GREENGOV.SG
REPORT FOR FINANCIAL YEAR 2024

GREEN GOV SG

Contents

Foreword

"The public sector is taking deliberate steps to maximise resource-efficiency and reduce emissions from our infrastructure and operations."

Grace Fu
Minister for Sustainability and the Environment and Minister-in-Charge of Trade Relations

Climate change is one of the most pressing challenges of our time. 2024 marked another year of record-breaking global temperatures and extreme weather events. At the same time, we are witnessing more uncertainties in global climate cooperation. Some countries have scaled back on their climate action. Enacted trade barriers have affected supply chains and restricted the sharing of renewable energy technologies.

As an export-oriented and open economy, Singapore is unavoidably impacted by these global developments. But we have positioned ourselves to also capture opportunities and ride the waves. Despite weaker global political leadership, market demand for sustainable solutions remains strong. Global clean energy investments have hit a record high of US$2 trillion in 2024, while advancement in battery storage and charging technology has fuelled the continued expansion of electric vehicles, which we are also embracing in Singapore.

Singapore recognises the strategic imperative to take decisive climate action. Despite contributing about 0.1% of global emissions, we have committed to achieve net-zero emissions by 2050. Under the Singapore Green Plan 2030, we have been taking steps to green our infrastructure, utilities and services, and build climate resilience in our operations and supply chains.

International and regional cooperation are also crucial for climate action. We are working with like-minded partners to create win-win solutions for everyone, such as through regional power grids. We have signed power import agreements with Indonesia, Cambodia and Vietnam, and are pushing ahead to develop an ASEAN Power Grid, which will provide a supply of clean energy for Singapore.

The public sector is taking deliberate steps to drive sustainable change under the GreenGov.SG initiative and is making steady progress towards achieving our targets in areas such as energy, water, waste and solar. We will continue to grow our services to provide for the needs of our population, while ensuring that our systems are designed to maximise resource efficiency and reduce emissions. We are committed to achieve our target of net-zero emissions around 2045, five years ahead of our national target. We will also continue to support businesses and the community on their sustainability journeys.

This third GreenGov.SG report demonstrates the public sector's commitment to continuous improvement and progress towards meeting our sustainability targets. It also spotlights some of our initiatives which we hope will be useful for organisations and groups to adapt and implement in their own settings.

As we commemorate SG60 and six decades of nation building this year, we reflect on the collective efforts and sacrifices of our forefathers that have shaped the Singapore we know today. To thrive in the decades ahead, everyone – government, corporates and individuals – must continue to do their part to help build a sustainable Singapore for our future generations.

About the Report

This report details the environmental sustainability performance of the public sector as an entity, specifically covering the parameters of emissions, energy, water and waste, for the Financial Year ("FY") 2024 running from 1 April 2024 to 31 March 2025.[1] It covers the Singapore public sector and its assets in Singapore, including office buildings, healthcare facilities, schools, public utilities installations, and public transport infrastructure and vehicles. More information on the categories and types of assets can be found in our facility categorisation framework.

This report does not aim to disclose or update on national-level policies, which are more comprehensively covered in other publications, such as sectoral masterplans or roadmaps.[2] It complements these existing national publications, by showcasing the efforts of the Singapore public sector to become more environmentally sustainable in its operations, in support of our national plans.

We hope this report is informative and inspires greater awareness and action on climate change and sustainability. We welcome further feedback and suggestions at **MSE_Feedback@mse.gov.sg**, to help us continuously improve our efforts.

[1] We have adapted from leading international frameworks, standards and de nitions, where applicable, in drafting this report.
[2] A list of relevant publications can be found in Appendix B.

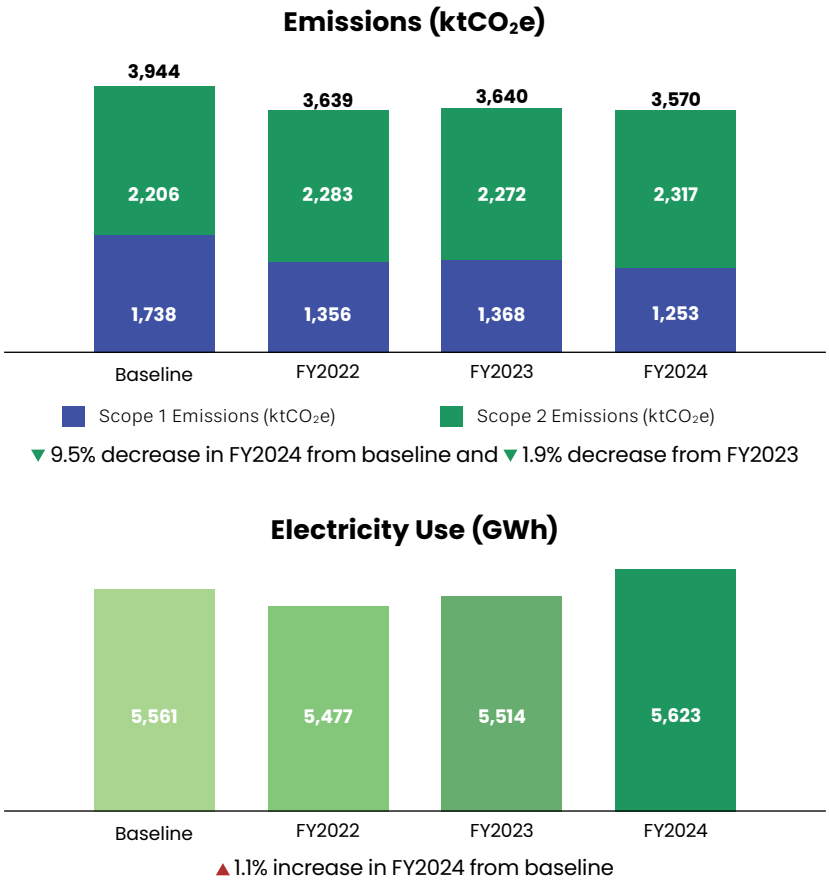
3 Executive Summary

Excel Greenhouse Gas Emissions

Our GreenGov.SG Target

Net-zero emissions around 2045,
after peaking emissions around 2025

Our Performance



Key Takeaway

Scope 1 emissions decreased from the baseline [3] following the decommissioning of the Tuas Waste-to-Energy ("WTE") Plant in 2022. However, this reduction is temporary. As Singapore's urban development continues, and our population grows more prosperous, we are generating more waste. Our Scope 1 emissions is expected to increase in the coming years, especially with the commissioning of the new Integrated Waste Management Facility ("IWMF") from 2027 onwards. We are launching a pilot to test the deployment of carbon capture and storage technology, which has the potential to significantly reduce Scope 1 emissions from waste incineration

Scope 2 emissions and electricity consumption in FY2024 increased by 2.0% from FY2023 mainly due to the addition of the Thomson-East Coast Line ("TEL") Stage 4 and a full year of operations of new healthcare facilities such as Woodlands Health Campus ("WHC") and Tan Tock Seng Integrated Care Hub ("TTSH ICH"). More growth is expected as Singapore's infrastructure expands to serve our people better. Nevertheless, we are taking deliberate steps to mitigate the increase by maximising resource efficiency in both new and existing facilities, whilst accelerating renewable energy deployment and imports.

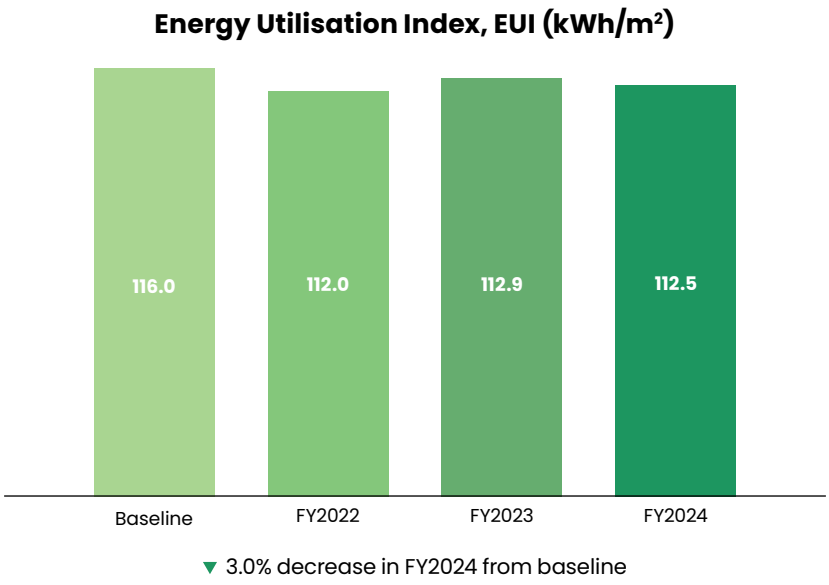
[3] We have referenced FY2020 as the baseline year for emissions, as this was when we began data collection for emissions.

Excel Energy

Our GreenGov.SG Target

10% reduction in energy use
per unit area[4] by 2030

Our Performance



Key Takeaway

Despite expanding infrastructure to serve Singapore's population, the public sector achieved a 3.0% improvement in electricity used per unit area in FY2024 from the baseline.[5] This progress in energy efficiency reflects systematic efforts to retrofit older buildings to Green Mark Platinum Super Low Energy (SLE) standards, adopt better designs, and deploy smart building technologies. Through performance-based contracting, agencies have achieved substantial reductions – with some facilities cutting electricity consumption by up to 40%. These results demonstrate that sustainable growth is achievable when efficiency improvements keep pace with infrastructure expansion.

Strategy

Reduce

- Design energy efficien infrastructure, equipment, and systems
- Retrofit existing building with more energy efficien systems

Replace

- Maximise solar deployment
- Pursue electrificatio to replace fossil fuel-powered vehicles and equipment

Remove

- Develop innovative carbon capture solutions to remove residual emissions

4 In terms of electricity used per unit area.
5 The baseline for electricity use is the average of FY2018 to FY2020, to better re ect hybrid working arrangements post-pandemic.

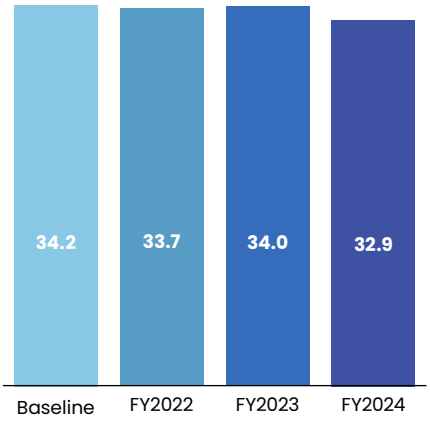
Excel Water

Our GreenGov.SG Target

10% reduction in water use
per person per day by 2030

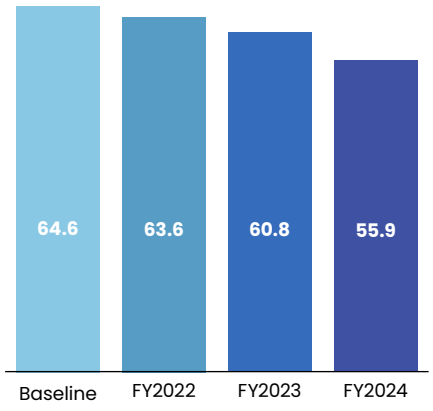
Our Performance

Water Consumption (billion litres)



▼ 3.7% decrease in FY2024 from baseline

Water Efficiency Index (WEI) (litres/person/day)



▼ 13.5% decrease in FY2024 from baseline

Key Takeaway

The public sector has made significant progress towards our water target, achieving 55.9 litres per person per day in FY2024, a 13.5% improvement from the baseline[6] and an 8.1% improvement from FY2023. This success stems from proactive leak detection through smart monitoring and user reporting systems, rethinking water-intensive processes, and implementing innovative water reuse initiatives. With 1,114 public facilities now certified as Water Efficient Buildings, these efforts show how targeted interventions and smart technology can help conserve our precious water resources.

Strategy

Reduce

- Design water-efficient buildings
- Identify and repair leaks promptly
- Improve processes to reduce water usage across operations

Replace

- Use non-potable water such as rainwater where feasible

Reuse

- Reuse water across operations

[6] The baseline for water use is the average of FY2018 to FY2020, to better re ect hybrid working arrangements post-pandemic.

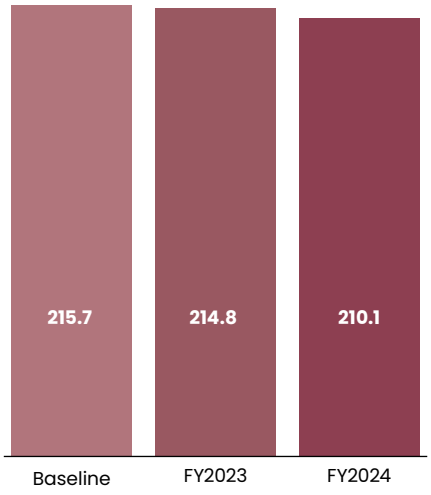
Excel Waste

Our GreenGov.SG Target

30% reduction in waste disposed of by 2030[7]

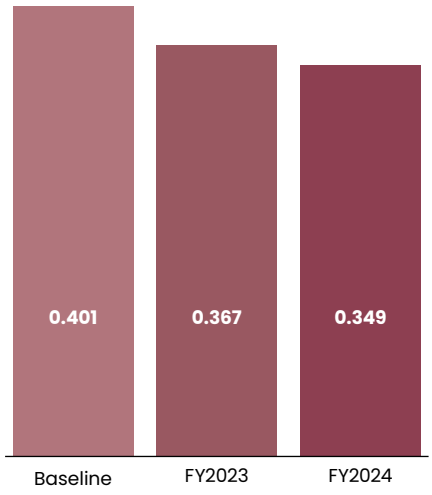
Our Performance

Waste disposed of (million kilogrammes)



▼ 2.6% decrease in FY2024 from baseline

Waste Disposal Index (kg/person/day)



▼ 13.1% decrease in FY2024 from baseline

Key Takeaway

The public sector is making steady progress towards our waste target, achieving 0.349 kg per person per day in FY2024, a decrease of 4.8% from FY2023, and 13.1% from the baseline.[8] This improvement reflects comprehensive waste management strategies across the 3R framework: reducing unnecessary packaging like the Army's targeted elimination of plastic packaging, reusing decommissioned assets such as MRT trains, and recycling through innovative solutions including food waste digesters at hospitals and ports. We are working with waste collectors to improve waste measurement, to enable us to introduce even more targeted interventions in future.

Strategy

Reduce

- Rethink packaging
- Adopt reusables and minimise single-use disposables

Reuse

- Maximise useful life of equipment or materials
- Repurpose unwanted items by finding creative new uses

Recycle

- Recycle materials and convert them into useful products
- Install food waste digesters

[7] In terms of waste disposed of per person per day.
[8] The baseline for waste disposed is FY2022 as this is when requirements for public waste collector to weigh waste at the premises-level started.

Enable

Our GreenGov.SG Commitment & Strategy

Promote a **green economy**, such as through green procurement policies.

Our Highlights

Expand environmental sustainability criteria to large construction and Information and Communication Technology (ICT) tenders. Since implementation, over 30 large construction tenders have been subjected to such criteria.

Expanded support for businesses through sustainability-related grants to support sustainability reporting and energy efficiency improvements. Knowledge sharing platforms and courses were also introduced.

Our GreenGov.SG Commitment & Strategy

Nurture a **green citizenry** by rallying the public through our public touchpoints and community programmes.

Our Highlights

Cultivating a sense of **appreciation and care for the environment** in our young.

Supported **350 sustainability initiatives** under the SG Eco Fund, which **engaged more than 700,000 people**.

Excite

Our GreenGov.SG Commitment & Strategy

Embed a **culture of learning and action** within the public sector to inspire and empower public officers to contribute actively towards environmental sustainability.

Our Highlights

Continue to **train public officers through formal courses** such as the Climate Change and Sustainability 101 for Public Officers, Sustainabilit Experts Workshop series, and other asynchronous modes such as the MSE e-Primer and Sustainability Primer for Public Officers

Organised ground-up initiatives to raise awareness on sustainability and to reduce our resource footprint.

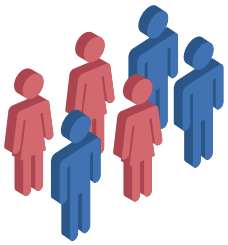
4 Introduction

FY2024 Highlights

2024 marked a year of robust economic growth for Singapore. The economy expanded by 4.4%, driven by a rebound in manufacturing and sustained momentum in financial services and trade

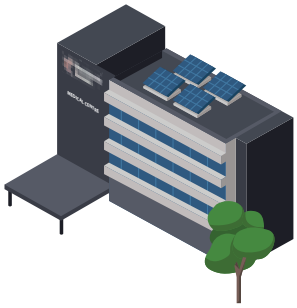
Our economic growth was matched by a steadily growing population, including an increasingly ageing demographic. As the needs of our population continue to grow, the public sector is expanding our operations and infrastructure ahead of demand. This includes extended rail networks for better connectivity, additional healthcare facilities to serve our ageing society, and more recreational and community spaces such as sports facilities, heartland malls and supermarkets for our communities.

Overall
GDP growth of 4.4%.

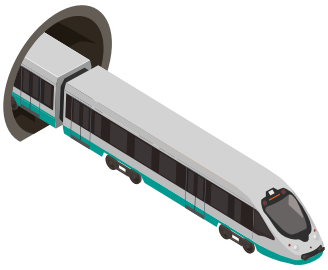


Population growth of 2%
from 2023 to reach 6.04 million.

As of 2024, around 20% of our population was above the age of 65, a 3-percentage point increase since 2020.



Two new specialist centres, one new polyclinic and one expanded polyclinic
to support our ageing population.



Nine new stations and
12.8 km added to our rail network.

4.1 Singapore's Commitment to Environmental Sustainability

Singapore's commitment to sustainable development has been ingrained since independence. As a small island state with limited natural resources, we recognise that sustainable practices are not merely aspirational goals but essential for our survival and long-term prosperity. This commitment has evolved from pragmatic resource management into a comprehensive national strategy that factors sustainability into our economic planning, urban development, and social progress.

The Singapore Green Plan 2030 ("Green Plan") embodies our collective response to this reality, and our commitment to tackle the urgency of climate change.

The Green Plan is organised along five pillars:

City in Nature

Conserve and extend Singapore's natural capital island-wide, to ensure a green, liveable and sustainable home.

Sustainable Living

Improve the cleanliness of our environment, as well as conserve resources and energy as a way of life in Singapore.

Energy Reset

Transit to cleaner energy and increase our energy efficienc to lower our carbon footprint.

Green Economy

Support the green transformation of our businesses and industries, harness environmental sustainability as a competitive advantage and create new green opportunities and jobs.

Resilient Future

Adapt and protect ourselves against the impact of climate change.

Supported by two enablers:

Green Government

Promote and enhance environmentally sustainable and climate resilient practices in the public sector.

Green Citizenry

Support and encourage individuals, households, and community groups to co-create and co-deliver solutions for environmental sustainability and climate resilience.

Approach to Addressing Climate Risks

As a low-lying tropical island state, Singapore is susceptible to the effects of climate change. To protect our land and people, we are planning ahead to adapt to higher temperatures and sea-level rise.

1 Understand

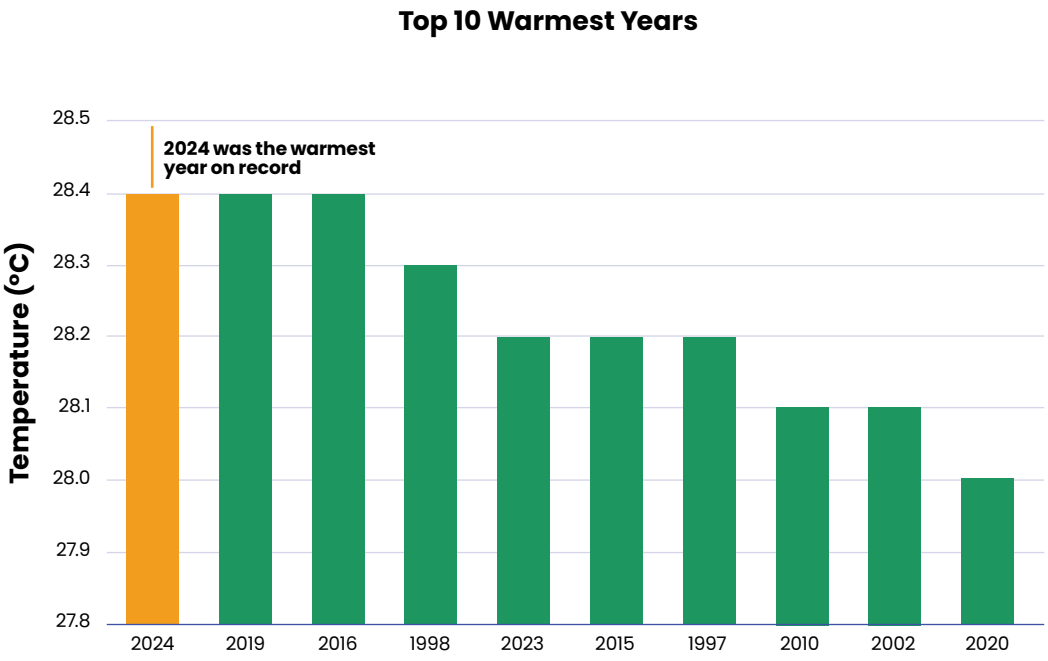
Understanding the severity of the impacts of climate change on Singapore's environment, infrastructure and community is crucial to develop accurate plans.

Latest Climate Projections for Singapore

According to the Centre for Climate Research Singapore's latest projections from the Third National Climate Change Study, by 2100, we can expect:

- **Temperature rise:** 0.6°C to 5.0°C in annual average daily mean temperature
- **Sea level rise:** Rise in relative mean sea level by up to 1.15m[9]
- **Heat stress days:** Between 54 and 326 days of high heat stress per year

In 2024, Singapore's annual average temperature was 28.4°C, making it the warmest year on record (tied with 2019 and 2016).



The ten warmest years on record at the Changi climate station since temperature records began in 1929.
Source: Meteorological Service Singapore

Building on these projections, government programmes such as the Climate Impact Science Research Programme ("CISRP") and the National Sea Level Programme ("NSLP") help to bridge science and policy implementation by undertaking cross-cutting research to address key knowledge gaps.

[9] In cases of extreme weather events, coupled with high tides and storm surges, sea levels may rise by up to 5 metres.

2 Prepare & Adapt

Preparing and **Adapting** our plans and strategies is an iterative process. It involves strengthening our physical infrastructure and building resilience of our people to mitigate climate risks.

