for energy recovery.</li> <li>• In addition, NEA, in partnership with the community, businesses and organisations, has come up with programmes and campaigns to rally the ground and raise awareness on waste issues. Some of these efforts include the “One Less Plastic”, “Say Yes to Waste Less” campaigns.</li> </ul> <p>According to the Issuer, all incineration bottom ash (IBA) generated from the waste-to-energy facilities are currently sent to a metal recovery facility located at Tuas Marine Transfer Station. At the facility, 90% of the ferrous metals and more than three quarters of the non-ferrous metals are recovered from IBA using special magnets, micro grain eddy current separators and multi-stage sieving techniques.</p>
	<p>Food Waste Treatment that treats food waste into high quality bio-pulp</p>	<p><u>Pollution Prevention and Control</u> Minimise environmental impact Minimise landfill</p>	<p>- <u>Food Waste Treatment</u>: the category has clearly specified the eligible type of treatment/technologies to be those that produce “high quality bio-pulp”.</p>

<sup>16</sup> <https://www.nea.gov.sg/our-services/waste-management/waste-statistics-and-overall-recycling>

<sup>17</sup> <https://sso.agc.gov.sg/Acts-Supp/29-2019>

<sup>18</sup> <https://www.nea.gov.sg/our-services/waste-management/3r-programmes-and-resources/national-recycling-programme>



		<p>The Issuer reports that high quality bio-pulp will be produced by removing contaminants and inorganics from the source-segregated food waste collected and there is no anaerobic/aerobic digestion; as a result, no methane would be emitted.</p> <p>The treated high-quality bio-pulp slurry will be transferred to the adjacent Tuas Water Reclamation Plant (TWRP) where it will be co-digested with the sewage sludge generated by the TWRP sewage treatment processes. Co-digestion at the TWRP will occur in large mesophilic anaerobic digesters. The biogas generated at the TWRP containing largely Methane will be transferred to IWMF's WTE to be burnt in the Biogas Superheaters to boost the steam temperature and increase electricity output. The use of the Biogas in this way will be the most efficient means of energy conversion to electricity and will negate Methane discharges to atmosphere.</p>
<p>Sludge Incineration with 70% thermal efficiency</p>	<p><u>Pollution Prevention and Control</u> Energy/emission- efficient energy recovery Minimise landfill Minimise environmental impact</p>	<p>- <u>Sludge Incineration with energy recovery</u>: The Issuer reports that for one eligible project, the sludge incineration facility will utilise proven and modern Fluidised Bed Incineration (FBI) technology to incinerate the sludge. Energy will be recovered in the form of steam and be sent to TWRP for use in the Thermal Hydrolysis Process (THP) pre-treatment of the secondary waste activated sludge prior to co-digestion and for Greasy Waste Treatment. Any excess steam that may be available after these priority uses will be utilised in WTE air pre-heaters. The Issuer reports that the sludge incineration facility will maximise the heat recovery from the flue gas temperature to reuse within the process to achieve a minimum thermal efficiency of 70%.<sup>19</sup></p>
<p>Material Recovery of Recyclables including waste collection and sorting (including pre-sorting)</p>	<p><u>Pollution Prevention and Control</u> Resource recovery Optimise land use</p>	<p>- <u>Material Recovery of Recyclables</u>: The issuer reports that the Recyclables will be collected from households, apartments, condominiums and commercial premises under the National Recycling Programme (NRP). No industrial waste will be included.</p>
<p>Waste Processing and Recycling (for non-hazardous waste only)</p>	<p><u>Pollution Prevention and Control</u> Resource recovery Optimise land use</p>	<p>- <u>Waste Processing and Recycling</u>: The Issuer commits that only non-hazardous waste will be processed under this sub-category.</p> <p>The intended environmental objective is clear, the Eligible Green Projects will potentially contribute to Singapore's Zero Waste Masterplan and its targets in waste reduction by 2030.</p> <p>The expected benefits are also confirmed to be clear.</p>

<sup>19</sup> <https://www.climatebonds.net/files/files/standards/Waste%20Management/Crit%20Waste%20Management%20Criteria.pdf>





SDG Contribution

The Eligible Category is likely to contribute to two of the United Nations’ Sustainable Development Goals (“SDGs”), namely:

ELIGIBLE CATEGORY	SDG	SDG TARGETS
Sustainable waste management		11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality, municipal and other waste management
		12.3 By 2030 halve per capita global food waste at the retail and consumer level, and reduce food losses along production and supply chains including post-harvest losses  12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

## Evaluation and Selection of Eligible Green Projects



- The process for Project Evaluation and Selection has been clearly defined by the Issuer and is considered structured. The roles and responsibilities are clear and include relevant internal expertise. The Process is publicly disclosed in the Framework.
- Eligibility criteria (selection and exclusion) for project selection have been clearly defined and detailed by the Issuer.
- The process applied to identify and manage potentially material E&S risks associated with the projects is publicly disclosed in NEA's Integrated Sustainability Report, in the herewith SPO and in the Framework. The Process is considered robust: it combines monitoring, identification and corrective measures for all the Eligible Green Projects (see detailed analysis on pages 16-19).

