

# ENVIRONMENT

## IN THIS SECTION

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- Climate Change Adaptation
- Emissions and Energy
- Marine Protection and Conservation
- Waste Management and Recycling
- Water Use and Pollution



# CLIMATE CHANGE ADAPTATION

Ensuring the resilience of PSA's critical infrastructure and assets is essential for maintaining the uninterrupted operations of global supply chains and trade flows. PSA adopts a proactive approach to assess climate change risks and implement necessary adaptation measures to protect its operations.

## WHY IT IS IMPORTANT

Acute and chronic weather events can pose significant risks to PSA's infrastructure and operations over the short, medium and long term. PSA's ports, warehousing and distribution centres are exposed to increasingly frequent storms and rising sea levels, potentially rendering infrastructure and equipment unserviceable from damages and causing downtime from frequent repairs. These interruptions could lead to delayed deliveries of cargo and essential goods, impacting stakeholders throughout the value chain, from upstream businesses to downstream consumers and communities.

PSA recognises the crucial role we play as a port operator and logistics service provider. Hence, we seek to mitigate the impacts of climate change risks to safeguard our assets and infrastructure and sustain operational excellence and resilience.

## OUR APPROACH

PSA aligns its approach to addressing climate change risks to best practices based on the recommendations from the Taskforce on Climate-related Financial Disclosures (TCFD), now incorporated under the International Sustainability Standards Board (ISSB) standards. We focus on identifying physical and transition climate-related risks material to PSA and developing appropriate adaptation and response strategies. The Climate Response Management System (CRMS) guides our business units in their climate change risk management approaches as part of PSA's sustainability strategy.

### GOVERNANCE

PSA's Sustainability Governance Structure (refer to section on [Sustainability Governance](#)) provides oversight over the management of climate-related risks. Informed by PSA's Group Sustainability team and members across various functions, PSA's Board and Senior Management approve PSA's sustainability strategy, including its targets and commitments, incorporating initiatives to address climate change risks and aligning with overall business goals.

### BOARD OVERSIGHT

Comprised of Board members, the Audit, Risk & Finance Committee supervises PSA Group's risks including sustainability risks. The Committee meets three times a year and as needed to review risk management processes and procedures, and to provide approval for any changes to PSA's risk management approach.





MANAGEMENT STRUCTURE

PSA’s Senior Management Council (SMC) oversees the implementation of PSA’s sustainability strategy and provides approval for all climate-related decisions, including identification of key issues and mitigation strategies, alignment to global standards, review of targets and performance, and allocation of resources. The SMC is also responsible for designing, implementing, and monitoring risk management and internal control systems for the Group. It is supported by the Group Sustainability and the Group Risk Management (GRM) teams in addressing climate and risk management issues, respectively.

The Group Sustainability team leads the implementation of climate initiatives, providing the SMC with regular updates on initiatives and proposing recommendations for SMC approval during scheduled meetings. The GRM function drives the Group’s risk management approach, guided by Group policies and PSA’s Enterprise Risk Management (ERM) framework, ensuring effective processes are in place and active monitoring of key risk indicators is conducted. SMC members assume oversight of the risks associated with the corporate functions under their charge while the Group’s overall risk management strategy and processes are reviewed by the SMC at least once a year.

To ensure accountability with regard to sustainability issues, key performance indicators on specific aspects of sustainability are developed and tracked through performance management and appraisal processes. These are linked to annual performance-related remuneration and bonuses.

RISK MANAGEMENT APPROACH

PSA undertakes a robust approach to risk management as part of our climate response strategy. By identifying and assessing risks, PSA is able to subsequently develop appropriate measures to mitigate potential impacts and protect existing assets through business continuity plans, adaptation initiatives and future asset planning. This is guided by the Group-wide ERM framework used to evaluate and manage PSA’s exposure to risks.

Sustainability-related risks within the ERM framework, include governance, cybersecurity, health, safety, security and environment risks.

Guided by the ERM framework, individual business units and Corporate Centre functions oversee their own sustainability risk management processes and have to establish controls and treatment plans for risks identified, as well as document their inputs for consolidation towards the Group’s organisational risk register. Through Group Risk Management, the Board-level Audit, Risk & Finance Committee is kept updated on emerging risks and significant trends, providing oversight of risks for the organisation as a whole.

As part of ERM integration, key climate-related risks will be identified and subjected to a review on a biannual basis alongside all other risks to consistently identify, quantify and assess the controls for implementation in our strategic planning process. A Risk Assessment Matrix (RAM) is utilised to assess risks based on likelihood and consequences,

encompassing impacts on the environment, people, and PSA’s reputation and financials, culminating in an overall risk materiality. Based on the overall RAM score (likelihood x consequence), the need for further actions is determined.

Across our operations, we continue to implement key risk management measures, based on the risk philosophies of avoid, mitigate, transfer, and accept, to manage our exposure to climate-related risks. We future-proof and increase the resilience of our infrastructure to ensure the continuity of our operations, on top of existing controls against climate-related risks that are already embedded within the business.

STRATEGY

To identify, assess, and prioritise the impacts of climate-related risks, PSA has established a three-step process. Following an initial identification of material risks, a climate change scenario analysis is conducted to assess PSA’s resilience against varying impacts of risks in a range of plausible futures. These results are then factored into our decision-making and strategy to establish further mitigation and adaptation measures where necessary.



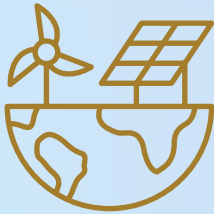
Scan for Climate-related Risks and Opportunities

- Establish climate risk register of physical and transition risks
- Identify climate opportunities
- Determine risk horizons
- Determine baseline risk materiality



Conduct Scenario Analysis

- Determine and select climate scenarios
- Conduct scenario analysis and assess potential financial implications on business
- Identify material risks across scenarios and time horizons









Manage Climate-related Risks

- Ongoing review of climate-related risks and opportunities with Subject Matter Experts (SMEs) and business units
- Establish risk mitigation and adaptation measures
- Integrate climate-related risks into Group’s Enterprise Risk Management framework

METHODOLOGY TAKEN FOR CLIMATE CHANGE SCENARIO ANALYSIS

Referencing international best practices and aligning with PSA’s net zero emissions target, PSA’s modelling takes into account two scenarios referencing the Shared Socioeconomic Pathways (SSP) and Representative Concentration Pathways (RCP) scenarios from the Intergovernmental Panel on Climate Change’s (IPCC) 6<sup>th</sup> Assessment Report. The scenario pathways provide narratives and quantitative projections, based on various trajectories of socioeconomic development factors impacting the evolution of climate change risks and advancements in climate technology.

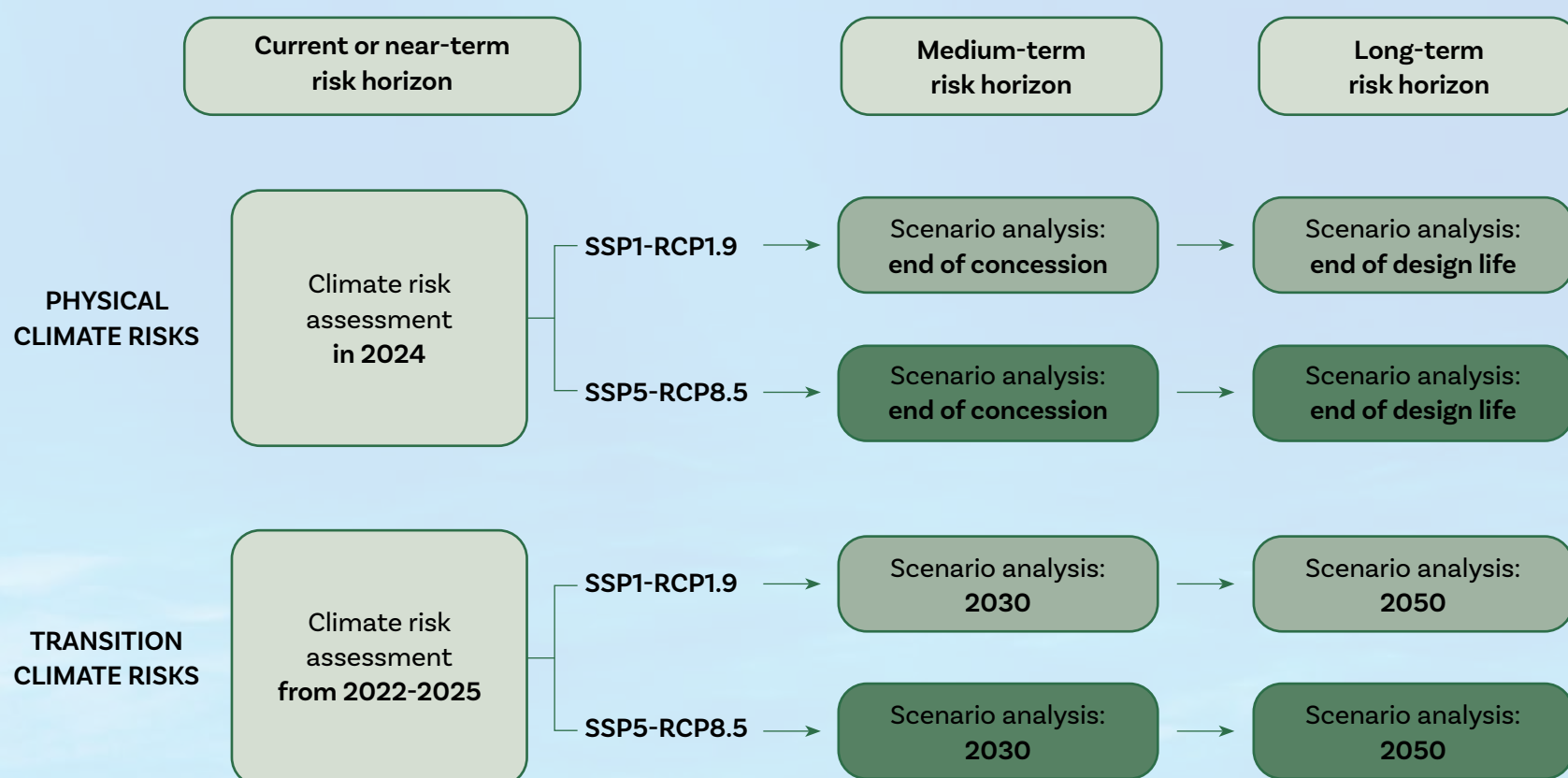
## SELECTED CLIMATE SCENARIOS\*

	SUSTAINABLE DEVELOPMENT (SSP1-RCP1.9)	FOSSIL-FUELLED DEVELOPMENT (SSP5-RCP8.5)
 <b>Climate Ambition (by 2100)</b>	<ul style="list-style-type: none"> <li>• Net zero by 2050</li> <li>• 1.5°C</li> </ul>	<ul style="list-style-type: none"> <li>• Net zero not reached</li> <li>• 4.5°C</li> </ul>
 <b>Extreme Weather Conditions</b>	<ul style="list-style-type: none"> <li>• Less frequent and managed</li> </ul>	<ul style="list-style-type: none"> <li>• Highly increased occurrence</li> </ul>
 <b>Migration and Urbanisation</b>	<ul style="list-style-type: none"> <li>• Medium levels and well-managed</li> </ul>	<ul style="list-style-type: none"> <li>• High levels</li> </ul>
 <b>International Trade</b>	<ul style="list-style-type: none"> <li>• Shifts toward green consumerism</li> <li>• Slowdown in trade growth and shipping</li> </ul>	<ul style="list-style-type: none"> <li>• Accelerated globalised trade, material consumption, and international shipping</li> </ul>
 <b>Climate Action</b>	<ul style="list-style-type: none"> <li>• Stringent climate policies and introduction of carbon tax</li> </ul>	<ul style="list-style-type: none"> <li>• Minimal or no climate policies</li> </ul>
 <b>Climate Technology</b>	<ul style="list-style-type: none"> <li>• Global shift towards renewable energy and use of alternative fuels such as hydrogen and biomass</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on climate adaptation with no reductions in carbon-intensity</li> <li>• Slow development and adoption of renewables</li> </ul>

\* Narratives for the climate scenarios put together by the climate research community.  
Sources: O'Neill et al. (2013), Riahi et al. (2016), Carbon Brief (2018)

Risks were assessed across three risk horizons: Current/near-term, medium-term, and long-term. These time horizons were selected considering the nature of PSA's assets, carbon emissions reduction targets and the availability of climate science data. For physical risks, medium-term and long-term have been defined as the end of port concession and end of design life of physical infrastructure respectively to account for the nature of our assets, whereas medium-term and long-term for transition risks have been defined as 2030 and 2050 respectively.

