



Second-Party Opinion


PSA Green Finance Framework


Evaluation Summary

Sustainalytics is of the opinion that the PSA Green Finance Framework is credible and impactful and aligns with the four core components of the Green Bond Principles 2021, the Green Loan Principles 2023 and ASEAN Green Bond Standards 2018. This assessment is based on the following:

 **USE OF PROCEEDS** The eligible categories for the use of proceeds – Clean Transportation; Energy Efficiency; Renewable Energy; Climate Change Adaptation; Green Buildings; Pollution Prevention, Control and Circular Economy; Waste Management and Resource Efficiency and Sustainable Water and Wastewater Management – are aligned with those recognized by the Green Bond Principles, Green Loan Principles and ASEAN Green Bond Standards. Sustainalytics considers that investments in the eligible categories are expected to reduce the environmental footprint of port development and shipping operations globally and advance the UN Sustainable Development Goals, specifically SDGs 6, 7, 9, 11, 12 and 13.

 **PROJECT EVALUATION AND SELECTION** PSA entities' finance department is responsible for sourcing and nominating potential green projects, after which the Group Treasury, Climate Response Command and Supply Chain Sustainability Solutions teams will review and evaluate the selected projects in line with the Framework's eligibility criteria. PSA has processes in place to identify and mitigate common environmental and social risks associated with the eligible projects, which are applicable to all allocation decisions made under the Framework. Sustainalytics considers PSA's risk management system to be adequate and the project selection process in line with market practice.

 **MANAGEMENT OF PROCEEDS** PSA's Group Treasury or PSA entities' finance department will oversee the process for the management of proceeds, where the proceeds will be tracked through a green project register. PSA intends to fully allocate net proceeds within 24 months of issuance. Pending full allocation, unallocated proceeds will be held in cash or cash equivalents in accordance with PSA's Group finance policies and procedures. This is in line with market practice.

 **REPORTING** PSA intends to report on the allocation of proceeds and corresponding impact on an annual basis until full allocation. The allocation and impact reporting for green bond proceeds will be published as a standalone report on the relevant PSA entity's website, or in PSA's sustainability report, while that for green loan proceeds will be made available to lenders upon request. The allocation report will include the amount of proceeds allocated per category, a description of eligible projects funded, the share of financing versus refinancing and the share of unallocated proceeds. In addition, PSA is committed to reporting on relevant impact metrics. Sustainalytics views PSA's allocation and impact reporting as aligned with market practice.

Alignment with the ASEAN Green Bond Standards

The ASEAN Green Bond Standards provide guidance to issuers and more specifically what issuers should do to issue credible green bonds in Southeast Asia. Sustainalytics is of the opinion that the green project categories under the Framework align with the ASEAN Green Bond Standards.



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Report Sections

Introduction.....	2
Sustainalytics' Opinion	3
Appendices	11

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Introduction

PSA International (“PSA” or the “Group”), is a port group with a global network of 160 locations across 42 countries with headquarters in Singapore. PSA’s portfolio comprises over 60 deep sea, rail and inland terminals and affiliated businesses in supply chain management, logistics, marine and digital services. The Group has flagship operations in Singapore and Antwerp and handled 90.0 million twenty-foot equivalent (TEUs) of containers in 2022 and had 49,000 employees as of 31 December 2022.

PSA has developed the PSA Green Finance Framework dated May 2023 (the “Framework”) under which the Group and its entities, including subsidiaries and joint ventures intend to issue green finance instruments such as green bonds, green loans,¹ medium-term notes and private debt placements,² and use the proceeds to finance and refinance, in whole or in part, existing and future projects that are expected to reduce the environmental footprint of port development and operations in the countries where PSA operates in and contribute to the decarbonization of the global shipping sector. The Framework defines eligibility criteria in eight areas:

1. Clean Transportation
2. Energy Efficiency
3. Renewable Energy
4. Climate Change Adaptation
5. Green Buildings
6. Pollution Prevention, Control and Circular Economy
7. Waste Management and Resource Efficiency
8. Sustainable Water and Wastewater Management

PSA engaged Sustainalytics to review the PSA Green Finance Framework and provide a Second-Party Opinion on the Framework and its alignment with the Green Bond Principles 2021 (GBP),³ Green Loan Principles 2023 (GLP)⁴ and ASEAN Green Bond Standards 2018.⁵ The Framework has been published in a separate document.⁶

Scope of work and limitations of Sustainalytics’ Second-Party Opinion

Sustainalytics’ Second-Party Opinion reflects Sustainalytics’ independent⁷ opinion on the alignment of the reviewed Framework with current market standards and the extent to which the eligible project categories are credible and impactful.

As part of the Second-Party Opinion, Sustainalytics assessed the following:

- The Framework’s alignment with the Green Bond Principles 2021, as administered by ICMA, the Green Loan Principles 2023, as administered by LMA, APLMA and LSTA and the ASEAN Green Bond Standards 2018 as administered by ACMF;
- The credibility and anticipated positive impacts of the use of proceeds; and
- The alignment of the issuer’s sustainability strategy and performance and sustainability risk management in relation to the use of proceeds.

For the use of proceeds assessment, Sustainalytics relied on its internal taxonomy, version 1.12, which is informed by market practice and Sustainalytics’ expertise as an ESG research provider.

As part of this engagement, Sustainalytics held conversations with various members of PSA’s management team to understand the sustainability impact of its business processes and planned use of proceeds, as well

¹ For multi-tranche loan facilities, PSA has confirmed to Sustainalytics that the Group will only label tranches of such facilities whose proceeds will be allocated according to the Framework’s eligibility criteria.

² PSA has confirmed to Sustainalytics that equity financing and the sale of stock shares to investors is excluded from private placements.

³ The Green Bond Principles are administered by the International Capital Market Association and are available at: <https://www.icmagroup.org/green-social-and-sustainability-bonds/green-bond-principles-gbp/>.