### Process for Project Evaluation and Selection

- For the purpose of the Bonds, a governance process for project evaluation and selection has been established, including the Green Bond Working Group, the Green Bond Committee and the Board Finance Committee.
- The Green Bond Working Group, composed of representative members from various functions, is responsible for:
  - Identifying and proposing Green Projects using the Eligibility Criteria; and
  - Managing any future updates of the Framework, including any expansion of requirements of use of proceeds.
- The Green Bond Committee, composed of senior leadership of NEA, is responsible for:
  - Reviewing and endorsing the Eligible Green Projects proposed by the Green Bond Working Group to ensure compliance with the Framework; and
- The Board Finance Committee, composed of key members of the Board, is responsible for:
  - Approving the Eligible Green Projects to be financed by green bond issuances drawn under the Framework.
- The traceability and verification of the selection and evaluation of the Eligible Green Projects is ensured throughout the process:
  - The Green Bond Committee will review the approved Eligible Green Projects annually and endorse the compliance of these projects according to the Eligibility Criteria set out in the Framework.
  - NEA's internal Enterprise Risk Management ("ERM") Framework for its activities will be able to proactively identify, assess, prioritise, treat and monitor ESG risks and any potential negative environmental and social impacts associated with the Eligible Green Projects. The incident management and reporting process in place will also ensure timely reporting of ESG-related controversies and awareness across the organisation for follow-up actions.
  - Traceability of the decision-making process will be ensured through project approval papers and meeting minutes.



### Eligibility Criteria

The process relies on explicit eligibility criteria (selection and exclusion), relevant to the environmental objectives defined for the Eligible Green Projects.

- The selection criteria is based on definitions in Eligible Categories defined Table 1 in the Use of Proceeds section.
- The Framework explicitly excludes fossil fuel-based electric power generation or improvement in the efficiency of fossil fuel-based electric power generation, which is relevant to the overall environmental objective of the Eligible Green Projects.

### BEST PRACTICES

- ⇒ Eligibility and exclusion criteria for project selection are clearly defined and detailed for all the Eligible Green Projects.
- ⇒ The Issuer reports that it will monitor compliance of selected Eligible Green Projects with eligibility and exclusion criteria specified in the Framework throughout the life of the instrument and has provided details on content/ frequency/duration and on procedure adopted in case of non-compliance.
- ⇒ The Issuer reports that it will monitor potential ESG controversies associated with the Eligible Green Projects throughout the life of the instrument and has provided details on frequency, content and procedures in case a controversy is found on an Eligible Green Project.

## Management of Proceeds



- The Process for the Management and Allocation of Proceeds is clearly defined, and is publicly available in the Framework.
- The allocation period will be 24 months or less.
- Net proceeds of the Bonds will be placed in a segregated bank account and tracked by the Issuer in an appropriate manner and attested in a formal internal process.
- Information on the intended types of temporary placement for the balance of the unallocated net proceeds is publicly disclosed.
- The Issuer has committed that as long as the Bond is outstanding, the balance of the tracked net proceeds will be periodically adjusted to match allocations to Eligible Green Projects made during that period.
- The Issuer has provided information on the procedure that will be applied in case of project divestment or postponement and it has committed to reallocate divestment proceeds to projects that are compliant with the bond framework.

## Management Process

- The net proceeds of the Bonds will be placed in a segregated bank account and tracked by the Issuer in an appropriate manner and attested in a formal internal process. 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 and periodically adjust the balance of the tracked proceeds to match allocations to the Eligible Green Projects.
- The unallocated funds would 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 reports that it expects to allocate the 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 the Green Bond Framework (e.g. following divestment, postponement or cancellation), the Issuer commits to use its best endeavours to allocate the proceeds to Eligible Green Projects as soon as possible.
- In case of performance related eligibility criteria (e.g. energy recovery efficiency), the Issuer also reports that the efficiency and performance of the Eligible Green Projects will be regularly monitored, and regular inspection and maintenance will be carried out to ensure their eligibility.

### BEST PRACTICES

- ⇒ The allocation period is 24 months or less.
- ⇒ The Issuer has committed not to invest temporarily unallocated net proceeds in carbon intensive activities or facilities.
- ⇒ The Issuer has provided information on the procedure that will be applied in case of project divestment or postponement and it has committed to reallocate divested proceeds to projects that are compliant with the bond framework within 24 months.

## Monitoring & Reporting



- The Issuer has committed to report on the Use of Proceeds annually, until full allocation and on a timely basis in case of material developments. The report will be publicly available until bond maturity.
- The reporting will cover relevant information related to the allocation of Bond proceeds and to the expected environmental benefits of the Eligible Green Projects, as well as any material developments or ESG controversies.
- The reporting methodology and assumptions used to report on environmental benefits of the Eligible Green Projects will be publicly disclosed.
- An external auditor will verify the allocation of funds, and the indicators to report on the environmental benefits of the Eligible Green Projects until full allocation and in case of material changes.

## Indicators

The Issuer has committed to transparently communicate at Eligible Green Project level, on:

- Allocation of proceeds: The indicators selected by the Issuer to report on the allocation of proceeds are clear and relevant.

### REPORTING INDICATORS

- ⇒ 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
- ⇒ Types of temporary unallocated funds placements and uses



- Environmental benefits: The indicators selected by the Issuer to report on the environmental benefits are clear and relevant.

ELIGIBLE CATEGORY	ENVIRONMENTAL BENEFITS INDICATORS	
	OUTPUTS AND OUTCOMES	IMPACT INDICATORS
Sustainable waste management	<p><u>Energy Recovery</u></p> <ul style="list-style-type: none"> <li>Overall Gross Power Efficiency for WTE (%)<sup>20</sup></li> </ul> <p><u>Resource Recovery</u></p> <ul style="list-style-type: none"> <li>Incineration Bottom Ash (IBA) sent to off-site facility for recovery of Ferrous metals and Non-Ferrous metals (tonnes per annum)</li> </ul> <p><u>Reduced Environmental Impact</u></p> <ul style="list-style-type: none"> <li>Compliance with Singapore’s air emissions requirements as per statutory requirements</li> </ul> <p><u>Landfill avoidance</u></p> <ul style="list-style-type: none"> <li>Bottom Ash Recovery (tonnes per annum)</li> </ul>	<p><u>Energy Recovery</u></p> <ul style="list-style-type: none"> <li>Energy recovery from waste and sludge incineration (MWh per annum or MJ per annum)</li> </ul> <p><u>Resource Recovery</u></p> <ul style="list-style-type: none"> <li>Recovery of Recyclables consisting of Ferrous metals, Non-Ferrous metals, Plastics and Paper (tonnes per annum)</li> </ul> <p><u>Reduced Environmental Impact</u></p> <ul style="list-style-type: none"> <li>Reduction in Carbon Emission (tonnes of CO<sub>2</sub> equivalent per annum)</li> </ul> <p><u>Landfill avoidance</u></p> <ul style="list-style-type: none"> <li>Diversion of IBA from landfill (tonnes per annum)</li> </ul>

NEA commits to disclose any key underlying methodologies and assumptions used in the quantitative determination of the environmental benefit of the Eligible Green Projects in the impact report.