## SELECTED TIME HORIZONS





To enhance the comprehensiveness of the scenario analysis, contextual data and projections are factored in based on announced international and national legislation, fuel price projections, and PSA’s growth trajectory aligned with international trade growth projections. The assessment also assumes that PSA’s posture in both scenarios is the same – that we continue to advance our decarbonisation strategy in line with our net zero emissions target by 2050.

Identified physical and transition risks were assessed against PSA’s Risk Assessment Matrix (RAM) in the Group’s Enterprise Risk Management Framework (ERM). The RAM is a 5-by-6 matrix factoring each risk’s impact on the environment, people, reputation, and on PSA’s financial performance.

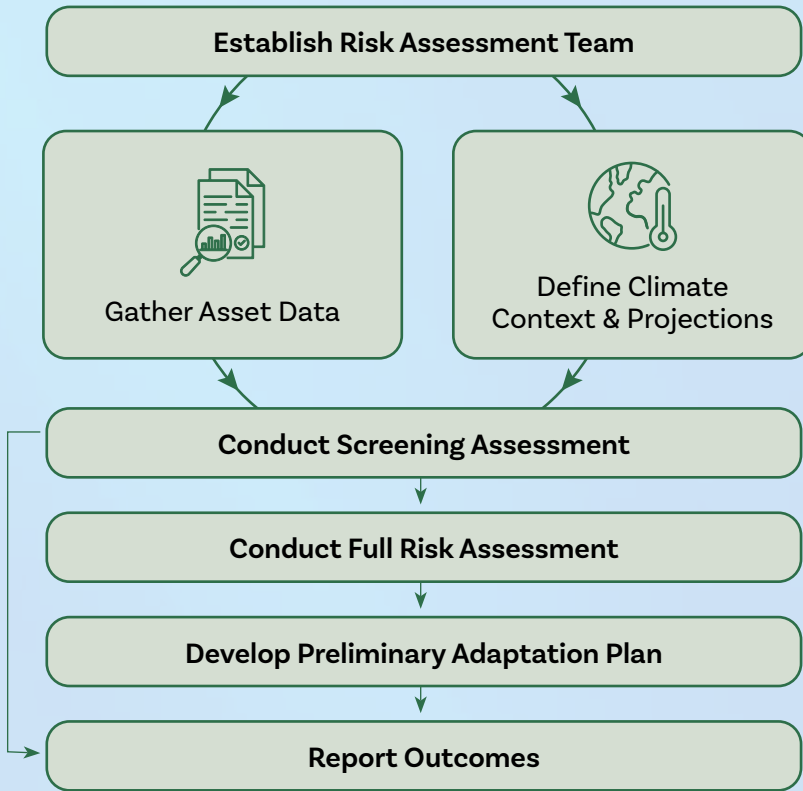
- The risks were scored considering two key factors:
- a) Consequence, factoring the potential financial impact of the risk
  - b) Likelihood, accounting for the probability of the risk occurring

Subsequently, across the various climate scenarios and time horizons, risks falling into an identified area in the RAM are deemed as material risks. Material risks are prioritised by the Group and business units to be addressed further through mitigation and adaptation plans.

**CLIMATE RISK ASSESSMENT AND ADAPTATION (CRAA) PROCESS**

Building on an initial high-level physical risk assessment in 2021 – which studied the potential impact of seven climate-related physical risks to PSA, including tropical cyclone, flood, sea level rise, wildfire, drought, heat stress, and precipitation stress – PSA has developed a Climate Risk Assessment and Adaptation (CRAA) Framework to deepen our understanding of the potential implications of climate-related physical risks.

PSA’s comprehensive Climate Risk Assessment and Adaptation (CRAA) Framework and guidelines systematically assess climate-related physical risks at an individual asset level to inform the understanding of potential financial impacts and evaluate the adequacy of PSA’s current adaptation measures.



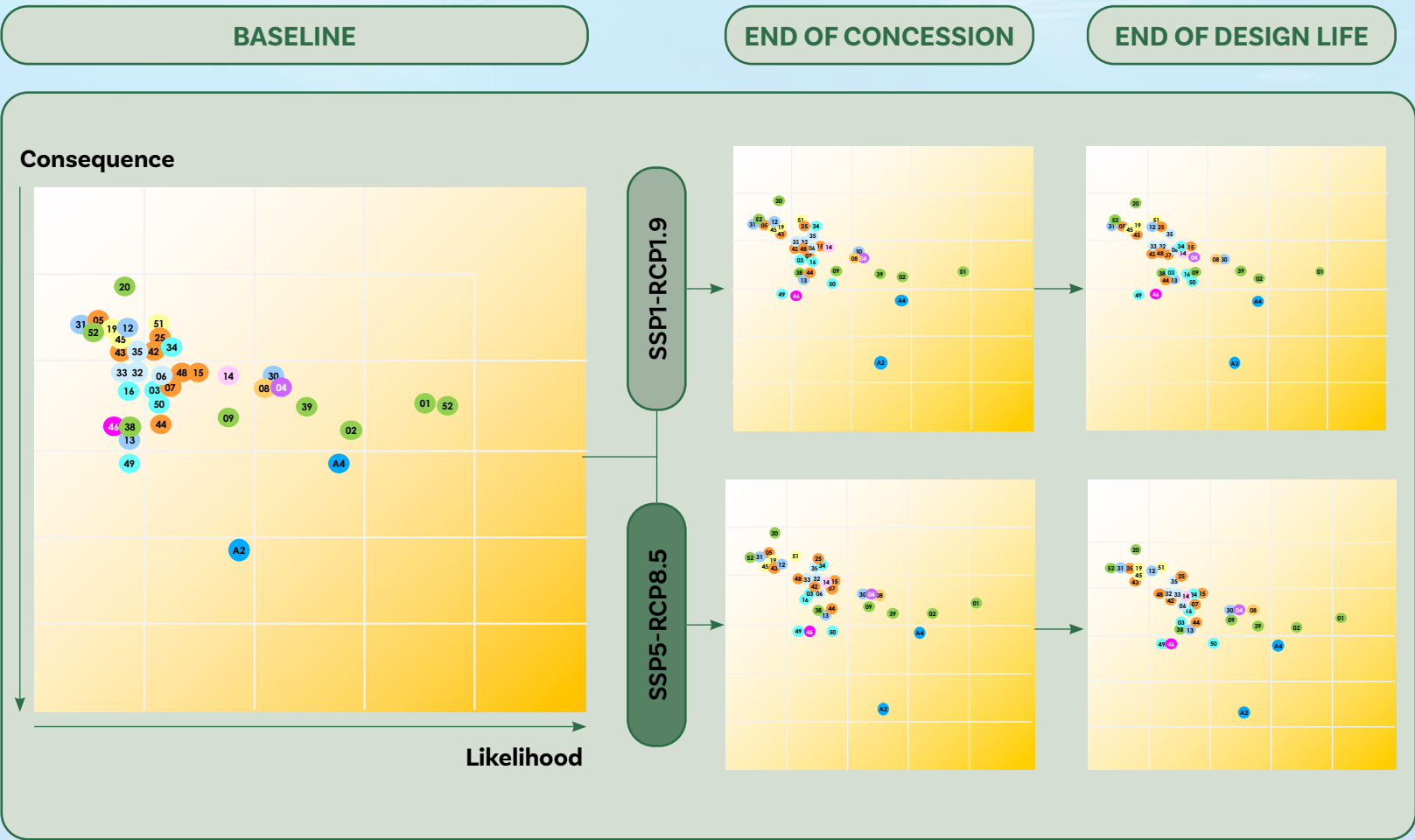
CRAA workshops are conducted by the Group Civil Engineering team with the relevant personnel at the business units, including those from Civil Engineering, Equipment Engineering, Operations, IT, Health, Safety, Security and Environment (HSSE), Finance and Risk Management. Based on climate change projections and past extreme weather events which had occurred at the terminal or within the region, about 50 physical climate risks are assessed for relevance and potential impact. Subsequently, business units are required to develop adaptation plans for identified risks, and the progress of the adaptation plans is monitored by the Group Civil Engineering team on a regular basis.

PHYSICAL CLIMATE RISKS ANALYSIS

For a start, the CRAA process was conducted for PSA’s flagship terminals in Singapore and Antwerp. In 2024, CRAA was extended to six other business units, including those in Thailand, Korea, Türkiye and Italy. PSA’s continued enhancements to the CRAA process and coverage ensure we comprehensively account for risks across our global portfolio of assets.

Extreme winds and intense storms have been identified as the key drivers of material physical risks to the Group, potentially damaging equipment and containers when they are unstable in the events of extreme wind and storm. For our flagship terminals in Singapore and Antwerp, there are also localised physical risk drivers, such as sea level rises and increased fog events, potentially giving rise to impacts such as disrupted port access for ships, operational delays and unsafe working environments.

Across climate scenarios, the likelihood of weather disruptions is greater in the fossil-fuelled development scenario as compared to the sustainable development scenario, exacerbating the potential impacts of weather events on our assets and operations. To mitigate against the worst impacts, asset-specific measures are currently in place, including the consideration of extreme weather conditions in the design of equipment and buildings, and preparedness plans to minimise operational disruptions. To ensure continual risk management, as part of the CRAA process, business units are required to develop or enhance adaptation plans if gaps are identified. This involves engaging relevant internal and external experts, budgeting and executing adaptation plans for identified risks.



- Increased **extreme temperatures**: damage to critical infrastructure and systems
- Increased **extreme temperatures**: impacts on working conditions
- Increased **storms, extreme winds**: adversely impacts operations/ operational safety
- Increased **storm events, extreme winds**: damage to equipment, containers and infrastructure
- Increased **storm events, sea level rise, storm surges**: damage to critical third-party infrastructure
- Increased **sea levels, rainfall, storm surges**: flooding in the terminal
- Increased **rainfall** events: flooding in the terminal
- Decreased annual precipitation**: drought and possible operations disruption
- Increased **waves**: restricts navigational access
- Increased **wave action**: damage to marine structures
- Increased **fog**: restricts navigational access



## TRANSITION CLIMATE RISKS AND OPPORTUNITIES ANALYSIS

As the world transitions to a low-carbon economy, potential risks and opportunities are presented by the changing economic, social and environmental landscapes. Factors such as evolving legislation, disruptive technologies, shifts in consumer behaviour and other trends could affect PSA's financial and operational performance. By understanding the impact of emerging risks and opportunities, PSA is able to anticipate these changes, to effectively mitigate against risks and adapt our strategy and business model to leverage opportunities.

Through an initial scan of transition climate-related risks and opportunities, PSA built a comprehensive climate risk register referencing risks identified through the TCFD, industry peer comparisons and PSA's Operations Centre of Excellence. Over 20 transition risks were identified to be assessed further through the climate change scenario analysis.