⁴ The Green Loan Principles are administered by the Loan Market Association, Asia Pacific Loan Market Association and Loan Syndications and Trading Association and are available at: <https://www.lsta.org/content/green-loan-principles/>

⁵ The ASEAN Green Bond Standards are administered by the ASEAN Capital Markets Forum and are available at: <https://www.theacmf.org/initiatives/sustainable-finance/asean-green-bond-standards>

⁶ The PSA Green Finance Framework is available on PSA’s website at: <https://www.globalpsa.com/>

⁷ When operating multiple lines of business that serve a variety of client types, objective research is a cornerstone of Sustainalytics and ensuring analyst independence is paramount to producing objective, actionable research. Sustainalytics has therefore put in place a robust conflict management framework that specifically addresses the need for analyst independence, consistency of process, structural separation of commercial and research (and engagement) teams, data protection and systems separation. Last but not least, analyst compensation is not directly tied to specific commercial outcomes. One of Sustainalytics’ hallmarks is integrity, another is transparency.

as the management of proceeds and reporting aspects of the Framework. PSA representatives have confirmed that: (1) they understand it is the sole responsibility of PSA to ensure that the information provided is complete, accurate and up to date; (2) that they have provided Sustainalytics with all relevant information and (3) that any provided material information has been duly disclosed in a timely manner. Sustainalytics also reviewed relevant public documents and non-public information.

This document contains Sustainalytics' opinion of the Framework and should be read in conjunction with that Framework.

Any update of the present Second-Party Opinion will be conducted according to the agreed engagement conditions between Sustainalytics and PSA.

Sustainalytics' Second-Party Opinion, while reflecting on the alignment of the Framework with market standards, is no guarantee of alignment nor warrants any alignment with future versions of relevant market standards. Furthermore, Sustainalytics' Second-Party Opinion addresses the anticipated impacts of eligible projects expected to be financed with bond and loan proceeds but does not measure the actual impact. The measurement and reporting of the impact achieved through projects financed under the Framework is the responsibility of the Framework owner. PSA is encouraged to update the Framework after 24 (twenty-four) months from the evaluation date, if necessary, and seek an update to the Second-Party Opinion to ensure ongoing alignment of the Framework with market standards and expectations.

In addition, the Second-Party Opinion opines on the potential allocation of proceeds but does not guarantee the realized allocation of the bond and loan proceeds towards eligible activities.

No information provided by Sustainalytics under the present Second-Party Opinion shall be considered as being a statement, representation, warrant or argument, either in favour or against, the truthfulness, reliability or completeness of any facts or statements and related surrounding circumstances that PSA has made available to Sustainalytics for the purpose of this Second-Party Opinion.

Sustainalytics' Opinion

Section 1: Sustainalytics' Opinion on the PSA Green Finance Framework

Sustainalytics is of the opinion that the PSA Green Finance Framework is credible and impactful and aligns with the four core components of the GBP, GLP and the ASEAN GBS. Sustainalytics highlights the following elements of the Framework:

- Use of Proceeds:
 - The eligible categories – i) Clean Transportation; ii) Energy Efficiency; iii) Renewable Energy; iv) Climate Change Adaptation; v) Green Buildings; vi) Pollution Prevention, Control and Circular Economy; vii) Waste Management and Resource Efficiency; and viii) Sustainable Water and Wastewater Management – are aligned with those recognized by the GBP, GLP and ASEAN GBS. Sustainalytics considers that the proceeds raised under the Framework are expected to reduce the environmental footprint of port development and operations in the countries that PSA operates in.
 - The Framework defines a two-year look-back period for its refinancing activities, which Sustainalytics considers to be in line with market practice.
 - PSA adopts the IFC's exclusion list,⁸ which prohibits the use of proceeds to finance projects or expenditures associated with weapons and munitions, alcoholic beverages, tobacco, gambling, casinos and equivalent enterprises, forced and child labour and commercial logging operations for use in primary tropical moist forest, among other activities. Sustainalytics views the exclusion of these activities as strengthening the Framework.
 - Under the Clean Transportation category, PSA may finance low- or zero-emission transportation assets and supporting infrastructure, aimed at reducing the environmental footprint of shipping transportation internationally and in the Group's port and terminal compounds. Examples of intended expenditures include:

⁸ IFC, "IFC Exclusion List", at: https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/company-resources/ifcexclusionlist