NEA also commits to report on any material developments or ESG controversies relating to the Eligible Green Projects.

BEST PRACTICES
<ul style="list-style-type: none"> <li>⇒ The Issuer will report on the Use of Proceeds until bond maturity.</li> <li>⇒ The report will be publicly available.</li> <li>⇒ The report will cover relevant information related to the allocation of Bond proceeds and the expected sustainable benefits of the projects. The Issuer has also committed to report on material development related to the projects, including ESG controversies.</li> <li>⇒ The issuer will report on allocation of proceeds and on environmental benefits at project level.</li> <li>⇒ The indicators selected by the Issuer are exhaustive with regards to allocation reporting.</li> <li>⇒ The indicators selected by the Issuer are clear and relevant and cover all expected benefits associated with the Eligible Categories.</li> <li>⇒ The reporting methodology and assumptions used to report on environmental benefits of the Eligible Green Projects will be disclosed publicly.</li> <li>⇒ External verification of environmental benefits &amp; impacts until full allocation and in case of material changes.</li> </ul>

<sup>20</sup> Figure of Overall Gross Power Efficiency is subject to change based on calorific value of waste, actual load during operations and power degradation curve.



## Contribution to sustainability

### Expected Impacts

The potential positive Impact of the Eligible Green Projects on environmental objectives is considered to be robust.

Of note, all of the Eligible Green Projects will potentially contribute to Singapore’s Zero Waste Masterplan and its targets in waste reduction by 2030.

ELIGIBLE GREEN PROJECT/ SUB-CATEGORY	EXPECTED IMPACT	ANALYSIS
Waste-to-energy	ROBUST	<p>Although waste-to-energy (WTE) is ranked low in the waste hierarchy, we acknowledge its role in Singapore’s waste management due to scarce land areas, with Singapore being the 2<sup>nd</sup> most densely populated country in the world with 5.7 million people.<sup>21</sup> The Issuer reports that the types of waste covered by the Eligible Green Projects will be solid wastes from households and commercial premises, as well as industrial sources. The WTE projects will meet the minimum gross energy recovery efficiency of 26%.</p> <p>Meanwhile, measures are in place to avoid recyclable waste ending up in the WTE projects. For instance, under the Zero Waste Masterplan<sup>22</sup>, Singapore is focusing on closing three resource loops: food, electrical and electronic equipment, and packaging, including plastics. Legislative and economic intervention measures will target the entire value chain, supported by infrastructure, research and development, and industry development. NEA has also launched public education campaigns such as the “Say Yes to Waste Less” campaign on reducing unnecessary waste.</p> <p>However, it is worth noting that WTE projects will not completely abate GHG emissions and do not remove the need for landfills, and some projects may not be able to eliminate unsafe emissions, despite advanced emission control technologies.<sup>23</sup> Nevertheless, NEA has committed to reduce the amount of GHG emissions from waste incineration, through measures such as waste reduction and recycling. With regards to one eligible project, NEA reports that its emissions are able to meet Singapore air emission standards.</p> <p>In addition, as reported by NEA, it is developing ways to use incineration bottom ash in non-structural construction such as road base/sub-base materials or aggregates in non-structural concrete as “NEWSand”. Such application could fall under the “Waste Processing and Recycling” Category and could help maximise resource recovery and the lifespan of current and future landfills.</p>
Food Waste Treatment	ROBUST	<p>Food waste is one of the biggest waste streams in Singapore and the amount of food waste generated has grown by ~20% over the last decade to 744 million kg in 2019. That is equivalent to 2 bowls of rice per person per day<sup>24</sup>. Tackling food waste will indeed have overall positive impacts in Singapore.</p>
Sludge Incineration	ROBUST	<p>The sludge incineration will involve energy recovery and is required to meet a thermal efficiency of 70%. In addition, they are required to meet Singapore’s air emissions standards.</p>
Material Recovery of Recyclables	ROBUST	<p>NEA runs various waste recycling programmes such as e-waste management, Singapore Packaging Agreement. Detailed standards and guidelines have been established for the recycling process of different recyclables (e.g. paper, plastic, glass, metal). The Eligible Green Projects under these two sub-categories will clearly contribute to Singapore’s Zero Waste Masterplan and its targets in waste reduction by 2030.</p>
Waste Processing and Recycling	ROBUST	<p>NEA runs various waste recycling programmes such as e-waste management, Singapore Packaging Agreement. Detailed standards and guidelines have been established for the recycling process of different recyclables (e.g. paper, plastic, glass, metal). The Eligible Green Projects under these two sub-categories will clearly contribute to Singapore’s Zero Waste Masterplan and its targets in waste reduction by 2030.</p>

<sup>21</sup> <https://data.worldbank.org/>

<sup>22</sup> [https://www.towardszerowaste.gov.sg/images/zero\\_waste\\_masterplan.pdf](https://www.towardszerowaste.gov.sg/images/zero_waste_masterplan.pdf)

<sup>23</sup> <https://www.unenvironment.org/ietc/resources/publication/waste-energy-considerations-informed-decision-making>

<sup>24</sup> <https://www.towardszerowaste.gov.sg/foodwaste/>

## ESG Risks Identification and Management systems in place at project level

The identification and management of the environmental and social risks associated with the Eligible Green Projects are considered robust.