Through the assessment, PSA identified seven material climate-related transition risks leading to varied potential impacts:

- **Market Shifts:** Shifts in consumer demand for green products and emerging markets such as the Electric Vehicle (EV) market are expected, leading to changes to trade and supply chain patterns and needs, potentially impacting PSA's business model and operations. These impacts are

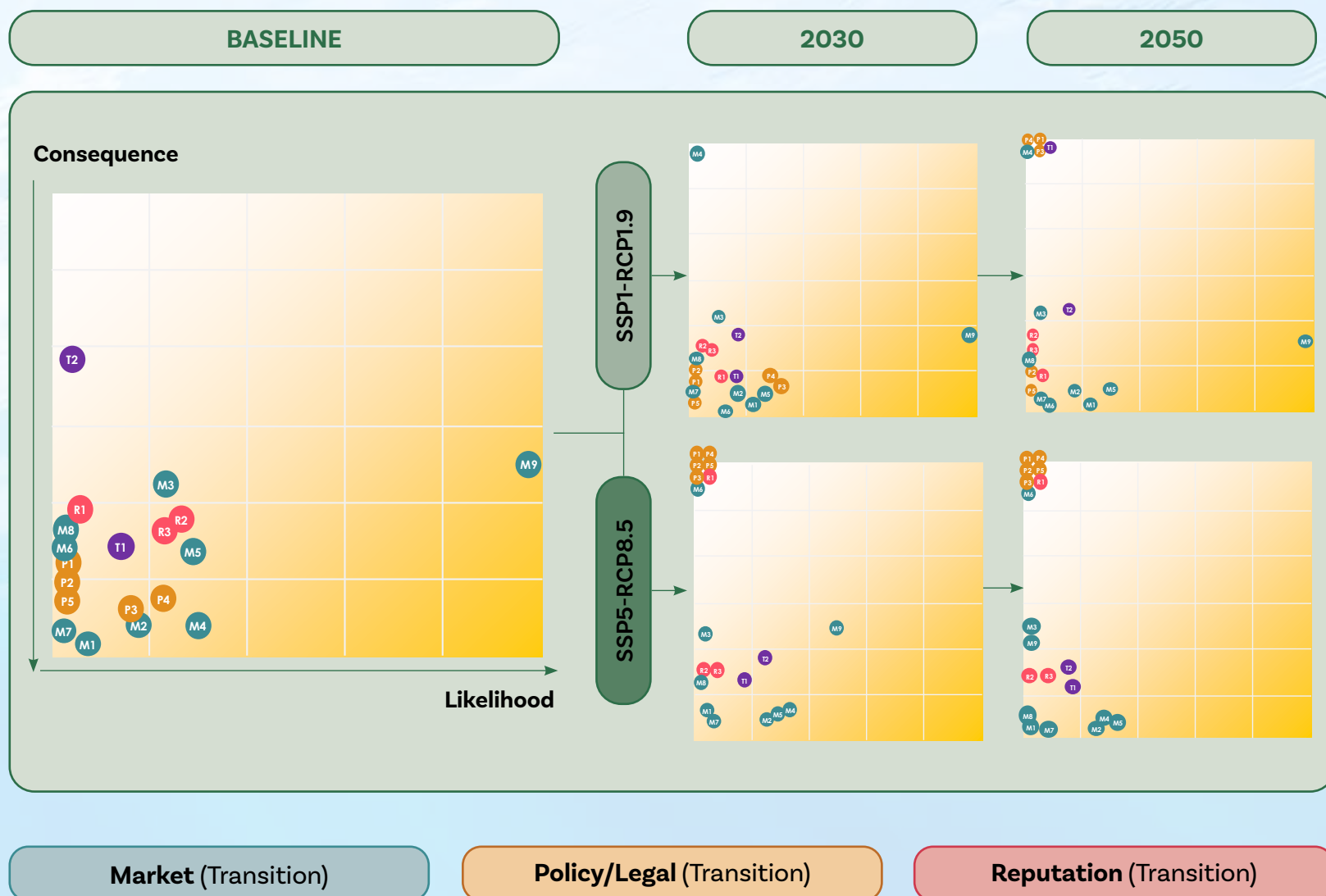
assessed to be greater in the sustainable development scenario, as compared to the fossil-fuelled development scenario, as the world takes a more aggressive approach to transitioning towards a net zero economy.

- **Increase in Operational Costs:** Rising cost premiums associated with labour, purchased energy and commodities could potentially lead to heightened operating costs for PSA. These impacts are expected to be more severe in the fossil-fuelled development scenario as the impacts of rising temperatures and extreme weather events could lead to more frequent and severe supply chain disruptions.
- **Regulatory Changes:** Climate-related laws and policies could impose increased compliance costs for PSA. This includes carbon taxes and other carbon pricing schemes. Additionally, mandatory requirements such as onshore power provisions to berthing vessels could also impact both PSA's capital and operating expenditure.

We have put in place various control measures to mitigate against these transition risks, including constant monitoring of existing and emerging regulations to ensure PSA remains compliant with all relevant legislation. We are also committed to decarbonising our operations and supply chains, and to growing our Node to Network capabilities and end-to-end low-carbon transport offerings to meet the increasing expectations of our customers.







- M1** Shifting **consumer demand** patterns
- M2** Increased **labour** uncertainty & lower productivity
- M3** Increased **financing** costs
- M4** Increased **energy costs** (premium) from low-carbon transition
- M5** Increased **commodity** (steel, concrete) supply uncertainty & cost
- M6** Shifting **energy** & bunkering **hubs**
- M7** Shifting **trade routes** due to **physical climate change (Arctic ice)**
- M8** Shifting **trade routes** due to **physical climate change (Panama canal)**
- M9** Changing **freight content/** Increasing shipments of **EVs with batteries**





- P1** Increased costs to adhere to **alternative fuel regulations**
- P2** Increased policy costs from **Scope 3 disclosure standards**
- P3** Increased costs of **energy infrastructure** due to **low-carbon regulations**
- P4** Increased costs of **carbon tax, cap or ETS**
- P5** Increased costs from **litigation** over climate violations by regulators & customers

- Technology (Transition)**
- T1** Increased low-carbon **technology & equipment** supply uncertainty & cost
  - T2** **Sub-optimisation of assets** due to adoption of low-carbon technologies

- R1** Increased **costs from negative** reputation around climate action amongst stakeholders
- R2** Increased **recruiting** costs due to climate consciousness
- R3** Increased costs from **PR crisis management** around negative climate incidents



In addition, we are assessing climate-related opportunities in the areas of commercial, operations, civil infrastructure, equipment and technology. These opportunities are synergistic with PSA's overarching sustainability and carbon abatement strategies. They are also aligned with PSA's aspirations to transform global supply chains and enable sustainable trade in collaboration with like-minded partners across a multitude of industries.

Identified Climate-related Opportunity	Description	Business Impact	Business Response and Initiatives
 Energy efficiency measures	Adoption of energy efficiency measures for buildings	Efficiency gains, reduced energy usage and cost savings	Minimum Requirements for Sustainable Buildings
 Diversification of services	Development of rail and barge services	Operational diversification and gains	Port adjacencies and intermodal transport offerings such as the Stuttgart Express, JIT barging etc.
 Low-carbon service offerings	Development of low-carbon service offerings to customers	Revenue gains as consumers and partners seek solutions to decarbonise their operations and supply chains	Digital solutions such as OptEVoyage, OptETruck, OptETracker tool, PSA BDP Carbon Dashboard etc.
 Low-carbon technology implementation	Implementation of low-carbon technologies such as electrification of equipment	Energy efficiency and operational cost savings	PSA Decarbonisation Levers, target for the electrification and hybridisation of cranes

## METRICS AND TARGETS

PSA's targets demonstrate our commitment to decarbonisation and to the reduction of our carbon footprint. Aligned with the reductions required to limit the global temperature increase to 1.5°C compared to pre-industrial levels, PSA has set the target to achieve net zero carbon emissions by 2050 and interim Scope 1 and 2 emissions reduction targets to ensure we make tangible progress towards 2050.

Our climate-related targets include:

- Reducing absolute Scope 1 and 2 carbon emissions by 50% by 2030 and 75% by 2040 against a 2019 baseline year. As of 2024, while PSA's Scope 1 and 2 emissions have increased by 2% against the 2019 baseline, we remain committed to our 2030 emissions target by improving energy efficiency and increasing the adoption of renewable energy solutions.
- Converting 90% of all cranes, including quay cranes, rail mounted gantry cranes, rubber tyre gantry cranes, mobile harbour cranes and automated stacking cranes to electric or hybrid models by 2030. As of 2024, we have reached 80%, progressing well towards our goal of 90% by 2030.
- Investing at least SGD 100 million by 2025 in research and development and innovation projects, employing the latest available technologies to achieve more efficient and sustainable operations. As of end 2024, we have invested SGD 280 million.

PSA monitors the progress against our targets and discloses performance in our annual sustainability reports, including our Scope 1, 2 and all relevant Scope 3 emissions. PSA also tracks other climate-related indicators relevant to our operations, such as emissions intensity, energy consumption, renewable energy purchases, emissions profile per region, emissions profile per sector and fuel and electricity usage per equipment move. For more information on climate-related metrics and targets and our performance, please refer to the section on [Our Approach to Sustainability](#).

The Group Sustainability team is required to report PSA's carbon emissions performance to the Group CEO monthly, and all business units are required to submit annual Energy Transition Plans encompassing planned carbon reduction initiatives, carbon abatement potential and marginal abatement costs. All emissions data from business units are also required to undergo third-party verification against the ISO 14064-1:2018 verification standards. As of report publishing date, 90% of PSA's total Scope 1 and 2 emissions have undergone verification against the ISO 14064-1:2018 standards at least once in the last three years.

Beyond climate-related targets, PSA actively manages and monitors all sustainability-related risks and opportunities linked to PSA's identified material sustainability topics.



# EMISSIONS AND ENERGY

Aligned with global climate goals to mitigate the potential impacts of global warming, PSA's ambition is to reach net zero by 2050. To make this goal a reality, PSA has implemented a decarbonisation strategy that prioritises key abatement pathways, by investing in tangible initiatives to facilitate the transition towards a more sustainable business.

## WHY IT IS IMPORTANT

As a key facilitator of global trade flows, port and logistics operators such as PSA can play a significant role in impacting emissions within the global value chain. By investing in low-carbon equipment and innovative technologies, we also mitigate the potential risks posed by climate change to our critical infrastructure, assets and operations.

Starting from our own operations, we have identified key impact areas within our direct business activities. Our impact comprises direct emissions arising from the use of energy in our operations spanning terminals, warehouses, marine, logistics and IT services (Scope 1 and 2 emissions), as well as indirect emissions incurred through our upstream and downstream business relations and value chain (Scope 3).

While PSA prioritises the decarbonisation of our internal operations, with Scope 3 emissions forming a substantial portion of our overall emissions, we also aim to adopt a collaborative approach with our partners and customers to innovate and build a sustainable supply chain throughout the logistics and transport sector.

## OUR APPROACH

Our progressive approach to decarbonisation is guided by our ambition to reach net zero by 2050 for Scope 1 and 2 emissions. Led by PSA's Group Sustainability team – which oversees the development of sustainability initiatives – and guided by our identified Decarbonisation Levers, we have set interim targets of 50% reduction in absolute Scope 1 and 2 emissions by 2030, and 75% by 2040 against a 2019 baseline.

To drive progress on climate initiatives, PSA's Group Sustainability team developed the Climate Response Management System (CRMS), focusing on five key pillars: Leadership & Strategy, Planning & Implementation, Monitoring & Reporting, Education, and Communications.

The CRMS is supported by standards and frameworks that PSA applies across its business. This includes the Renewable Energy Procurement & Generation Framework (RE-ProGen), which guides business units on their renewable energy procurement and generation approaches, and the Sustainable Procurement Framework, which ensures that ESG considerations are factored into procurement decisions. Regional training workshops are also conducted to ensure that our business units can effectively apply the key pillars of the CRMS, furthering our decarbonisation efforts.

To integrate sustainability in our decision-making and financial processes, business units utilise tools such as the Marginal Abatement Cost Curve (MACC) to evaluate carbon abatement options and derive energy transition plans. Climate-related considerations are also incorporated within annual budgeting processes to ensure business units allocate sufficient capital to decarbonisation projects aligned with PSA's and global climate goals.

PSA also launched its Green Finance Framework in 2023 to guide entities on leveraging green financing to support new and existing green assets.

The Group Sustainability team actively monitors decarbonisation efforts across the organisation to assess the effectiveness of initiatives and track progress against PSA's overall environmental targets. PSA has developed PACE (PSA Abatement of Carbon Emissions), an innovative in-house digital initiative leveraging the Power BI platform. Equipped with control tower capabilities to monitor and track emissions, PACE enables comprehensive benchmarking across business units, highlights key drivers of emissions changes, and assesses progress towards our ambitious 2030 target of halving absolute Scope 1 and 2 emissions against a 2019 baseline. With future enhancements, including projected emissions analysis, PACE demonstrates how data-driven insights are powering PSA's decarbonisation efforts.

We also put in place robust internal audit and review policies and measures to ensure that carbon and environmental data are reported comprehensively and accurately. We will continue to refine our data collection processes and leverage those insights to drive informed decision-making and enhance our overall carbon initiatives and performance.