- Zero direct emission transportation assets and vehicles including battery-electric or hydrogen-powered prime movers, electric quay and yard cranes, battery-electric automated guided vehicles (AGVs) and service vehicles.
 - Electric and low-carbon-fueled watercrafts, including fully electric, biofuel and hydrogen-powered, which support PSA's terminal operations in Singapore and the UK, such as towage and pilotage services to vessels calling at Singapore and crew transport services to offshore wind farms in the UK. Biofuel-powered watercrafts may include those fueled by hydrotreated vegetable oil (HVO) and exclude blending with other fossil fuels.
 - Supporting shipping infrastructure for low-carbon equipment and ancillaries, such as shore power and electric charging stations. Sustainalytics notes that the installation of electric charging stations will support the use of electric vessels, but that such infrastructure will also support vessels with diesel-fueled auxiliary engines. However, Sustainalytics recognizes the positive impact of electric infrastructure in ports in reducing GHG emissions and improving air quality.
 - R&D, including proof-of-concepts or trials with industry players for low- and zero-emissions port technologies, such as green hydrogen-powered prime movers.
 - Sustainalytics views the expenditures under this category to be in line with market practice.
- Under the Energy Efficiency category, PSA may finance or refinance the installation, maintenance and operation of and upgrades to electric energy-efficient technologies or equipment that aims to reduce energy consumption or improve energy efficiency of the Group's port operations by at least 20%. Sustainalytics positively views the inclusion of a defined energy-efficiency threshold, which ensures meaningful energy savings. Examples of intended projects include:
- Energy-efficient technologies for buildings, such as energy-efficient building cooling systems, air conditioning systems and LEDs.
 - Hardware and software systems aimed at reducing power consumption, such as lighting optimization systems, smart energy consumption control platforms that can switch off auxiliary systems for inactive equipment and yard crane workload optimizers.
 - Smart grid solutions including an integrated platform for grid energy management, a supervisory control and data acquisition system and data analytics designed to improve grid efficiency.
 - Battery energy storage systems connected to renewable energy sources excluding bunkering of any fossil fuels.
 - R&D, including proof-of-concepts or trials with industry players for new energy efficiency technologies, such as electric motors for spreader and anti-sway control machinery that are currently powered by hydraulics and fully electric or battery hybrid systems for machinery that are currently powered by diesel.
 - Sustainalytics considers PSA's investments in these energy efficiency activities to be aligned with market practice.
- Under the Renewable Energy category, PSA may finance or refinance the development, installation, maintenance and operation of solar photovoltaic and wind power generation projects. Additionally, R&D for renewable energy technologies are considered under the Framework. Sustainalytics views these expenditures as credible and impactful given their significant potential to create positive environmental impact through clean energy production.
- Under the Climate Change Adaptation category, PSA may invest in projects that improve the climate resiliency of port infrastructure to climate risks, such as sea-level rise and extreme weather events. Examples of intended expenditures include:
- Adaptation of existing quay infrastructure to rising sea levels by raising the height of quay walls above predicted increase in sea-levels in the future.
 - Drainage systems that are designed with increased capacity to minimize the risk of flooding.
 - PSA has confirmed to Sustainalytics that infrastructure and adaptation projects will be supported by PSA's climate risk assessment and adaptation framework, which includes a climate-related vulnerability assessment and adaptation plan.

- Sustainalytics is of the opinion that financing such projects have the potential to advance climate change adaptation and resilience of PSA's port infrastructure and considers these investments to be aligned with market practice.
- Under the Green Buildings category, PSA may finance or refinance the construction, renovation and retrofit of new and existing commercial buildings that have achieved or are expected to achieve one of the following third-party green building certification levels: i) BCA Green Mark Gold Plus or above;⁹ ii) LEED Gold or above;¹⁰ iii) BREEAM Excellent or above;¹¹ iv) China Green Building Evaluation Label 3-star;¹² or v) DGNB German Sustainable Building Council Gold or above.¹³ To achieve the referenced green building certification standards, PSA may finance low carbon and alternative construction materials. The Group has confirmed that the financing of these materials is only used in the context of explicitly contributing towards the achievement of the referenced certification standards and levels. Sustainalytics considers the referenced certification standards to be credible and the levels selected to be impactful and the investments under this category to be aligned with market practice.
- Under the Pollution, Prevention, Control and Circular Economy category, the Group may invest in activities that support product repurposing, such as the collection and refurbishment of materials, components and products for reuse in PSA's operations. The Group may also finance or refinance the protection and conservation of natural resources. Examples of intended expenditures include:
 - The collection of used lithium batteries from port machinery, such as AGVs and reusing them as battery energy storage systems.
 - Biodiversity conservation projects on the Group's operation sites, including building a protective bird nesting platform and artificial sand dune to serve as a habitat for rare dune plant species.
 - Sustainalytics considers the investments under this category to be in line with market practice.
- Under the Waste Management and Resource Efficiency category, PSA may invest in waste management systems and infrastructure that aim to prevent, reduce and recycle waste. Intended project examples include refrigerant gas recovery and recycling; waste collection, sorting and recycling.
 - Regarding the recovery and recycling of refrigerant gas from refrigerated containers, PSA has confirmed to Sustainalytics that this activity will be conducted by certified technicians with established protocols and equipment to ensure robust refrigerant leak control, detection and monitoring.
 - Waste collection and recycling activities will be limited to those that ensure the source segregation of waste.
 - Sustainalytics views the expenditures under this category to be in line with market practice and to have the potential to contribute towards waste reduction from PSA's operations.
- Under the Sustainable Water and Wastewater Management category, PSA may invest in the development and installation of infrastructure and technologies that treat and recycle water and promote water conservation. Examples of infrastructure and technologies being considered include:
 - Treatment and recycling of wastewater across PSA's terminals. The Group has confirmed the exclusion of wastewater treatment from fossil fuel operations.
 - Rainwater harvesting systems.
 - Installation of water efficient equipment, such as automatic tap-water sensors that reduce water usage.
 - Sustainalytics considers these expenditures to be in line with market practice.
- Project Evaluation and Selection:
 - PSA entities' finance department is responsible for sourcing and nominating potential green projects, after which the Group Treasury, Climate Response Command and Supply Chain

⁹ BCA Green Mark: <https://www1.bca.gov.sg/buildsg/sustainability/green-mark-certification-scheme>

¹⁰ LEED: <https://www.usgbc.org/leed>

¹¹ BREEAM: <https://www.breeam.com/>

¹² Chinese Green Building Evaluation Label: <http://www.gbige.org/collections/14970>