Flood and Coastal Resilience

- Completed concept design for coastal protection measures at Changi and the Greater Southern Waterfront. Concept design for Long Island is still ongoing
- Ongoing site-specific studies for Jurong Island and the North-West Coast
- Site-specific studies for Sentosa and the South-West Coast to commence in 2026
- Top up of Coastal and Flood Protection Fund by S$5 billion
- 6 new drainage projects have commenced in 2025, adding to the 18 ongoing projects
- Amendment of the Sewerage and Drainage Act to require premise owners to operate and maintain their own flood protection measures
- Annual Flood Resilience Campaign to raise public awareness of flood risks and mitigation measures; foster acceptance of flood risks; and motivate community action to better prepare for and respond to flood incident
- Launch of the Alliance for Action ("AfA") to co-create the Flood-Resilient Developments Guidebook
- 17 research projects kickstarted under the Coastal Protection and Flood Resilience Institute ("CFI") Singapore since its launch
- 14 applied research projects awarded under the Coastal Protection and Flood Management Research Programme ("CFRP")
- Development of a new coastal protection legislation and Code of Practice to support effective implementation, operations and maintenance of coastal protection measures

Heat Resilience

- Introduction of a Heat Stress Advisory to guide the public on outdoor activities and minimise heat-related illnesses
- Implementation of sector-specific guidelines to protect outdoor workers
- Development of heatwave response plans for different populations groups
- Expansion of heat stress sensor network to monitor heat stress across residential areas
- Designing of new towns to preserve wind corridors as far as possible.
- Application of cool coatings for all public housing estates by 2030

3 Review

We will continuously **review** our plans to ensure they remain effective and aligned with the latest scientific research and information, and emerging global trends

4.2 GreenGov.SG

The public sector's sustainability movement, also known as GreenGov.SG, is a key enabler of the Green Plan. Under GreenGov.SG, the public sector has set ambitious targets to reduce carbon emissions and resource use. Through GreenGov.SG, the public sector aims to inspire the businesses and communities to contribute towards advancing Singapore's long-term sustainability.

Our GreenGov.SG efforts are organised along three pillars – Excel, Enable and Excite. We have also mapped these to the United Nations Sustainable Development Goals. [10] The following chapters elaborate on the initiatives and actions we have taken under each of these pillars.

Excel
with ambitious targets and practical strategies

Greenhouse Gas Emissions		Achieve net-zero emissions around 2045 after peaking around 2025
Energy		Achieve 10% reduction in energy use per unit area by 2030
Water		Achieve 10% reduction in water use per person per day by 2030
Waste		Achieve 30% reduction in waste disposed of per person per day by 2030

Enable
a green economy and green citizenry

Green Economy		Incorporate environmental sustainability considerations into all government procurement by 2028
Green Citizenry		Embed environmental sustainability into public touchpoints and community-based programmes

Excite
public of cers to contribute actively to environmental sustainability in Singapore

Capability Building		Elevate environmental sustainability awareness and knowledge across the public sector
Culture Building		Enable public officers to tak environmental sustainability action

[10] More information can be found in Appendix C.

5 Excel
WITH AMBITIOUS TARGETS AND PRACTICAL STRATEGIES

The public sector is working hard to achieve our sustainability targets even as we expand our infrastructure and essential services to meet the needs of our residents. This chapter shows our progress through performance data, and provides examples of successful green initiatives from various agencies.

Categorisation of Facilities

In this chapter, we have presented the public sector's performance data collectively, as well as by categories of facilities.[11] The categories aim to give a clearer picture of typical functions and users of facilities, so that we can implement more targeted sustainability measures.

Category	Examples of GreenGov.SG facilities	Who uses these facilities?
Public Sector Offices	• Environment Building, Housing Development Board ("HDB") Hub, Ministry of National Development ("MND") Complex, Ministry of Manpower Headquarters ("MOM")	• Mostly public officer • A relatively smaller number of visitors who attend meetings
Public Sector Operations	• Includes non-office buildings such as immigration checkpoints, social service centres, labs and data centres	• Sizeable group of public officer • Number of visitors varies depending on facility. For example: ◦ High number of travellers at checkpoints ◦ Significant number of visitors at social service centres ◦ Very few or no visitors at data centres and labs
Education and Healthcare	• Ministry of Education ("MOE") schools, Institute of Technical Education ("ITE"), polytechnics, and universities	• Mostly students, teachers and staff • Relatively fewer visitors. Visitor numbers may spike during certain periods like open house
	• Hospitals, polyclinics and specialist clinics	• Mostly healthcare staff and patients • Significant number of visitor
Public Amenities and Tenanted Industrial Facilities	• Tenanted industrial facilities – government-owned industrial parks and estates	• Mostly business owners and their employees • Very few visitors, mainly for deliveries or meetings
	• Tenanted commercial facilities – HDB malls, hawker centres	• Mostly customers and patrons • Relatively small number of business owners and their employees
	• Community centres, sports facilities, libraries, museums and heritage centres	• Relatively small number of public officer • Mostly visitors and patrons
Mobility	• Train stations, bus interchanges, public trains and buses	• Relatively small number of public transport operator staff • Mostly passengers
Utilities	• Waste-to-energy, water and sewage treatment plants	• Very few public officers • Very few visitors and/or contractors

[11] A breakdown of the performance data by Ministry family can be found in Appendix A.

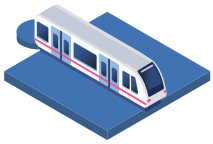
5.1 Greenhouse Gas Emissions and Energy

Emissions

The public sector has committed to achieving net-zero emissions around 2045, five years ahead of our national target to achieve net-zero emissions by 2050. [12] We believe that the public sector needs to lead by example in transitioning towards a net-zero future.

The public sector's main mission is to serve Singapore's residents well. This means understanding their needs, planning ahead, and providing infrastructure and services to meet them. Public sector emissions arise in the course of our work to grow Singapore and provide essential services for everyone who lives here.

We expect our emissions to continue to increase in some sectors such as mobility and healthcare. This is unavoidable as we expand infrastructure and services in the coming years to support a growing economy and an ageing population. While this means the public sector will shoulder a larger share of emissions, Singapore as a whole can achieve an overall reduction in some sectors, like mobility, as shown in the following case study.



Leading Mobility Transformation: Strategic Increases for Sustainable Transport

Achieving truly sustainable transport requires reimagining mobility itself – shifting from a car-centric model to one where public transport, walking and cycling form an integrated, attractive alternative.

Enhanced public transport connectivity encourages residents to shift from private vehicles to public transport. Even though this increases the government's share of land transport emissions, the overall environmental impact is positive as public transport is more energy efficient per passenger

Between 2021 and 2023, we opened 17 stations on the TEL, added new stations to existing lines, expanded bus networks to serve new precincts like Tampines North, and added over 14.5km of cycling paths with bicycle parking at transport nodes.

These have collectively increased public sector transport emissions by 55 ktCO$_2$e, a 10.6% increment from 2021. However, private land transport emissions decreased by 891 ktCO$_2$e – a 12.7% decline, during the same period. As a result, national land transport emissions reduced by 11.1% from 2021 to 2023. Other factors that led to the reduction include post-pandemic hybrid work patterns which moderated traffi volumes, and acceleration of cleaner vehicle adoption. Greater provision of covered walkways and cycling paths have also encouraged walking or cycling for short distance trips and first/last mile journeys

Overall land transport emissions have steadily declined since their 2016 peak, demonstrating how it is possible to achieve comprehensive and sustainable mobility that serves our population needs.

Furthermore, we are committed to grow sustainably. All new public sector facilities are built to meet the Building and Construction Authority ("BCA") Green Mark Platinum Super Low Energy ("SLE") standards. We are actively upgrading older facilities by replacing worn-out or outdated equipment like building chillers with newer, more energy- and water-efficient alternatives, while also deploying solar panels to harness renewable energy. At the same time, we continue to identify new opportunities to enhance resource utilisation efficiency, as part of our broader effort to 'green' existing buildings. These efforts will contribute to reducing overall public sector emissions.

Beyond this, reducing our emissions further is also dependent on the progress of renewable energy imports to green our national power grid and the successful adoption of technologies such as carbon capture. These technologies will take time to materialise.

[12] These targets are contingent on technological progress as well as international cooperation to enable mitigation measures.

5.1.1 Performance

In FY2024, the public sector emitted 3.6 million tonnes of CO_2 equivalent ("CO_2e"). This comprises both Scope 1 and 2 emissions.[13] Our total emissions decreased by 1.9% from FY2023 and were 9.5% lower than the baseline.

Scope 1 Emissions

Our Scope 1 emissions in FY2024 were 27.9% lower than the baseline mainly due to the decommissioning of Tuas WTE Plant in 2022. Scope 1 emissions decreased by 8.4% from FY2023 to FY2024 mainly due to the operation and maintenance schedule of our remaining Tuas South WTE plant, which resulted in reduced waste processing capacity, as well as variations in the composition of waste incinerated. These reductions in emissions from the Utilities sector offset the slight increase in emissions from the Mobility sector due to higher diesel consumption, with more bus services rolled out and an increased number of trips made under the Bus Connectivity Enhancement Programme. The significant drop is temporary. We expect our overall Scope 1 emissions to rise again when our new WTE plant, the Integrated Waste Management Facility, becomes operational from 2027 onwards. We will increase the rate of electrification of our public buses to mitigate the increase in Scope 1 emissions from bus services

Scope 2 Emissions

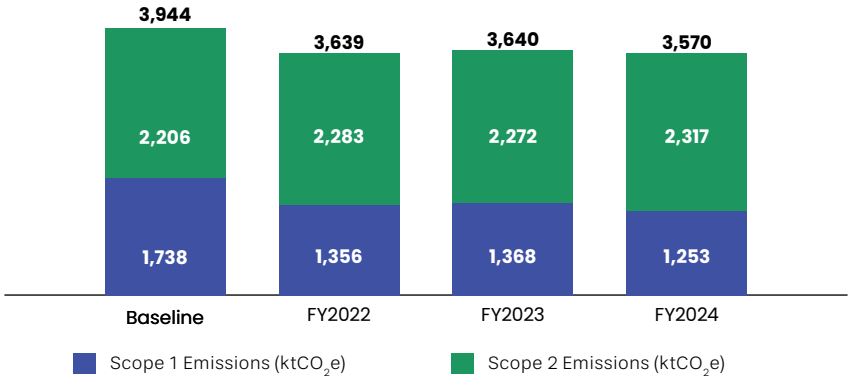
Our Scope 2 emissions in FY2024 increased by 2.0% from FY2023 and 5.0% from the baseline. This was mainly due to the expansion of our public infrastructure in the transport and healthcare sectors. The TEL Stage 4 opened in June 2024, adding seven new stations and 10.8 rail km to the network. Woodlands Health Campus ("WHC") officially opened in July 2024, and will eventually provide 1,000 more acute and community hospital beds to serve residents in the north. Similarly, Tan Tock Seng Integrated Care Hub ("TTSH ICH") opened in March 2024 and saw a full year of operations focused on supporting patients in need of rehabilitative and palliative care.

	Baseline	FY2022	FY2023	FY2024	Change from Baseline
Scope 1 Emissions ($ktCO_2e$)	1,738	1,356	1,368	1,253	▼-27.9%
			Year on year change: ▼-8.4%		
Scope 2 Emissions ($ktCO_2e$)	2,206	2,283	2,272	2,317	▲5.0%
			Year on year change: ▲2.0%		
Total Emissions ($ktCO_2e$)	**3,944**	**3,639**	**3,640**	**3,570**	**▼-9.5%**
			Year on year change: **▼-1.9%**		

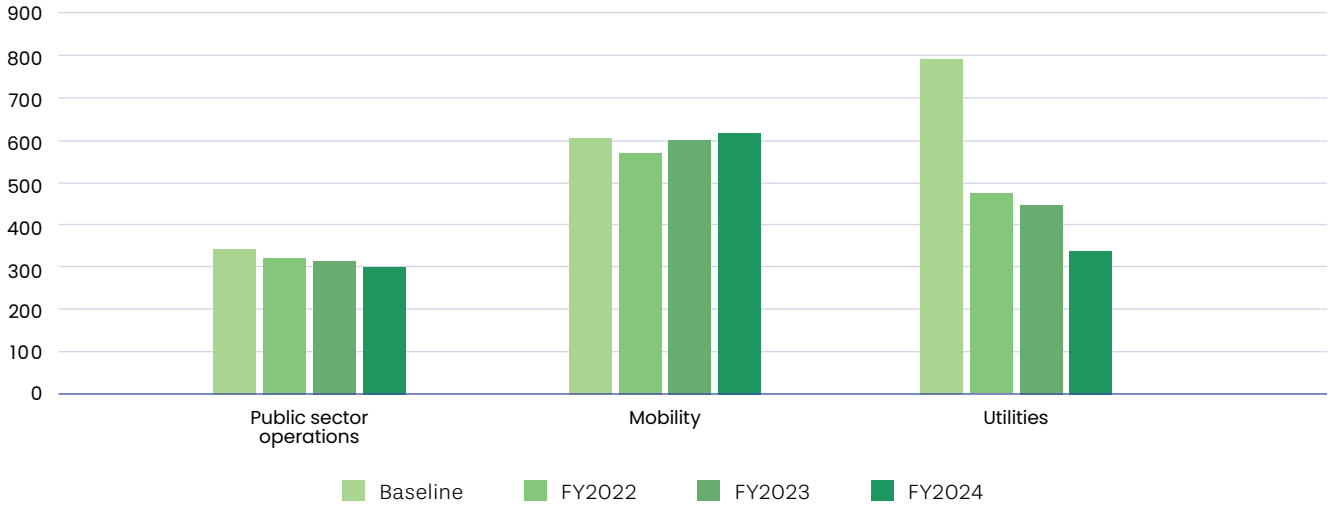
*Percentage changes calculated based on these numbers may not be aligned due to rounding of gures.

[13] Scope 1 emissions refer to direct greenhouse gas emissions from sources that are owned or controlled by an organisation, such as petrol and diesel. Scope 2 emissions refer to indirect emissions associated with the purchase of electricity, steam, heating and cooling.

Emissions ($ktCO_2e$)

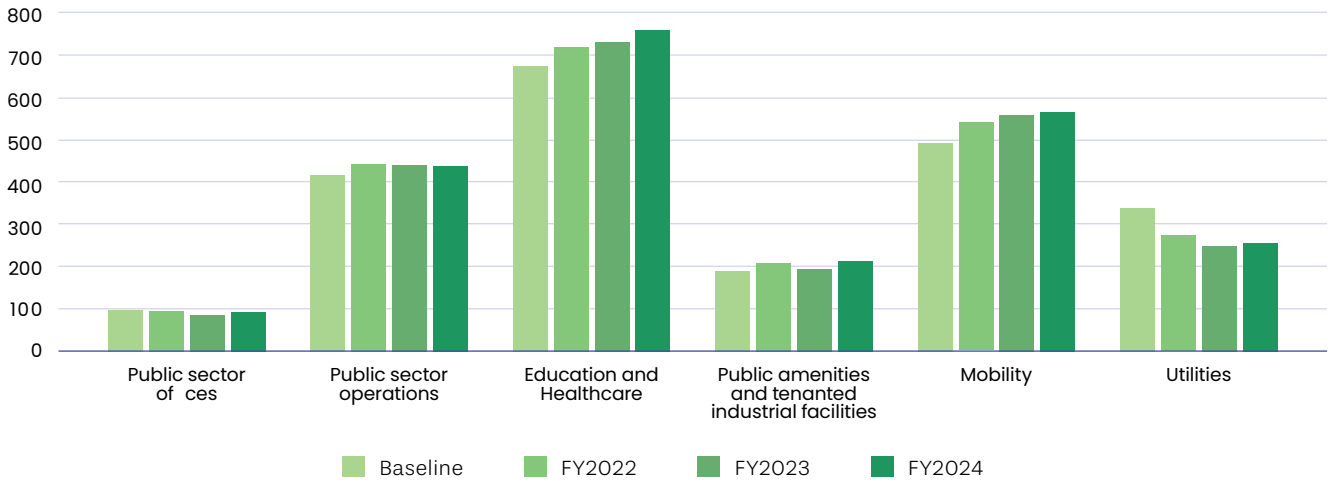


Scope 1 Emissions ($ktCO_2e$)



*We have omitted the categories for public sector of ces, education and healthcare, and public amenities and tenanted industrial facilities in this graph as their Scope 1 emissions are negligible.

Scope 2 Emissions ($ktCO_2e$)

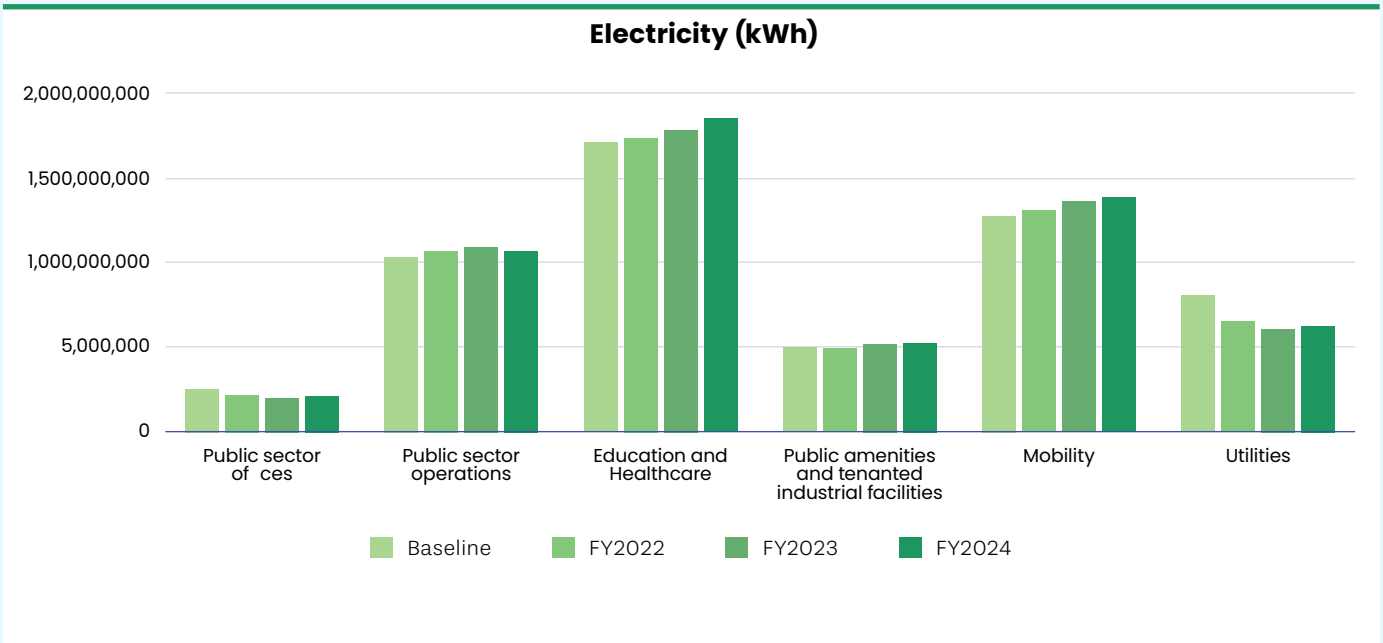


Energy

In this report, the public sector's energy use refers to purchased electricity and cooling. In FY2024, the public sector used 5,623 GWh of electricity, including purchased cooling from district cooling systems. This is a 2.0% increase from FY2023 and a 1.1% increase from the baseline.

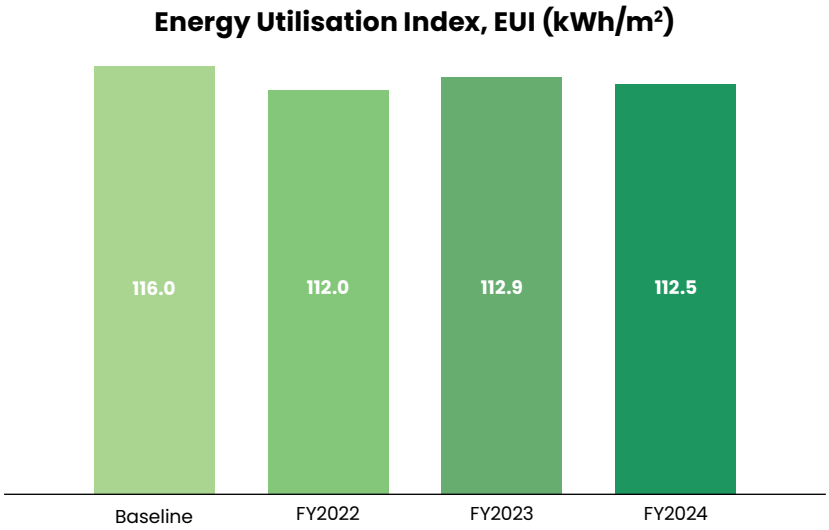
The increase from FY2023 can be attributed to the expansion of public infrastructure, including an almost full year of operations for Stage 4 of the TEL and new healthcare facilities such as TTSH ICH and WHC.

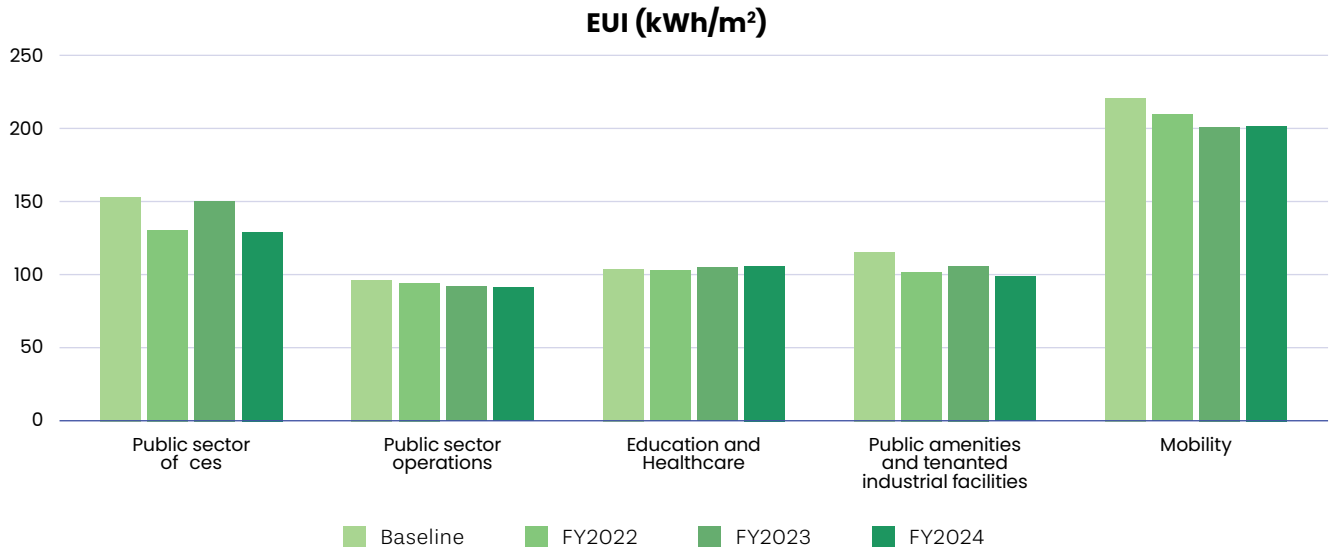
	Baseline	FY2022	FY2023	FY2024	Change from Baseline
Electricity Consumption (GWh)	5,561	5,477	5,514	5,623	▲1.1%
			Year on year change: ▲2.0%		
EUI (kWh/m²)	116.0	112.0	112.9	112.5	▼-3.0%
			Year on year change: ▼-0.4%		



In FY2024, the Energy Utilisation Index[14] ("EUI") of the public sector was 112.5 kWh/m², which was a decrease of 0.4% from FY2023 and a decrease of 3.0% from the baseline.