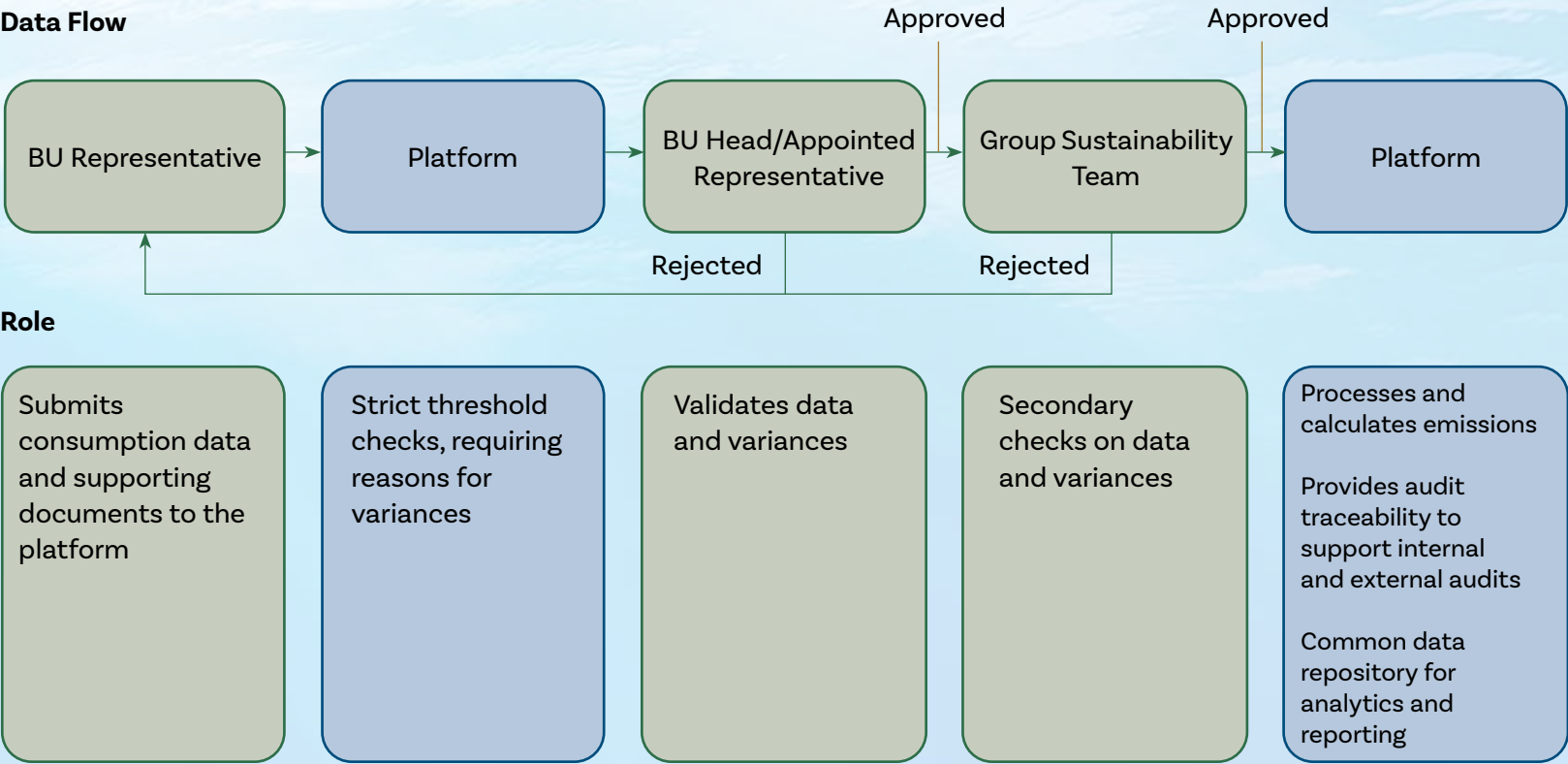


ISO 14064-1:2018 AUDITS

As stipulated in the CRMS, all business units are required to subject their carbon emissions data to a third-party verification against the stringent ISO 14064-1:2018 verification standards. As of the report publishing date, 90% of PSA's total Scope 1 and 2 emissions have been verified against the ISO 14064-1:2018 at least once in the last three years.

STANDARDISED PLATFORM AND ROBUST WORKFLOW FOR EMISSIONS TRACKING

PSA has utilised an expert software solution provider to standardise, collate, and aggregate reliable data across PSA's numerous entities, enhancing transparency and yielding valuable insights through data analytics. Scope 1, 2 and 3 emissions are reported regularly by our business units, and undergo a rigorous data flow process (an overview below) before the figures are collated and reported to management at the Group-level.

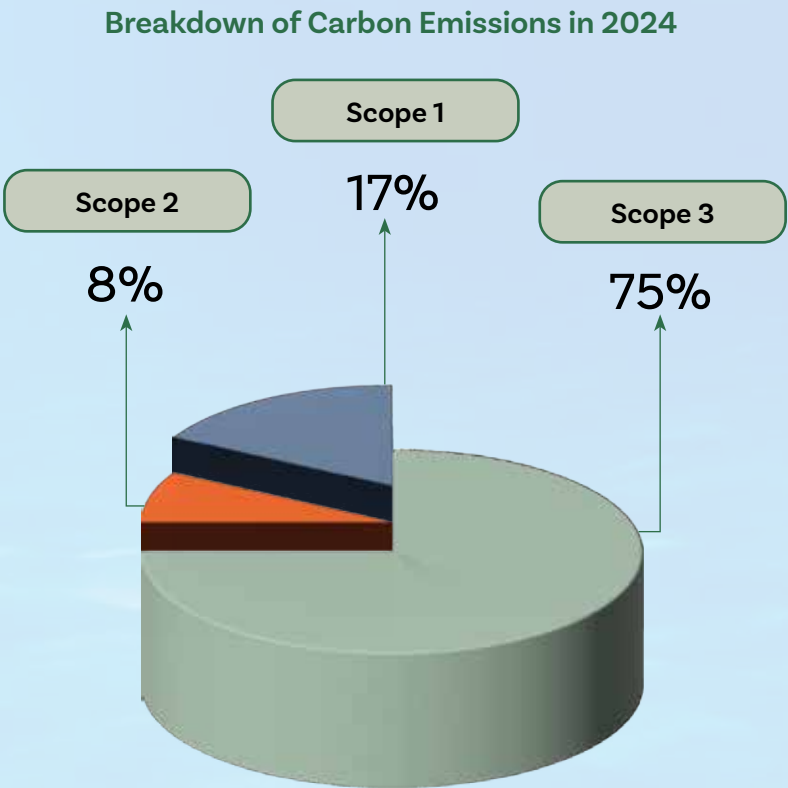


INTERNAL AUDIT, CHECKS AND BALANCES

To further enhance internal governance and ensure compliance to upcoming regulatory needs, Group Internal Audit and Group Sustainability are developing an internal audit framework on our material ESG topics. Having an internal audit framework in place will also strengthen sustainability auditing capability within the organisation.

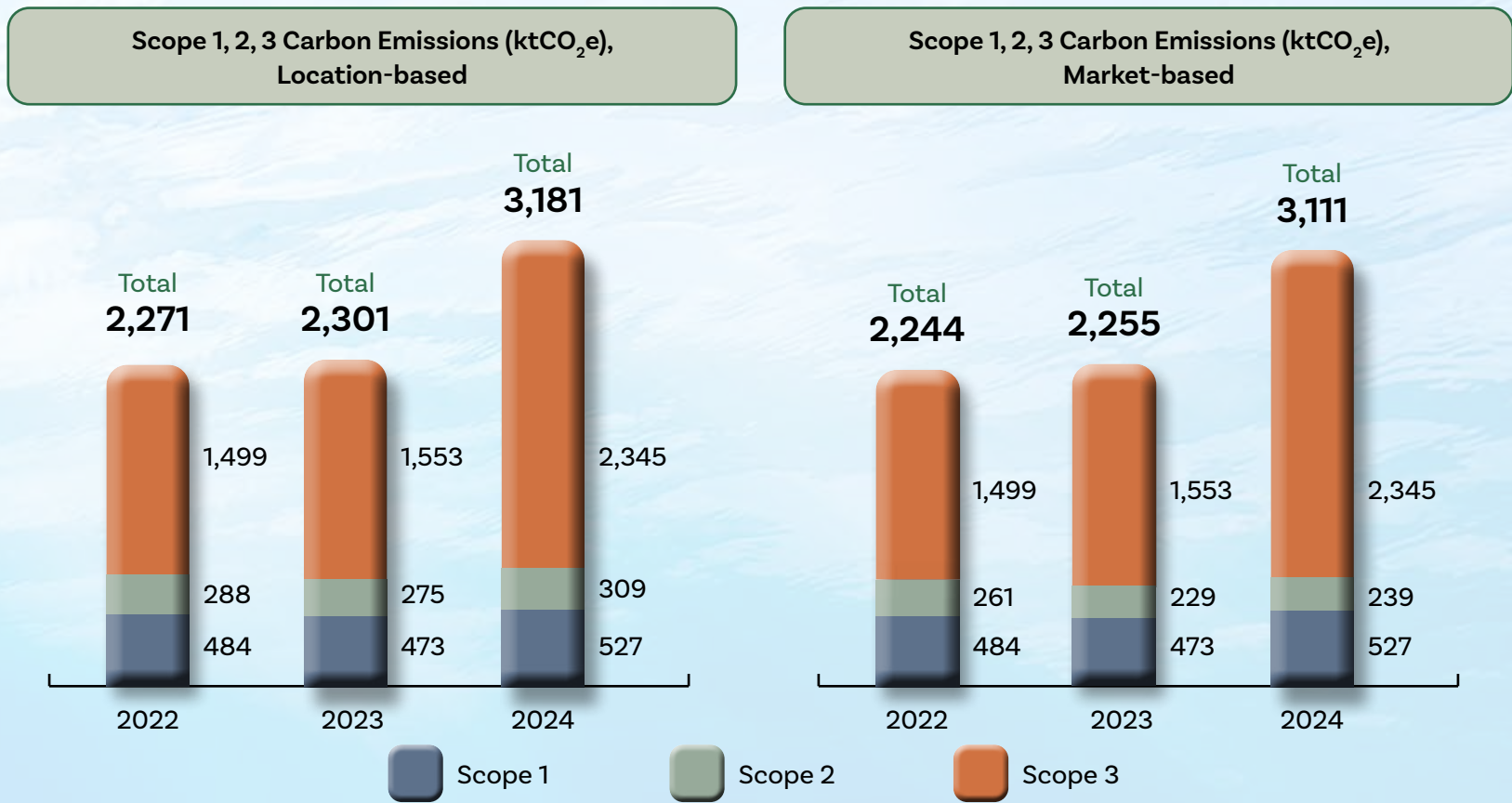
OUR CARBON EMISSIONS IN 2024

In accordance with the GHG Protocol, PSA discloses our entire carbon footprint encompassing Scope 1, 2 and all relevant Scope 3 emissions using the equity share approach.





Total Carbon Emissions for the PSA Group



Notes: Carbon emissions in the above table are computed based on an equity share consolidation approach. Greenhouse gases included in the calculation are CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub> and NF<sub>3</sub>. Emission factors for Scope 1 emissions were sourced from GHG Protocol Emission Factors for Cross Sector Tools (March 2017) and the UK Department for Environment, Food and Rural Affairs (DEFRA). In 2024, the biogenic CO<sub>2</sub> emissions attributable to the use of biofuels amount to 2,774 tCO<sub>2</sub>e based on the same consolidation approach, separate from PSA's Scope 1 GHG emissions in the above table.

PSA BDP's ESG data has been included from 2024 onwards. Scope 3 emissions figures for 2023 have been restated after data checks performed by business units for category 4 and a refinement in calculation methodology for alongside vessels in category 9.

Emission factors for Scope 2 emissions were sourced from the International Energy Association (IEA) and Association of Issuing Bodies (AIB). Emission factors for Scope 3 emissions were sourced from the GHG Protocol and DEFRA. Global warming potential of gases were obtained from IPCC's Fifth Assessment Report (AR5).

SCOPE 1 AND 2 EMISSIONS

PSA's Scope 1 and 2 carbon emissions totalled 766 ktCO<sub>2</sub>e in 2024, an increase of 9% from 2023's levels. This increase was driven by both organic and inorganic business growth which led to higher equipment usage across PSA's operations. Despite this rise, PSA remains committed to our 2030 emissions target by improving energy efficiency and increasing the adoption of renewable energy solutions. Against our baseline year of 2019, PSA's Scope 1 and 2 emissions have increased by 2%. 2019 was selected as our baseline year given the earliest availability of PSA's complete and reliable data.