### ENVIRONMENTAL RISKS

#### Environmental Management System

Environmental management and commitments are embedded in the vision and mission as well as roles and management structure of NEA at the agency level. For the Eligible Green Projects, detailed measures are adopted and implemented based on each project's specific needs and context. During both the construction and operation phases, an Environment Management & Monitoring Plan (EMMP) is required, which focuses on the discharge outfall, detection of any irregularities or operating failures that might influence the receiving waterbody and give information on the actual discharges of pollutants during the operation phase. Furthermore, the environmental impact studies of Eligible Green Projects include EMMP Guidance for contractors which details the minimum controls and mitigation measures that are needed to prevent environmental impacts. The Agency's Superintending Officer (SO) is in charge of monitoring the contractors' compliance with the EMMP specifications and regulatory requirements.

NEA also acts as the Agency to coordinate and/or manage several environmental schemes and standards such as Enhanced Clean Mark Accreditation, ESCO Accreditation, National Voluntary Partnership for E-Waste Recycling, Singapore Packaging Agreement and Packaging Partnership Programme, as well as SS 587 (Singapore Standard for the Management of End-of-Life ICT Equipment). The framework of SS 587 is aligned with other established international management system standards (e.g. ISO 14001, Environmental Management).<sup>25</sup> For instance, the Eligible Green Projects related to managing waste from ICT equipment will need to comply with SS 587 and hence would adopt environmental management measures aligned ISO 14001.

#### Eco-design and decommissioning

Although there is no specific information regarding eco-design for the Eligible Green Projects, their decommissioning will follow up relevant standards in Singapore. The Building and Construction Authority (BCA) of Singapore implements the Demolition Protocol, which is a set of procedures to help contractors better plan demolition procedures so as to maximise the recovery of waste materials for beneficial reuse or recycling, incorporated into SS 557 Code of Practice for Demolition.<sup>26</sup>

The Demolition Protocol includes pre-demolition audits, sequential demolition and site waste management. Under the Protocol, reusable and non-reusable parts of a building must be identified, then separately dismantled and removed. Reusable parts include piping and wiring, which are placed in separate bins and sent to a recycling facility. Non-reusable parts that contaminate the concrete debris, such as ceiling boards and tiles, are discarded. Only when the building has been stripped to its bare frame can demolition start. This protocol has led to the development of several new materials, like recycled concrete aggregate (RCA), which is made up of more than 70% demolition waste, reclaimed from waste concrete made with natural aggregates. The Issuer also reports that related to one eligible project, the contractors are required to meet criteria of BCA's Platinum Green Mark, which may cover some aspects of the project's lifecycle impacts.

Specifically related to e-waste from electrical and electronic equipment (EEE), Singapore is implementing the Extended Producer Responsibility (EPR) approach. The legislative framework will be provided under the Resource Sustainability Act. EPR is an environmental policy too. BY 2021, EEE producers will be physically and/or financially responsible for the end-of-life treatment of their products. As for non-consumer EEE, which includes solar photovoltaic (PV) panels and

<sup>25</sup> <https://www.nea.gov.sg/programmes-grants/schemes/ss587>

<sup>26</sup> <https://www1.bca.gov.sg/buildsg/sustainability/sustainable-construction/demolition-protocol>



servers, their producers will be required to provide free take-back services for all their end-of-life equipment from their clients upon request.

### Protection of biodiversity

According to the Environmental Impact Study (EIS) of one Eligible Project, there is no established standard for biodiversity assessment in Singapore. Although, each project assessment refers to legislation in Singapore related to protection of birds and trees, IUCN's Red List of Threatened Species and the Hong Kong Environmental Impact Assessment Ordinance - Technical Memorandum (HK EIAO TM). The EISs assess potential impacts on biodiversity according to 3 levels of priorities, based on the receptor sensitivity criteria of each site:

1. Priority one: which includes high biodiversity usually existing in less impacted nature areas (primary and mature secondary forests); especially Singapore's four nature reserves. Low resilience level to impacts and has high connectivity. Species that are locally (Singapore Red Data Book (SRDB)) and globally (International Union for Conservation of Nature (IUCN)) threatened are present, as well as endemic species. High ecological value when evaluated using Hong Kong EIA ordinance.
2. Priority two: Diverse but non-unique biodiversity that usually exists in degraded secondary forests or undisturbed nature areas with limited connectivity. Species are locally common (SRDB) and globally (IUCN) of least concern. Moderate resilience levels to impacts and overall moderate ecological value when evaluated using Hong Kong EIA ordinance.
3. Priority 3: Low biodiversity and no local (SRDB) or globally (IUCN) unique species present; high resilience levels to impacts. Isolated and usually small in area with an overall low ecological value when evaluated using Hong Kong EIA ordinance.

Based on the impact evaluation (Low, Medium or High), minimum controls and mitigation measures related to biodiversity are identified in the EMMP Guidance and detailed in the Biodiversity section of the EIS report, on issues such as: to avoid impacts to plant species of conservation interest; to prevent adverse impacts on water quality from storm-water runoff; and to minimise chemical use to control vectors within and close to water bodies; to minimize disturbance impacts by erecting hoarding around works areas and using new and well maintained Powered Mechanical Equipment (PME), etc.

### Minimising environmental impacts from energy use

The Eligible Green Projects will comply with NEA's industrial mandatory guidelines on Energy Efficiency Opportunities Assessment (EEOA)<sup>27</sup>. Before the Development Control Stage, the owner of an Eligible Project will be required to carry out EEOA during the design of the facility and submit an EEOA report to the Agency. The EEOA report shall have the information as required in Regulation 7D of the Energy Conservation (Energy Management Practices) Regulations 2013. Information about the Post-Implementation EEOA Report, should be send to the Superintending Officer (SO) of the Agency with information such as energy consuming systems and the estimated annual greenhouse gas emissions of the Eligible Green Projects. The data used for the EEOA must be kept for at least 5 years from the date of Certificate of Statutory Completion (CSC) issued in respect of the Eligible Green Projects.