The decreasing EUI trend is due to overall improvements in the energy efficiency of our facilities. Our new buildings are built to meet the Green Mark Platinum SLE standard and we are improving the energy efficiency of our existing facilities through retrofits





[14] Energy use per unit area.

5.1.2 Strategy

We have adopted the 3R framework "Reduce, Replace and Remove" to guide our decarbonisation strategy.

Reduce emissions from our operations

Replace our current energy source with lower-carbon alternatives

Remove carbon by exploring new technologies

Reduce

The public sector is constantly seeking ways to reduce emissions while maintaining our high standards of service delivery.

The Efficiency Paradox: Growing Healthcare While Shrinking Energy Use

Our public hospitals face a daunting challenge: reducing energy consumption while expanding capacity and enhancing treatment to meet growing healthcare demands. Despite this uphill battle, the overall EUI of public hospitals and specialist centres overall has decreased by 0.5%, and that of polyclinics has decreased by 4.8%.

Surging Demand, Strategic Response

Between FY2018 and FY2024, patient admissions to public acute hospitals increased from 460,490 to 532,645, while polyclinic visits grew from 6.38 million to 7.18 million. Medical procedures are also becoming more technologically advanced, resulting in higher energy demand.

Anticipating these trends to continue given Singapore's ageing population, we have plans to expand hospital capacity and develop polyclinics into comprehensive primary care hubs. By equipping polyclinics with the capabilities to handle routine scans like X-rays, mammograms, and ultrasounds, more patients can access treatments closer to home, particularly benefiting the elderly and patients with chronic illnesses, freeing up hospitals to focus on more severe or complex cases.

Our public healthcare institutions are stepping up to implement comprehensive sustainability efforts that deliver results. Beyond retrofitting building energy systems, the National University of Singapore ("NUS") Centre for Sustainable Medicine ("CoSM") was set up in 2023 to pioneer research into high-quality, low-carbon care, integrating sustainability into our life-saving operations.

In fact, the National University Hospital ("NUH") became the first hospital in the world to receive the Healthcare Sustainability Certification from Joint Commission International ("JCI") and International Hospital Federation ("IHF")'s Geneva Sustainability Centre, positioning Singapore as a leader in sustainable healthcare and proving that hospitals can minimise environmental impact while still maintaining quality care.

Greening Singapore's Rail Network Through Smarter Energy Use

The Land Transport Authority ("LTA") is systematically reducing emissions while maintaining service standards across Singapore's rail network.

1 Hybrid Cooling

Hybrid cooling systems have been implemented at TEL4, Punggol Coast and Hume stations, which combine fans with air-conditioning to enhance air circulation. This allows for higher temperature settings without compromising on commuter comfort. This will be installed in future underground stations and depots, as well as existing stations undergoing retrofit, such as on the North-South and East-West Lines ("NSEWL").

2 Artificial Intelligence ("AI")

AI learns the cooling load profile of the building and optimises air-conditioning system to match predicted cooling load, resulting in energy savings. Proof-of-value trials demonstrated an estimated 7% energy savings, and LTA has incorporated the AI optimisation system into tender requirements for upcoming projects.

3 Asset Renewal

LTA proactively plans the schedule for asset replacement, taking into consideration the asset life, condition and efficiency of the mechanical and electrical systems. The latest sustainability initiatives can be implemented in the existing rail network where possible, ensuring that existing stations also benefit from the latest energy-efficient technologie

4 Sustainable Design

New rail lines are incorporating design innovation to support energy efficiency. For instance, the future Jurong Region Line and Cross Island Line stations are being designed with reduced cladding, ceilings, and low-carbon concrete to cut embodied carbon.

5 Trains

Cross Island Line trains will run on a 1,500V direct current ("DC") overhead conductor rail system, which is more energy-efficient than traditional third-rail systems. Meanwhile, new signalling technology deployed on the NSEWL has delivered over 15 million kWh in annual savings – enough to power around 3,000 households.

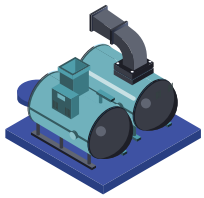
By introducing cutting-edge technologies along with asset renewal, we are reducing our public transport environmental footprint while ensuring commuters continue to enjoy safe, reliable, and comfortable journeys – aligning transport operations with Singapore's wider net-zero ambitions.

68 public sector buildings have met or exceeded the Green Mark Platinum SLE standard

Since 2021, all new and existing public sector buildings that undergo major retrofittin are required to meet the Green Mark Platinum SLE standard.[15] As of FY2024, 68 public sector buildings have met or exceeded the standard. These include new buildings like the Nee Soon South Community Club which reopened in late-2024, and older buildings that have undergone retrofits, such as the National Library

We are accelerating plans to green our older buildings as significant emissions reduction can be achieved through retrofitting and right-sizing ageing components such as chillers. The Government will be allocating around S$300 million for retrofits to improve the energy efficiency of existing public sector buildings. While significant investment may be needed upfront, these retrofits will pay for themselves through life-cycle cost-savings and ensure more prudent use of public funds in the long term.

[15] Green Mark Platinum SLE buildings would achieve at least 60% energy savings compared to 2005 levels.



The GESP Effect: Public Sector's Energy-Saving Success Stories

Since 2011, the National Environmental Agency's ("NEA") Guaranteed Energy Savings Performance ("GESP") programme has been driving energy efficiency improvements in public sector buildings through performance-based contracting.

The GESP framework uses a partnership model where accredited Energy Services Companies ("ESCOs") provide contractual guarantees for annual energy savings typically over five years. This risk-sharing approach ensures that government agencies achieve measurable energy savings. As of 2024, 45 public sector buildings have undergone or are undergoing the GESP programme, achieving average electricity savings of 20%, which equates to approximately S$14.6 million in annual savings. The following examples demonstrate GESP's success in reducing energy consumption across public sector buildings.

Powering Efficiency: Temasek Polytechnic ("TP")'s Energy Transformation

TP exemplifies the transformative potential of strategic energy efficiency retrofits. By consolidating two chilled-water plants and implementing comprehensive air-side retrofits across two building clusters, TP has reduced its annual electricity consumption by an impressive 12,464,821 kWh, equivalent to 40% of its annual electricity use.[16] To further reduce the carbon footprint of its chiller plant, TP opted for the early adoption of chillers using low Global Warming Potential ("GWP") refrigerant. TP also adopted chemical-free water treatment system for its cooling tower which reduced the need for constant water replenishing and helped to save 28,439 m^3 of water in FY2024.

Ultra-low GWP Refrigerant Chilllers at Blk 9.

Replaced air handling unit ("AHU") at Blk 27.

AHU with electrically commutated ("EC") fans.

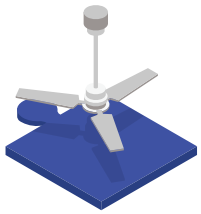
These successes are being replicated across the public sector. The Ministry of National Development ("MND") Complex achieved a substantial 34% reduction in annual energy consumption through the consolidation of three chilled-water plants and improvements to air-side systems and lighting. The Supreme Court saw a 26% reduction in annual energy usage through enhanced chiller efficienc and air-side system upgrades. These results demonstrate how the GESP's systematic approach to retrofitting consistently delivers substantial energy savings while maintaining building performance standards.

[16] Chiller efficiency improved from 0.880 kW/RT to 0.627 kW/RT, while air-side efficiency was enhanced from 0.33 kW/RT to 0.2 kW/R

Optimising Energy Efficiency through Technology and Smart Design

Building management in the public sector is undergoing digital transformation driven by smart sensor and Internet of Things ("IoT") networks. These systems continuously monitor temperature, humidity, and lighting conditions and automatically optimise energy consumption by adjusting systems in real-time rather than following fixed schedules. A further shift from reactive to predictive management enables facility operators to make data-driven decisions based on actual usage patterns and forecast of demand, ensuring that energy is used precisely when and where it is needed.

Thoughtful design solutions can also improve energy efficiency while enhancing user comfort. For instance, strategic placement of fans near air-conditioning vents improves cool air distribution. When integrated during the planning and design phases, these cost-effective approaches can substantially reduce operational energy demand without compromising functionality or occupant satisfaction, proving that sustainability and comfort are complementary rather than competing objectives.



Smart Design for Sustainable Comfort: The Environment Building

The Environment Building's renovated Atrium@Scotts office space exemplifies sustainable workplace design through the integration of smart technology and natural cooling principles.

Sensors installed in meeting rooms and office spaces detect lighting, relative humidity and temperature changes from occupancy. Integrated with the Building Management System, they trigger adjustments to airflow accordingly to balance comfort and energy efficiency. Indoor Air Quality ("IAQ") sensors mounted on walls have the added capabilities of detecting Particulate Matter ("PM") 2.5, bacteria and fungi count, volatile organic compounds and ozone, enhancing air quality safety for occupants.

High Volume Low Speed ("HVLS") fans create gentle air circulation while reducing convective heat losses to warm air above.

Similar hybrid cooling measures have also been adopted in the Ministry of Finance ("MOF") and other public sector offices, allowing for thermal comfort to be maintained at 25°C even with large groups of people.

Ceiling sensors and IAQ monitors connected to the Building Management System automatically trigger airflow adjustments to maintain optimal comfort and air quality.

HVLS in action at a sharing session held at the Atrium@Scotts.

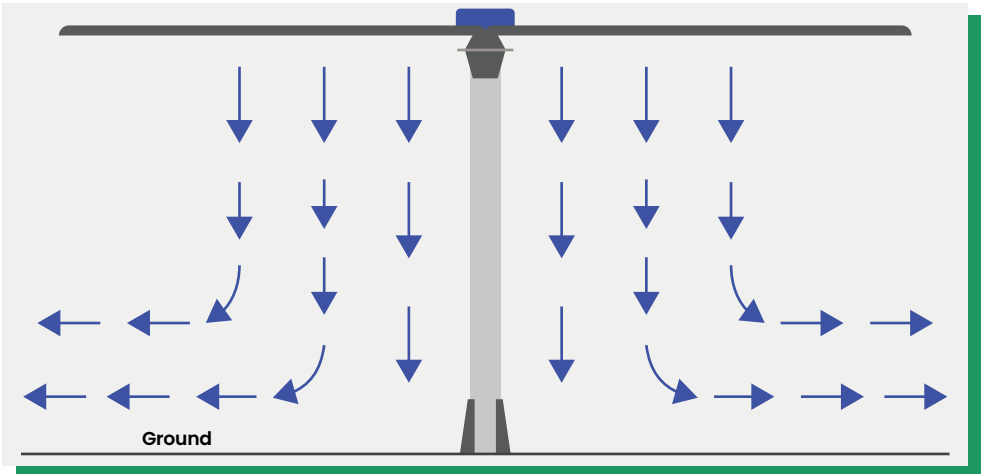
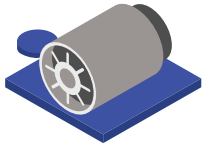


Diagram of how HVLS helps to direct cool air flow

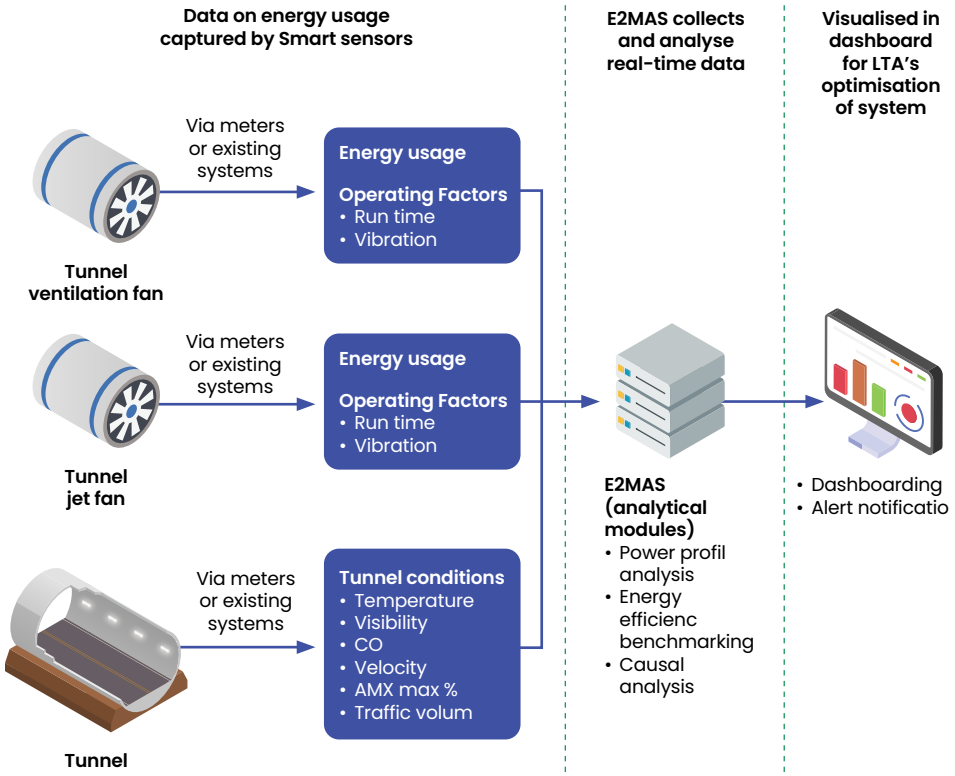
Using Innovative Technologies to Replace Resource-Intensive Processes



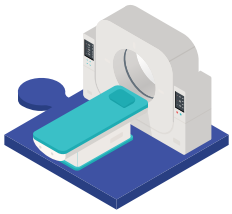
Fresh Air, Less Power: Revolutionising Tunnel Ventilation

Tunnel Ventilation Systems ("TVS") have historically been significant energy consumers, using around 50 million kWh annually, to ensure the road tunnels are adequately ventilated.

To improve efficiency, LTA partnered with the Advanced Remanufacturing and Technology Centre ("ARTC") to implement an advanced energy management system at the Marina Coastal Expressway ("MCE"). This innovative system enables comprehensive real-time monitoring of energy consumption and allows for data-driven operational optimisation of the tunnel fan system's settings through smart sensors.



Following successful implementation across both MCE and Kallang-Paya Lebar Expressway ("KPE"), the initiative has achieved a 62% reduction in energy use, resulting in annual electricity savings of 36 million kWh. This substantial reduction exemplifie how technological innovation in infrastructure management can deliver significan improvements in energy efficiency while still maintaining operational excellence



Breathing New Life into Medical Equipment: A Sustainable Approach to Magnetic Resonance Imaging ("MRI") Technology

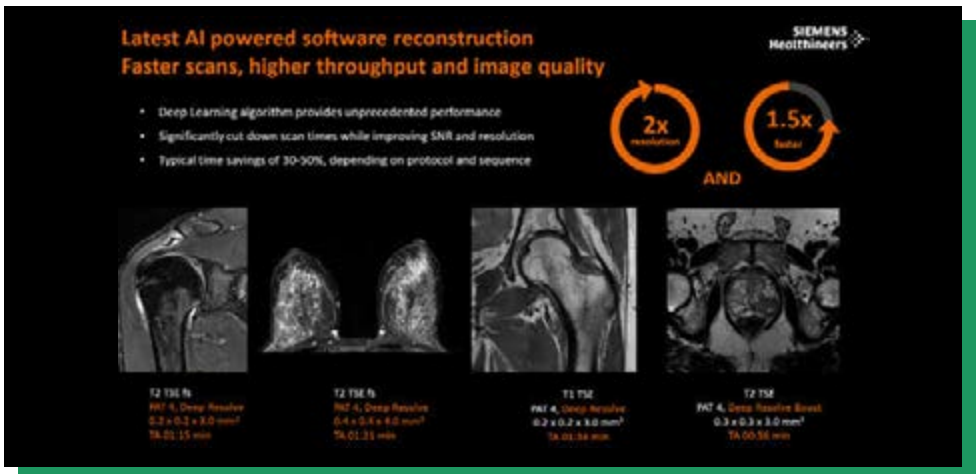
Ng Teng Fong General Hospital ("NTFGH") is revolutionising medical equipment management through Singapore's first comprehensive MRI machine repurposing programme. The initiative not only significantly extends the lifespan of existing machines, but also enhances performance by integrating cutting-edge AI-powered software reconstruction. As a result, the renewed MRI machines have faster scan times for quicker diagnosis and treatment, as well as improved image quality.

Building on this success, the upgrade-first approach will become standard practice for all MRI machines across the National University Health System ("NUHS") cluster, establishing a new benchmark for other healthcare institutions to adopt.

Before upgrade:
10 year old MRI machine.

During upgrade:
The bare magnet.

After upgrade:
Fully completed MRI machine.



Latest AI-powered software: Higher throughput and image quality.

The impact of this initiative has been substantial.

- Each upgraded MRI machine shows a 25% improvement in energy efficiency and eliminates the carbon footprint associated with manufacturing new equipment.
- Patient scan times have been reduced by 30-50%.
- 30-40% shorter downtime during the upgrade process compared to full replacement, while delivering 50% cost savings per machine.
- Upgraded machines can operate effectively for an additional 10 years.

> ***"In my experience, applying circular economy principles to healthcare and repurposing an MRI machine illustrates both the complexity and potential of this approach. These systems are not only technically sophisticated but also highly regulated, making refurbishment and reuse a significant challenge. Yet by working with manufacturers on certified refurbishment programnes and standards, we've been able to extend the MRI lifecycle by another 10 years and reduce environmental impact. The project shows that even the most advanced technologies can align with sustainability and circularity."***
>
> **Ng Kian Swan**
> COO, Group Facility Management, NUHS
> Chair, Energy & Water Taskforce, NUHS
> Chief Sustainability Officer, NTFGH & JCH

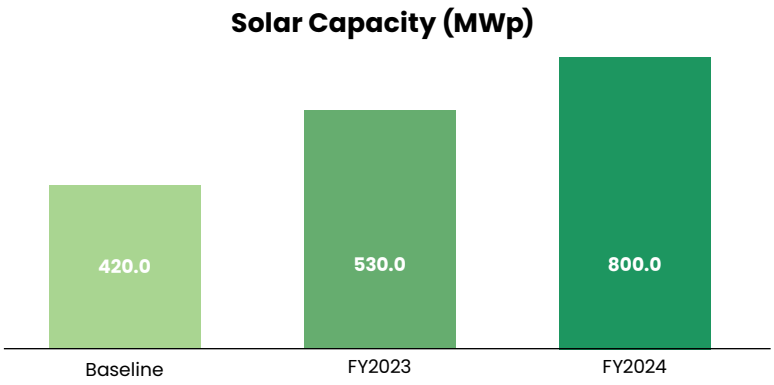
Replace

Solar deployment is being maximised across our rooftops, building facades, land, and water surfaces. Through this, we are reducing our operational emissions while demonstrating the viability of sustainable energy solutions in Singapore's urban context.

Expanding Our Solarisation Efforts and Decarbonising the Grid

Deployed around **800 MWp** of solar energy, representing **more than 50% progress** to our 1.5 GWp public sector target

As a nation, Singapore has achieved around 1.6 gigawatt-peak ("GWp") of solar energy deployment as of March 2025. We have surpassed our target of 1.5 GWp of solar by 2025 ahead of schedule, and are on track to achieve at least 2 GWp of solar capacity as a nation by 2030. To help achieve this target, the public sector aims to deploy at least 1.5 GWp of solar energy by 2030. As of FY2024, we have deployed around 800 megawatt-peak[17] ("MWp") of solar energy, representing more than 50% progress towards our 1.5 GWp public sector target.[18]



The Maritime and Port Authority (MPA)'s Net-Zero Journey: A Comprehensive Redevelopment of Maritime House

MPA is developing a new Maritime House comprising a 22-storey tower and a 5-storey block for the maritime industry. The project incorporates comprehensive energy-efficien features including low emissivity glass, shading fins, natural and mechanical ventilation systems, and a hybrid cooling approach that together will deliver more than 40% energy savings. Building Applied Photovoltaic ("BAPV") and Building Integrated Photovoltaic ("BIPV") systems will be deployed to generate more than 200,000 kWh of electricity a year, enough to power 43 four-room HDB flats while avoiding 82,400 kg of CO_2 emissions. [19] These features enable the development to achieve Green Mark SLE certification, with the office block designed as a zero-energy building.

Artist's impression of Maritime House.

[17] Figures rounded off to nearest tens.
[18] Updates to our data classification has led to revisions in solar capacity data. This may re ult in differences when comparing to figures in previous GreenGov.SG reports
[19] Estimated CO_2 emissions savings were calculated using 2023 Grid Emission Factor of 0.412 kg CO_2/kWh published by EMA.

SolarNova: Powering Singapore's Solar Revolution

The SolarNova programme jointly administered by the HDB and the Economic Development Board ("EDB"), has been transforming Singapore's solar landscape by deploying solar panels across public housing blocks and government buildings over the years.

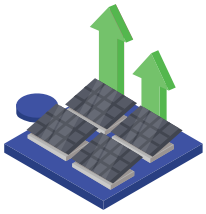
Expanding Solar Capacity

HDB's solar journey began in 2008 and today, we are the largest driver for the installation of solar photovoltaic ("PV") systems in Singapore. Including the eight SolarNova tenders and efforts prior to the SolarNova programme, HDB has committed a total solar capacity of 455 MWp across our HDB estates, which is equivalent to powering approximately 114,000 4-room flats. This is almost 85% of our solar target of 540 MWp by 2030

Pioneering Solar Panel Longevity

The latest SolarNova tender intends to explore novel technology to extend the lifespan of deployed solar panels. While solar panels typically lasts between 25 to 30 years, natural degradation reduces their power generation by 12% to 15% towards the end of their operational lifespan. This new technology uses intense light to re-energise and repair solar cells, recovering up to 5% of efficiency in minutes. The process extends each panel's lifespan by four to five years and is only required to be carried out once a year, improving maintenance and sustainability.

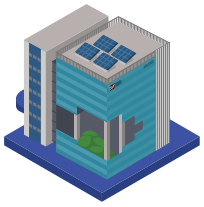
A new advanced technology can help recover up to 5% of solar panels' efficiency. (Credit: EtaVolt Pte. Ltd.



JTC's Solar Programme Progress and Achievements

Since its launch in 2017, JTC's SolarRoof and SolarLand Programme have been progressively implemented across industrial estates to maximise solar capacity on buildings and available land. As of FY2024, the combined solar installations across all feasible JTC buildings, vacant industrial land, and privately leased industrial properties have reached approximately 875 MWp in total capacity. This substantial solar infrastructure is equivalent to powering over 205,200 four-room HDB flats annually whilst reducing carbon emissions by more than 385,000 tonnes per year.

Building on this success, JTC launched a tender for the fifth phase of the SolarRoof programme on 19 March 2025. This phase will encompass several multi-storey industrial buildings and terrace workshops across four industrial estates: Jurong, Marsiling, Ang Mo Kio, and Defu. Development and installation work is expected to begin following the tender award, which is scheduled for Q4 2025.