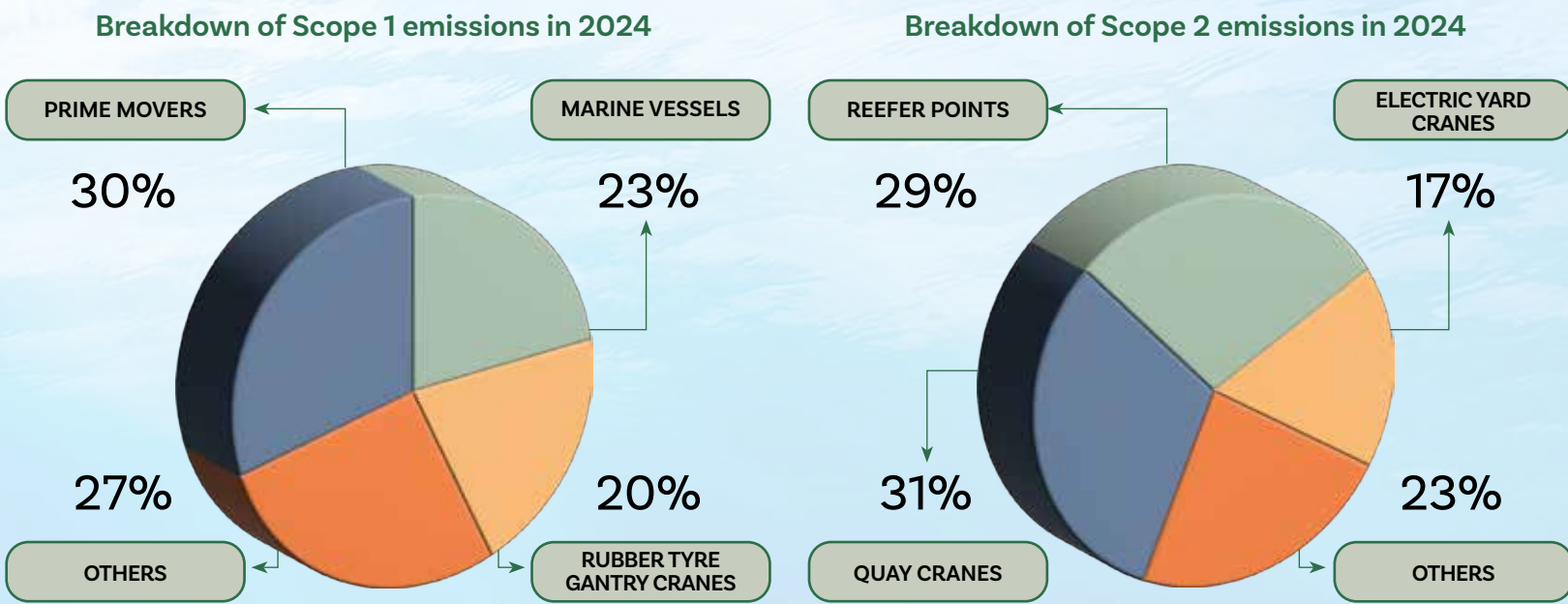


As PSA improves its efficiency of energy usage, emissions intensity continues to improve. Our container terminals reported 9.6 kgCO<sub>2</sub>e/TEU in 2024, a decrease of 1% from 2023's figures.

The bulk of PSA's Scope 1 and 2 emissions arise from our terminal operations as PSA's largest core business followed by marine services accounting for 79% and 14% respectively.

The remaining emissions are attributed to our operations in the non-container terminals, logistics services, IT businesses and PSA BDP.

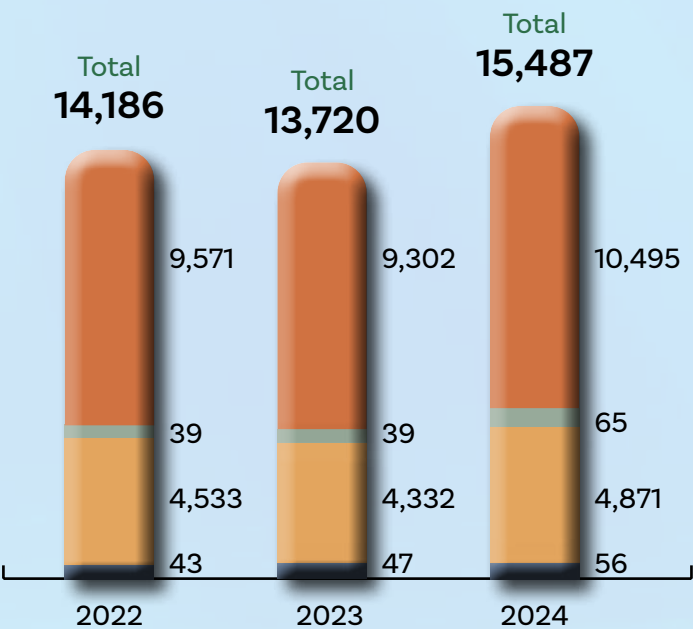
The top three emissions sources for Scope 1 emissions included prime movers, marine vessels and Rubber Tyre Gantry yard cranes. For Scope 2 emissions, the top three emissions sources included quay cranes, reefer points and electric yard cranes.



Notes: Scope 1 and 2 emissions in this portion are based on 100%. The figures have not been adjusted for equity share and does not take into account renewable energy obtained via procurement mechanisms.

## ENERGY CONSUMPTION

### Total Energy Consumption for the PSA Group (TJ)



- FUEL CONSUMPTION FROM NON-RENEWABLE SOURCES
- FUEL CONSUMPTION FROM RENEWABLE SOURCES
- PURCHASED ELECTRICITY
- SELF-GENERATED ELECTRICITY

Notes: Non-renewable fuel types include diesel, LNG, petrol, CNG and LPG. Renewable fuel types include hydrogen and biofuels. Conversion factors were obtained from GHG Protocol Emission Factors for Cross Sector Tools (March 2017) and DEFRA 2024.

Self-generated electricity refers to electricity generated from onsite Photovoltaic (PV) systems and consumed by the organisation. There was no heating, cooling, or steam purchased for self-owned assets. There was also no electricity, heating, cooling or steam sold.

Energy consumption figures in the above table are based on 100% and are not adjusted for equity share.



## SCOPE 3 EMISSIONS

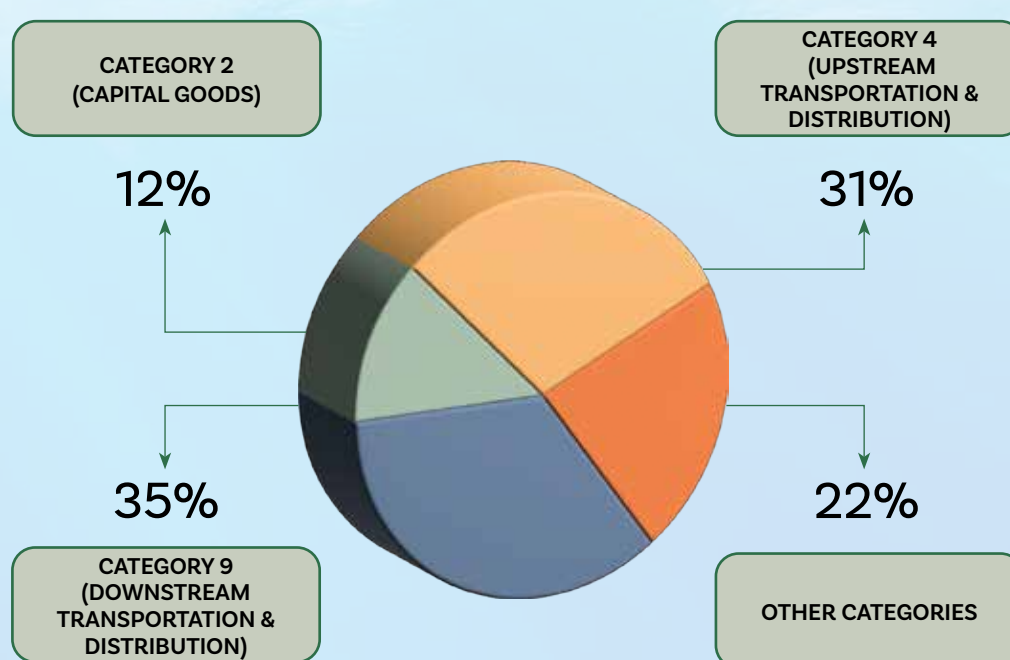
In 2024, Scope 3 emissions assessed to be relevant to PSA totalled 2,345 ktCO<sub>2</sub>e. Major categories include Upstream and Downstream Transportation & Distribution (Categories 4 and 9), and Capital Goods (Category 2).

Recognising the importance of addressing our indirect emissions, PSA engages in collaborative industry-wide initiatives. We actively participate in the development of Green Corridors, such as the establishment of the Singapore-Japan Green and Digital Shipping Corridor in partnership with Singapore's Ministry of Transport (MOT) and Japan's Ministry of Land, Infrastructure, Transport and Tourism (MLIT). In working with our partners, we implement and encourage the use of renewable energy, and alternative and sustainable fuels. OptETruck – an initiative implemented at PSA Singapore – harnesses Artificial Intelligence (AI) to facilitate smarter

trip planning and eliminate operational inefficiencies. This solution has been welcomed by multiple haulier companies, helping them to achieve significant reductions in empty truck trips. In recognition of its transformative impact, PSA Singapore received the Recognition of Excellence award for OptETruck at the 9<sup>th</sup> Annual Singapore OpenGov Leadership Forum.

To encourage collaboration and build capacity among our partners, we hosted the 2<sup>nd</sup> edition of the PSA Suppliers engagement forum, "PSA Suppliers Forum 2024 – ESG Xchange", in November 2024. Building on the inaugural event in 2022, this workshop provided an update on PSA's sustainability journey and a snapshot of the ESG maturity of the supplier community. Awareness building on key ESG themes, expectations for suppliers around policies and carbon accounting and access to external and PSA resources were also shared to support suppliers on their ESG journey.

Breakdown of Scope 3 emissions in 2024



Notes: Carbon emissions in the above table are computed based on an equity share consolidation approach. All relevant Scope 3 categories (Categories 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 14, 15) have been included in PSA's inventory. For Category 6, this only accounts for business air travel. Categories 10 & 12 have been excluded because the organisation does not manufacture products for sale. Category 13 has also been excluded because emissions arising from downstream leased assets have been accounted for in Scope 1 and 2. Actual data for Category 15 was not available at the time of publication, therefore the actual data from 2023 has been used as a proxy for 2024.








Greenhouse gases included in the calculation are CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub> and NF<sub>3</sub>. 2022 was selected as the base year for Scope 3 where Scope 3 emissions totalled 1,500 ktCO<sub>2</sub>e. Emission factors for Scope 3 emissions were sourced from the GHG Protocol and DEFRA. Global warming potential of gases were obtained from IPCC's fifth assessment report (AR5).

Carbon emissions in Category 9 (Downstream Transportation & Distribution) relate to emissions arising from vessels while alongside PSA's berths and hauliers while operating within PSA's terminals or facilities.



MITIGATING EMISSIONS AND MINIMISING ENERGY CONSUMPTION

By maximising energy efficiency and optimising processes, as well as committing significant investments to the advancement, research and development of electrification projects and low-carbon fuels, we can progressively tackle our Scope 1 emissions. This is coupled with the generation of renewable energy from solar and wind power, as well as renewable energy procurement strategies, to effectively reduce our Scope 2 emissions.

7 DECARBONISATION LEVERS FOR FOCUSED ACTIONS			
	DECARBONISATION LEVER	EXAMPLES OF PROJECTS	ABATEMENT OF SCOPE 1 AND/OR 2 EMISSIONS
1	 Digitalisation and Optimisation	<ul style="list-style-type: none"><li>Improving operational efficiency</li><li>Using more energy-efficient equipment</li></ul>	1 and 2
2	 Hybridisation	<ul style="list-style-type: none"><li>Switching from conventional internal combustion engine (ICE) to hybrid (e.g. battery-hybrid RTGs)</li></ul>	1
3	 Electrification	<ul style="list-style-type: none"><li>Switching from conventional ICE to electric (e.g. eRTG, RMG)</li></ul>	1
4	 Low-carbon Fuel/ New Sustainable Fuel	<ul style="list-style-type: none"><li>Switching to lower-carbon alternatives (e.g. LNG, biodiesel, HVO, hydrogen)</li></ul>	1
5	 Electrical Grid Optimisation	<ul style="list-style-type: none"><li>Introducing smart grid system</li><li>Introducing battery energy storage system</li></ul>	2
6	 Purchase of Renewable Energy	<ul style="list-style-type: none"><li>Participating in Energy Attribute Certificates (EACs) market</li><li>Signing up to Power Purchase Agreements (PPAs)</li></ul>	2
7	 Generation of Renewable Energy	<ul style="list-style-type: none"><li>Investing in renewable energy (e.g. solar, wind) assets</li></ul>	2





## SCOPE 1 ABATEMENT INITIATIVES

By leveraging simulation and optimisation capabilities, PSA has been able to reap energy savings by optimising equipment fleet size and streamlining equipment traffic flow within our terminals. We have also been implementing automated and smart systems, replacing or retrofitting equipment with energy efficient alternatives, deploying wide-scale LED lighting and yard crane workload optimisers to lower the energy intensity of our operations.