¹³ DGNB: <https://www.dgnb-system.de/en/system/index.php>

- Sustainability Solutions teams will review and evaluate the selected projects in line with the Framework's eligibility criteria.
- PSA has processes in place for evaluating and mitigating environmental and social risks commonly associated with the eligible projects. This process will be applicable to all allocation decisions made under the Framework. Sustainalytics considers these environmental and social risk management systems to be adequate and aligned with market expectation. For additional detail, please refer to Section 2.
 - Based on the cross-functional oversight for project evaluation and selection and the presence of risk management systems, Sustainalytics considers this process to be in line with market practice.
 - Management of Proceeds:
 - PSA's Group Treasury team or PSA entities' finance department will be responsible for managing and tracking the proceeds through a green project register. The register will include information such as the net proceeds raised from the instruments issued under the Framework and the net proceeds earmarked or allocated to eligible projects.
 - The Group intends to fully allocate net proceeds within 24 months of issuance. Pending allocation, unallocated proceeds will be temporarily invested in cash or cash equivalents in accordance with PSA's Group finance policies and procedures and will exclude activities in the exclusionary list in the Framework.
 - If any eligible green projects cease to fulfil the eligibility criteria, PSA will remove and replace such projects on a best-effort basis as soon as reasonably practicable.
 - Based on the existence of internal tracking mechanisms to allocate proceeds in a timely manner and the disclosure of the temporary use of proceeds, Sustainalytics considers this process to be in line with market practice.
 - Reporting:
 - PSA intends to report on the allocation of proceeds and corresponding impact on an annual basis until full allocation. Regarding green bond proceeds, allocation and impact reporting will be made publicly available on the PSA entity's website, as a standalone report or in PSA's sustainability report. Regarding green loan proceeds, allocation and impact reporting will be made available to lenders through a report upon request. Additionally, the Group has confirmed to Sustainalytics that for revolving credit facilities, allocation reporting will be conducted annually until loan maturity.
 - Allocation reporting may include the amount allocated per category, a description of the eligible green projects funded, the share of finance versus refinancing and the remaining balance of unallocated proceeds.
 - Impact reporting may include relevant impact indicators per category, such as the green building certifications achieved, renewable energy generated, and waste removed. For a full list of impact indicators, please refer to Appendix 2.
 - Based on the commitments to allocation and impact reporting, Sustainalytics considers this process to be in line with market practice.

Alignment with ASEAN Green Bond Standards 2018

The ASEAN Green Bond Standards 2018 provide guidance to issuers and communicate more specifically about what issuers should do to issue credible green bonds in ASEAN countries. Sustainalytics is of the opinion that the eligible green project categories under the PSA Green Finance Framework align with the ASEAN GBS. For detailed information please refer to Appendix 1: Alignment with ASEAN Green Bond Standards 2018.

Alignment with Green Bond Principles 2021 and Green Loan Principles 2023

Sustainalytics has determined that the PSA Green Finance Framework aligns with the four core components of the GBP and GLP. For detailed information please refer to Appendix 2: Green Bond or Green Loan Programme External Review Form.

Section 2: Sustainability Strategy of PSA

Contribution to PSA's sustainability strategy

Sustainalytics is of the opinion that PSA demonstrates a commitment to sustainability, which is centred around three pillars: i) taking climate action; ii) transforming supply chains; and iii) nurturing a future ready workforce.¹⁴

As part of its commitment to take climate action, PSA has established a goal to achieve net zero carbon emissions by 2050. To ensure steady progress to achieve carbon neutrality by 2050, the Group has set interim targets to reduce its absolute carbon emissions by 50% by 2030 and 75% by 2040 from a 2019 baseline. With the intention to set a scope 3 emissions reduction target in the future, PSA aims to establish a scope 3 inventory by 2022. To achieve its decarbonization targets, the Group has developed specific scope 1 and 2 emissions abatement pathways. The scope 1 pathway is focused on adopting low-carbon fuels, fleet electrification, resource optimization and energy efficiency improvements. For example, PSA commits to replacing 90% of its rubber tyred gantry cranes (RTGs) to electric or hybrid models by 2030. At the end of 2021, the Group had achieved nearly 50% electrification or hybridisation of RTGs. Moreover, PSA adopts hardware and software measures to enhance energy efficiency of its operations such as the use of LED lighting on cranes and buildings, the installation of yard crane workload optimisers to reduce unproductive energy consumption and smart energy control platforms that monitors real-time energy consumption data. The scope 2 pathway involves the purchase, generation and storage of renewable energy and electrical grid optimization. For example, nine of PSA's business units have installed solar PV systems and generated more than 7,500 MWh of solar energy in 2021.

To minimize waste generated by the Group, PSA has started to collect and report on waste data across its operations in 2021 with the goal of developing a global waste reduction and recycling plan by 2023. The Group also promotes the adoption of a circular approach to waste management. For example, spare parts of port equipment are sent for repair and refurbishment for future reuse at PSA's container terminal in the Baltic hub, and at PSA Singapore, lithium batteries from battery-powered automated guided vehicles are recycled into battery energy storage systems (BESS). With the deployment of battery recycling, the BESS capacity of PSA is expected to grow to more than 100MW by 2032. Other than waste reduction, PSA adopts water conservation measures by treating and recycling wastewater through operating water treatment plants and installing rainwater harvesting systems to supplement water supplies in its terminals. Through these water conservation efforts, PSA achieved a 7% reduction in the volume of water withdrawn in 2021.

Sustainalytics is of the opinion that the PSA Green Finance Framework is aligned with the Group's overall sustainability strategy and initiatives and will further the Group's action on its key environmental priorities.

Approach to managing environmental and social risks associated with the projects

Sustainalytics recognizes that the proceeds from the instruments issued under the Framework will be directed towards eligible projects that are expected to have positive environmental impact. However, Sustainalytics is aware that such eligible projects could also lead to negative environmental outcomes. Some key environmental and social risks possibly associated with the eligible projects may include issues related to land use and biodiversity risks associated with large-scale infrastructure development, waste generated in construction and operations and occupational health and safety.