### Pollution prevention and industrial safety

The NEA will carry out monitoring and risk mitigation measures in relation to the different aspects of pollution prevention and control of the Eligible Green Projects.

- Air Pollution: Based on the EIS of one Eligible Project, project-level air quality impact assessment during the operational phase cover atmospheric pollutants such as SO<sub>2</sub>, NO<sub>x</sub>, CO, Particulates, NH<sub>3</sub>, Heavy Metals, HF, HCl and TOC. The results of the air modelling will then be compared against the Singapore Ambient Air Quality

<sup>27</sup> [https://www.nea.gov.sg/our-services/climate-change-energy-efficiency/energy-efficiency/industrial-sector/mandatory-energy-management-practices-for-new-industrial-facilities/energy-efficiency-opportunities-assessment-\(eoa\)-for-new-ventures](https://www.nea.gov.sg/our-services/climate-change-energy-efficiency/energy-efficiency/industrial-sector/mandatory-energy-management-practices-for-new-industrial-facilities/energy-efficiency-opportunities-assessment-(eoa)-for-new-ventures)

Targets 2020. In case that no ambient air quality standards exist in Singapore for a pollutant, relevant standards from the USEPA, WHO or the EU will be referenced.

- **Soil Pollution & Groundwater:** All the Eligible Green Projects will be subject to relevant legislations in Singapore, including: Environmental Protection and Management Act (2013), SS 593:2013 Code of Practice for Pollution Control (COPPC), Environmental Protection and Management (Trade Effluent) Regulations (2008), the Sewerage and Drainage Act (2001), Sewerage and Drainage (Surface Water Drainage) Regulations (2007) and the Section 7 of SS 593:2013 Code of Practice for Pollution Control (COPPC). Project-level assessment of potential soil and groundwater contamination will be conducted in the EISs of Eligible Green Projects. Qualitative assessment will also be conducted to evaluate the impacts on soil and groundwater of improper handling, transfer, storage or disposal of general and toxic waste, liquid effluent and chemicals.
- **Noise control:** The baseline noise monitoring of the Eligible Green Projects will be compared against the limit values stated in the Environmental Protection and Management (Control Noise at Construction Sites) Regulations (2008). Additionally, a Noise Impact Assessment (NIA) including quantitative prediction of noise impacts at the boundary (especially at the neighbouring dormitories) and identification of appropriate mitigation measures will be conducted at the detailed design and build stage of permanent access roads to identify the noise impacts from the truck traffic into the facility. Noise monitoring covers equipment, locations, methodology and monitoring results.
- **Odour control:** The Eligible Green Projects should be designed to capture odours from within the facility. Based on the EIS of one example of Eligible Green Projects, the impact of odour would be qualitatively assessed with a particular focus on reviewing the efficacy of the odour control systems to be implemented at the facility. Odour emissions from the Eligible Green Projects should include emissions of Hydrogen Sulphide (H<sub>2</sub>S) and reduced sulphur compounds and VOCs.

With regards to safety, the Eligible Green Projects will follow the Design for Safety Guide as part of the EPC documents. The Guide covers various aspects of environmental considerations including ground levelling and soil stability, groundwater, air quality, noise, waste, and many other aspects related to safety of design and construction.

#### Management of environmental impacts from waste transportation

Waste collection does not fall under the Agency's scope of action. Collection is carried out by the users, with collection being unloaded at the Agency's facilities by operators under contract with the local authorities. During the operation phase, project-specific minimum controls will be implemented to minimise or mitigate negative impacts from the waste transportation, such as consignment notification / tracking system and transport emergency response plan for transport of toxic waste and chemicals. In addition, transportation of hazardous substances will need to comply with the Environmental Protection and Management (Hazardous Substances) Regulations (2008).

#### Management of by-products from processes

The Eligible Green Projects will follow the relevant standards and regulations for waste management and disposal in Singapore. Currently, almost all the remaining waste after collection and recycling is incinerated at the waste-to-energy plants, which helps reduce waste volume by about 90% and also produces electricity, which is sold back to the grid. Only the incineration ash and other non-incinerable wastes are transported to the Tuas Marine Transfer Station (TMTS) from where they are barged to Semakau Landfill for final disposal.<sup>28</sup> In addition, NEA is also conducting R&D to turn incineration ash into construction materials, to further reduce the amount of waste ending up in the landfill.<sup>29</sup>

On the recovery of recyclables, the source segregated recyclables collected under the National Recycling Programme (NRP) would be sorted and recovered at the highly automatic clean Material Recovery Facility (MRF) located at the Integrated Waste Management Facility. The MRF would be designed to handle a commingled stream of dry recyclables such as paper, hard plastics, metals, etc. NEA reports that to reduce the amount of IBA sent to landfill, it is exploring

<sup>28</sup> <https://www.nea.gov.sg/our-services/waste-management/overview>

<sup>29</sup> <https://www.nea.gov.sg/media/news/news/index/nea-seeks-to-investigate-and-characterise-the-landfilled-materials-at-semakau>



possible uses of the IBA, a form of NEWSand, in non-structural construction applications and as caisson infills. However, this would depend on the development of the ash-reuse standards, which is currently ongoing. On the potential reuse of Incineration Fly Ash (IFA), it would be washed with the scrubber liquid from its wet flue gas treatment system and will wash out the majority of the leachable heavy metals within the IFA.