Solar Innovation at **Singapore Institute of Technology ("SIT")'s Punggol Campus**

SIT's new Punggol Campus stands out as a pioneer in solar-powered sustainability through its Multi-Energy Microgrid ("MEMG"). The MEMG features a 10,000 m² solar PV array with a capacity of 1.67 MWp integrated into the national grid.

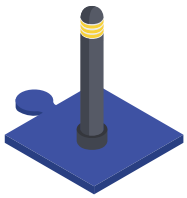
This solar setup is designed not only to generate clean energy but also to serve as an applied learning platform, enabling faculty and students to test energy solutions in a real-world environment. As the largest private microgrid in Singapore – and the first MEMG on a university campus in Southeast Asia – it is expected to supply over 2,000 MWh of electricity annually, accounting for roughly 4% of the campus's total energy needs.

The campus also incorporates advanced solar technologies, including PV glass panels used in skylights, which generate clean energy while maximising natural lighting. Some installations feature innovative photovoltaic-thermal ("PV-T") Hybrid Systems that optimise solar energy generation by efficiently dissipating heat from the panels

To ensure optimal performance, the solar installations undergo weekly system performance checks and annual visual inspections with spot cleaning, demonstrating the campus's commitment to maintaining peak efficiency in its renewable energy infrastructure.

Solar PV with integrated thermal heating captures heat energy and circulates it via the piped heating system to designated areas, such as laboratories which requires heating.

In addition to generating clean energy, BIPV allows natural lighting to enter the building.



Five Days, 39 Lights Endless Savings

At Revenue House, solar-powered bollard lights now illuminate the building perimeter. These fixtures collect solar energy during daylight hours to charge internal battery packs and automatically illuminate the grounds from 7pm to 7am daily.

These unassuming lights deliver results – generating an annual energy saving of 11,957 kWh with zero grid electricity consumption and reducing 4,926 kg of CO_2 emissions[20] annually.

What's more, the entire system took just five working days to install, demonstrating that sustainable solutions come in all shapes and speeds!

Domestically, we will reach a limit in solar deployment due to space constraints. To overcome this, we are evaluating the potential of low carbon alternatives, while working with ASEAN partners to develop interconnected power grids that will enable access to low-carbon electricity across the region.

Remove

The "Remove" component of our 3R framework addresses the most complex challenge in our decarbonisation journey – tackling emissions from essential public services where current technology offers no viable solutions. We are launching a pilot to validate the carbon capture and storage ("CCS") technologies at our WTE plants. However, significant progress in this area will depend on technological maturation and proven scalability of these solutions in the coming years.

[20] Estimated CO_2 emissions savings were calculated using the 2023 Grid Emission Factor of 0.412 kg CO_2/kWh published by EMA.

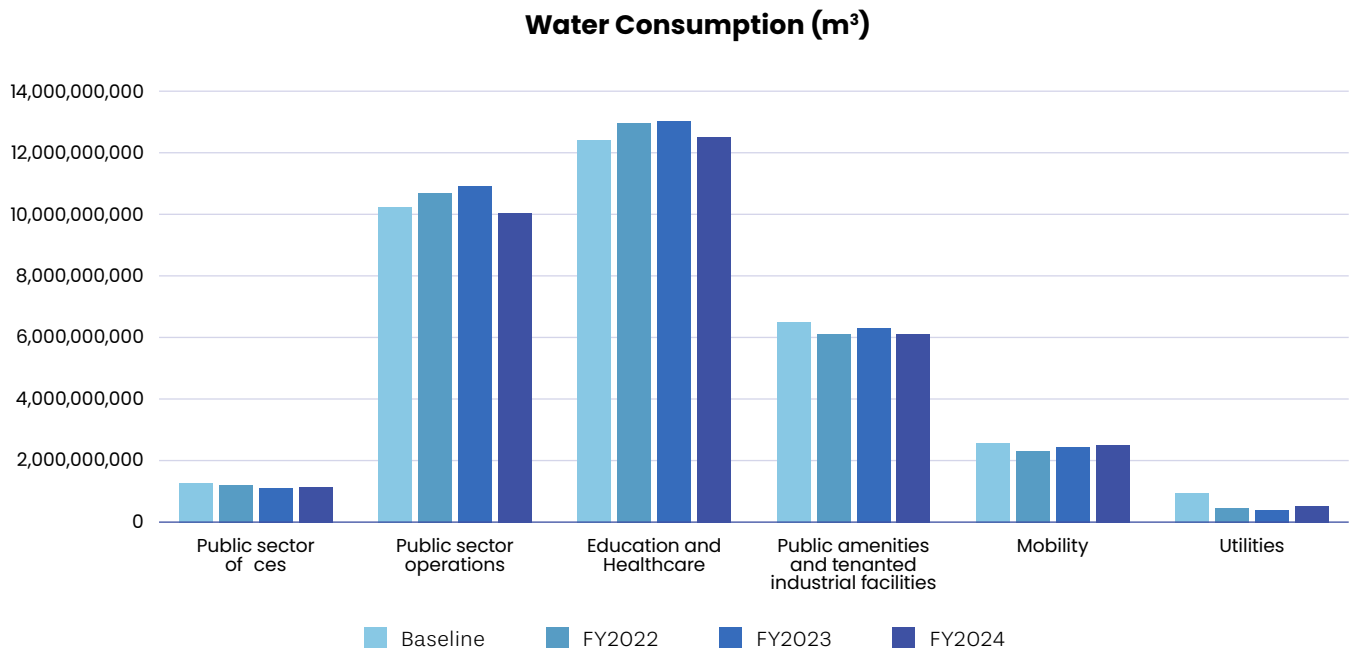
5.2 Water

5.2.1 Performance

In FY2024, the public sector used around 32.9 billion litres of water. Our water consumption decreased by 3.3% from FY2023 and 3.7% from the baseline.

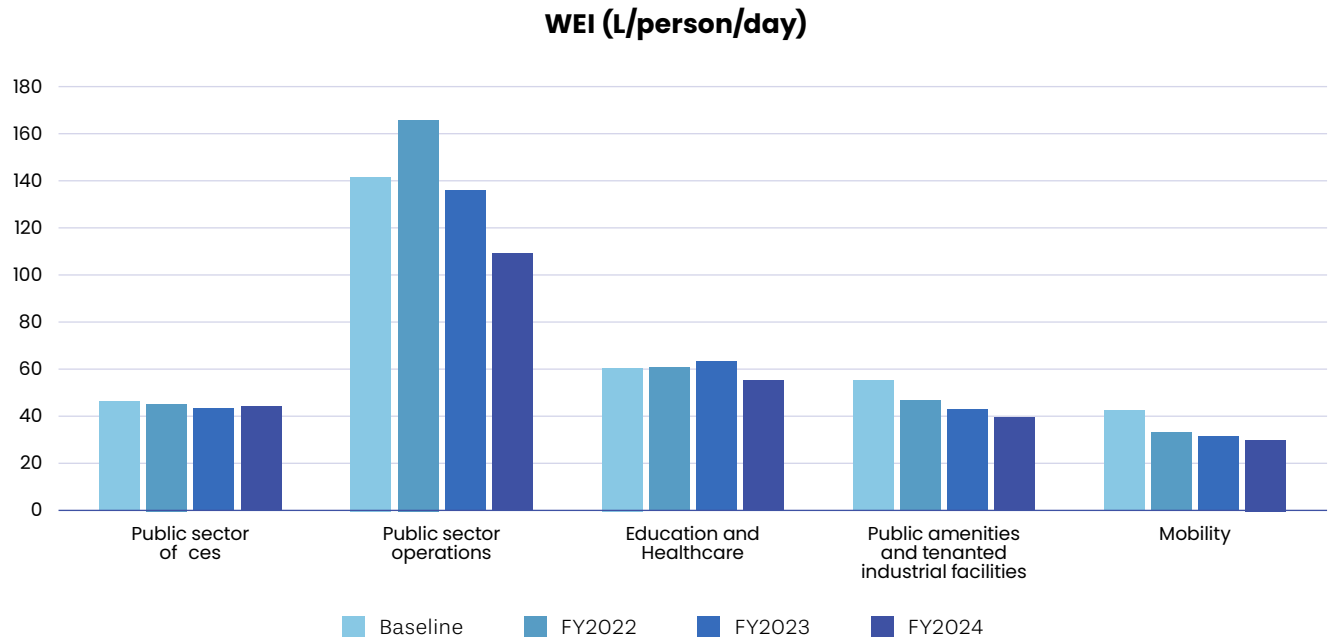
This decrease was largely driven by lower water usage in across our public sector operations and educational institutions.

	Baseline	FY2022	FY2023	FY2024	Change from Baseline
Water Consumption (billion litres)	34.2	33.7	34.0	32.9	▼-3.7%
			Year on year change: ▼-3.3%		
WEI (litres/pax/day)	64.6	63.6	60.8	55.9	▼-13.5%
			Year on year change: ▼-8.1%		



Our Water Efficiency Index[21] ("WEI") in FY2024 was 55.9 litres/person/day, which was 8.1% lower than FY2023 and 13.5% lower than the baseline. This resulted from efforts to better manage water consumption across our premises, identify leakages, and repair pipes in a timely manner.

The number of public sector buildings that have achieved the Public Utilities Board ("PUB")'s Water Efficient Building ("WEB") (Basic) Certification has increased to 1,114 in FY2024, reflecting our commitment to ensuring water efficiency at our premises.



*Utilities are not re ected above as they are classi ed as non-standard infrastructure.

5.2.2 Strategy

Water is a precious resource. To guarantee a resilient water supply, Singapore has implemented NEWater and desalinated water as additional sources alongside rainwater and imported water. However, these water treatment methods require significant energy consumption. Therefore, beyond managing our water resources responsibly, the public sector is also actively adopting measures to reduce water consumption and enhance efficiency

Reduce

The first and most critical step in effective water conservation is reduction, which lays a strong foundation for future recycling and treatment efforts.

1,114 buildings have attained the Water Efficient Buildin Certification, that encourages adoption of water efficie measures in premises and processes.

New and renovated public sector facilities must install water fittings with at least a 3-tick water efficiency rating. These highly efficient fittings can reduce water consumption by up to 60% compared to basic 1-tick alternative

[21] Water use per person per day

The Great Leak Hunt: MOE's Water-Saving Mission

Systematic efforts are being made by our education sector to detect and repair leaks, resulting in significant water savings through proactive monitoring and swift action

In mid-2023, ITE noticed higher than normal water consumption at ITE College Central. Investigations found several causes including faulty sensors and valves, as well as underground pipe leakages, which were subsequently rectified

ITE also reviewed its day-to-day operations and implemented further water efficienc measures, such as:

- **adjusting landscape irrigation schedules based on weather conditions** monitored by rainfall sensors; and
- **maximising the cycle of concentration of its cooling tower,** which increases the number of times the cooling tower water is reused before replacing with fresh makeup water.

ITE's swift rectification efforts and targeted efficienc measures paid off, achieving a notable 28% reduction in water consumption in FY2024.

In another case, Singapore Polytechnic ("SP") achieved a 15% reduction in water consumption compared to FY2023 through successful leak detection and rectification efforts that began in June 2024

Analysing overnight flow data proved crucial to this initiative by helping identify abnormal usage patterns indicative of hidden leaks.

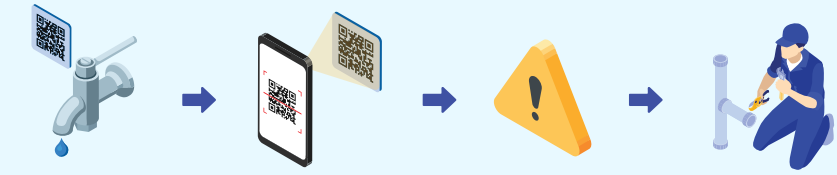
Additionally, SP commissioned a campus-wide audit and efficiency improvement study to uncover further opportunities for water reduction in the coming years.

Rainfall sensors installed around ITE College Central.

Leak Detectives: Scan & Solve!

Our schools are also taking active steps to detect and repair leaks and are involving their school communities in these efforts using QR code-based reporting systems.

How It Works



QR codes placed at water points (taps, fountains, bathrooms)

Students and staff can scan the code with a smartphone to report issues

Real-time alert sent to maintenance team

Swift repairs to prevent unnecessary water wastage

This simple tool has empowered students at Millennia Institute, Chongzheng Primary School, Punggol Green Primary School and Tampines Secondary School to be water champions!

Collectively, these leak detection and repair initiatives have enabled MOE schools to achieve an 8.6% reduction in water consumption in FY2024 compared to FY2023.

Tampines Secondary School's QR-code based fault reporting system.

Rethinking Routines: Saving water through targeted fixes

Sometimes the biggest water savings come from taking a fresh look at everyday practices. Our public agencies are transforming their routines and embracing automation to achieve greater water efficiency

SCDF's New Hydrant Testing Protocol

The Singapore Civil Defence Force ("SCDF") has streamlined hydrant testing procedures during routine inspections. By using remote water pressure monitoring data, hydrant inspectors can now focus on checking physical components, while selectively conducting manual tests for water pressure and flo rate at each hydrant location.

Implemented since June 2024, this revised approach has saved 25 million litres of water and 3,800 inspection hours annually, without compromising on emergency readiness.

SCDF officers can now focus on physical component check during their routine hydrant checks.

Facade Care, Refined

Built in 1934 and standing proud as the Ministry of Foreign Affairs' ("MFA") ceremonial entrance, the Old Tanglin Officers Mess ("OTOM"), an Urban Redevelopment Authority ("URA") conservation building, underwent restoration in 2024.

A water-repellent coating was applied to prevent algae and lichen growth on the building's facade.

The result is beautifully simple - less grime means less cleaning, which means less water used to keep this heritage gem looking its best.

OTOM's restored facade after water-repellent treatment.

Air Force Saves Water with Automated Aircraft Washing

The Republic of Singapore Air Force's ("RSAF") Chinook Wash Shed at Sembawang Airbase has transitioned from manual to automated washing for their aircraft.

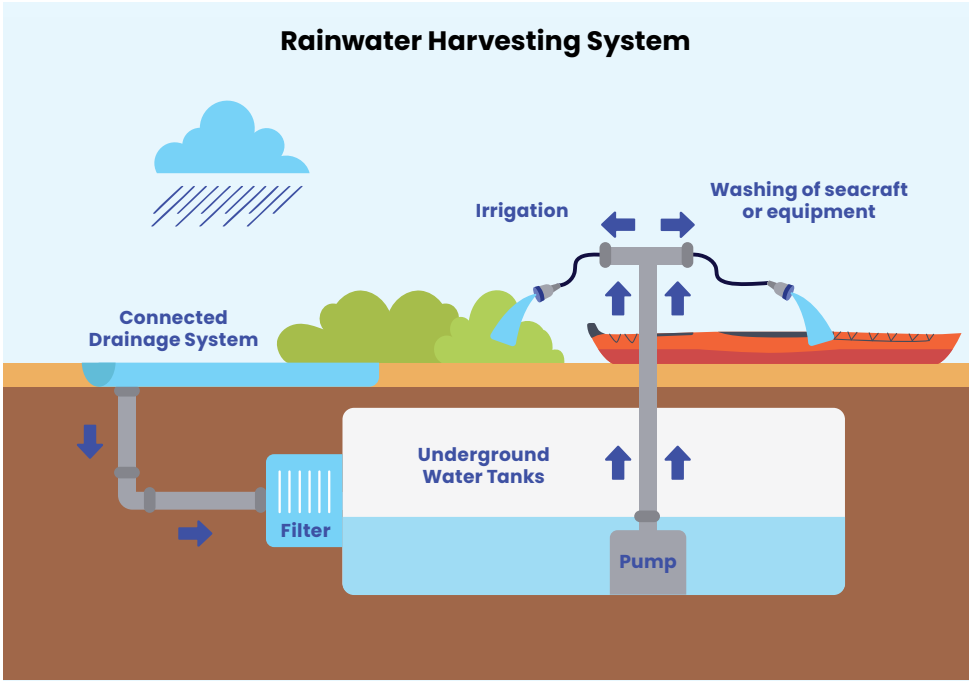
The new automated system recycles and filters water between washes, cutting water use by 60% per year compared to manual washing.

Replace

Not all water needs to be treated to drinkable standards for use. Where possible, we identify and implement initiatives to use non-potable water over potable water for irrigation, general washing, and even cooling systems within our facilities.

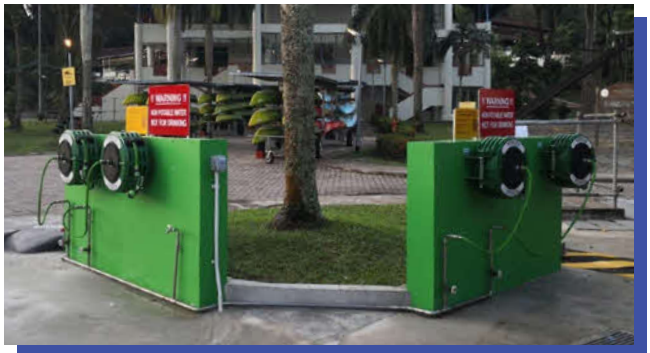
Cloudy with a Chance of Savings!

At Outward Bound Singapore ("OBS"), every raindrop counts. In June 2024, OBS Camp 1 installed a rainwater harvesting system to capture rainwater that would otherwise flow straight to the sea. The system features an integrated network of drains and underground storage tanks that can hold up to 336,000-litre of rainwater. The rainwater is treated and used for irrigation, washing seacraft, and general facility upkeep.



From June 2024 to April 2025, OBS collected 934,000 litres of rainwater, equivalent to the annual water consumption of approximately 62 HDB 4-room households!

OBS has plans to enhance the system with smart monitoring capabilities for predictive water use and expand rainwater harvesting to other camps.



Filtered rainwater is supplied to the washing bay for seacraft and equipment cleaning.

Irrigation point connected to the rainwater harvesting system.

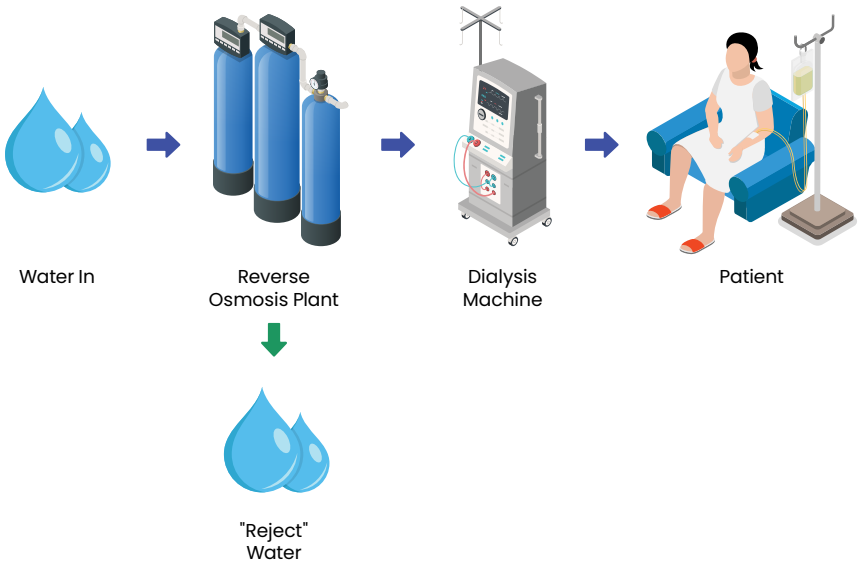
Reuse

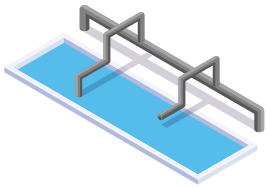
Water that has been used once, can often be used again. We look for opportunities to reuse water for non-potable applications like irrigation, toilet flushing, and general cleaning

Giving **Dialysis Water** a Second Life

Dialysis machines create ultra-pure water for patients, but they also produce lots of clean "reject" water as a by-product, which is discarded.

Reverse Osmosis Water Treatment Process for Dialysis





Did You Know?
25% of the water that passes through a reverse osmosis plant is typically rejected!

Seeing an opportunity, both Singapore General Hospital ("SGH") and Ng Teng Fong General Hospital ("NTFGH") started repurposing their reject water for housekeeping operations and irrigation respectively.

The results at NTFGH are impressive – they are saving 9.4 million litres annually. That is nearly four Olympic-sized pools worth of water getting a useful second life instead of heading straight to the sewers.

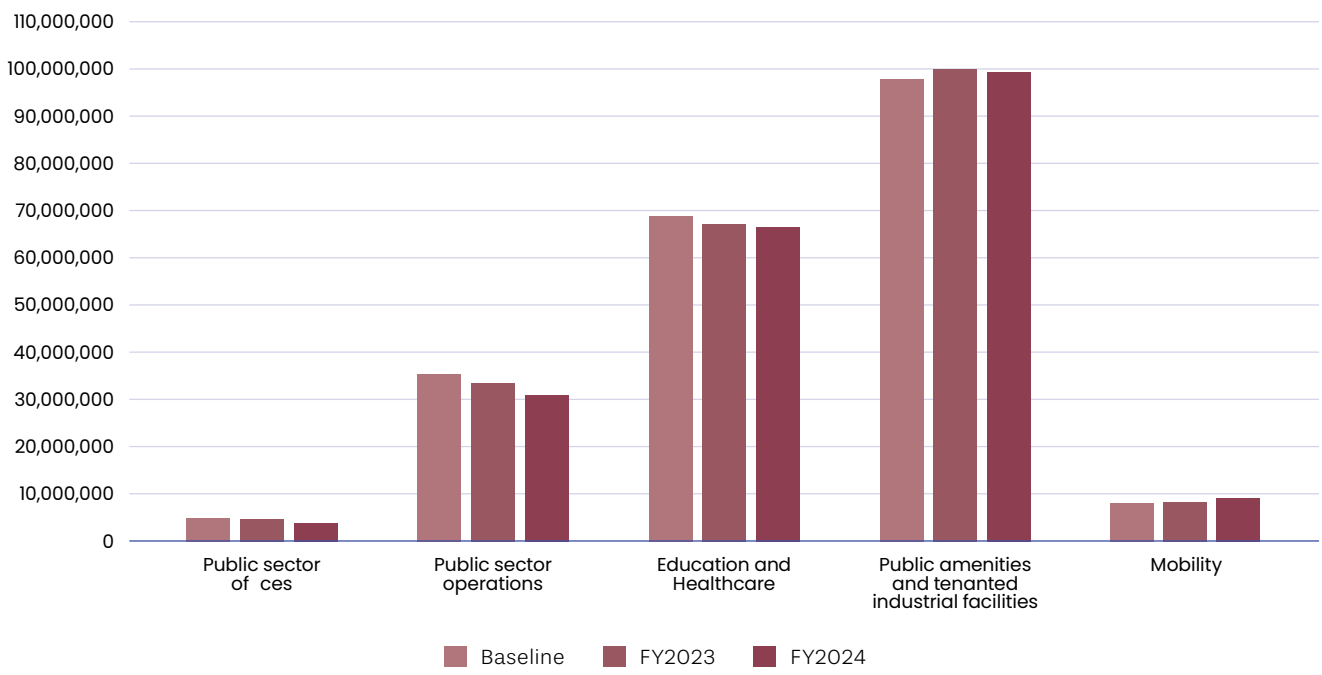
"Reject"water being channelled to NTFGH's irrigation tank.