Sustainalytics is of the opinion that PSA is able to manage or mitigate potential risks through the implementation of the following:

- To manage land use and biodiversity issues associated with large-scale infrastructure development, PSA conducts environmental impact assessments (EIA) prior to the commencement of port infrastructure development and construction projects.¹⁵ Based on the EIA, the Group will establish specific environmental objectives to ensure environmental impact is kept to a minimum, with appropriate mitigants in place. Moreover, the Group's climate response management system requires all business units to assess, manage and continuously improve their environmental impact, including through establishing a legal register to monitor compliance to local environmental regulations and reporting any environmental fines or penalties associated with non-compliance.
- Regarding risks related to waste generated in construction and operations, business units are encouraged to adopt measures to minimize waste generation and seek opportunities to reuse and

¹⁴ Global PSA, "Sustainability Report 2021", at: <https://www.globalpsa.com/wp-content/uploads/PSA-International-Sustainability-Report-2021.pdf>

¹⁵ Global PSA, "Sustainability Report 2021", at: <https://www.globalpsa.com/wp-content/uploads/PSA-International-Sustainability-Report-2021.pdf>

recycle materials within their operations under the Group health, safety, security and sustainability (HSSS) policy.¹⁶

- To address risks related to occupational health and safety (OHS), the PSA Group health, safety and security management system (HSS MS) details the requirements, processes and practices required to ensure workplace health and safety.¹⁷ The HSS MS is certified to the ISO 45001:2018 standard on OHS management,¹⁸ which demonstrates the presence of established processes and safety protocols to minimize work-related injury and ill health. Under the HSS MS, business units are required to identify, assess and manage hazards at the workplace in line with an established hazards and effects management process. Each business unit has a governance structure, which clearly delegates responsibilities for implementing the Group HSS MS requirements, monitor performance and strive for continuous improvement in health and safety. With a commitment to build a culture of safety, PSA implements several initiatives, including establishing risk assessment teams and safety committees, workplace safety training sessions and workshops, developing an incident investigation process and feedback mechanisms for employees to report and raise any concerns regarding unsafe behaviour or hazardous situations at the workplace.

Based on these policies, standards and assessments, Sustainalytics is of the opinion that PSA has implemented adequate measures and is well positioned to manage and mitigate environmental and social risks commonly associated with the eligible categories.

Section 3: Impact of Use of Proceeds

All eight use of proceeds categories are aligned with those recognized by the GBP, GLP and ASEAN GBS. Sustainalytics has focused on below where the impact is specifically relevant in the local context.

Importance of low-carbon fuels, renewable energy and energy efficiency in Singapore's shipping sector

The global maritime industry was responsible for approximately 2% of energy-related CO₂ emissions in 2021.¹⁹ More than 80% of the world's trade volume is carried out by sea and 82% of the sector's energy needs is fulfilled by heavy fuel oil.^{20,21} Therefore, GHG emissions from the shipping sector are projected to continue increasing if mitigation measures are not put in place.²² Specifically, the International Maritime Organization (IMO) estimates that shipping sector emissions could grow to 90-130% of 2008 emissions by 2050.²³ Recognizing the critical role that decarbonizing international shipping can play in achieving global climate targets, the IMO established in 2018 a set of carbon intensity reduction targets of at least a 40% reduction by 2030 and 70% by 2050 compared to a 2008 baseline across international shipping.²⁴

Singapore is a major international maritime transport hub, with the Port of Singapore being the world's second-busiest port in terms of volume of TEU transported through the port.²⁵ Recognizing the important role that Singapore can play in leading and advancing efforts in greening international shipping, the Maritime and Port Authority of Singapore (MPA) launched the Maritime Singapore Green Initiative (MSGI) in 2011 and pledged SGD 100 million (USD 76 million) over five years to support the achievement of the IMO's targets and provide incentives to companies to encourage the adoption of cleaner and greener shipping practices beyond the minimum requirements stipulated by the IMO.²⁶ The MSGI has been extended twice to 31 December 2024 and comprises of four voluntary programmes focused on green shipping, green ports, green energy and technology and green awareness.²⁷ In 2022, the Maritime Singapore Decarbonisation Blueprint was launched with more than SGD 300 million (USD 228 million) committed in funding from the MPA to support the targets

¹⁶ Global PSA, "Sustainability Report 2021", at: <https://www.globalpsa.com/wp-content/uploads/PSA-International-Sustainability-Report-2021.pdf>

¹⁷ Global PSA, "Sustainability Report 2021", at: <https://www.globalpsa.com/wp-content/uploads/PSA-International-Sustainability-Report-2021.pdf>

¹⁸ ISO, "ISO 45001:2018 family – Occupational health and safety", at: <https://www.iso.org/iso-45001-occupational-health-and-safety.html>

¹⁹ IEA, "International Shipping", (2022), at: <https://www.iea.org/reports/international-shipping>

²⁰ UNCTAD, "Review of Maritime Transport", (2022), at: <https://unctad.org/webflyer/review-maritime-transport-2022>

²¹ IRENA, "New Report Identifies Clean Energy Options for Global Shipping Industry", (2019), at: <https://www.irena.org/news/articles/2019/Oct/New-Report-Identifies-Clean-Energy-Options-for-Global-Shipping-Industry>

²² European Commission, "Reducing emissions from the shipping sector", at: https://ec.europa.eu/clima/policies/transport/shipping_en

²³ IMO, "Fourth IMO Green House Gas Study", (2020), at:

<https://www.wcdn.imo.org/localresources/en/OurWork/Environment/Documents/Fourth%20IMO%20GHG%20Study%202020%20Executive-Summary.pdf>

²⁴ IMO, "IMO's work to cut GHG emissions from ships", at: <https://www.imo.org/en/MediaCentre/HotTopics/Pages/Cutting-GHG-emissions.aspx>

²⁵ MPA, "Maritime Singapore Decarbonisation Blueprint: Working Towards 2050", at:

<https://www.wcdn.imo.org/localresources/en/OurWork/Environment/Documents/Air%20pollution/Maritime%20Singapore%20Decarbonisation%20blueprint.pdf>