As a key carbon abatement pathway, all PSA entities are expected to assess the feasibility of implementing equipment electrification and hybridisation initiatives, contributing to the progressive decarbonisation of PSA's operations. To continue to drive electrification and hybridisation across our operations, we have set increasingly ambitious targets. In 2024, we have elevated our initial target of achieving 90% of electric or hybrid Rubber Tyre Gantry Cranes (RTGs) by 2030, to encompass 100% of all cranes.

Beyond RTGs, this comprises quay cranes, rail mounted gantry cranes, mobile harbour and automated stacking cranes. As of end 2024, 80% of all cranes have been electrified or hybridised. We also seek to extend electrification and hybridisation to other commonly utilised machinery within our operations such as prime movers, forklifts, empty container handlers, reach stackers, and service vehicles.

Beyond electrification and hybridisation initiatives, we are also adopting low-carbon fuel options to operate our equipment. In 2024, the scaled-up use of LNG, biodiesel and hydrogen in our operating equipment increased by 67% as compared to 2023, and has led to close to 14,500 tCO<sub>2</sub>e in carbon savings.

Across our operations, numerous electrification and low-carbon initiatives have been deployed in 2024. These include:

- **PSA Singapore:** Embarked on operational trials to deploy a Battery Charging & Swapping Station (BCSS) and electric prime movers (ePMs) for intra-terminal and on-road inter gateway trucking. The BCSS, PSA Singapore's first deployment, has a design capacity to hold up to ten batteries and will support the progressive scale-up of ePMs for significant carbon savings.
- **Saudi Global Ports:** Deployed 18 new hybrid RTGs, three of which being automated RTGs, and added three quay cranes equipped with semi-automation capabilities and photovoltaic panels to its current fleet. In addition, 80 new ePMs were procured and employees received relevant training, vastly increasing capacity and reducing carbon emissions.
- **Mersin International Port:** Unveiled the MIP-5, an efficient and environmentally friendly tugboat. The state-of-the-art tugboat increases efficiency through the lower consumption of fuel while being able to produce more power. It is also equipped with a Selective Catalytic oxide Reactor (SCR) that reduces nitrogen oxide emissions by up to 75% compared to regular diesel-powered tugboats.
- **PSA Halifax:** Launched eight new electric RTGs for its Atlantic Hub terminal to reap carbon savings whilst increasing handling capacity.
- **Dalian Container Terminal:** Commenced trialling of three electric prime movers (ePMs) to pave the transition to fully electric operations.



The MIP-5



## NEW PRIOK CONTAINER TERMINAL ONE (NPCT1) CLINCHES GREEN AND SMART PORT AWARD

In recognition of its sustainability achievements, NPCT1 received the Green and Smart Port Award conferred by Indonesia's Coordinating Ministry for Maritime and Investment Affairs. The award is conferred to ports for outstanding performance in three key areas: Digitalisation, Port Management and Environment and Safety Management.

NPCT1 currently operates a fully electrified fleet of yard cranes and is actively exploring the electrification of prime movers. It has also installed rooftop solar photovoltaics to tap on renewable energy and implemented a cold-ironing facility to provide shoreside electrical power, reducing alongside vessel emissions. NPCT1 has also introduced a web-based self-service system for hauliers to reduce empty trips, increase overall operational efficiency and at the same time, eliminate the need for physical gate pass copies for hauliers.



## RENEWABLE ENERGY TRANSITION

As businesses shift towards net zero emissions, coupled with the adoption of efficiency and optimisation measures, they must progressively increase their renewable energy share. Wherever feasible, PSA explores self-generation options within our existing land and buildings, and supplements renewable energy supply by partnering with suppliers through power purchase agreements and unbundled energy attribute certificates.

In 2024, PSA Mumbai celebrated a significant milestone, becoming India's first fully renewable energy-powered container terminal. In partnership with O2 Power, PSA Mumbai's solar farm produces over 10 MW of energy, providing for over 75% of PSA Mumbai's electricity requirements. The remaining renewable power is procured through various clean energy providers.

PSA Marine Peru installed solar panels onboard 15 pilot boats, generating more than 5,000 kWh of renewable energy in 2024. PT New Priok Container Terminal One became the first terminal in Jakarta to generate and use solar energy with the instalment of a solar PV system of more than 600 kWp. Globally, self-generated renewable energy increased close to 20% in 2024 as compared to 2023.

Over in China, solar panels and wind turbines were deployed across multiple terminals and logistics hubs including Tianjin Port Container Terminal (TPCT), which has been able to offtake renewable energy from three wind turbines. Across our business units in the Europe & Mediterranean, Americas and Northeast Asia regions, the amount of green electricity procured increased by 26% in 2024, as compared to 2023. In all, our electricity-related emissions have reduced by 140,945 tonnes of CO<sub>2</sub>e in 2024.



Wind turbines at Tianjin Port Container Terminal (TPCT)



## HYDROGEN PRIME MOVER PROOF-OF-CONCEPT (POC) TRIALS AT PSA SINGAPORE

Aligned with Singapore's National Hydrogen Strategy to develop hydrogen as a major decarbonisation lever, PSA Singapore has in 2024, partnered with an Institute of Higher Learning and an industry partner, to commence tests to transport and store hydrogen as methylcyclohexane (MCH) – a liquid hydrogen carrier stable at ambient temperature and pressure – before gaseous hydrogen is extracted from MCH to be used as a clean fuel for horizontal transportation within the port. PSA Singapore has broken new grounds by commissioning the first hydrogen refuelling facility in the port, along with the deployment of a hydrogen fuel cell electric prime mover at Pasir Panjang Terminal for trials that are expected to run till mid-2025. In parallel with the trials, PSA Singapore is working alongside various industry and government agencies to develop standards for hydrogen refuelling stations and safe refuelling operations.



Hydrogen fuel cell electric prime mover refuelling at Pasir Panjang Terminal

## EXPLORING INDUSTRY-WIDE SUSTAINABLE SOLUTIONS

PSA seeks to create wider impact by leveraging collaborations with our trusted partners to innovate and implement industry-wide solutions. In Singapore, through the Battery Charging & Swapping Station (BCSS) and electric prime movers (ePMs) trial under the Land Transport Authority's (LTA) sandbox scheme, PSA is collaborating with government agencies, hauliers, associations, and partners to support wider electric truck proliferation and decarbonisation of the heavy goods vehicle sector. This collaboration seeks to create a broader impact by leveraging demand aggregation to reduce costs and foster brand interoperability through harmonised charging standards.

PSA BDP has also focused efforts on providing reliable data on freight-related emissions to our customers, as part of PSA's commitment towards more sustainable and resilient global supply chains. Through the Carbon Dashboard Project implemented in 2024, all freight journey data is sent to an industry-recognised carbon calculation engine, before the calculated emissions data is stored alongside customer freight information in our central database. Data dashboards and analytics are made available to our internal teams and customers, empowering customers to make more informed decisions towards greener transport options.



# MARINE PROTECTION AND CONSERVATION

Climate change presents a growing threat to marine biodiversity and habitats. Recognising this challenge, PSA is dedicated to safeguarding our planet's biodiversity and positively impacting surrounding environments. As PSA expands and develops infrastructure, we proactively assess and mitigate potential impacts on biodiversity, ensuring our approaches align with the unique needs and characteristics of local ecosystems.

## WHY IT IS IMPORTANT

PSA's port operations, situated near the sea, inevitably interact with the marine environment. Given the growing impact of climate change on marine life and our dependency on environmental assets such as shorelines, land areas and waterways to maintain our operational activities, preserving our surrounding environments is a paramount priority. We are dedicated to minimising any potential impact on marine wildlife. This commitment guides our oversight of operations and infrastructure projects, including land reclamation and dredging, to prevent adverse environmental effects.

## OUR APPROACH

PSA's Health, Safety, Security and Sustainability (HSSS) policy and Climate Response Management System form the cornerstone of our approach to upholding environmental stewardship. This comprehensive framework ensures that all business units actively assess and mitigate their environmental impact, maintain a legal register as well as adhere to stringent local regulations and standards. Additionally, through rigorous protocols, we ensure that discharges from terminal development, construction, operations, and maintenance are strictly controlled, preventing harmful impact on local ecosystems.

### INTEGRATING CONSERVATION INTO INFRASTRUCTURE CONSTRUCTION AND DEVELOPMENT

To safeguard the environment, Environmental Impact Assessments (EIA) are conducted prior to any major construction projects. These assessments identify potential environmental risks and inform the development of stringent quality objectives, ensuring that our activities align with sustainable development principles. Our business units strictly adhere to local regulations, implement measures to mitigate environmental impact and actively contribute to marine and nature conservation efforts in our operating areas. Beyond regulatory compliance, we conduct research and monitoring to better understand marine life and ecosystems. This data informs thoughtful infrastructure design, minimising our environmental impact. Additionally, PSA implements educational programs to foster awareness among employees and encourage community involvement in marine conservation initiatives.

#### PSA Mumbai

PSA Mumbai's terminal expansion project took into consideration the importance of environmental stewardship

and ecosystem protection. A comprehensive approach was implemented to minimise impact on wildlife and the surrounding environment during construction. This included the development of a Marine Environmental Management Plan (MEMP) to monitor marine ecology and maintain a healthy ecosystem. PSA Mumbai conducted comprehensive environmental assessments in collaboration with leading research institutions to address potential impacts on biodiversity and local communities. In Thane Creek near PSA Mumbai, the Council of Scientific & Industrial Research-National Institute of Oceanography (CSIR-NIO) conducted environmental studies, including water and sediment sampling, mangrove and wildlife monitoring, and identified 117 fish species, underscoring the area's ecological significance. To mitigate impacts on local fishing communities, PSA Mumbai has undertaken measures such as prohibiting dredging during the fish breeding season from July to September. Additionally, PSA Mumbai engaged the Gujarat Institute of Desert Ecology (GUIDE) to study migratory bird diversity. This study was focused on the ecological role of mudflats, and ensuring uninterrupted bird migration seasons during the project's construction and operational phases. To further safeguard environmental, social, health and safety performance, an Environmental and Social Action Plan was developed, mitigating associated risks and impacts.





## PSA Baltic Hub

Similarly at Baltic Hub Container Terminal (BHCT) in Poland, comprehensive environmental assessments have been integral to infrastructure development, particularly in the ecologically sensitive Bay of Puck, which is part of the Natura 2000 program. These assessments have informed targeted measures to protect biodiversity, including constant noise surveillance and the evaluation of construction impacts on marine mammals and birds during the expansion works of Terminal T2 and the ongoing Terminal T3 project. Proactive water protection measures, such as oil spill response protocols, are implemented in line with international environmental standards.

Additionally, BHCT undertook proactive steps in collaboration with specialists such as an ornithologist and a chiropterologist to implement compensatory actions. In a tailored approach to conservation, beach fencing was carried out to safeguard nesting sites of protected bird species. The ornithologist then conducts regular inspections in the compensation area, with increased frequency during the breeding season (April to July). At the end of the year, the ornithologist prepares a summary report with information such as the number of breeding pairs, breeding success and an analysis of breeding statistics.

Under the supervision of a chiropterologist, replacement shelters for bats have been created within the area of the T2 project through the installation of bat boxes. The chiropterologist conducts control monitoring at least once a year to, among other things, assess the use of these structures by bats of the observed species.

Innovative initiatives, such as installing beehives on administrative rooftops, further underscore BHCT's efforts to preserve local biodiversity. Internal and external stakeholder engagement and communication methods have been established to facilitate and address feedback and ensure transparency and access to information relating to the project.