## SOCIAL RISKS

### Fundamental human and labour rights

At Agency level, although there is no dedicated human rights policy, NEA commits to create a positive work environment for its employees through fair employment and work-life effectiveness. Its commitment on non-discrimination specifically focuses on age and disabilities. NEA's Deputy CEO (Planning, Corporate & Technology) was appointed the Champion for Inclusive Hiring and steers the overall strategy in supporting the employment of people with disabilities. The Agency also clearly states that staff are free to join unions recognised by NEA and the management works closely with the two active unions within NEA – the Amalgamated Union of Public Employees (AUPE) and the Amalgamated Union of Public Daily-Rated Workers (AUPDRW). NEA also established an Employee Engagement Framework to help its employees enhance their work-life balance.

### Health and safety of employees

At Agency level, NEA disclosed that there is a Workplace Safety and Health (WSH) Driver and WSH Representatives for each department and offsite premises. All NEA staff are represented by the safety committee. In the current WSH governance structure, the Incident Reporting and Risk Committee has been absorbed into the Enterprise Risk and Safety Steering Committee (ERSSC). This ensures agility when implementing WSH programmes. On the safety of employees regarding chemical management, the Environmental Baseline Study (EBS) discloses the results on the tested parameters (chemicals, heavy metals), in which if exceeding the regulatory limits, the construction contractors should further assess the potential inhalation and dermal impacts of the exceeded parameters to the site workers exposed to areas where soil and/or groundwater contamination is identified. NEA discloses a Workplace Safety and Health Officer(s) (WSHO) registered with the Ministry of Manpower (MOM) and to the Environmental Control Officer(s) (ECO) registered with the National Environment Agency (NEA). At project level, NEA reports that during the construction phase, main contractors shall be certified bizSAFE STAR, OHSAS 18001 or equivalent or higher. The contractor shall get certification to ISO 45001(2018) not later than 90 days of contract award. On H&S audits, all contractors shall ensure that an independent Safety Audit be conducted once every 6 months or as stipulated in the regulations. Also, the corrective actions or any non-conformance of such audit shall be closed out not later than 3 weeks after the audit date. The Contractor is to share their audit report with the Superintending Officer and the Employer.

### Promotion of social and economic development

The promotion of social and economic development is embedded in the design and development of the Eligible Green Projects as well as the roles of the Agency. The Eligible Green Projects are developed to address the specific needs in Singapore in waste management. The construction and operation phases will also involve local contractors and support local employments.

In addition, based on the EIS of one Eligible Project, the final EIA Report for the construction phase was circulated to the relevant agencies and discussed with local environmental stakeholders. A consensus was reached on the location of the eligible project's Sea Outfall.

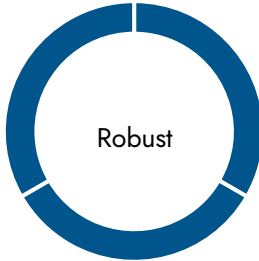
### Business Ethics

The Eligible Green Projects will follow NEA's policies and commitments at the Agency level, including the NEA Person Code, which is an internal code of conduct with a zero-tolerance policy on fraud and misconduct of employees. The Code discloses NEA's guidelines concerning conflicts of interest, confidentiality, preventing corruption and proper financial stewardship. The Code is disclosed in NEA's intranet and in the Staff Handbook. The Internal Audit Department advises NEA's management and the Audit Committee on the system of internal controls in NEA regarding Business Ethic



issues. Additionally, NEA reports to monitor possible corruption or fraud cases that may be raised in external statutory audit reports.

# ISSUER



The National Environment Agency (NEA) is classified under the Specific Purpose Banks & Agencies Asia Pacific sector in V.E’s rating universe. NEA is a statutory board formed on July 1<sup>st</sup> 2002 under the Ministry of Sustainability and Environment (“MSE”) (renamed from Ministry of Environment and Water Resources (“MEWR”) with effect from July 27<sup>th</sup> 2020) in Singapore. For waste management, NEA oversees planning, developing and administering Singapore’s solid and hazardous waste management systems. This includes licensing and regulatory functions to ensure that waste is properly collected, treated and disposed of.

## Level of ESG strategy

As of April 2021, we reach a robust level of assurance on NEA’s capacity to integrate relevant ESG factors in its strategy, and to account on them.

DOMAIN	COMMENTS	OPINION
Environment	<p><u>We reach a robust level of assurance on NEA’s capacity to integrate relevant environmental factors in its strategy.</u></p> <p>The Agency has issued formalised commitments for environmental protection and set specific targets in this regard. In addition, it has set up a robust sustainability governance structure. NEA’s senior management is responsible for setting the sustainability strategy of NEA, meeting regularly to deliberate and endorse NEA’s direction and sustainability initiatives. At the middle management level, all NEA directors are Sustainability Champions, meeting quarterly at the NEA Sustainability Committee meetings to discuss and track environmental sustainability efforts and review NEA’s resource consumption trend. NEA’s Sustainability Division leads the planning and coordination of environmental sustainability initiatives within NEA and provides Secretariat support to the NEA Sustainability Committee.</p> <p>In relation to minimising environmental impacts from climate change, under the Public Sector Taking the Lead in Environmental Sustainability (PSTLES) 2.0 initiative, NEA has committed to achieve electricity savings of 15 per cent and water efficiency index improvement of five per cent from FY2013 baseline consumption by FY2020. The Agency has formulated specific commitments to reduce its own GHG emissions although no quantitative target is set and to strive towards a circular economy and low-carbon economy.</p>	Robust
		Limited
		Weak
Social	<p><u>We reach a robust level of assurance on NEA’s capacity to integrate relevant social factors in its strategy.</u></p> <p>Regarding non-discrimination and diversity, the Agency has a formalised commitment for non-discrimination, specifically focusing on age and disabilities. NEA’s Deputy CEO (Planning, Corporate &amp; Technology) was appointed the Champion for Inclusive Hiring and steers the overall strategy in supporting the employment of people with disabilities.</p>	Robust