5.3 Waste

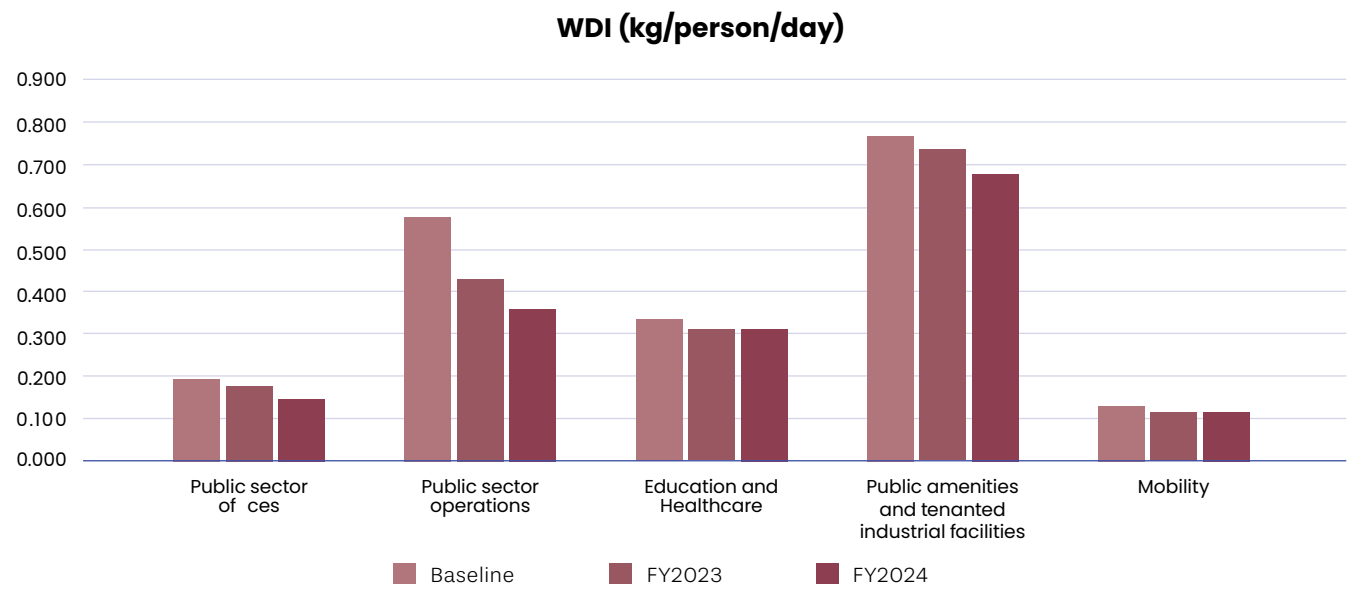
5.3.1 Performance

In FY2024, the public sector disposed of around 210.1 million kg of waste, a 2.6% decrease from the baseline and a 2.2% decrease from FY2023 driven by reduced waste disposal in the public sector operations and education sectors.

	Baseline	FY2023	FY2024	Change from baseline
Waste Disposed of (million kg)	215.7	214.8	210.1	▼-2.6%
		Year on year change: ▼-2.2%		
WDI (kg/person/day)	0.401	0.367	0.349	▼-13.1%
		Year on year change: ▼-4.8%		



*We have omitted representing the utilities categories in this graph as its waste disposed of is negligible.



We have set a target to reduce our Waste Disposal Index[22] ("WDI") by 30% by 2030, compared against the baseline. The WDI in FY2024 was 0.349 kg/person/day, which was 4.8% lower than FY2023 and 13.1% lower than the baseline.

The decrease is due to the continued waste reduction, reuse, and recycling efforts across public sector facilities.

Every Kilogramme Counts: Improving Waste Data

Measuring waste presents unique challenges compared to utilities like electricity and water meters. Collection trucks require perfectly calibrated load cell and precise location tracking to avoid inaccurate readings.

MSE and NEA are working closely with Singapore's public waste collectors ("PWCs") - SembWaste, ALBA and 800 Super to address these challenges through two key improvements:

- Expanding PWCs' Global Positioning System ("GPS") coordinate database to ensure more precise location tagging of waste collection points.
- Calibrating truck load cells more frequently to prevent measurement discrepancies.

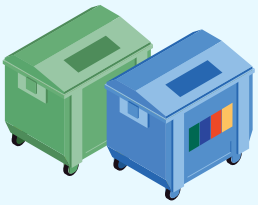
[22] Waste disposed of per person per day.

5.3.2 Strategy

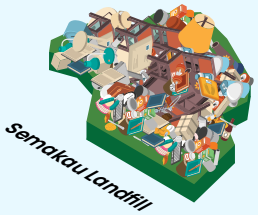
Singapore's Waste Reality

Singapore's waste generation has grown steadily alongside our economic development and population growth. This increase has been driven primarily by increasing economic activity, affluence, and changing consumption patterns. With our land area of just over 735 km^2, managing Singapore's waste remains a significant challenge.

While Singapore's waste generation and disposal rates (per capita and per $bn GDP) have decreased over the past decade, the **total amount of waste disposed annually has still increased by 9.5%, rising from 3.04 million tonnes in 2014 to 3.33 million tonnes in 2024**.



In 2024, about 6.66 million tonnes of solid waste were generated, of which **3.33 million tonnes were recycled.**



At current waste disposal rates, Semakau, our only landfill, will be **full by 2035**.

This necessitates a fundamental re-evaluation of how we generate and dispose of waste, and how we can move towards becoming a zero waste nation as quickly as possible.

Singapore's Zero Waste Masterplan

MSE and NEA launched the Zero Waste Masterplan in 2019, to extend the lifespan of our only landfill, Semakau Landfill, and build greater resource resilience. It marks Singapore's transition from a "take-make-dispose" linear economy model to a sustainable circular economy.

The plan outlines strategies to maximize resource use while creating opportunities for innovation in waste-to-resource technologies, advancing our vision of a resource-efficient nation

Under the Masterplan, Singapore aims to build a more sustainable future with clear targets for reducing waste sent to landfill per capita per day by 30% and achieving an overall recycling rate of 70% by 2030.

The **Resource Sustainability Act** was introduced to impose regulatory measures upstream for our identified priority waste streams: food waste; electrical and electronic waste ("e-waste"); and packaging waste, including plastics.

To increase **food waste recycling**, large commercial and industrial premises are required to segregate food waste for treatment and reporting. This was introduced for new buildings in 2024, and the requirements will be extended progressively to existing buildings, in tandem with the completion of our food waste treatment facility at Tuas Nexus.

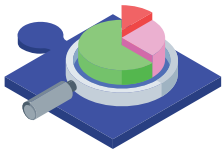
We have also adopted an **Extended Producer Responsibility ("EPR")** approach to hold producers accountable for the collection and treatment of their products when they reach end-of-life.

An EPR scheme for **e-waste** has been in place since 1 July 2021. Producers of regulated electrical and electronic products are responsible for the collection and treatment of e-waste and are required to finance the scheme operator to fulfil these obligations on their behalf.

We will also be introducing an EPR scheme for **beverage containers** from 2026. Through other schemes such as Mandatory Packaging Reporting, we seek to raise companies' awareness of the benefits of packaging reduction and encourage them to reduce the amount of packaging used by redesigning their processes.

Managing Public Sector Waste

The public sector is committed to the 3Rs of reduce, reuse, and recycle of waste across our operations. We aim to minimise our waste footprint and associated greenhouse gas emissions from incineration.



Turning Insights into Impact: How our FY2023 Waste Audits Sparked Change

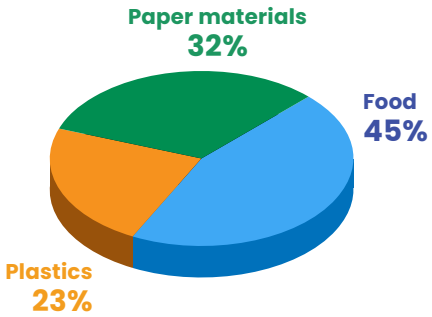
Recognising the need for evidence-based waste management, ten of our public sector facilities undertook thorough waste audits in FY2023 to uncover the root causes of their waste issues. We selected diverse facilities to examine the varied circumstances and issues encountered across different operational environments.

Among these facilities, SCDF's Civil Defence Academy ("CDA")'s response was particularly noteworthy, with their focused interventions achieving an impressive 21% reduction in Waste Disposal Index ("WDI") by FY2024.

Understanding the Challenge

The audit delivered crucial insights into CDA's waste composition, as shown in the breakdown below.

This granular analysis enabled CDA to move towards evidence-based waste reduction strategies.



Taking Action

Recycling Infrastructure: CDA doubled the number of recycling bins within premises from four to eight bins, enabling recycling by making it more convenient for all staff.

Plastic Waste Reduction: By mandating dine-in meals for all trainees, CDA minimised single-use plastic waste from takeaway disposable containers.

Food Waste Management: CDA introduced the Food Indentation and Consumption App ("FICA") to tackle food waste at its source. The app allows training instructors to order meals for their trainees, while automatically collating data on their dietary requirements. This information helps the CDA Messing Team and their caterer plan daily meals more accurately, ensuring they prepare just enough food to meet dietary needs without creating excess waste. This has delivered measurable results, with average food waste per trainee dropping by around 5%.

CDA proves that when facilities commit to understanding their waste challenges and implementing targeted solutions, waste reduction is not just possible, but inevitable.

SCDF trainees dining at the CDA cookhouse.

Reduce

Meaningful waste reduction begins at the source by using only what is truly necessary. This takes conscious effort from every individual, but the impact can be significant

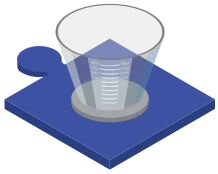
Simple Changes, Measurable Impact: **Army Cuts Packaging Waste**

The Singapore Army implemented simple but effective initiatives to reduce packaging waste.

The Army worked with suppliers to eliminate plastic packaging from items such as socks and field packs and redesigned the cardboard boxes for combat boots to include built-in handles instead of using plastic carriers.

These changes have helped our Army avoid approximately 21,000 kg of plastic waste annually!

Combat boots packaged in a cardboard box with built-in handles.



Need, Not Waste our Lactulose Measuring Cups

SGH's pharmacy noticed they were giving out many lactulose measuring cups to patients who might already have them at home.

Lactulose measuring cups are small containers designed to accurately measure and dispense the correct dose of medicine.

Since July 2024, staff check if patients need the cups before dispensing new ones.

Alongside this, collection points were set up for cups to be returned, properly cleaned and sanitised for reuse.

30,000 cups have successfully been recovered within a year, showing that even small changes can make an impact.

SGH pharmacist dispensing lactulose recovery cups on a need's basis.

Reuse

One person's trash is another's treasure. Reusing items that are still in good condition extends their lifespan and diverts them from our landfill

The Garden's Afterlife

What happens to a fallen tree?

In our parks, it might become your next playground feature or garden bench. National Parks ("NParks") is showing how horticultural waste can be transformed and reused in our parks.

From branches to leaves, nothing goes to waste. Tree pruning debris becomes rich mulch and compost, helping to nourish future growth in our gardens.

At the Singapore Botanic Gardens, the transformation continues. Felled trees find new purposes in park furniture, footpath elements, and even play features in its Nature Play gardens, while fallen leaves protect the soil as mulch.

A fallen tree repurposed into a rustic bench at the Gallop Extension Visitor Service Centre.

Nature play elements crafted from salvaged tree trunks in the Jacob Ballas Children's Garden.

Beyond the Last Stop: New Lives for Train Cars

Rather than consigning them to the scrapyard, LTA is giving our decommissioned MRT train cars a new purpose. To date, 20 train cars have been given creative second lives.

1 Training Tomorrow's Rail Engineers

At ITE College West's Rail Engineering Hub, students are not just learning theory, they are getting hands-on experience with an actual train car. Since March 2023, this decommissioned car has been a vital training tool, allowing students to work with authentic rail equipment to better understand real-world maintenance challenges.

Students practicing rail maintenance on a decommissioned train car.

2 All Aboard for the Night

In June 2024, another decommissioned train car found an unexpected new calling as a boutique hotel room. Truly a unique overnight train experience!

Tiny Pod's "Train Pod @ One-North".

3 The Zero-Energy EcoTrain

One of the latest transformations is a solar-powered education hub called the City Developments Limited ("CDL")'s EcoTrain.

Opened in March 2025 at City Square Mall's City Green Park, it is adjacent to CDL's new 2,800 square feet tropical microforest and teaches visitors about sustainability through interactive displays and workshops.

Solar-powered CDL EcoTrain at City Square Mall.

Recycle

Waste is not the endpoint, but the beginning of something new. Through recycling, today's products become tomorrow's raw materials for new products.

Under GreenGov.SG, public sector buildings are required to implement:

- Recycling bins within their premises or within the vicinity, including for e-waste if the building is publicly accessible and has a high footfall
- Food waste segregation for on-site or off-site treatment, if they have F&B establishments

Ctrl+Alt+ Recycle: Giving Old Tech New Purpose

At least twice a year, GovTech sends its retired electronic equipment to certified e-waste management vendors for recycling. The vendors process the equipment, recovering precious metals and recyclable materials for future use.

In FY2024, they recycled over 5,300 kg of electronic equipment.

GovTech has also partnered with Metalo International to set up convenient collection points around its offices for everyday electronic waste like as batteries or old keyboards.

E-waste bins have been installed across all GovTech premises.

Food Waste: A New Recipe for Change

Did You Know?

Food waste accounts for **12%** of Singapore's total waste generated.

784,000 tonnes generated in 2024

=

Equivalent to the weight of over **53,900 double decker buses**

As operators of major food hubs - from hawker centres and markets to commercial buildings and hospitals - the public sector handles substantial volumes of food waste daily. We are installing digesters to help us tackle food waste at source. With our many tenants and the public actively using these food hubs, it is truly a team effort where collective action is making a real difference in reducing food waste.

1 Catch of the Day: Tackling Food Waste at Port

At Jurong Fishery Port, the Singapore Food Agency ("SFA") has installed dedicated bins for port users to segregate seafood waste at source, and an onsite food waste digester to process this waste. This initiative has reduced the port's organic waste disposal by an estimated 12% while generating monetary savings from lower waste disposal costs.

Seafood waste being emptied into the waste treatment system.

2 Transforming Food Waste Through Technology and Teamwork in Hospitals

The new Woodlands Health Campus ("WHC") installed a Food Waste Treatment and Vacuum System has the capacity to process 2,000 kg of food waste daily. In a year, the food waste processed would be equivalent to the weight of around 73 waste collection trucks, reducing WHC's overall waste by 6.5%.

In December 2024, Sengkang General Hospital ("SKH") partnered with Koufu to introduce a user-friendly waste segregation system in the hospital's food court.

The specially designed station allows diners to easily sort their leftovers prior to returning their trays. The separated food waste goes directly into an on-site digestor that converts it into liquid for safe discharge.

The system also tracks waste patterns and user behaviour which can inform future initiatives in other public facilities like hawker centres.

Food waste is transported through vacuum pipes from kitchen disposal points to a central collection point before treatment.

Tray return station with separate compartments for food waste and general waste segregation.

3 Orchestrating Change: Food Waste Solutions

Since 2020, Esplanade has been processing food waste from its 22 F&B tenants using an onsite food waste digester. Working closely with its tenants, the Arts Centre has steadily reduced its food waste over the years.

Their efforts have shown impressive results with 2,452 kg of food waste digested in 2024, contributing to a 21% reduction in general waste compared to 2023.

Food waste collected in designated brown bins in tenants' kitchens.

Food waste being emptied into the food waste digester.

6 Enable

A ROLE FOR BUSINESSES AND THE COMMUNITY

Building a sustainable Singapore requires collective action across all sectors of society. When government, businesses and communities work together, our shared efforts make possible what no group could accomplish in isolation.

Under the Enable pillar, the public sector will enhance our green procurement policies and strengthen community engagement to accelerate our transition to a green economy and an environmentally conscious citizenry. We value the innovation, energy and diverse perspectives that our partners bring, and we seek to encourage more ground-up initiatives that drive positive change.

6.1 Green Economy

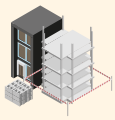
6.1.1 How We Green Our Procurement

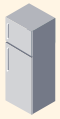
Our target is to include environmental sustainability into all applicable government procurement by 2028, in a manner that keeps pace with industry readiness and international developments.

Public sector demand on green procurement can incentivise the industry to adopt greener operations and develop sustainable supply chains. It also creates an opportunity for businesses to build a track record in meeting demands of buyers, investors, and consumers who are seeking greener goods and services.

Since 2007, we have systematically incorporated resource efficiency and environmental sustainability considerations across government procurement in the nine categories below:


Accommodation, event venues and management services


Building design and building products


Electrical and electronic equipment


ICT equipment


Landscaping


Printing paper


Public waste collection and cleaning services


Vehicles


Water fittings and equipmen

We are regularly reviewing the scope of green procurement, prioritising efforts in sectors where government spending and environmental impact are most significant. In 2024, we introduced additional environmental sustainability evaluation criteria on top of existing considerations for large construction and ICT tenders. These two sectors account for over 60% of government procurement by contract value. Since the start of its implementation, over 30 large construction tenders have been subjected to the additional environmental sustainability evaluation criteria. We are also studying the inclusion of additional environmental sustainability considerations for events venues and facilities management services.

Beyond the incorporation of environmental sustainability considerations in existing government procurement, we expect to commit over S$10 billion in fiscal spending – with around S$7 billion committed to procure sustainable infrastructure projects, in the decade leading up to FY2030, to catalyse green economy growth under the Singapore Green Plan.

The following pages showcase specific green procurement initiatives that illustrate how these policies translate into tangible environmental outcomes.

Catalysing the Green Shift in Facilities Management

The facilities management sector plays a fundamental role in achieving environmental sustainability across Singapore's built environment.

As one of Singapore's largest facility operators, the public sector is a major consumer of facilities management services and possesses significant market influence. By embedding sustainability requirements into our purchasing criteria, we signal the public sector's commitment to a greener facilities management landscape. As facilities management companies innovate and enhance their service offerings to meet public sector demand, these capabilities will benefit the larger ecosystem and gradually transform industry practices, raising environmental performance standards across the entire sector.

Led by JTC Corporation ("JTC") and the BCA, we are exploring a range of environmental sustainability initiatives in the sector:

1 Redefining Market Benchmarks

The Singapore International Facility Management Association ("SIFMA") launched the Sustainable Net Zero Organisation ("SNZO") certification scheme in July 2024. Developed with key input from the public sector, the scheme recognises facilities management companies aligned with Singapore's net-zero ambition and supports the uplift of the industry's overall sustainability standards.

Selected public sector facilities management tenders will take the certification into account during evaluation to drive green procurement.

2 Advancing Public Sector Leadership in Green Facilities Management

We are empowering public officers with the relevant knowledge and tools to drive sustainable outcomes effectively.

a. Green Procurement Guidebook for Facilities Management

This resource provides practical tips and guidance to public officers in facilities management on how to integrate environmental sustainability into facilities management procurement and service delivery.

b. Facilities Management Community of Practice ("FM CoP")

This knowledge-sharing platform fosters alignment, shared ownership, and collaborative learning across agencies and industry stakeholders, and will be used to cross-pollinate best practices in green facilities management.

c. Green Facilities Management Masterclass

A course designed for public sector facilities management practitioners to equip them with the knowledge and skills to lead and implement environmental sustainability initiatives through facilities management procurement, operations, and maintenance.

JTC shared a public sector procurer's perspective at the official launch of the SNZO certification scheme in September 2024.

Inputs and suggestions on green procurement from public sector agencies were gathered during the FM CoP in May 2024.

In line with our national target for all vehicles to run on cleaner energy by 2040, the public sector is accelerating the green transformation of our fleets and transport operations

Electrifying Progress: Public Sector Charges Forward!

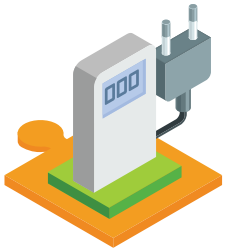
The LTA is spearheading Singapore's electric vehicle ("EV") transformation with an ambitious bus electrification programme. With approximately 100 electric buses currently serving commuters across Singapore, this number is set to expand by around another 1,140 in the near future with new contracts called. This puts us firmly on track to electrify half of our public buses by 2030.

The PUB, Singapore's National Water Agency, is progressively replacing ageing vehicles with cleaner energy alternatives. By the end of 2025, PUB's fleet will include 47 new electric vehicles, reducing direct CO_2 emissions by 106.5 tonnes annually. PUB aims to achieve full fleet electrification by 203

Converting police cars to electric power is significantly more complex than regular vehicles, but the Singapore Police Force ("SPF") has successfully done it with their new electric Polestar 2. Working with the Home Team Science and Technology Agency ("HTX"), various stakeholders, and the original equipment manufacturer, SPF created a greener patrol car that maintains full operational capabilities and can swiftly respond to road incidents, assist drivers in distress, and conduct enforcement operations.

The deployment demonstrates the feasibility of electrifying even the most demanding vehicle applications.

Image of MHA's modified Polestar 2, the latest addition to SPF's flee



Plugged in: Powering Singapore's EVFuture

As fleets turn electric, the success of this transition now depends on building a robust and accessible charging ecosystem, which is a key enabler of Singapore's national EV transition. More than 19,000 charging points have already been installed islandwide, of which close to half are publicly accessible.

The charging network is designed to meet diverse needs: slow chargers for overnight residential use and fast chargers – capable of charging a battery from 20% to 80% in about an hour – for quick top-ups.

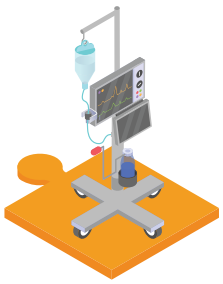
As of March 2025, EV charging points have been installed in over 60% of all HDB carparks. LTA has introduced the EV Common Charger Grant ("ECCG") for non-landed private residences, and co-funded installation of around 1,700 chargers thus far, equipping one-third of condominiums with chargers.

LTA has kickstarted the deployment of fast chargers at 60 HDB shopping complexes, town centres, neighbourhood centres, and JTC premises, which are frequented by fleet drivers during breaks and are close to amenities such as hawker centres and coffeeshops.

The Ministry of Transport has also announced the introduction of the Heavy Vehicle Zero Emissions Scheme ("HVZES") and Electric Heavy Vehicle Charger Grant ("EHVCG") starting from 1 Jan 2026, to support the adoption of electric heavy vehicles.

Public agencies are also expanding EV charger deployment on their premises to support Singapore's electric mobility future. The Ministry of Social and Family Development ("MSF") will install EV charging points across 16 of its premises by FY2026, in collaboration with Eve, a subsidiary of LTA.

Through these initiatives, the public sector is greening the transport sector towards Singapore net-zero goals.