²⁶ UN Department of Economic and Social Affairs Sustainable Development, "Singapore introduces the Maritime Singapore Green Initiative", at:

<https://sdgs.un.org/partnerships/singapore-introduces-maritime-singapore-green-initiative>

²⁷ UN Department of Economic and Social Affairs Sustainable Development, "Progress report for

Singapore introduces the Maritime Singapore Green Initiative", (2021), at: <https://sdgs.un.org/partnership-progress/partnership-progress-2022-06-07>

and initiatives outlined in the blueprint.²⁸ Under the blueprint, MPA aims to achieve at least a 60% reduction in absolute emissions from Singapore’s port terminals by 2030 against a 2005 baseline and net zero by 2050, through initiatives such as developing smart systems to enhance operational efficiency, greening port equipment and vehicles, developing solar power generation capacity and the constructing green buildings.²⁹ The blueprint also includes the aim to reduce absolute emissions from Singapore’s domestic harbour craft fleet by 15% compared to 2021.³⁰

Based on the above, Sustainalytics is of the opinion PSA’s investments in clean transportation, renewable energy and energy-efficiency projects are expected to contribute to fulfilling the IMO strategy and steering the shipping sector towards a low-carbon future.

Contribution to SDGs

The Sustainable Development Goals were adopted in September 2015 by the United Nations General Assembly and form part of an agenda for achieving sustainable development by 2030. The instruments issued under the PSA Green Finance Framework are expected to help advance the following SDGs and targets:

Use of Proceeds Category	SDG	SDG target
Clean Transportation	11. Sustainable Cities and Communities	11.2 Provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
Energy Efficiency	7. Affordable and Clean energy	7.3 By 2030, double the global rate of improvement in energy efficiency
Renewable Energy	7. Affordable and Clean Energy	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix
Climate Change Adaptation	13. Climate Action	13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
Green Buildings	9. Industry, Innovation and Infrastructure	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities
Pollution Prevention, Control and Circular Economy	12. Responsible Consumption and Production	12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse
Waste Management and Resource Efficiency	12. Responsible Consumption and Production	12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling, and reuse
Sustainable Water and Wastewater Management	6. Clean Water and Sanitation	6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

²⁸ Ministry of Transport, “An Environmentally Sustainable Maritime Singapore”, at: <https://www.mot.gov.sg/what-we-do/green-transport/maritime-environment-responsibility>

²⁹ MPA, “Maritime Singapore Decarbonisation Blueprint: Working Towards 2050”, at: <https://www.wcdn.imo.org/localresources/en/OurWork/Environment/Documents/Air%20pollution/Maritime%20Singapore%20Decarbonisation%20blueprint.pdf>

³⁰ Ibid.

Conclusion

PSA has developed the PSA Green Finance Framework, under which it may issue green finance instruments such as green bonds, green loans, medium-term notes and private debt placements and use the proceeds to finance or refinance projects related to – Clean Transportation; Energy Efficiency; Renewable Energy; Climate Change Adaptation; Green Buildings; Pollution Prevention, Control and Circular Economy; Waste Management and Resource Efficiency and Sustainable Water and Wastewater Management. Sustainalytics considers that the projects funded by the green finance instruments may advance the transition to low-carbon port development and operations in the countries where PSA operates in and contribute to the decarbonization of the global shipping sector.

The PSA Green Finance Framework outlines a process by which proceeds will be tracked, allocated and managed, and commitments have been made for reporting on the allocation and impact of the use of proceeds. Furthermore, Sustainalytics believes that the PSA Green Finance Framework is aligned with the overall sustainability strategy of the Group and that the green use of proceeds categories will contribute to the advancement of the UN Sustainable Development Goals 6, 7, 9, 11, 12 and 13. Additionally, Sustainalytics is of the opinion that PSA has adequate measures to identify, manage and mitigate environmental and social risks commonly associated with the eligible projects funded by the proceeds.

Based on the above, Sustainalytics is confident that PSA is well positioned to issue green bonds, green loans, medium-term notes and private debt placements and that the PSA Green Finance Framework is robust, transparent and in alignment with the core components of the Green Bond Principles 2021, Green Loan Principles 2023 and ASEAN Green Bond Standards 2018.

Appendices

Appendix 1: Alignment to the ASEAN Green Bond Standards 2018 (ASEAN GBS)

ASEAN GBS Criteria	Alignment with the	
	ASEAN GBS	Sustainalytics' comments on alignment with the ASEAN GBS
Eligibility	Yes	The ASEAN GBS requires that issuers must be in or that the proceeds be directed to assets in an ASEAN country. PSA qualifies given that PSA intends to finance projects in Singapore.
Use of Proceeds	Yes	The ASEAN GBS offers specific clarification that fossil fuel power generation projects are excluded. PSA has confirmed this exclusion criteria to Sustainalytics.
Process for Project Evaluation and Selection	Yes	The ASEAN GBS specifies information that must be clearly communicated to investors before issuance regarding project selection. PSA entities' finance department is responsible for sourcing and nominating potential green projects, after which the Group Treasury, Climate Response Command and Supply Chain Sustainability Solutions teams will review and evaluate the selected projects in line with the Framework's eligibility criteria.
Management of Proceeds	Yes	The ASEAN GBS mandates that proceeds must be appropriately tracked and that temporary investments be disclosed. Within the Framework, PSA disclosed that it will track and monitor the use of proceeds using its internal green project register. Unallocated proceeds will be held as cash or cash equivalents in line with the Group's finance policies and procedures.
Reporting	Yes	The ASEAN GBS requires annual reporting on the allocation of funds and the expected impacts. PSA confirms that it will provide an annual allocation report until full allocation and report on the impact of the use of proceeds.
Annual Review	Yes	The ASEAN GBS encourages, but does not require, annual reviews. As of 2023, PSA does not intend to provide annual reviews.