DOMAIN	COMMENTS	OPINION
	<p>In relation to health &amp; safety, the Agency has clear commitments in its Integrated Sustainability Report and the dedicated Code of Practice on Environmental Health (COPEH). NEA has a Workplace Safety and Health (WSH) Driver and WSH Representatives for each department and offsite premises. All NEA staff are represented by the safety committee.</p> <p>Regarding promotion of labour relations, the Agency has clear and formalised commitments both on its website and in its annual Sustainability Report. NEA management works closely with the two active unions within NEA – the Amalgamated Union of Public Employees (AUPE) and the Amalgamated Union of Public Daily-Rated Workers (AUPDRW).</p> <p>In terms of career management, the Agency has issued a public formal commitment to promote career management and training both on its website and in its annual Sustainability Report. NEA’s Singapore Environment Institute conducts competency-based training for NEA’s employees. NEA also implements an Expert Knowledge Retention initiative and a Knowledge Documentation initiative.</p> <p>Regarding promotion of social and economic development, the Agency has formalised commitments both on its website and in its annual Sustainability Report. NEA commits to support local companies to become global players, and promote local companies internationally, through its procurement process and innovation framework.</p>	<p>Limited</p> <p>Weak</p>
<p>Governance</p>	<p><u>We reach a robust level of assurance on NEA’s performance in the Governance pillar.</u></p> <p>Regarding prevention of corruption and money laundering, NEA has a zero-tolerance policy on fraud and misconduct of employees. It has a dedicated NEA Person Code, which articulates the Agency’s vision, mission and values, appropriate conduct, and guidelines concerning conflicts of interest, confidentiality, preventing corruption and proper financial stewardship. The Agency has also set up internal controls to prevent corruption, including a confidential reporting system.</p> <p>Regarding Internal controls &amp; risk management, all members of the Audit Committee are non-executive directors with financial and/or audit experience, and the majority are independent. The internal control system covers the standard issues related to financial, operational, and legal risks, as well as some of the CSR risks inherent to the Agency’s operations. There is a confidential reporting system in place for accounting issues. Strong processes for the management of CSR risks are in place via the Enterprise Risk Management Programme. The Agency also publishes annually its Integrated Sustainability Report on key material issues.</p> <p>In terms of Board of Directors, the majority of Board members are non-executive directors, however the Board diversity appears to be partial. The roles of Chairman and CEO are separated, and the Chairman is independent. Training is regularly provided to the Board, but it is unclear whether such trainings cover CSR issues.</p>	<p>Robust</p> <p>Limited</p> <p>Weak</p>



## Management of ESG Controversies

As of today, the review conducted by V.E did not reveal any ESG controversy against NEA over the last four years.

## Involvement in Controversial Activities

The Issuer does not appear to be involved in any of the 17 controversial activities screened under our methodology, namely: Alcohol, Animal welfare, Cannabis, Chemicals of concern, Civilian firearms, Coal, Fossil Fuels industry, Unconventional oil and gas, Gambling, Genetic engineering, Human embryonic stem cells, High interest rate lending, Military, Nuclear Power, Pornography, Reproductive Medicine and Tobacco.

The controversial activities research provides screening of companies to identify involvement in business activities that are subject to philosophical or moral beliefs. The information does not suggest any approval or disapproval on their content from V.E.

# METHODOLOGY

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In V.E's view, Environmental, Social and Governance (ESG) factors are intertwined and complementary. As such they cannot be separated in the assessment of ESG management in any organisation, activity or transaction. In this sense, V.E provides an opinion on the Issuer's ESG strategy as an organisation, and on the processes and commitments applicable to the intended issuance.

Our Second Party Opinions (SPOs) are subject to internal quality control at three levels (Analyst, Project Manager and Quality Reviewer). If necessary, this process is complemented by a final review and validation by the Expertise Committee and Supervisor. A right of complaint and recourse is guaranteed to all companies under our review, following three levels: first, the team in contact with the company; then the Executive Director in charge of Methods, Innovation & Quality; and finally, V.E's Scientific Council. All employees are signatories of V.E's Code of Conduct, and all consultants have also signed its add-on covering financial rules of confidentiality.

## COHERENCE

**Scale of assessment: not coherent, partially coherent, coherent**

This section analyses whether the activity to be financed through the selected instrument is coherent with the Issuer's sustainability priorities and strategy, and whether it responds to the main sustainability issues of the sector where the Issuer operates.

## FRAMEOWRK

### Alignment with the Green Bond Principles

**Scale of assessment: Not aligned, Partially aligned, Aligned, Best Practices**

*The Framework has been evaluated by V.E according to the ICMA's Green Bond Principles - June 2018 ("GBP") and on our methodology based on international standards and sector guidelines applicable in terms of ESG management and assessment.*

### Use of proceeds

The definition of the Eligible Green Projects and their sustainable objectives and benefits are a core element of Green Bonds standards. V.E evaluates the clarity of the definition of the Eligible Categories, as well as the definition and the relevance of the primary sustainability objectives. We evaluate the descriptions of the expected benefits in terms of relevance, measurability and quantification. In addition, we map the potential contribution of Eligible Green Projects to the United Nations Sustainable Development Goals' targets.

### Process for evaluation and selection

The evaluation and selection process is assessed by V.E on its transparency, governance and relevance. The eligibility criteria are assessed on their clarity, relevance and coverage vs. the intended objectives of the Eligible Green Projects.

### Management of proceeds

The process and rules for the management and the allocation of proceeds are assessed by V.E on their transparency, traceability and verification.

### Reporting

The monitoring and reporting process and commitments defined by the Issuer are assessed by V.E on their transparency, exhaustiveness and relevance, covering the reporting of both proceeds' allocation and sustainable benefits (output, impact indicators).





## Contribution to sustainability

Scale of assessment: **Weak, Limited, Robust, Advanced**

V.E's assessment of activities' contribution to sustainability encompasses both the evaluation of their expected positive impacts on environmental and/or social objectives, as well the management of the associated potential negative impacts and externalities.