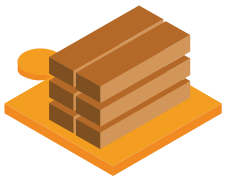
Dear Desflurane, It's Not You, It's Your Carbon Footprint

Desflurane is a commonly used general anaesthetic agent that carries the highest carbon footprint among anaesthetics. It is exhaled by patients and released into the atmosphere from operating theatres. Once released, it remains in the Earth's atmosphere for around 14 years before it eventually gets removed by natural processes, hence contributing to global warming. Recognising this, our public hospitals have started a series of "green nudges" to encourage medical practitioners to switch from routine use of Desflurane to alternative agents

At Khoo Teck Puat Hospital ("KTPH"), the collective shift to routine use of sevoflurane and propofol since 2022 led to an **estimated 99% reduction in CO_2e emissions due to reduced desflurane usage – from 379,603 kg in FY2022 to 2,892 kg in FY2024**. This transition is accompanied by cost savings of over 80%, while maintaining clinical care standards.

Similarly, Changi General Hospital ("CGH") achieved a 90.4% reduction in desfluran use since 2019, decreasing CO_2e emissions by 815,100 kg. Building on this success, from July 2025, desflurane has been removed from routine use in CGH and is only available on special request for specific clinical cases

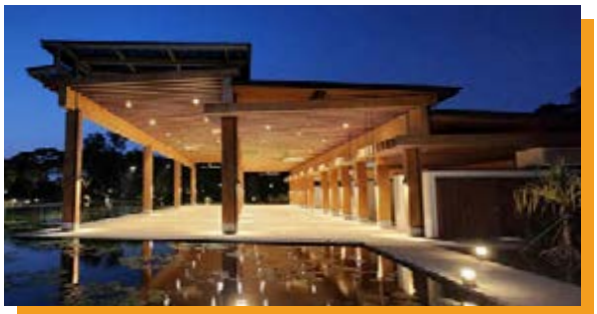
Signs placed on anaesthetic machines at KTPH.



Greening the Nation: Brick by Brick, Bridge by Bridge

Each brick laid, bridge built, and boardwalk constructed now embodies our commitment to sustainability.

The NParks is selecting materials with a lower carbon footprint that can also withstand outdoor elements. For instance, NParks frequently sources sustainable timber and wood alternatives for use in park development projects. The use of Mass Engineered Timber ("MET") in Jurong Lake Gardens has helped to reduce its overall carbon footprint and construction time. This is because all building components were prefabricated off-site and assembled on-site. We are also shifting to more sustainable materials such as reconstituted timber and CELLwood, both of which offer advantages over regular timber in the construction of our boardwalks.



The MET Building in Jurong Lake Gardens, Waterlily Pavilion.

The production of concrete and steel, key materials in our infrastructure, accounts for a significant amount of carbon emissions. Since 2024, LTA has mandated the use of sustainable materials for permanent reinforced concrete works in the Cross Island Line Phase 2 ("CRL2"). This includes:

- Replacing at least 66% of cement with Ground Granulated Blast Furnace Slag ("GGBS"), a by-product of steelmaking.
- Ensuring that at least 50% of reinforcement steel is green steel produced in Electric Arc Furnaces, using 90% recycled steel content.

These requirements are projected to reduce the embodied carbon of each CRL2 station by between 25,000 to 50,000 tCO_2e, depending on station size.

Another effort is the adoption of Carbon Mineralised Concrete ("CMC"), which sequesters carbon during the concrete mixing process, enabling a reduction in cement usage. CMC has been adopted in contracts for the North South Corridor ("NSC").

Steel Fibre Reinforced Concrete ("SFRC") has been mandated for tunnel segmental lining since Circle Line Stage 6 ("CCL6") in 2016, marking a step change in sustainability by lowering embodied carbon in bored tunnels. With its intrinsic strength and resilience, SFRC allows tunnel linings to be made with less material, while enhancing durability and longer service life. By eliminating conventional steel rebars – the energy-intensive backbone of traditional tunnel linings – SFRC not only streamlines construction but also reduces carbon emissions across production and transport.

LTA bored tunnels using SFRC segmental tunnel lining.

The precast viaduct segment using CMC.

6.1.2 How We Help Businesses Transition

Together with our industry partners, we hope to co-create a green economy by supporting our businesses to decarbonise and tap into new emerging opportunities.

One-Stop Hub for All Sustainability-related Resources and Guides to Accelerate Sustainable Transition

Enterprise Singapore ("EnterpriseSG"), supported by other government agencies, launched the new **SME Sustainability Hub** in May 2025 to help Small and Medium Enterprises ("SMEs") in Singapore access information on all Government support and resources as they kickstart their sustainability journey.

The website guides SMEs on key sustainability topics, such as sustainability reporting and carbon management, actionable steps they can take to be more sustainable, and information on all sustainability support programmes and resources offered by different Singapore Government agencies.

These include:

- **Financial schemes and programmes** to defray the costs that enterprises may incur as they embark on their sustainability journey.
- **Training and development courses** to help enterprises and their employees develop green skills and competencies.
- **Guides and playbooks** to build sustainability capabilities within the domain or sector.
- **Standards, frameworks and conformity assessments** to build trust in sustainable products, services or business practices.
- **Sustainability-related policies and regulations** that may be relevant to their business operations.
- **Case studies** to learn best practices from peers.

It also includes an e-adviser for Sustainability Resource for enterprises to identify relevant information and resources based on their sustainability needs.

Visit the SME Sustainability Hub at **www.smesustainability.gov.sg** today!

The public sector is laying the groundwork for a more competitive green economy by providing reliable sustainability data, to support businesses in making better decisions.

Made in Singapore: The Singapore Emission Factors Registry (SEFR) Delivers Localised Emission Factors

In a Forward SG conversation with the Minister for Sustainability and the Environment, Ms Grace Fu, sustainability practitioners highlighted a critical challenge: the accuracy of their greenhouse gas ("GHG") calculations, particularly for Scope 3 emissions. These emissions were potentially less accurate due to reliance on the United Kingdom ("UK") and the United States of America ("USA")'s emissions factors ("EFs"), which did not reflec Singapore's unique context. This led to the development of the SEFR to provide reliable, localised emissions factors to help businesses derive more accurate emissions data.

The SEFR went live in October 2024 at a very relevant juncture, helping businesses prepare for upcoming regulatory requirements – such as the Singapore Exchange Regulation ("SGX RegCo")'s mandatory reporting of Scope 1 and 2 GHG emissions for listed companies starting from FY2025. Organisations now have access to Singapore-specific EFs in the water, waste and built environment sectors. This enhanced accuracy will also support identifying emission hot spots and informed decision-making to reduce operational emissions.

The SEFR will further expand its emission factors to other common business activities such as cleaning services, security services, and professional services, including legal, accounting, and consulting.

6.2 Green Citizenry

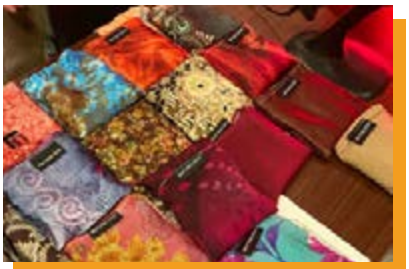
Environmental sustainability flourishes when it draws on the diverse experiences and insights of our community. Every Singaporean – from students to business leaders and interest groups – can offer valuable perspectives. By giving space for more initiatives to thrive, we can build a more sustainable Singapore together.

From Wardrobe to Workshop: Transforming Textile Waste into Opportunity

Public sector organisations are taking innovative steps to address textile waste through strategic partnerships that demonstrate how environmental sustainability can deliver positive outcomes. The MSF and KK Women's and Children's Hospital are leading this change through thoughtful collaborations with social enterprise and sustainable fashion brand, Commenhers.

At MSF, the initiative goes beyond a typical donation drive. Staff's pre-loved clothing undergoes a remarkable transformation in the skilled hands of Commenhers, emerging as creative, marketable products. This approach not only diverts textiles from landfills but also creates employment opportunities, demonstrating how environmental sustainability can directly support social enterprise.

MSF staff holding bags made from their donated clothing.



Donated clothing transformed into creative shopping bags by Commenhers artisans.

KK Women's and Children's Hospital has expanded this concept further by installing textile recycling bins accessible to both staff and the public. The hospital has also taken a pioneering step in sustainability by working with Commenhers to upcycle and repurpose ward and operating theatre linen, showing how healthcare institutions can reduce waste in their daily operations.

KKH Environment Services staff with Commenhers co-founder at the KKH Earth Day Celebration.

Textile recycling bins at KK Women's and Children's Hospital.

Both initiatives have seen enthusiastic participation, with educational sharing sessions helping participants understand the broader implications of sustainable fashion. The distribution of recycling bags made from upcycled materials serves as tangible evidence of how creative reuse can transform waste into valuable resources.

By connecting everyday actions like clothing donation to both environmental conservation and social enterprise, we demonstrate that sustainable practices can create a ripple effect of positive change throughout our community.

Five Years of Fostering Green Innovation: The SG Eco Fund Journey

Since its inception in November 2020, the SG Eco Fund has become a powerful catalyst for environmental action in Singapore. With **S$18.6 million awarded to more than 350 projects, the SG Eco Fund has touched the lives of over 700,000 people**, demonstrating the profound impact of community-driven sustainability initiatives.

From Waste to Value: Engaging Communities

Among the Fund's success stories, Holocene's Food Waste Upcycling and Community Education project stands out for its strong community engagement. The project reached out to 100 residents from Kim Tian West on reducing and recycling food waste, and collected 140 kg of food waste from households that was converted into compost for the neighbourhood community gardens. This initiative demonstrated the collective efforts of residents in closing the waste loop.

Residents learning about food waste reduction and recycling into compost.

Digital Innovation Meets Environmental Education

The youth-led Sustainability World project by Jalan Journey showcases the power of technology in environmental education. Through their immersive virtual platform, over 300 secondary students across three schools were exposed to environmental issues like fast fashion, recycling, and ocean pollution. The project's success was evident in its ability to inspire action – more than half of the participants expressed interest in environmental volunteering after the programme.

Jalan Journey engaging students using their Sustainable World platform.

Protecting Our Shores, Building Our Communities

Witteveen+Bos's Living Seawalls project exemplifies the Fund's support for innovative coastal protection solutions. By recycling 120 kg of oyster shells into reef bags, the project combines environmental protection with community engagement. The initiative brought together 75 community members, including Rainbow Centre students, hospitality staff, and citizen scientists, demonstrating how environmental projects can unite diverse groups for a common cause.

Volunteers from diverse backgrounds were involved in cleaning the oyster shells and conducting reef monitoring.

Seniors Leading Sustainability

The Banner Upcycling initiative by Lions Befrienders highlights the Fund's commitment to intergenerational environmental action. More than 50 seniors transformed 130 discarded banners into practical products such as carrier bags, and engaged close to 600 community members through educational exhibitions at Active Ageing Centres. This project proves that environmental innovation knows no age limits.

Seniors upcycling discarded banners into carrier bags.

Healthcare Meets Urban Farming

At the SGH, the SingHealth Duke-NUS Institute of Biodiversity Medicine operates a rooftop aquaponics project that produced 200kg of vegetables in four months of partial operation. With the potential to scale harvests to 2,000 kg per month, the project supplies fresh, locally grown greens for inpatient meals. The SGH Rooftop Food Garden also serves as an education hub and engaged over 1000 participants in tours and workshops, alongside 43 horticultural therapy sessions for staff. This initiative integrates healthcare, farming and education to strengthen food security, supports wellness and transform institutional spaces into productive green zones that benefit both the environment and patient care.

A workshop participant takes part in a harvesting activity at the rooftop food garden.

Looking Forward

As the SG Eco Fund marks its fifth anniversary, these projects highlight the transformative power of community-driven environmental initiatives. From engaging youth through technology, to coastal protection and urban farming, each project contributes uniquely to Singapore's sustainability journey.

The Fund's success in supporting diverse projects across waste reduction, food security, biodiversity conservation, and environmental education reflects the government's commitment to nurturing ground-up environmental solutions. As we look to the future, these initiatives continue to inspire and pave the way for more innovative approaches to environmental sustainability in Singapore.

Growing Green Minds: Singapore's Seeds of Environmental Wonder

Singapore's next generation of environmental stewards is taking shape in our classrooms, playgrounds, and school gardens. Through a dynamic partnership between NParks and the MOE, we are transforming the way students learn about and connect with nature, making environmental education an engaging and active part of their daily school experience.

Gone are the days when environmental education was limited to simply reading from textbooks. Today's students are discovering Singapore's rich biodiversity and conservation story through interactive, hands-on experiences that spark curiosity and wonder. From watching environmental messages come alive in school plays to participating in expert-led nature talks, students are engaging with nature in ways that resonate with their individual learning styles and interests.

Learning extends beyond the classroom through carefully designed programmes that turn theory into hands-on discovery. One such way is through the Every Child a Seed Programme. In this nationwide initiative, all primary three students are given a plant starter kit that complements the primary three science syllabus on the topics of plant life cycles, plant parts, and plant functions. Another initiative, Community in Nature, sees students becoming citizen scientists, observing and documenting local wildlife. The Greening Schools for Biodiversity programme transforms school grounds into thriving ecosystems where students can witness ecological principles in action. During Biodiversity Week for Schools, young minds explore Singapore's natural heritage through activities that make conservation concepts tangible and meaningful.

This approach to environmental education does more than teach facts – it cultivates a deep appreciation for nature that students carry with them beyond their school years. By weaving sustainability and conservation into the fabric of education, we're nurturing a generation that understands their role in Singapore's City in Nature vision and feels empowered to contribute to its success

The plant starter kit includes a pot, potting mix, edible plant seeds, and a handbook for students to track and correlate their plant's growth back to what they have learnt in class.

7 Excite

PUBLIC OFFICERS TO THINK AND WORK SUSTAINABLY

Public officers remain at the heart of GreenGov.SG operations. They play a vital role in building a more sustainable public sector. Through targeted training programmes and continuous learning opportunities, public officers can pick up the knowledge, skills, and confidence required to integrate sustainability into their daily work. The goal is to cultivate a workforce that not only understands sustainability concepts but also actively translates understanding into action, driving meaningful change across the public sector.

7.1 Powering Progress through Knowledge

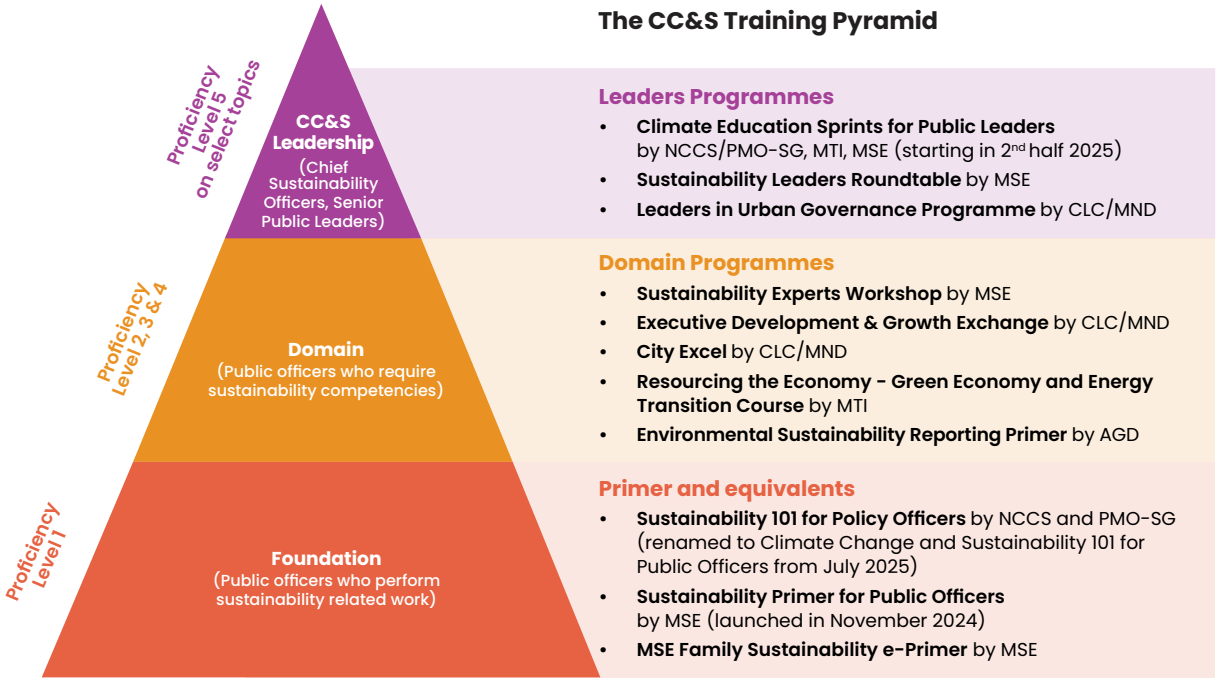
Creating a sustainable public sector starts with a willingness to learn. We are expanding our programmes to help public officers broaden and deepen their understanding of sustainability and apply it to their work. From workshops and leadership dialogues to learning journeys and casual lunchtime chats, public officers are learning from experts in their field and from each other, contextualising sustainability within their own domains and roles.

From Learning to Impact: Advancing Sustainability Capabilities through Strategic Coordination

In FY2024, we continued to strengthen the capabilities of agencies to deliver on sustainability outcomes. Led by the Sustainability Skills for Mitigation, Adaptation, and Resilience Transformation ("SSMART") Office operating under MSE, the unit seeks to unify Climate Change and Sustainability ("CC&S") training efforts across the public sector and equip officers with competencies across a broader range of interconnected CC&S issues. To better coordinate these efforts across the public sector, the Sustainability Skills Development ("SSD") Group chaired by MSE and National Climate Change Secretariat ("NCCS") with senior representatives from Green Plan Ministries and key agencies was formed to better synergise efforts on these areas:

CC&S Training Development Strategy

Through the SSD group, agencies are enhancing their existing agency training frameworks to incorporate sustainability competencies aligned with officers' job functions. These frameworks help guide officers to the right programmes based on their training needs and coordinate training efforts with other agencies to improve operational efficiency. To prioritise officers for training, agencies have applied the CC&S Training Pyramid to better match officers with suitable programmes to meet their training needs.



Scaling Foundation Training for Public Service

With the new Sustainability Primer for Public Officers developed by MSE, NCCS and Civil Service College, public officers now have access to base knowledge for CC&S related work. To date, 14,290 officers across the public service have completed either the MSE e-Primer or the Sustainability Primer. Building on this foundation, public officers requiring base-level training for Inter-Ministerial Committee on Climate Change ("IMCCC") Exco workstreams such as in mitigation, adaptation, green economy, international policy and partnerships, and science & technology are attending the Climate Change and Sustainability 101 for Public Officer developed by NCCS and NUS.

Addressing Knowledge Gaps through Topical Workshops

Beyond structured programmes, the SSMART Office has also engaged industry and public sector leaders through Sustainability Experts Workshops ("SEW"), which provide insights into trending developments and emerging areas, such as coastal protection and green finance. The inaugural SEW, held in August 2024 and led by Mr Ravi Menon, Singapore's Ambassador for Climate Action, explored Singapore's triple transition – carbon, energy, and economic – as well as climate action issues. The SEW drew over 160 public officers

SEWs are also designed to provide flexibility in exploring key topics and leveraging visiting expertise. For example, the recent SEW engaged members of the International Advisory Panel for Carbon Credits during their visit to Singapore in August 2025.

A public officer participating in the dialogue

Mr Ravi Menon pictured with Government Chief Sustainability Officer Lim Tuang Liang at the August 2024 SEW.

Leveraging Domain Programmes to Expand Training Opportunities

Public officers can now benefit from structured programmes offered by agencies. These include, but are not limited to:

- Domain primers such as the Environmental Sustainability Reporting Primer by Accountant-General's Department ("AGD").
- 201 programmes such as the Professional Certificate in Sustainability for the Built Environment offered by NUS in collaboration with MND.
- The Resourcing the Economy – Green Economy and Energy Transition Course offered by Ministry of Trade and Industry Academy.

Cross-sector Sharing at the Leadership Level

The Sustainability Leaders RoundTable ("SLR") and the Leaders in Urban Governance Programme were organised to provide platforms for leaders to explore how sustainability can be driven within the organisation. The inaugural SLR held in November 2024 featured a keynote address by the Chief Executive of Temasek International, Dilhan Pillay, as well as panel discussions with industry and non-governmental organisation leaders. The event also featured a dialogue with Deputy Prime Minister Gan Kim Yong and showcased sustainability projects by agencies across the public sector. Attended by 64 public service leaders, the 2024 SLR tapped into insights from both public sector and industry leaders, covering global sustainability trends, national trade-offs, and organisational strategies.

Deputy Prime Minister Gan Kim Yong with SLR participant Ms Oh Shan Mian from the National Security Coordination Secretariat, who moderated the dialogue at the 2024 SLR.

From Field to Classroom: Eco-Learning Journeys for Teachers

Through the Teacher Work Attachment Plus programme, teachers at the MOE are given opportunities to participate in work attachments and learning journeys across various environmental sectors. These hands-on experiences offer fresh perspectives and real-world insights into environmental issues that teachers can bring back to the classrooms as learning points for students.

Ms Tng, a teacher at Xinmin Primary School, joined a team at Gardens by the Bay to pilot a digital worksheet system. She gained firsthand insight into how technology can enhance student engagement during learning journeys

"I've been teaching for 31 years. It's a good time for me to explore new ways to get students excited about learning. The experience gave me space to step back and reflect on my role as a teacher – what I'm doing now and how it prepares students for life beyond school.

We began exploring urban farming activities for our students in 2023, but we weren't very sure how to maintain the crops. After my attachment at City Sprouts, I gained more confidence in the various farming techniques.

The children are very involved in the cultivation process. During recess, they would sacrifice their playtime and voluntarily go to the garden, water the plants, and check to see if the plants are growing well. The teachers are equally excited and enthusiastic – many of them would help with the harvest and even bring home excess crops to cook."

Ms Tng engaging students at Xinmin Primary School.

7.2 From Ideas to Action

Sustainability goes beyond the work of sustainability specialists. It also lies in the daily decisions of each public officer, who can be empowered to act. Our goal is to shape mindsets, nurture positive habits, and encourage public officers from all walks of life to step forward and contribute meaningfully within their spheres of influenc

Pass-It-On: A Greener Way to Give

Agencies are contributing to the circular economy by encouraging the reuse of pre-loved items – extending their lifespan and reducing demand for new resources.

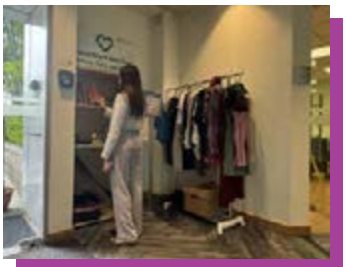
At the Singapore Land Authority ("SLA"), the staff volunteer group "SaLsA" has been promoting environmental awareness through their "Pre-loved is Reloved Event". This initiative creates opportunities for staff to give their pre-loved items a second life, either through charity donations or exchanges among colleagues.

Pre-loved items from SLA staff on display for exchange.