Appendix 2: Green Bond or Green Bond Programme - External Review Form

Section 1. Basic Information

Issuer name:	PSA International
Green Bond ISIN or Issuer Green Bond Framework Name, if applicable:	PSA Green Finance Framework
Review provider's name:	Sustainalytics
Completion date of this form:	May 12, 2023

Section 2. Review overview

SCOPE OF REVIEW

The following may be used or adapted, where appropriate, to summarise the scope of the review.

The review assessed the following elements and confirmed their alignment with the GBP:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Use of Proceeds | <input checked="" type="checkbox"/> Process for Project Evaluation and Selection |
| <input checked="" type="checkbox"/> Management of Proceeds | <input checked="" type="checkbox"/> Reporting |

ROLE(S) OF REVIEW PROVIDER

- | | |
|---|--|
| <input checked="" type="checkbox"/> Consultancy (incl. 2 nd opinion) | <input type="checkbox"/> Certification |
| <input type="checkbox"/> Verification | <input type="checkbox"/> Rating |
| <input type="checkbox"/> Other (<i>please specify</i>): | |

Note: In case of multiple reviews / different providers, please provide separate forms for each review.

EXECUTIVE SUMMARY OF REVIEW and/or LINK TO FULL REVIEW (*if applicable*)

Please refer to Evaluation Summary above.

Section 3. Detailed review

Reviewers are encouraged to provide the information below to the extent possible and use the comment section to explain the scope of their review.

1. USE OF PROCEEDS

Overall comment on section (*if applicable*):

The eligible categories for the use of proceeds – Clean Transportation; Energy Efficiency; Renewable Energy; Climate Change Adaptation; Green Buildings; Pollution Prevention, Control and Circular Economy; Waste Management and Resource Efficiency and Sustainable Water and Wastewater Management – are aligned with those recognized by the Green Bond Principles, Green Loan Principles and ASEAN Green Bond Standards. Sustainalytics considers that investments in the eligible categories are expected to reduce the environmental

footprint of port development and shipping operations globally and advance the UN Sustainable Development Goals, specifically SDGs 6, 7, 9, 11, 12 and 13.

Use of proceeds categories as per GBP:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Renewable energy | <input checked="" type="checkbox"/> Energy efficiency |
| <input checked="" type="checkbox"/> Pollution prevention and control | <input type="checkbox"/> Environmentally sustainable management of living natural resources and land use |
| <input type="checkbox"/> Terrestrial and aquatic biodiversity conservation | <input checked="" type="checkbox"/> Clean transportation |
| <input checked="" type="checkbox"/> Sustainable water and wastewater management | <input checked="" type="checkbox"/> Climate change adaptation |
| <input checked="" type="checkbox"/> Eco-efficient and/or circular economy adapted products, production technologies and processes | <input checked="" type="checkbox"/> Green buildings |
| <input type="checkbox"/> Unknown at issuance but currently expected to conform with GBP categories, or other eligible areas not yet stated in GBP | <input type="checkbox"/> Other (<i>please specify</i>): |

If applicable please specify the environmental taxonomy, if other than GBP:

2. PROCESS FOR PROJECT EVALUATION AND SELECTION

Overall comment on section (if applicable):

PSA entities' finance department is responsible for sourcing and nominating potential green projects, after which the Group Treasury, Climate Response Command and Supply Chain Sustainability Solutions teams will review and evaluate the selected projects in line with the Framework's eligibility criteria. PSA has processes in place to identify and mitigate common environmental and social risks associated with the eligible projects, which are applicable to all allocation decisions made under the Framework. Sustainalytics considers PSA's risk management system to be adequate and the project selection process in line with market practice.

Evaluation and selection

- | | |
|--|---|
| <input checked="" type="checkbox"/> Credentials on the issuer's environmental sustainability objectives | <input checked="" type="checkbox"/> Documented process to determine that projects fit within defined categories |
| <input checked="" type="checkbox"/> Defined and transparent criteria for projects eligible for Green Bond proceeds | <input checked="" type="checkbox"/> Documented process to identify and manage potential ESG risks associated with the project |
| <input checked="" type="checkbox"/> Summary criteria for project evaluation and selection publicly available | <input type="checkbox"/> Other (<i>please specify</i>): |

Information on Responsibilities and Accountability

- | | |
|--|--|
| <input checked="" type="checkbox"/> Evaluation / Selection criteria subject to external advice or verification | <input type="checkbox"/> In-house assessment |
|--|--|

- Other (please specify):

3. MANAGEMENT OF PROCEEDS

Overall comment on section (if applicable):

PSA's Group Treasury or PSA entities' finance department will oversee the process for the management of proceeds, where the proceeds will be tracked through a green project register. PSA intends to fully allocate net proceeds within 24 months of issuance. Pending full allocation, unallocated proceeds will be held in cash or cash equivalents in accordance with PSA's Group finance policies and procedures. This is in line with market practice.

Tracking of proceeds:

- Green Bond proceeds segregated or tracked by the issuer in an appropriate manner
- Disclosure of intended types of temporary investment instruments for unallocated proceeds
- Other (please specify):

Additional disclosure:

- | | |
|---|---|
| <input type="checkbox"/> Allocations to future investments only | <input checked="" type="checkbox"/> Allocations to both existing and future investments |
| <input type="checkbox"/> Allocation to individual disbursements | <input checked="" type="checkbox"/> Allocation to a portfolio of disbursements |
| <input checked="" type="checkbox"/> Disclosure of portfolio balance of unallocated proceeds | <input type="checkbox"/> Other (please specify): |

4. REPORTING

Overall comment on section (if applicable):

PSA intends to report on the allocation of proceeds and corresponding impact on an annual basis until full allocation. The allocation and impact reporting for green bond proceeds will be published as a standalone report on the relevant PSA entity's website, or in PSA's sustainability report, while that for green loan proceeds will be made available to lenders upon request. The allocation report will include the amount of proceeds allocated per category, a description of eligible projects funded, the share of financing versus refinancing and the share of unallocated proceeds. In addition, PSA is committed to reporting on relevant impact metrics. Sustainalytics views PSA's allocation and impact reporting as aligned with market practice.