### Expected positive impact of the activities on environmental and/or social objectives

The expected positive impact of activities on environmental and/or social objectives to be financed by the Issuer or Borrower is assessed on the basis of:

- i) the relevance of the activity to respond to an important environmental objective for the sector of the activity; or to respond to an important social need at country level;<sup>30</sup>
- ii) the scope of the impact: the extent to which the expected impacts are reaching relevant stakeholders (i.e. the issuer, its value chain, local and global stakeholders); or targeting those populations most in need;
- iii) the magnitude and durability of the potential impact of the proposed activity on the environmental and/or social objectives (capacity to not just reduce, but to prevent/avoid negative impact; or to provide a structural/long-term improvement);
- iv) only for environmental objectives, the extent to which the activity is adopting the best available option.

### Activities' ESG risk management

The identification and management of the potential ESG risks associated with the Eligible Green Projects/activities are analysed on the basis of V.E's ESG assessment methodology, international standards and sector guidelines applicable in terms of ESG management and assessment.

## ISSUER

### Issuer's ESG strategy

Scale of assessment of ESG strategy: **Weak, Limited, Robust**

*NB: The Issuer's integration of ESG factors in its strategy has not been assessed through a complete process of rating and benchmark developed by V.E. The assessment of the Issuer's ESG strategy has focused only on the Leadership item from V.E's ESG rating methodology (see below), based on information provided by the Issuer, public information and stakeholders' views and opinions collected from public documents.*

The issuer has been evaluated by V.E on its ESG strategy, based on relevant ESG drivers organised in the 6 sustainability domains. The Issuer's strategy has been assessed by V.E based on its Leadership: relevance of the commitments (content, visibility and ownership).

### Management of stakeholder-related ESG controversies

A controversy is an information, a flow of information, or a contradictory opinion that is public, documented and traceable, allegation against an Issuer on corporate responsibility issues. Such allegations can relate to tangible facts, be an interpretation of these facts, or constitute an allegation based on unproven facts.

V.E reviewed information provided by the Issuer, press content providers and stakeholders (partnership with Factiva Dow Jones: access to the content of 28,500 publications worldwide from reference financial newspapers to sector-focused magazines, local publications or Non-Government Organizations). Information gathered from these sources is considered as long as it is public, documented and traceable.

V.E provides an opinion on companies' controversies risks mitigation based on the analysis of 3 factors:

<sup>30</sup> The importance of a specific social need at country level is assessed on the basis of the country performance on the priority SDG that the project is targeting using data from Sachs, J., Schmidt-Traub, G., Kroll, C., Lafortune, G., Fuller, G., Woelm, F. 2020. The Sustainable Development Goals and COVID-19. Sustainable Development Report 2020. Cambridge: Cambridge University Press.



- **Frequency:** reflects for each ESG challenge the number of controversies that the Issuer has faced. At corporate level, this factor reflects on the overall number of controversies that the Issuer has faced and the scope of ESG issues impacted (scale: Isolated, Occasional, Frequent, Persistent).
- **Severity:** the more a controversy is related to stakeholders’ fundamental interests, proves actual corporate responsibility in its occurrence, and have caused adverse impacts for stakeholders and the company, the higher its severity is. Severity assigned at the corporate level will reflect the highest severity of all cases faced by the company (scale: Minor, Significant, High, Critical).
- **Responsiveness:** ability demonstrated by an Issuer to dialogue with its stakeholders in a risk management perspective and based on explanatory, preventative, remediating or corrective measures. At corporate level, this factor will reflect the overall responsiveness of the company for all cases faced (scale: Proactive, Remediate, Reactive, Non- Communicative).

The impact of a controversy on a company’s reputation reduces with time, depending on the severity of the event and the company’s responsiveness to this event. Conventionally, V.E’s controversy database covers any controversy with Minor or Significant severity during 24 months after the last event registered and during 48 months for High and Critical controversies.

**Involvement in controversial activities**

17 controversial activities have been analysed following 30 parameters to screen the company’s involvement in any of them. The company’s level of involvement (Major, Minor, No) in a controversial activity is based on:

- An estimation of the revenues derived from controversial products or services.
- The specific nature of the controversial products or services provided by the company.

**V.E’ ASSESSMENT SCALES**

Scale of assessment of Issuer’s ESG strategy and financial instrument’s Contribution to sustainability		Scale of assessment of financial instrument’s alignment with Green Bond Principles	
Advanced	Advanced commitment; strong evidence of command over the issues dedicated to achieving the sustainability objective. An advanced expected impact combined with an advanced to robust level of E&S risk management & using innovative methods to anticipate new risks.	Best Practices	The Instrument’s practices go beyond the core practices of the ICMA’s Green Bond Principles
Robust	Convincing commitment; significant and consistent evidence of command over the issues. A robust expected impact combined with an advance to robust level of assurance of E&S risk management or an advanced expected impact combined with a limited level of assurance of E&S risk management.	Aligned	The Instrument has adopted all the core practices of the ICMA’s Green Bond Principles.
Limited	Commitment to the objective of sustainability has been initiated or partially achieved; fragmentary evidence of command over the issues. A limited expected impact combined with an advanced to limited level of assurance of E&S risk management; or a robust expected impact combined with a limited to weak level of assurance of E&S risk management; or an advance expected impact combined with a weak level of assurance of E&S risk management.	Partially Aligned	The Instrument has adopted a majority of the core practices of the ICMA’s Green Bond Principles, but not all of them.
Weak	Commitment to social/environmental responsibility is non-tangible; no evidence of command over the issues. A weak expected impact combined with an advanced to weak level of assurance of E&S risk management or a limited expected impact with a weak level of assurance of E&S risk management.	Not Aligned	The Instrument has adopted only a minority of the core practices of the ICMA’s Green Bond Principles.



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