## PSA Sines

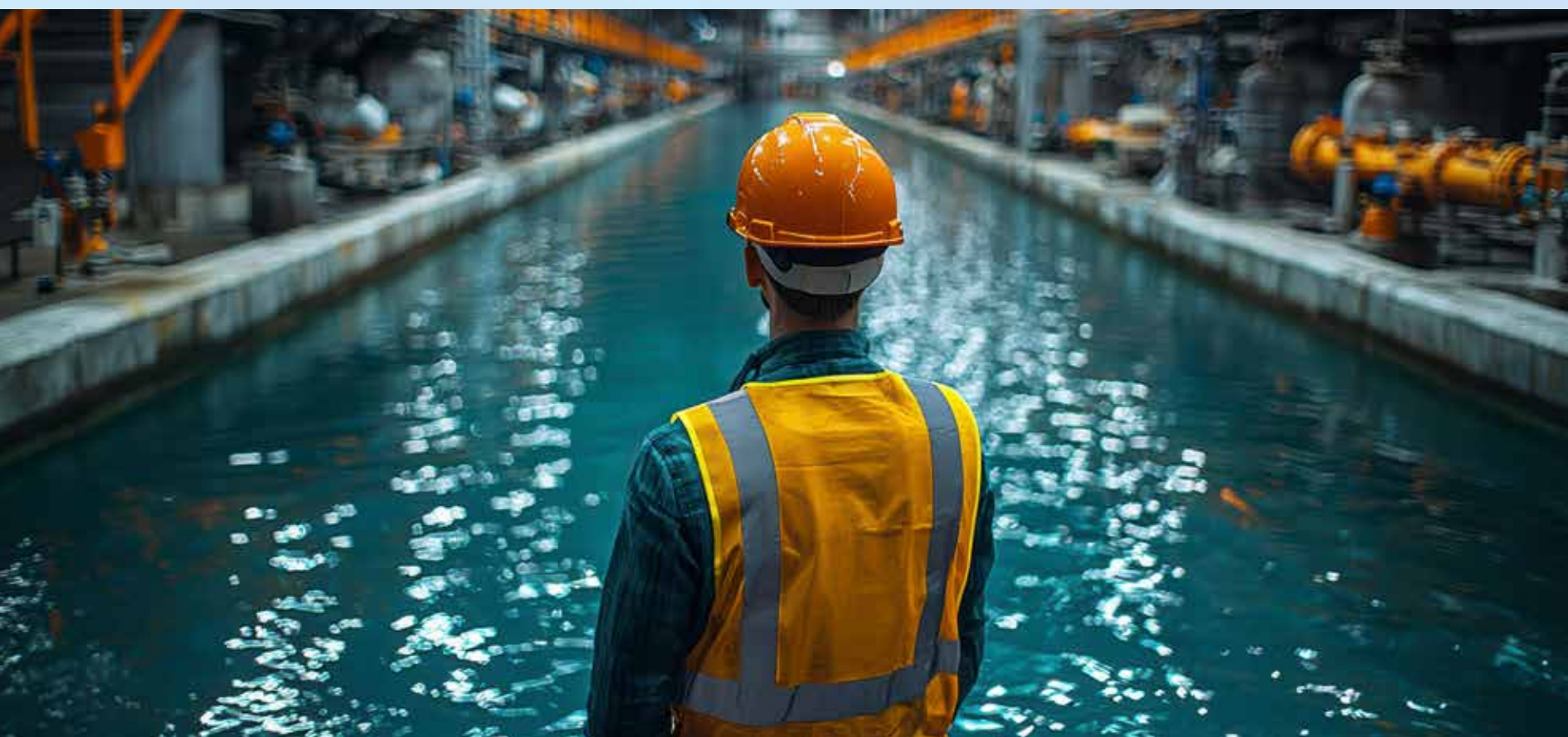
PSA Sines is collaborating with Ecoalga, the Blue Ocean Foundation, University of Évora, and Sines Port Authority on a multi-year project to document biodiversity quality in the port of Sines. Specifically, a biodiversity site next to the terminal's berth currently houses a species of soft coral sea fans not commonly found in Portugal waters. Researchers will continue to monitor its evolution, together with the rest of the ecosystem in the coming years.

Through such initiatives, PSA minimises its operational impact on marine life as well as local communities dependent on the environment for their livelihoods.

## SAFEGUARDING WATER QUALITY

Our business units minimise water pollution through a holistic and comprehensive strategy. PSA understands the significant environmental risks of water pollution, hence we have implemented thorough planning, effective waste management, and initiatives to reduce marine waste and protect ecosystems. We have also initiated the collection of more comprehensive data on wastewater discharged from our operations, including indicators such as discharge destinations and wastewater quality. Additionally, business units worldwide regularly engage in beach and sea clean-up activities. For example, employees from PSA Halifax teamed up with an environmental NGO in October 2024 for a family-friendly cleanup at the Point Pleasant Park near the Atlantic Hub terminal in Nova Scotia, Canada.

Recognising that our marine services operate directly on water bodies, we ensure that PSA Marine's business units adhere to international standards, such as the International Safety Management Code, to ensure safe operations and prevent pollution onboard vessels. Shipboard Oil Pollution Emergency Plans (SOPEPs) are also in place to guide response efforts in the event of oil spills.





# WASTE MANAGEMENT AND RECYCLING

PSA recognises the responsibility businesses have in reducing waste and we are also dedicated to promoting sustainable practices and supporting our ecosystem partners in their efforts to minimise their waste footprints.

## WHY IT IS IMPORTANT

At PSA, we endeavour to minimise our environmental footprint. We seek opportunities to reduce waste and optimise resource efficiency through targeted initiatives such as waste reduction, recycling and circular strategies, consistently striving to make a measurable and positive impact.

Leveraging our position as a key port operator as well as our extensive network, we also aim to encourage industry-wide change in waste management by leading through example. We hope to inspire other businesses to adopt sustainable practices, fostering a more resilient and environmentally responsible business ecosystem.

## OUR APPROACH

### MANAGING OUR WASTE RESPONSIBLY AND EFFECTIVELY

Our primary waste includes industrial waste such as wire ropes, tyres, scrap metal, waste oil, used batteries, general waste including paper, plastics and food that are generated as a result of our operations, as well as construction waste from our construction activities.

To that end, we have implemented stringent waste management protocols that align with PSA's Group Health, Safety, Security, and Sustainability (HSSS) policy and local regulations. All business units are required to utilise government-approved disposal sites and contract with professionally qualified waste management firms. To ensure compliance with local regulations, we also mandate that third-party providers adhere to all waste transport, disposal

and recycling requirements per local legislative obligations. Additionally, meticulous record-keeping of waste disposal activities is essential for regulatory compliance.

### ADVANCING WASTE MANAGEMENT THROUGH THE 3RS

To effectively address waste management, PSA has adopted a holistic strategy that extends beyond waste disposal. At the core of our approach are the 3Rs – the principles of Reduce, Reuse, and Recycle – which have been integrated into our organisational culture and operations.

To reduce waste generation, we continuously explore innovative solutions and implement closed-loop systems across our business units. This involves repurposing materials such as chemical drums, tyres, batteries, cables and air-conditioning units, thereby curbing waste while realising cost savings. Our business units report waste data biannually, identifying opportunities for reduction and recycling, further optimising our strategies.

Beyond these measures, we incorporate circularity principles into our waste management contracts wherever possible, requiring vendors to demonstrate their ability to segregate waste streams and provide detailed information on recycled materials and their end products.

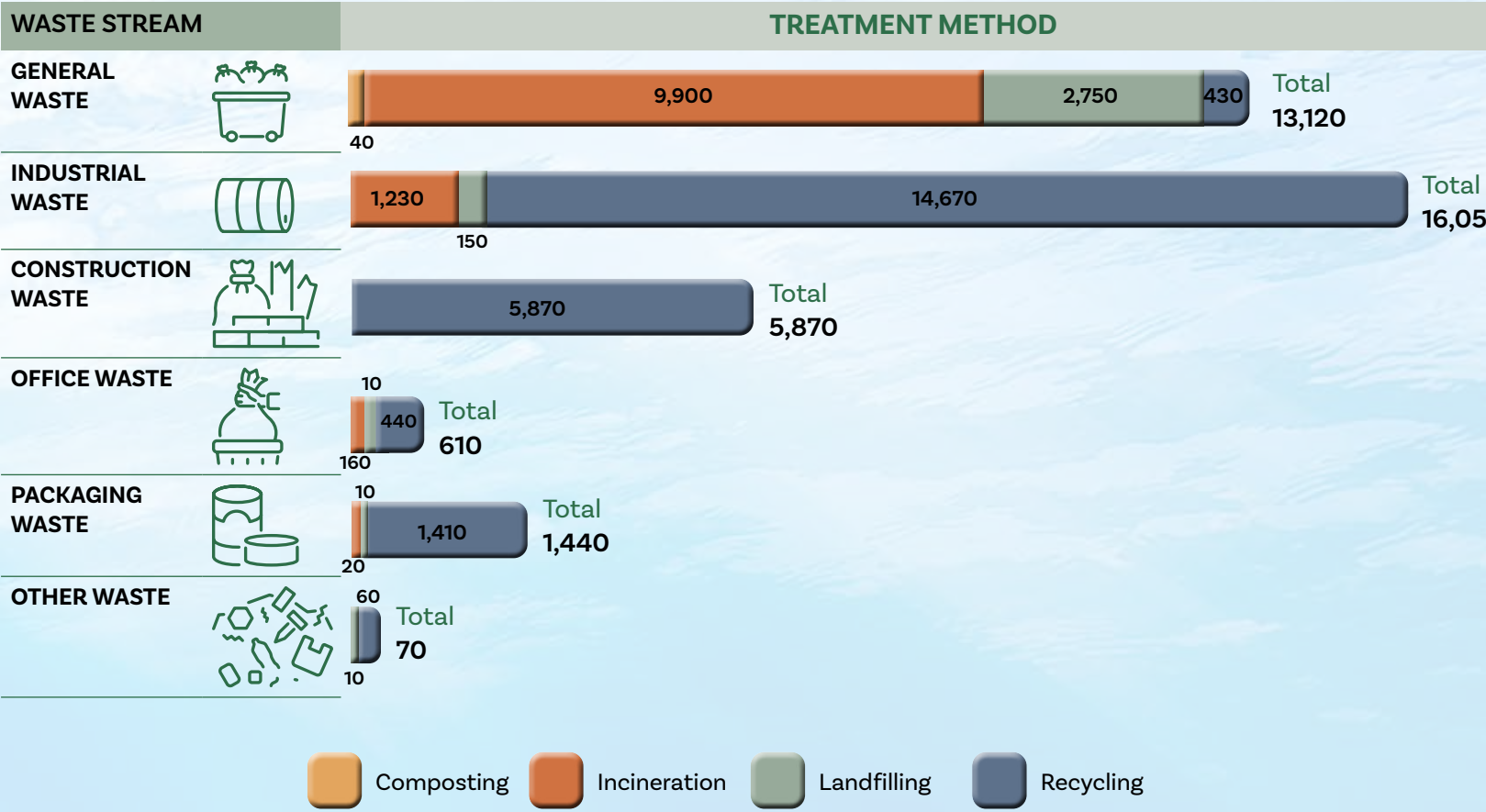
Within PSA, we focus on fostering a waste-mindful culture by disseminating best practices and encouraging knowledge exchange among our business units on waste reduction.

In 2024, we generated a total of 37,160 metric tonnes of waste across our business units, with a recycling rate of 62%. These figures have been obtained mostly through our third-party waste management contractors, either through a direct measurement of the waste tonnage or estimation by number and volume of waste trucks.





WASTE GENERATION OF THE PSA GROUP IN 2024 (METRIC TONNES)



UNITING FOR A GREEN PURPOSE

At PSA, we promote environmental awareness across our workforce. Through our annual global Go Green campaign that emphasises the 3Rs, we work to inspire hope and purpose in our employees, motivating them towards contributing to a sustainable future.

The Go Green campaign fosters a culture of environmental stewardship, encompassing initiatives such as tree planting, beach cleanups, recycling drives, and environmental talks. By integrating community initiatives with environmental activities and partnering with like-minded stakeholders, we not only reduce our environmental impact, but are also contributing to the betterment of the communities in which we operate.