Similarly, the Public Service Division ("PSD") organised a flea market in September 2024, featuring pre-loved items contributed by officers. All proceeds from the sale were donated to the President's Challenge, supporting beneficiaries across multiple sectors. These include organisations serving children with special needs, persons with disabilities, those in healthcare, and the elderly.

Staff manning the booth at PSD's flea market in September 2024

The "Upcycling & Recycling Corner" was set up in October 2024 at the Singapore National Eye Centre ("SNEC") to reduce waste and promote a culture of sharing and thrifting. Positioned outside the staff lounge, the corner features a shelf and clothes rack where staff can share their pre-loved items or clothing at their convenience. Hospital staff are encouraged to contribute second-hand items in good condition and are free to take anything they find useful. Items are periodically checked by staff-in-charge to ensure they are in good condition and recycled appropriately if not. The initiative is a simple and thoughtful way to nurture a more sustainable workplace culture, as well as strengthen the spirit of community and mutual support among staff.



Staff taking a book from SNEC's Upcycling & Recycling Corner.

Stitching Sustainability: Upcycling Uniforms into Accessories in Hospitals

At the National Cancer Centre Singapore, hospital staff donated a total of 188 kg of pre-loved uniforms from February 2024 to February 2025. A total of 55 kg of uniforms were passed on to The Circular Classroom, a social enterprise and SG Eco Fund recipient dedicated to reducing waste generated in Singapore's education system. The remaining donated uniforms were then upcycled into items such as purses and bags, which were then sold at events such as the National Cancer Centre Singapore 2025 Sustainability Festival. Proceeds from these sales went towards supporting social and environmental causes.

An owl stitched from pre-loved uniforms.

Purses stitched from pre-loved uniforms.

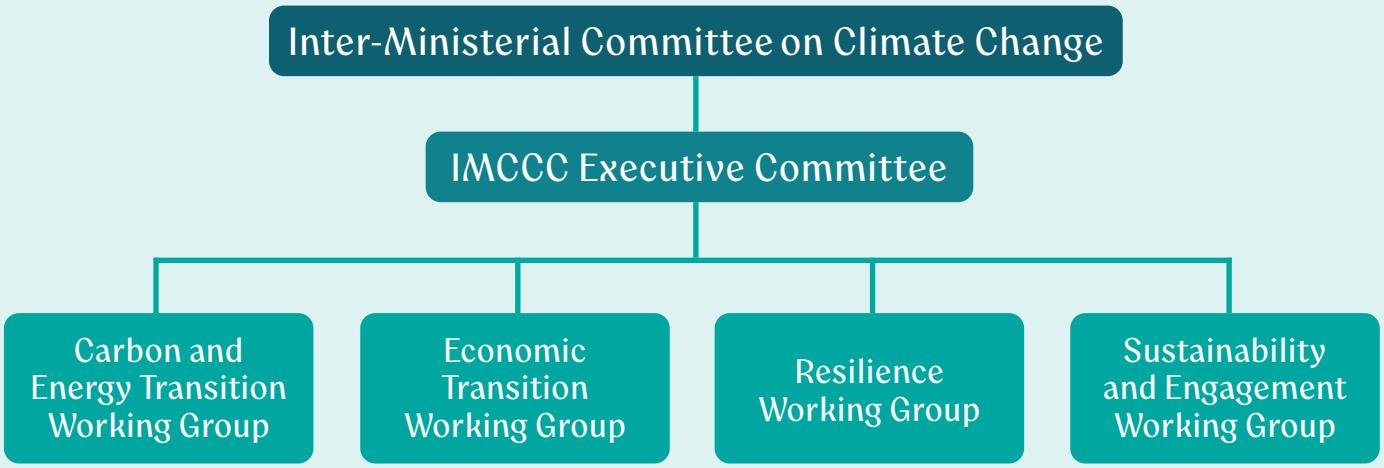
Pre-loved uniforms from National Cancer Centre Singapore upcycled into purses and bags, displayed at a booth during the National Cancer Centre Singapore Sustainability Festival in 2025.

Whether through donation drives, upcycling efforts, or sharing platforms, these initiatives reflect a growing culture of conscious consumption. Beyond environmental benefits, they also strengthen community bonds and promote values of generosity, care, and shared responsibility.

8 Governance

Given the scale of our operations, spearheading sustainability across the public sector requires a coordinated approach that is supported by strong leadership. This is important, as good governance provides strategic direction and ensures accountability across our agencies towards the realisation of the targets set.

The Inter-Ministerial Committee on Climate Change ("IMCCC") enhances coordination of climate change policies across the public sector, to ensure that Singapore is prepared for the impacts of climate change.



The IMCCC was established in 2007. It currently comprises the following members:

- **Mr Gan Kim Yong (Chair)**
  Deputy Prime Minister and Minister for Trade and Industry
- **Dr Vivian Balakrishnan**
  Minister for Foreign Affairs
- **Ms Grace Fu**
  Minister for Sustainability and the Environment and Minister-in-Charge of Trade Relations
- **Ms Indranee Rajah**
  Minister, Prime Minister's Office
  Second Minister for Finance and Second Minister for National Development
- **Dr Tan See Leng**
  Minister for Manpower and Minister-in-Charge of Energy and Science & Technology
- **Mr Chee Hong Tat**
  Minister for National Development
- **Mr Jeffrey Siow**
  Acting Minister for Transport and Senior Minister of State for Finance

To support the IMCCC's work, the IMCCC Executive Committee ("Exco") and various Working Groups have been established. The IMCCC Exco comprises the Permanent Secretaries, Managing Directors, Chairmen and Chief Executives of the relevant Ministries and Statutory Boards.

The IMCCC Exco oversees the Working Groups. The Working Groups and their responsibilities are as follows:

Carbon and Energy Transition Working Group

The Carbon and Energy Transition Working Group oversees the implementation of mitigation measures and develops plans to enable Singapore's transition to a low-carbon and clean energy future.

Economic Transition Working Group

The Economic Transition Working Group oversees Singapore's transformation towards a sustainable and low-carbon economy for both existing sectors and new growth areas.

Resilience Working Group

The Resilience Working Group studies Singapore's vulnerability to the effects of climate change and develops long-term plans aimed at safeguarding the nation's resilience to future environmental changes.

Sustainability and Engagement Working Group

The Sustainability and Engagement Working Group develops plans to drive the national sustainability agenda. This includes GreenGov.SG, capability building efforts within the public sector, as well as domestic and international engagement programmes.

We appointed our first Government Chief Sustainability Officer ("GCSO") in January 2023 to better drive our governmental sustainability efforts. The GCSO works with public agencies to develop plans aimed at realising a sustainable, resource-efficient and climate-resilient Singapore, and spearheads the government's partnership with various stakeholders, including businesses, civil society partners and individuals. The GCSO also partners the Chief Sustainability Officers of public agencies to develop and coordinate strategies for GreenGov.SG, through the GreenGov.SG Steering Committee.

9 Appendix

Appendix A: Performance Data

9.1 General Information

9.1.1 Boundaries

The performance data presented in this report includes all Ministries, Organs of State and Statutory Boards. The current year is defined as FY2024, which runs from 1 April 2024 to 31 March 2025. The assets in scope are limited to those located in Singapore, and include premises funded and/or managed by government agencies.

In this appendix, we have provided a breakdown of the performance data by the following Ministry families:

- Ministry of Culture, Community and Youth ("MCCY")
- Ministry of Defence ("MINDEF")
- Ministry of Digital Development and Information[23] ("MDDI")
- Ministry of Education ("MOE")
- Ministry of Finance ("MOF")
- Ministry of Foreign Affairs ("MFA")
- Ministry of Health ("MOH")
- Ministry of Home Affairs ("MHA")
- Ministry of Law ("MinLaw")
- Ministry of Manpower ("MOM")
- Ministry of National Development ("MND")
- Ministry of Social and Family Development ("MSF")
- Ministry of Sustainability and the Environment ("MSE")
- Ministry of Trade and Industry ("MTI")
- Ministry of Transport ("MOT")
- Prime Minister's Office ("PMO"
- Organs of State[24] ("OOS")

9.1.2 Utility Consumption Data

All utility consumption by public sector agencies is generally accounted for. If a public sector building is occupied by multiple public sector agencies, the consumption is generally attributed to the public sector agency which is the building landlord. Where feasible, the consumption of private sector tenants is excluded, as they do not fall under the scope of GreenGov.SG. If a public sector agency is located in a private sector building, the consumption is generally accounted for, if measured data on consumption of individual utilities can be obtained.

9.1.3 Waste Data

Waste disposed of is accounted for by public sector agency owners of their respective premises. Agencies have been advised to use measured waste data in the first instance, as reported by the Public Waste Collectors ("PWCs") or the General Waste Collectors ("GWCs") which serve the GreenGov.SG premises. For PWCs, the waste is weighed at the point of collection through load cells installed on the waste collection truck. Premises that have on-site waste weighing capabilities may report waste data obtained through self-weighing.

9.1.4 Data Verification and Restatement

The GreenGov.SG Secretariat has obtained recommendations from a consultant on our data preparation processes, and will continue to refine our data governance and controls. We have restated some of our past data due to improvements in our data collection processes and methodologies. We have provided explanations in footnotes where necessary.

[23] Singapore's Smart Nation and Digital Government Group (SNDGG) has merged with then Ministry of Communications and Information (MCI) effective 23 October 2023. MCI has then been renamed the Ministry of Digital Development and Information ("MDDI") effective 8 July 2024.
[24] Includes the Judiciary, Parliament, the Attorney-General's Chambers and the Auditor-General's Office

9.2 Greenhouse Gas Emissions and Energy

9.2.1 Baseline

The public sector aims to peak our emissions around 2025 and achieve net-zero emissions around 2045. We have taken FY2020 to be the baseline year for emissions, as this was when we began to systematically collect emissions data. The public sector has set a target to improve EUI by 10% by 2030 from the average of FY2018 to FY2020. This baseline was chosen because we want to better reflect hybrid working arrangements post-pandemic.

9.2.2 Total Emissions (Scope 1 and 2)

The public sector's total Scope 1 and 2 emissions for FY2024 was 3,570,075 tCO_2e. Our total emissions decreased slightly by 1.9% from FY2023 as the decrease in Scope 1 emissions outweighed the increase in Scope 2 emissions. We expect emissions to increase as we continue to expand essential services and infrastructure to meet the needs of the population and growing economy.

Table 1: Scope 1 & 2 Emissions by Ministry Family

Ministry Family	Baseline (tCO_2e)	FY2022 (tCO_2e)	FY2023 (tCO_2e)	FY2024 (tCO_2e)	Change from Baseline to FY2024
MCCY[25]	73,446	81,265	81,427	78,701	7.2%
MINDEF[26]	513,241	480,428	492,724	474,584	-7.5%
MDDI[27]	26,577	30,672	30,634	28,774	8.3%
MOE	410,387	441,501	432,287	422,103	2.9%
MOF[28]	18,592	17,922	17,921	15,652	-15.8%
MFA	2,973	2,943	2,826	2,893	-2.7%
MOH	274,499	291,247	297,909	345,227	25.8%
MHA[29]	167,117	178,814	178,554	173,215	3.6%
MinLaw[30]	3,454	3,447	2,639	2,490	-27.9%
MOM[31]	8,336	8,607	7,905	7,505	-10.0%
MND[32]	52,487	55,283	52,535	56,550	7.7%
MSF[33]	6,816	7,158	7,471	7,629	11.9%
MSE[34]	1,154,076	773,293	722,873	615,133	-46.7%
MTI[35]	97,044	120,352	119,913	116,597	20.1%
MOT[36]	1,113,600	1,124,494	1,170,986	1,201,745	7.9%
PMO[37]	11,867	12,771	12,383	11,733	-1.1%
OOS	9,432	9,154	9,016	9,544	1.2%
Total	**3,943,944**	**3,639,351**	**3,640,003**	**3,570,075**	**-9.5%**

25 MCCY's historical total emissions were restated to include facilities that were not reported in the FY2023 report.
26 MINDEF's historical total emissions were restated to include more accurate and complete data from its facilities.
27 MDDI's historical total emissions was restated to include data from Government Technology Agency and Smart Nation and Digital Government Office from baseline to FY2023.
28 MOF's historical total emissions were restated to include more accurate and complete data from its facilities.
29 MHA's historical total emissions were restated to include more accurate and complete data from its facilities.
30 MinLaw's historical total emissions were restated to include more accurate and complete data from its facilities.
31 MOM's historical total emissions were restated to include facilities that were not reported in the FY2023 report.
32 MND's historical total emissions were restated to include more accurate and complete data from its facilities.
33 MSF's historical total emissions were restated to include more accurate and complete data from its facilities.
34 MSE's historical total emissions were restated to include more accurate and complete data from its facilities.
35 MTI's historical total emissions were restated to include more accurate and complete data from its facilities.
36 MOT's historical total emissions were restated to include more accurate and complete data from its facilities.
37 PMO's historical total emissions was restated to exclude data from Government Technology Agency and Smart Nation and Digital Government Office from baseline to FY2023.

9.2.3 Scope 1 Emissions

The public sector's total Scope 1 emissions for FY2024 was 1,253,424 tCO2e, an 8.4% decrease compared to FY2023, and a 27.9% decrease from baseline. The decrease in Scope 1 emissions from FY2023 to FY2024 is mainly due to the operation and maintenance schedule of the Tuas South Waste-to-Energy ("WTE") plant, resulting in reduced waste processing capacity as well as variations in the composition of waste incinerated.

Table 2: Scope 1 Emissions by Ministry Family

Ministry Family	Baseline (tCO_2e)	FY2022 (tCO_2e)	FY2023 (tCO_2e)	FY2024 (tCO_2e)	Change from Baseline to FY2024
MCCY	1,123	1,047	1,065	277	-75.3%
MINDEF	290,863	253,494	263,057	244,770	-15.8%
MDDI	18	47	101	53	194.4%
MOE	721	680	619	615	-14.7%
MOF	159	182	181	189	18.9%
MFA	19	15	20	17	-10.5%
MOH	1,414	2,092	1,179	1,032	-27.0%
MHA	44,240	49,458	50,098	48,839	10.4%
MinLaw	2	4	4	3	50.0%
MOM	74	153	116	90	21.6%
MND	59	138	95	30	-49.2%
MSF	368	349	278	336	-8.7%
MSE	795,618	478,642	450,837	338,749	-57.4%
MTI	511	832	736	501	-2.0%
MOT	602,095	569,155	599,653	617,685	2.6%
PMO	311	179	230	228	-26.7%
OOS	16	11	10	10	-37.5%
Total	**1,737,611**	**1,356,478**	**1,368,279**	**1,253,424**	**-27.9%**

9.2.4 Scope 2 Emissions

The public sector's total Scope 2 emissions for FY2024 was 2,316,651 tCO_2e, a 2.0% increase from FY2023 and a 5.0% increase compared to the baseline. The increase is mainly due to the increased use of electricity due to the expansion of our transport and healthcare infrastructure. The TEL Stage 4 was opened in June 2024 and WHC was officially opened in July 2024. Similarly, TTSH ICH opened in March 2024 and saw a full year of operations focused on supporting patients in need of rehabilitative and palliative care.

Table 3: Scope 2 Emissions by Ministry Family

Ministry Family	Baseline (tCO_2e)	FY2022 (tCO_2e)	FY2023 (tCO_2e)	FY2024 (tCO_2e)	Change from Baseline to FY2024
MCCY	72,323	80,218	80,362	78,424	8.4%
MINDEF	222,378	226,934	229,667	229,814	3.3%
MDDI	26,559	30,625	30,533	28,721	8.1%
MOE	409,666	440,821	431,668	421,488	2.9%
MOF	18,433	17,740	17,740	15,463	-16.1%
MFA	2,954	2,928	2,806	2,876	-2.6%
MOH	273,085	289,155	296,730	344,195	26.0%
MHA	122,877	129,356	128,456	124,376	1.2%
MinLaw	3,452	3,443	2,635	2,487	-28.0%
MOM	8,262	8,454	7,789	7,415	-10.3%
MND	52,428	55,145	52,440	56,520	7.8%
MSF	6,448	6,809	7,193	7,293	13.1%
MSE	358,458	294,651	272,036	276,384	-22.9%
MTI	96,533	119,520	119,177	116,096	20.3%
MOT	511,505	555,339	571,333	584,060	14.2%
PMO	11,556	12,592	12,153	11,505	-0.4%
OOS	9,416	9,143	9,006	9,534	1.3%
Total	**2,206,333**	**2,282,873**	**2,271,724**	**2,316,651**	**5.0%**

9.2.5 Electricity Use

The public sector's electricity use in FY2024 was 5,622,937,045 kWh, a 2.0% increase from FY2023 and 1.1% increase from the baseline. This was mainly due to the increase in electricity consumption to cater to the expansion of our public infrastructure in the transport and healthcare sectors. The TEL Stage 4 was opened in June 2024, adding seven stations and 10.8 km to the rail network. WHC was officially opened in July 2024, to accommodate more hospital beds and growing demand for healthcare services. Similarly, TTHS ICH opened in March 2024 and saw a full year of operations focused on supporting patients in need of rehabilitative and palliative care.

Table 4: Electricity Use by Ministry Family

Ministry Family	Baseline (kWh)	FY2022 (kWh)	FY2023 (kWh)[9]	FY2024 (kWh)[8]	Change from Baseline to FY2024
MCCY[38]	198,050,697	192,462,733	195,052,924	190,348,845	-3.9%
MINDEF[39]	559,642,574	544,466,411	557,443,800	557,802,096	-0.3%
MDDI[40]	64,336,474	73,477,328	74,108,332	69,710,385	8.4%
MOE	1,104,920,889	1,057,633,061	1,047,738,799	1,023,028,229	-7.4%
MOF[41]	55,192,080	42,561,480	43,058,041	37,530,799	-32.0%
MFA	7,831,277	7,025,254	6,810,922	6,981,530	-10.9%
MOH	617,127,265	693,748,899	720,218,195	835,425,224	35.4%
MHA[42]	308,334,422	310,355,869	311,786,767	301,884,055	-2.1%
MinLaw[43]	9,502,320	8,259,983	6,396,695	6,035,476	-36.5%
MOM[44]	21,220,438	20,283,548	18,905,112	17,997,684	-15.2%
MND[45]	135,240,287	132,305,537	127,281,865	137,184,091	1.4%
MSF[46]	16,077,725	16,335,239	17,457,669	17,700,444	10.1%
MSE[47]	843,474,526	706,935,748	660,280,551	670,834,890	-20.5%
MTI[48]	246,254,871	286,758,461	289,263,353	281,787,252	14.4%
MOT[49]	1,322,147,988	1,332,386,690	1,386,730,810	1,417,620,940	7.2%
PMO[50]	30,111,143	30,212,134	29,497,775	27,924,808	-7.3%
OOS	21,311,323	21,937,287	21,860,305	23,140,297	8.6%
Total	**5,560,776,299**	**5,477,145,662**	**5,513,891,915**	**5,622,937,045**	**1.1%**

38 MCCY's historical electricity use was restated to include facilities that were not reported in the FY2023 report.
39 MINDEF's historical electricity use was restated to include more accurate and complete data from its facilities.
40 MDDI's historical electricity use was restated to include data from Government Technology Agency and Smart Nation and Digital Government Office from baseline to FY2023.
41 MOF's historical electricity use was restated to include more accurate and complete data from its facilities.
42 MHA's historical electricity use was restated to include more accurate and complete data from its facilities.
43 MinLaw's historical electricity use was restated to include more accurate and complete data from its facilities.
44 MOM's historical electricity use was restated to include facilities that were not reported in the FY2023 report.
45 MND's historical electricity use was restated to include more accurate and complete data from its facilities.
46 MSF's historical electricity use was restated to include more accurate and complete data from its facilities.
47 MSE's historical electricity use was restated to include more accurate and complete data from its facilities.
48 MTI's historical electricity use was restated to include more accurate and complete data from its facilities.
49 MOT's historical electricity use was restated to include more accurate and complete data from its facilities.
50 PMO's historical electricity use was restated to exclude data from Government Technology Agency and Smart Nation and Digital Government Office from baseline to FY2023.

9.2.6 Energy Utilisation Index

In FY2024, the public sector's EUI was 112.5 kWh/m², a 0.4% decrease compared to FY2023. The EUI in FY2024 decreased by 3.0% from the baseline, due to overall improvements in energy efficiency of government facilities as our new buildings are progressively built to Green Mark Platinum SLE standards, which achieve at least 60% energy savings compared to 2005 levels, and older buildings and systems are retrofitted to be more energy efficient, such as by replacing old cooling systems

Table 5: EUI by Ministry Family

Ministry Family	Baseline (kWh/m²)	FY2022 (kWh/m²)	FY2023 (kWh/m²)	FY2024 (kWh/m²)	Change from Baseline to FY2024
MCCY[51]	111.1	104.6	105.8	104.0	-6.4%
MINDEF[52]	76.9	72.5	72.8	72.3	-6.0%
MDDI[53]	168.5	158.0	155.3	158.9	-5.7%
MOE	76.5	73.4	72.5	70.4	-8.0%
MOF[54]	131.3	103.5	103.1	94.6	-28.0%
MFA	205.5	178.1	172.7	176.3	-14.2%
MOH	306.9	282.9	281.1	286.4	-6.7%
MHA[55]	135.3	125.3	127.6	122.6	-9.4%
MinLaw[56]	159.6	155.9	112.8	111.3	-30.3%
MOM[57]	179.6	166.6	121.0	114.3	-36.4%
MND[58]	110.2	99.6	97.9	102.7	-6.8%
MSF[59]	68.4	66.8	70.0	72.0	5.3%
MSE[60]	94.0	98.2	105.0	101.0	7.4%
MTI[61]	157.3	150.5	149.4	142.2	-9.6%
MOT[62]	224.6	210.4	201.9	200.1	-10.9%
PMO[63]	169.4	155.3	150.4	142.3	-16.0%
OOS	103.4	103.9	103.5	109.6	6.0%
Total	**116.0**	**112.0**	**112.9**	**112.5**	**-3.0%**

51 MCCY's historical EUI was restated to include facilities that were not reported in the FY2023 report.
52 MINDEF's historical EUI was restated to include more accurate and complete data from its facilities.
53 MDDI's historical EUI was restated to include data from Government Technology Agency and Smart Nation and Digital Government Office from baseline to FY2023.
54 MOF's historical EUI was restated to include more accurate and complete data from its facilities.
55 MHA's historical EUI was restated to include more accurate and complete data from its facilities.
56 MinLaw's historical EUI was restated to include more accurate and complete data from its facilities.
57 MOM's historical EUI was restated to include facilities that were not reported in the FY2023 report.
58 MND's historical EUI was restated to include more accurate and complete data from its facilities.
59 MSF's historical EUI was restated to include more accurate and complete data from its facilities.
60 MSE's historical EUI was restated to include more accurate and complete data from its facilities.
61 MTI's historical EUI was restated to include more accurate and complete data from its facilities.
62 MOT's historical EUI was restated to include more accurate and complete data from its facilities.
63 PMO's historical EUI was restated to exclude data from Government Technology Agency and Smart Nation and Digital Government Office from baseline to FY2023.