Use of proceeds reporting:

- | | |
|--|--|
| <input type="checkbox"/> Project-by-project | <input checked="" type="checkbox"/> On a project portfolio basis |
| <input type="checkbox"/> Linkage to individual bond(s) | <input type="checkbox"/> Other (please specify): |

Information reported:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Allocated amounts | <input type="checkbox"/> Green Bond financed share of total investment |
| <input checked="" type="checkbox"/> Other (<i>please specify</i>): share of financing versus refinancing | |

Frequency:

- | | |
|---|--------------------------------------|
| <input checked="" type="checkbox"/> Annual | <input type="checkbox"/> Semi-annual |
| <input type="checkbox"/> Other (<i>please specify</i>): | |

Impact reporting:

- | | |
|--|--|
| <input type="checkbox"/> Project-by-project | <input checked="" type="checkbox"/> On a project portfolio basis |
| <input type="checkbox"/> Linkage to individual bond(s) | <input type="checkbox"/> Other (<i>please specify</i>): |

Information reported (expected or ex-post):

- | | |
|---|---|
| <input checked="" type="checkbox"/> GHG Emissions / Savings | <input checked="" type="checkbox"/> Energy Savings |
| <input checked="" type="checkbox"/> Decrease in water use | <input checked="" type="checkbox"/> Other ESG indicators (<i>please specify</i>): Number of electric vehicle charging lots installed; number or percentage of electric prime movers deployed; amount of greenhouse gas avoided or reduced in carbon dioxide equivalent (tCO ₂ e); renewable energy generated (kWh); renewable energy installed capacity (kW); reduction in flood damage costs; reduction in number of operating days lost to floods; decrease in climate-related risk insurance premiums; number and gross floor area (m ²) of green buildings and green buildings certifications obtained; annual increase in materials, components and products that are reusable, recyclable, and/or certified compostable as a result of the project (tonnes or %), annual increase in components, products or assets with circular design as a result of the project (tonnes or % or valorised amount); amount of waste removed (tonnes); annual amount of waste that is prevented, minimized, reused or recycled before and after the project (tonnes or %); water intensity reduced (m ³ /m ²) |

Frequency

- | | |
|--|--------------------------------------|
| <input checked="" type="checkbox"/> Annual | <input type="checkbox"/> Semi-annual |
|--|--------------------------------------|

Other (please specify):

Means of Disclosure

- | | |
|---|---|
| <input type="checkbox"/> Information published in financial report | <input checked="" type="checkbox"/> Information published in sustainability report for green bond proceeds |
| <input checked="" type="checkbox"/> Information published in ad hoc documents | <input checked="" type="checkbox"/> Other (please specify): Issuer's website. For green loan proceeds, reporting will be made available to lenders through a report upon request. |
| <input type="checkbox"/> Reporting reviewed (if yes, please specify which parts of the reporting are subject to external review): | |

Where appropriate, please specify name and date of publication in the useful links section.

USEFUL LINKS (e.g. to review provider methodology or credentials, to issuer's documentation, etc.)

SPECIFY OTHER EXTERNAL REVIEWS AVAILABLE, IF APPROPRIATE

Type(s) of Review provided:

- | | |
|--|--|
| <input type="checkbox"/> Consultancy (incl. 2 nd opinion) | <input type="checkbox"/> Certification |
| <input type="checkbox"/> Verification / Audit | <input type="checkbox"/> Rating |
| <input type="checkbox"/> Other (<i>please specify</i>): | |

Review provider(s):

Date of publication:

ABOUT ROLE(S) OF INDEPENDENT REVIEW PROVIDERS AS DEFINED BY THE GBP

- i. Second-Party Opinion: An institution with environmental expertise, that is independent from the issuer may issue a Second-Party Opinion. The institution should be independent from the issuer's adviser for its Green Bond framework, or appropriate procedures, such as information barriers, will have been implemented within the institution to ensure the independence of the Second-Party Opinion. It normally entails an assessment of the alignment with the Green Bond Principles. In particular, it can include an assessment of the issuer's overarching objectives, strategy, policy and/or processes relating to environmental sustainability, and an evaluation of the environmental features of the type of projects intended for the Use of Proceeds.
- ii. Verification: An issuer can obtain independent verification against a designated set of criteria, typically pertaining to business processes and/or environmental criteria. Verification may focus on alignment with internal or external standards or claims made by the issuer. Also, evaluation of the environmentally sustainable features of underlying assets may be termed verification and may reference external criteria. Assurance or attestation regarding an issuer's internal tracking method for use of proceeds, allocation of funds from Green Bond proceeds, statement of environmental impact or alignment of reporting with the GBP, may also be termed verification.
- iii. Certification: An issuer can have its Green Bond or associated Green Bond framework or Use of Proceeds certified against a recognised external green standard or label. A standard or label defines specific criteria, and alignment with such criteria is normally tested by qualified, accredited third parties, which may verify consistency with the certification criteria.
- iv. Green Bond Scoring/Rating: An issuer can have its Green Bond, associated Green Bond framework or a key feature such as Use of Proceeds evaluated or assessed by qualified third parties, such as specialised research providers or rating agencies, according to an established scoring/rating methodology. The output may include a focus on environmental performance data, the process relative to the GBP, or another benchmark, such as

a 2-degree climate change scenario. Such scoring/rating is distinct from credit ratings, which may nonetheless reflect material environmental risks.

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For more information, visit www.sustainalytics.com

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