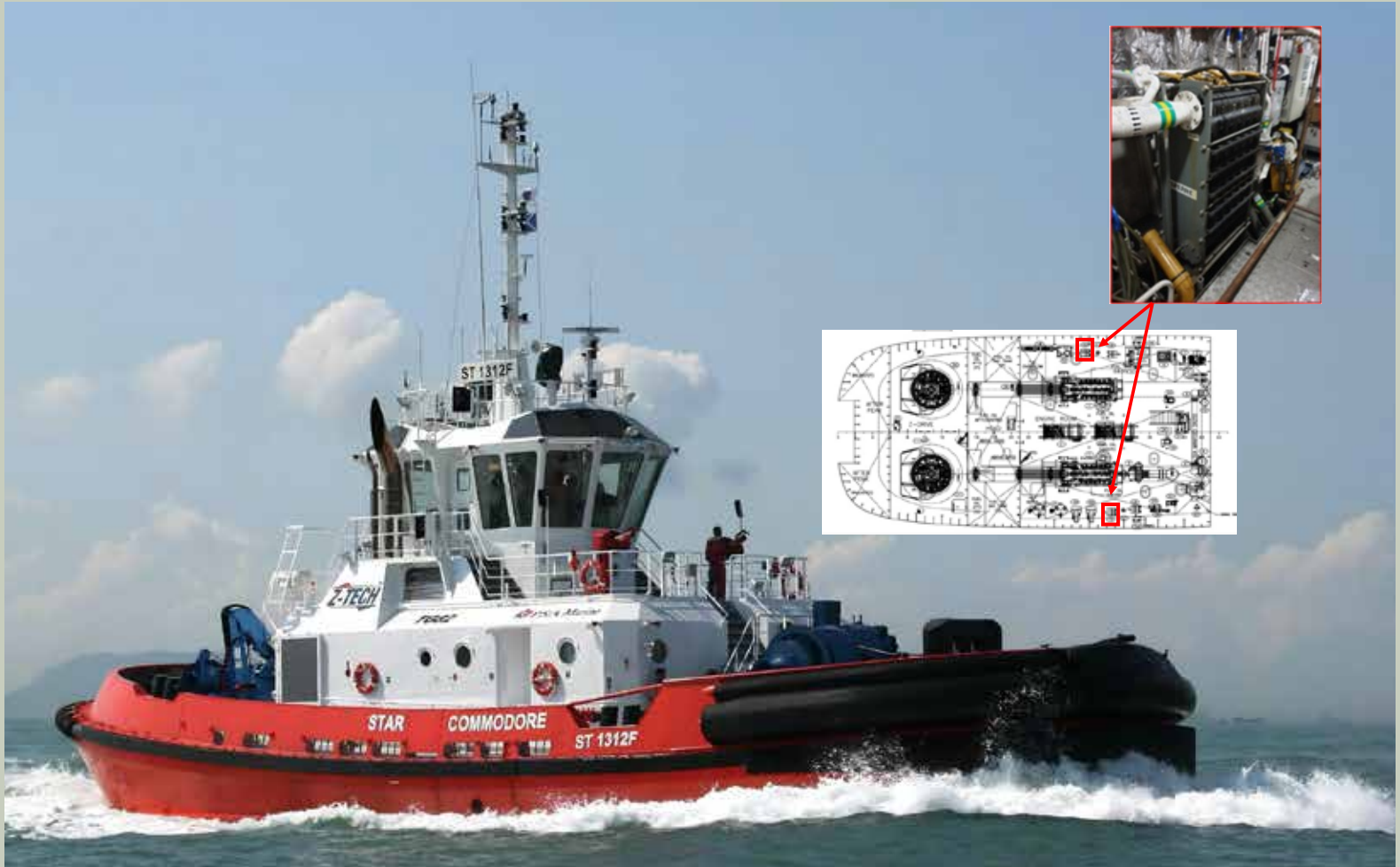


### A COOL SOLUTION FOR WASTE REDUCTION: ENHANCING OUR PLEAT COOLERS

PSA Marine in Singapore has taken a proactive step towards sustainability by implementing a circular approach to managing pleat coolers on their tugboats. While these coolers are crucial for maintaining optimal engine and system temperatures, their cartridges require frequent replacement due to seal degradation. This involves the purchase of new cartridges which is time-consuming and costly.

Recognising the opportunity to cut waste, the team devised a solution to reuse the cooler casings and heat transfer elements. By replacing the faulty internal seals with viton rubber cords and high-temperature silicon, the cartridges are refurbished and then subjected to a pressure test to ensure their suitability for operation.

This innovative approach of extending the lifespan of pleat cooler cartridges not only reduces waste but also yields cost savings.



Pleat coolers on a tugboat

### DRIVING THE CIRCULAR ECONOMY OF EV BATTERIES

The Electric Vehicle (EV) market is experiencing rapid growth, leading to a significant increase in the number of used and end-of-life batteries. Through PSA BDP, we actively facilitate the development of a circular economy for EV batteries.

PSA BDP currently partners with major players in the EV industry and has been appointed as the lead logistics service provider for several EV battery producers. In Dunkirk, France, PSA BDP is delivering specialised logistics services tailored to support our customer's EV production activities within a circular economy framework. While still in the early stages of developing this circularity for EV batteries, we are proactively designing operations and supply chains to set the stage for future volumes and recycling needs. PSA BDP's efforts in circularity align with the growing demand for sustainable solutions in the EV industry. By supporting the development of a robust battery recycling ecosystem, PSA BDP supports waste reduction and the conservation of resources.



# WATER USE AND POLLUTION

PSA acknowledges our environmental responsibility and emphasises efficient water management. This involves optimising water usage and ensuring that water discharge adheres to relevant regulations and standards.

## WHY IT IS IMPORTANT

PSA's terminal and supply chain operations rely on water for tasks such as operations maintenance, equipment repair and sanitation. Understanding our water needs and the impacts of our water usage on surrounding communities is important for PSA as we procure water directly from natural sources as well as through third-party providers. To prioritise sustainable and responsible water management, we strive towards efficient water utilisation and proper wastewater disposal throughout our operations.

## OUR APPROACH

We mandate sustainable water management and disposal practices through the Health, Safety, Security and Sustainability (HSSS) policy and Climate Response Management System. The policy ensures compliance with all applicable regulations and legislation across PSA business units. Additionally, we strive to manage wastewater responsibly by adhering to local regulatory limits on pollutant discharge, ensuring that processes continue to align with the relevant practices of each region.

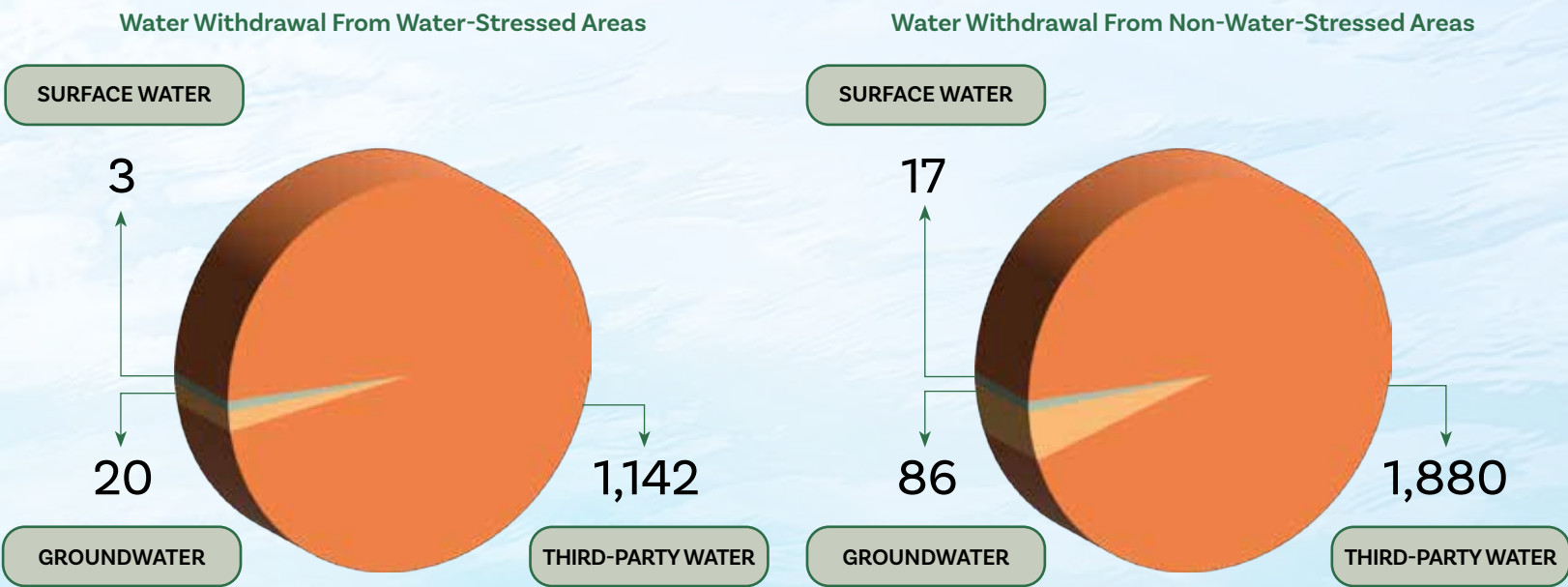
To further minimise water consumption and loss, PSA has implemented water-efficient technologies in our infrastructure. This includes the active monitoring of water usage to identify and reduce wastage. Where feasible, we have also utilised rainwater harvesting systems. For example, in Colombia, Sociedad Puerto Industrial Aguadulce (SPIA) container terminal deployed its water collection and treatment plant in early 2024. Rainwater is collected from an area of 12,100 m<sup>2</sup> and channelled to a water purification system to be treated for use in operational activities and domestic consumption. This initiative contributes to potable water savings. Over in Argentina, Logistics Platforms Investment (LPI) logistics parks have implemented rainwater recovery systems in recent years, reducing the use of well water.

Going further, PSA endeavours to instil a culture of environmental stewardship among employees by conducting awareness initiatives that touch on the importance of water conservation.

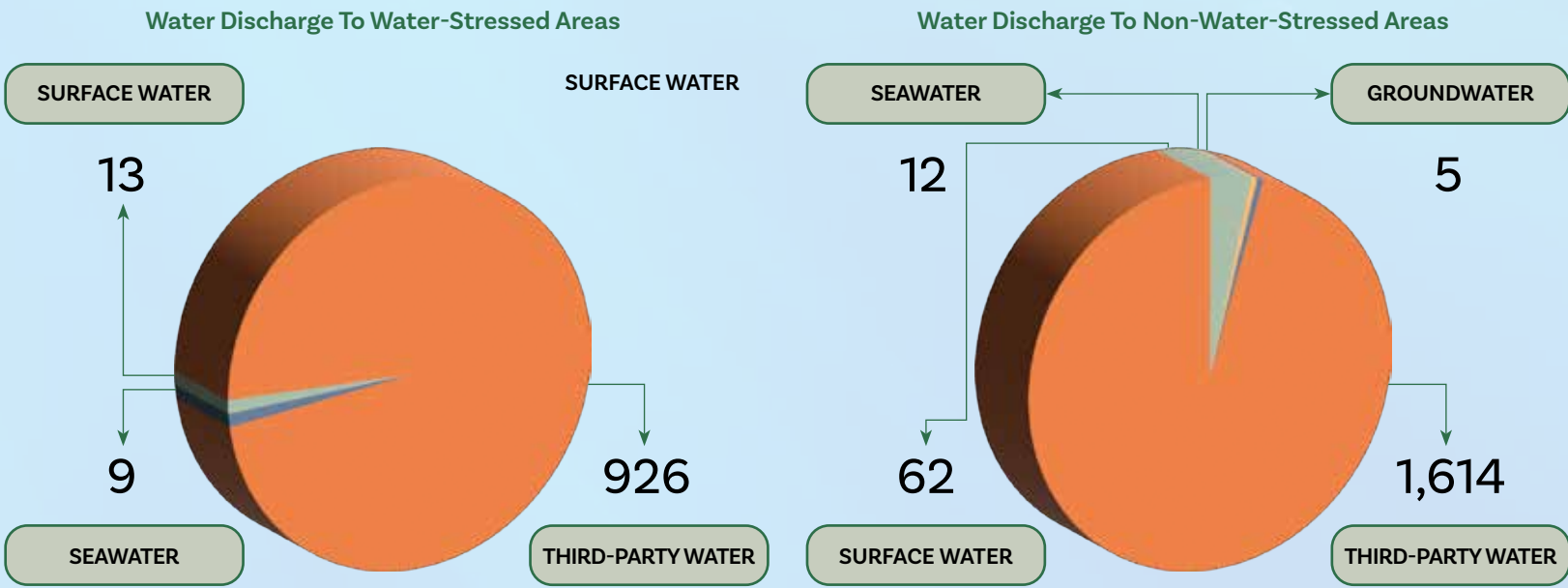




TOTAL WATER WITHDRAWAL BY THE PSA GROUP IN 2024 (MEGALITRES)



TOTAL WATER DISCHARGE BY THE PSA GROUP IN 2024 (MEGALITRES)



- Notes:
- To identify water-related impacts, every year, PSA uses the WRI Aqueduct Water Risk Atlas Tool to determine water-stressed areas. The latest was conducted in February 2025. Water-stressed areas are areas where the ratio of total annual water withdrawal to total available annual renewable water supply (i.e. baseline water stress) is high (40-80%) or extremely high (>80%), based on recommendations by GRI Standards 303: Water and Effluents 2018.
  - Water discharge volumes and discharge destinations are metrics collected across PSA's operations from 2024.