9.2.7 Methodology and Assumptions Used in Calculating Greenhouse Gas Emissions and Energy

Greenhouse Gas Emissions

The methodology for calculating Scope 1 and 2 emissions is aligned with the GHG Protocol. We have set our organisational boundary under the GHG Protocol's 'Operational Control' approach. Under this approach, a reporting entity has control over an operation if the former or one of its subsidiaries has full authority to introduce and implement operating policies.

In line with the 'Operational Control' approach, our reporting scope covers buildings and premises that are owned, occupied, and/or operated by the public sector.

Scope 1 Emissions

Scope 1 emissions relate to the direct burning of non-renewable fuel on site. This entails combustion of natural gas, town gas, petrol and diesel amongst others.

Data on fuel consumption is obtained from the respective Facility Managers of each premises. Town gas consumption is obtained from GovTech Trusted Centre for Sensor Data with utility account numbers for the respective premises.

If actual fuel consumption data for any operation or period of time is not available, an estimate is made based on the best available information (i.e. using the consumption from a similar period of time as a proxy).

Scope 2 Emissions

Scope 2 emissions relate to the consumption of purchased electricity and cooling.

Emissions Factors

The emission factors for Scope 1 emissions were obtained from the 2006 Intergovernmental Panel on Climate Change ("IPCC") Guidelines Volume 2 Chapters 2 and 3[64] except for town gas where a country-specific emission factor was used. On the other hand, Net Calorific Values ("NCVs") were derived based on the GHG Protocol's Emissions Factor for Cross-Sector Tools.

To calculate Scope 2 GHG emissions, the latest GEF data was obtained from the Energy Market Authority's website.[65] The emission factors used in our calculations are as follows:

Scope 1 Emission Factors			
Fuel Type	**Carbon Dioxide (CO_2) (tC/TJ)[66]**	**Methane (CH_4) (kg/TJ)**	**Nitrous Oxide (N_2O) (kg/TJ)**
Town Gas	15.20	5	0.1
Natural Gas	15.30	1	0.1
Petrol	18.90	25	8
Diesel	20.20	3.9	3.9
Jet Kerosene	19.50	0.5	2
Aviation Gasoline	19.10	0.5	2
Diesel (Marine)	20.20	7	2

64 2006 IPCC Guidelines for National Greenhouse Gas Inventories Vol 2 Ch 2: https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf
2006 IPCC Guidelines for National Greenhouse Gas Inventories Vol 2 Ch 3: https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_3_Ch3_Mobile_Combustion.pdf

65 SES Chapter 2: Energy Transformation, EMA: https://www.ema.gov.sg/resources/singapore-energy-statistics/chapter2

66 1996 IPCC Guidelines on Net Calorific Values and Emission Factors for Oils - Table 1: https://www.ipcc-nggip.iges.or.jp/public/gp/bgp/2_1_CO2_Stationary_Combustion.pdf

Gas	Global Warming Potential
CO_2	1
CH_4	28
N_2O	265

Scope 2 Emission Factors	
Year	GEF (kg CO_2/kWh)
2023	0.412
2022	0.417
2021	0.409
2020	0.407

Energy

Energy use and EUI metrics relate to purchased electricity from the grid and purchased cooling. The total electricity use is defined as electricity consumed from the grid and electricity use from purchased cooling via district cooling systems ("DCS").

Solar energy generated and used on-site is not included. Biomass energy used and energy used for district cooling are also not included. We are working to include other forms of energy used in future reports.

Electricity use from district cooling is calculated using cooling energy consumed in Refrigeration Ton-hour ("RTh") multiplied by the efficiency of the DCS, obtained from the DCS provider

$$\text{Refrigeration Ton-hour (RTh)} \times \text{Efficiency factor of DCS}$$

EUI is calculated using the following formula:

$$\frac{\text{Total electricity used in Year X}}{\text{Total GFA in Year X}}$$

Baseline EUI is calculated using the following formula:

$$\frac{\sum\text{Total electricity used between FY2018 and FY2020}}{\sum\text{Total GFA between FY2018 and FY2020}}$$

EUI is computed for buildings in the built environment category only.[67] It is not meaningful to calculate EUI for other categories as they may not have Gross Floor Area ("GFA") or their electricity use is less dependent on floor area.

Where utility account numbers are available, electricity use data is obtained from GovTech Trusted Centre for Sensor Data.[68] For the remaining facilities, electricity use data is reported by the respective Facility Managers of each premises. For EV charging, electricity use data is obtained from meters at onsite EV charging stations. In a small number of cases where actual electricity use data for any operation or period of time is not available, an estimate is made based on the best available information (i.e. applying an average across a similar period or calculating proxies).

Data on GFA is reported by the respective staff overseeing the premises and is verified by each Ministry's Sustainability Manager.

[67] Buildings in the built environment category exclude infrastructure such as water treatment and waste-to-energy plants, and transport fleets.

[68] GovTech Trusted Centre for Sensor Data is part of the Government Data Architecture initiative that manages the data lifecycle effectively from acquisition to destruction. Utility data obtained from the GovTech Trusted Centre for Sensor Data is considered to be of high quality and authoritative.

9.3 Water

9.3.1 Baseline

Similar to the approach taken for energy, the baseline has been established as the average of FY2018 to FY2020.

9.3.2 Water Use

In FY2024, the public sector used 32,920,861,213 litres of water, a 3.7% decrease compared to the baseline and 3.3% decrease from FY2023. The decrease in FY2023 was mainly due to a reduction in water use in our educational facilities and public sector operations, which offset increase from some other sectors.

Table 6: Water Use by Ministry Family

Ministry Family	Baseline (litres)	FY2022 (litres)	FY2023 (litres)	FY2024 (litres)	Change from Baseline to FY2024
MCCY[69]	2,608,428,897	2,426,267,303	2,181,951,790	2,026,453,250	-22.3%
MINDEF[70]	5,219,490,580	5,905,218,840	5,741,540,600	5,121,085,300	-1.9%
MDDI[71]	205,101,873	181,555,000	194,224,000	201,814,000	-1.6%
MOE	8,100,212,016	8,331,042,800	8,135,765,000	7,411,910,000	-8.5%
MOF[72]	414,756,900	300,078,600	295,337,000	308,106,000	-25.7%
MFA	37,861,667	39,646,000	34,798,800	33,964,000	-10.3%
MOH	4,388,467,631	4,635,982,340	4,845,933,600	5,095,859,000	16.1%
MHA[73]	3,904,082,952	3,839,820,387	3,866,650,000	3,931,890,000	0.7%
MinLaw[74]	136,118,733	53,133,500	52,145,600	51,812,000	-61.9%
MOM[75]	100,907,667	103,170,000	147,414,100	155,255,000	53.9%
MND[76]	2,334,326,193	2,386,074,231	2,436,706,370	2,269,580,030	-2.8%
MSF[77]	374,035,133	396,533,000	394,690,000	406,626,800	8.7%
MSE[78]	1,398,099,781	903,777,591	979,151,000	868,194,610	-37.9%
MTI[79]	1,840,877,100	1,445,015,000	1,754,011,800	2,015,248,133	9.5%
MOT[80]	2,870,414,253	2,595,023,750	2,761,725,116	2,811,163,090	-2.1%
PMO[81]	149,831,333	96,098,000	110,966,000	92,995,000	-37.9%
OOS	100,497,800	95,127,000	107,063,000	118,905,000	18.3%
Total	**34,183,510,509**	**33,733,563,342**	**34,040,073,776**	**32,920,861,213**	**-3.7%**

69 MCCY's historical water use was restated to include facilities that were not reported in the FY2023 report.
70 MINDEF's historical water use was restated to include more accurate and complete data from its facilities.
71 MDDI's historical water use was restated to include data from Government Technology Agency and Smart Nation and Digital Government Office from baseline to FY2023.
72 MOF's historical water use was restated to include more accurate and complete data from its facilities.
73 MHA's historical water use was restated to include more accurate and complete data from its facilities.
74 MinLaw's historical water use was restated to include more accurate and complete data from its facilities.
75 MOM's historical water use was restated to include facilities that were not reported in the FY2023 report.
76 MND's historical water use was restated to include more accurate and complete data from its facilities.
77 MSF's historical water use was restated to include more accurate and complete data from its facilities.
78 MSE's historical water use was restated to include more accurate and complete data from its facilities.
79 MTI's historical water use was restated to include more accurate and complete data from its facilities.
80 MOT's historical water use was restated to include more accurate and complete data from its facilities.
81 PMO's historical water use was restated to exclude data from Government Technology Agency and Smart Nation and Digital Government Office from baseline to FY2023.

9.3.3 Water Efficiency Index

In FY2024, the public sector's WEI was 55.9 litres per person per day, an 8.1% decrease from FY2023 and a 13.5% decrease compared to the baseline. This is a result of improvements in water management and efficiency of water fittings across our premises, even as we catered for the return of more occupants and visitors

Table 7: WEI by Ministry Family

Ministry Family	Baseline (litres/pax/day)	FY2022 (litres/pax/day)	FY2023 (litres/pax/day)	FY2024 (litres/pax/day)	Change from Baseline to FY2024
MCCY[82]	179.8	113.1	85.0	70.7	-60.7%
MINDEF[83]	202.5	223.6	213.0	179.5	-11.4%
MDDI[84]	36.6	41.1	36.2	26.9	-26.5%
MOE	45.2	46.5	47.6	39.1	-13.5%
MOF[85]	200.0	205.8	186.1	189.7	-5.2%
MFA	224.5	153.0	146.7	100.9	-55.1%
MOH	165.6	138.5	155.6	139.8	-15.6%
MHA[86]	91.6	113.5	83.5	67.5	-26.3%
MinLaw[87]	180.1	102.4	104.8	100.7	-44.1%
MOM[88]	49.5	49.7	17.0	16.5	-66.7%
MND[89]	16.9	18.0	19.5	17.7	4.7%
MSF[90]	216.6	212.0	205.6	202.0	-6.7%
MSE[91]	41.2	41.8	43.6	26.5	-35.7%
MTI[92]	116.8	92.9	118.0	108.0	-7.5%
MOT[93]	46.2	35.8	34.9	44.7	-3.2%
PMO[94]	80.9	67.3	78.3	77.8	-3.8%
OOS	179.7	156.3	160.0	173.6	-3.4%
Total	**64.6**	**63.6**	**60.8**	**55.9**	**-13.5%**

82 MCCY's historical WEI was restated to include facilities that were not reported in the FY2023 report.
83 MINDEF's historical WEI was restated to include more accurate and complete data from its facilities.
84 MDDI's historical WEI was restated to include data from Government Technology Agency and Smart Nation and Digital Government Office from baseline to FY2023.
85 MOF's historical WEI was restated to include more accurate and complete data from its facilities.
86 MHA's historical WEI was restated to include more accurate and complete data from its facilities.
87 MinLaw's historical WEI was restated to include more accurate and complete data from its facilities.
88 MOM's historical WEI was restated to include facilities that were not reported in the FY2023 report.
89 MND's historical WEI was restated to include more accurate and complete data from its facilities.
90 MSF's historical WEI was restated to include more accurate and complete data from its facilities.
91 MSE's historical WEI was restated to include more accurate and complete data from its facilities.
92 MTI's historical WEI was restated to include more accurate and complete data from its facilities.
93 MOT's historical WEI was restated to include more accurate and complete data from its facilities.
94 PMO's historical WEI was restated to exclude data from Government Technology Agency and Smart Nation and Digital Government Office from baseline to FY2023.

9.3.4 Methodology and Assumptions for Water Data

WEI is calculated using the following formula:

$$\frac{\text{Total water used in Year X}}{\text{Number of operational days in Year X} \times (\text{Average number of occupants per day} + 0.25 \times (\text{Average number of visitors per day}) \text{ in Year X})}$$

Baseline WEI is calculated using the following formula:

$$\frac{\sum \text{Total water used between FY2018 and FY2020}}{\text{Average number of operational days} \times \sum(\text{Average number of occupants per day} + 0.25 \times (\text{Average number of visitors per day}) \text{ between FY2018 and FY2020})}$$

WEI is computed for buildings in the built environment category only. [95] It is not meaningful to calculate WEI for other categories, as water use is less dependent on the number of occupants and visitors.

Water use data is either obtained from GovTech Trusted Centre for Sensor Data using utility account numbers or from the Facility Managers of each premises. The water use data includes both potable water and NEWater.

The occupancy and visitor number data are reported by Facility Managers. They are generally based on the number of occupants (such as staff, students and tenants) physically present in the respective premises for extended periods of time and number of visitors accounted under the premises' visitor management or tracking systems. Visitors include persons who are in the premises for short periods of time. As it is assumed that their average water use is 25% that of premises' occupants, a factor of 0.25 is also applied to the WEI calculation.

Where actual data for occupancy and visitor numbers are not available, we have used estimates to improve the completeness of the dataset to facilitate meaningful analysis. For example, for premises with missing monthly data, the data from a similar period is used. For example, we may calculate the average of available months' data, or FY2023 data might be used as a proxy for FY2024.

[95] Buildings in the built environment category exclude infrastructure such as water treatment and waste-to-energy plants, and transport fleets.

9.4 Waste

9.4.1 Baseline

The baseline has been established as FY2022 as this is when requirements for PWCs to weigh waste at the premises-level started.

9.4.2 Waste Disposed Of

In FY2024, the public sector disposed of 210,056,626 kg of waste, a 2.6% decrease compared to the baseline and 2.2% decrease from FY2023. The decrease from FY2023 was mainly due to a reduction of waste disposed of at our educational facilities and public sector operations.

Table 8: Waste Disposed of by Ministry Family

Ministry Family	Baseline (kilogrammes)	FY2023 (kilogrammes)	FY2024 (kilogrammes)	Change from Baseline to FY2024
MCCY[97]	11,690,091	12,250,432	12,506,615	7.0%
MINDEF[98]	22,769,397	19,914,125	17,811,699	-21.8%
MDDI[99]	605,363	622,358	635,540	5.0%
MOE	35,372,627	36,175,192	34,055,039	-3.7%
MOF[100]	268,342	264,123	258,018	-3.8%
MFA	60,739	52,302	48,697	-19.8%
MOH[101]	33,914,348	32,319,745	33,024,654	-2.6%
MHA[102]	8,102,853	9,130,818	9,103,381	12.3%
MinLaw	488,475	395,014	315,782	-35.4%
MOM[103]	364,022	1,725,454	1,704,375	368.2%*
MND[104]	21,276,650	21,133,279	21,933,682	3.1%
MSF[105]	1,708,826	1,648,421	1,693,652	-0.9%
MSE	33,137,362	33,371,618	31,582,323	-4.7%
MTI[106]	36,563,217	36,499,489	35,946,985	-1.7%
MOT[107]	8,597,878	8,786,598	9,119,316	6.1%
PMO[108]	607,146	365,221	218,289	-64.0%
OOS	150,111	164,570	98,579	-34.3%
Total	**215,677,446**	**214,818,760**	**210,056,626**	**-2.6%**

**The increase from baseline was due to the addition of six new facilities under MOM in FY2023.*

97 MCCY's historical waste disposed of was restated to include facilities that were not reported in the FY2023 report.
98 MINDEF's historical waste disposed of was restated to include more accurate and complete data from its facilities.
99 MDDI's historical waste disposed of was restated to include data from Government Technology Agency and Smart Nation and Digital Government Office from baseline to FY2023.
100 MOF's historical waste disposed of was restated to include more accurate and complete data from its facilities.
101 MOH's historical waste disposed of was restated to include more accurate and complete data from its facilities.
102 MHA's historical waste disposed of was restated to include more accurate and complete data from its facilities.
103 MOM's historical waste disposed of was restated to include facilities that were not reported in the FY2023 report.
104 MND's historical waste disposed of was restated to include more accurate and complete data from its facilities.
105 MSF's historical waste disposed of was restated to include more accurate and complete data from its facilities.
106 MTI's historical waste disposed of was restated to include more accurate and complete data from its facilities.
107 MOT's historical waste disposed of was restated to include more accurate and complete data from its facilities.
108 PMO's historical waste disposed of was restated to exclude data from Government Technology Agency and Smart Nation and Digital Government Office from baseline to FY2023.

9.4.3 Waste Disposal Index

In FY2024, the public sector's WDI was 0.349 kg per person per day, a 13.1% decrease compared to the baseline and 4.8% decrease from FY2023. We have managed to reduce our WDI due to the implementation of waste reduction measures and recycling efforts at various public sector premises, supported by improved data collection efforts that provide us with more accurate waste data. This means that despite the increase in the number of occupants and visitors at these places, each person was disposing of less waste than in FY2023.

Table 9: WDI by Ministry Family

Ministry Family	Baseline (kilogrammes /person/day)	FY2023 (kilogrammes /person/day)	FY2024 (kilogrammes /person/day)	Change from Baseline to FY2024
MCCY[109]	0.500	0.402	0.432	-13.7%
MINDEF[110]	0.960	0.930	0.700	-27.1%
MDDI[111]	0.290	0.237	0.190	-34.5%
MOE	0.198	0.196	0.193	-2.5%
MOF[112]	0.194	0.166	0.158	-18.6%
MFA	0.312	0.220	0.145	-53.6%
MOH[113]	1.105	0.987	0.898	-18.7%
MHA[114]	0.230	0.178	0.153	-33.6%
MinLaw	0.995	0.813	0.654	-34.3%
MOM[115]	0.287	0.199	0.187	-34.7%
MND[116]	0.250	0.243	0.260	4.0%
MSF[117]	1.090	0.988	0.998	-8.4%
MSE	3.173	2.663	2.234	-29.6%
MTI[118]	1.410	1.873	1.738	23.3%
MOT[119]	0.120	0.121	0.121	0.6%
PMO[120]	0.414	0.235	0.316	-23.8%
OOS	0.264	0.254	0.134	-49.1%
Total	**0.401**	**0.367**	**0.349**	**-13.1%**

**Percentage changes calculated based on these numbers may not be aligned due to rounding of figures.*

[109] MCCY's historical WDI was restated to include facilities that were not reported in the FY2023 report.
[110] MINDEF's historical WDI was restated to include more accurate and complete data from its facilities.
[111] MDDI's historical WDI was restated to include data from Government Technology Agency and Smart Nation and Digital Government Office from baseline to FY2023.
[112] MOF's historical WDI was restated to include more accurate and complete data from its facilities.
[113] MOH's historical WDI was restated to include more accurate and complete data from its facilities.
[114] MHA's historical WDI was restated to include more accurate and complete data from its facilities.
[115] MOM's historical WDI was restated to include facilities that were not reported in the FY2023 report.
[116] MND's historical WDI was restated to include more accurate and complete data from its facilities.
[117] MSF's historical WDI was restated to include more accurate and complete data from its facilities.
[118] MTI's historical WDI was restated to include more accurate and complete data from its facilities.
[119] MOT's historical WDI was restated to include more accurate and complete data from its facilities.
[120] PMO's historical WDI was restated to exclude data from Government Technology Agency and Smart Nation and Digital Government Office from baseline to FY2023.

9.4.4 Methodology and Assumptions for Waste Data

WDI is calculated using the following formula:

$$\frac{\text{Total waste disposed of in Year X}}{\text{Number of operational days in Year X} \times (\text{Average number of occupants per day} + 0.25 \times (\text{Average number of visitors per day}) \text{ in Year X})}$$

Baseline WDI is calculated using the above formula, for the year FY2022.

WDI is computed for buildings in the built environment category only. [121] It is not meaningful to calculate WDI for other categories, as waste disposed of is less dependent on the number of occupants and visitors.

Waste disposed of is obtained from the facility's waste collector or through in-house waste weighing. Construction and demolition waste is not included in this report.

As the improvement of our waste data measurement is an ongoing process involving multiple stakeholders, proxies have been applied to improve the completeness of the data and to facilitate meaningful analysis. For example, data from a community facility could be used as a proxy for another community facility with missing waste data, with usage being pro-rated by the facility's GFA.

The occupancy and visitor number data are reported by Facility Managers. They are generally based on the number of occupants (such as staff, students and tenants) physically present in the respective premises for extended periods of time and number of visitors accounted under the premises' visitor management or tracking systems. Visitors include persons who are in the premises for short periods of time. As it is assumed that the waste disposed of by this group is 25% that of premises' occupants, a factor of 0.25 is also applied to the WDI calculation.

Where actual data for occupancy and visitor numbers are not available, we have used estimates to improve the completeness of the dataset to facilitate meaningful analysis. For example, for premises with missing monthly data, the data from a similar period is used. For example, we may calculate the average of available months' data, or FY2023 data might be used as a proxy for FY2024.

[121] Buildings in the built environment category exclude infrastructure such as water treatment and waste-to-energy plants, and transport fleets.

Appendix B – List of Relevant Publications

1. Singapore's Long-Term Low-Emissions Development Strategy
2. Singapore Biennial Transparency Report
3. Singapore Green Plan 2030
4. Singapore Climate 2024: The Year in Numbers
5. Singapore's Third National Climate Change Study – Climate Projections to 2100
6. National Action Strategy on Marine Litter
7. Singapore Sustainable Air Hub Blueprint
8. Maritime Singapore Decarbonisation Blueprint
9. Energy 2050 Committee Report
10. Singapore Energy Statistics 2024
11. Land Transport Masterplan 2040
12. Singapore Green Bond Report for FY2024
13. Green Budgeting in Singapore: A Progress Update
14. Finance for Net Zero Action Plan
15. Singapore's Climate Action

Appendix C – United Nations Sustainable Development Goals Mapping

GreenGov.SG Commitments	United Nations Sustainable Development Goals ("UN SDG") Targets	UN SDG Indicators
Greenhouse gas emissions Peak emissions around 2025 Achieve net-zero emissions around 2045	**9.4** By 2030, upgrade infrastructure and retrofi industries to make them sustainable, with increased resource-use efficiency and greate adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities	**N/A**
	13.2 Integrate climate change measures into national policies, strategies and planning	**13.2.2** Total greenhouse gas emissions per year
	13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	**N/A**
Energy Reduce energy use by 10% from the baseline by 2030	**7.2** By 2030, increase substantially the share of renewable energy in the global energy mix	**N/A**
Water Reduce water use by 10% from the baseline by 2030	**6.4** By 2030, substantially increase water-use efficiency across all sectors and ensur sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	**6.4.1** Change in water-use efficienc over time
Waste Reduce waste disposed of by 30% from the baseline by 2030	**12.5** By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	**N/A**
	12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities	**N/A**
Green economy Incorporate environmental sustainability considerations into all government procurement by 2028	**12.6** Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle	**N/A**
	12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities	**N/A**

GreenGov.SG Commitments	United Nations Sustainable Development Goals ("UN SDG") Targets	UN SDG Indicators
Green citizenry Embed environmental sustainability into public touchpoints and community-based programmes	**12.8** By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	**N/A**
	17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships	**N/A**
Capability building Elevate environmental sustainability awareness and knowledge across the public sector	**12.8** By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature **17.16** Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievemen of the Sustainable Development Goals in all countries, in particular developing countries	**N/A**
Culture building Enable public officers to tak environmental sustainability action	**17.17** Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships	**N/A**

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ENQUIRIES

For any questions or feedback on the report, please email MSE_Feedback@mse.gov.sg.