



JOINT MEDIA RELEASE BY NCCS, MSE, MTI, MOT, MND AND MOE

GOOD PROGRESS MADE ON THE SINGAPORE GREEN PLAN 2030 AS GOVERNMENT ACCELERATES DECARBONISATION AND SUSTAINABILITY EFFORTS

8 March 2022 – At the Committee of Supply today, the Government provided a progress update on the Singapore Green Plan 2030. Launched in February 2021, the Green Plan seeks to galvanise a whole-of-nation movement and advance Singapore's national agenda on sustainable development. Spearheaded by five ministries – the Ministries of Sustainability and the Environment (MSE), Trade and Industry (MTI), Transport (MOT), National Development (MND), and Education (MOE) – and supported by the whole of Government, the Green Plan charts ambitious and concrete targets for the rest of this decade.

2 Opening the Joint Segment on the Green Plan, Senior Minister and Coordinating Minister for National Security, and Chairman of the Inter-Ministerial Committee on Climate Change, Mr Teo Chee Hean, outlined the impetus behind the decisive move to raise our ambition to achieve net zero emissions by or around mid-century. He explained that the outcomes of COP-26 had provided greater clarity on carbon market rules, and increased global investments in decarbonisation technologies will enable Singapore to achieve net zero emissions earlier. SM Teo emphasised that it is necessary and practicable to align with the global call for net zero now. This will also establish our economy's competitive edge early in a low-carbon future, and create new growth opportunities in industry, services, and finance. This decisive move will chart the path to a cleaner, greener Singapore for future generations, with improved job prospects, a sustainable environment, and a brighter future. There will be consultations with industry and citizen stakeholders before finalising a specific net-zero year. SM Teo called on all Singaporeans to support this effort, and do their part as we advance on this sustainability journey collectively as a nation.

3 SM Teo explained that the revised carbon tax levels will send the appropriate price signal across the economy, and shape business decisions and individual consumption habits. The Government will use the tax revenue collected to help households and businesses transition to a low-carbon future. The other key measures under the Green Plan will also be enhanced to enable our move to net zero.

4 Ms Grace Fu, Minister for Sustainability and the Environment, outlined the Government's efforts to empower, invest in and partner companies, people and communities in the green transition. To help the manufacturing sector, including small and medium enterprises (SMEs), mitigate the impact of a higher carbon tax, the National Environment Agency (NEA) will raise the maximum grant support for energy efficient technologies under the Energy Efficiency Fund from 50 per cent to 70 per cent of qualifying costs. This would enable companies to build capabilities and decarbonise early by adopting energy efficient technologies. ***(See Annex A: Enhancements to the Energy Efficiency Fund (E2F) – Energy Efficient Technologies Grant.)***

5 The Government will continue to invest in science and technology to unlock possibilities for a low-carbon future. \$220 million has been allocated for research and development (R&D) in resource circularity and water technologies under the Research,

GREEN PLAN



Innovation and Enterprise 2025 (RIE2025) Urban Solutions and Sustainability domain. **(See Annex B: RIE2025 Funding.)** The Government will also continue to engage and work with partners to involve the whole of society, and develop shared ownership for our sustainability movement and our environment. Since the launch of the SG Eco Fund in November 2020, 105 individuals and organisations have been awarded \$6.6 million in funding to support the co-creation of solutions with and for the community. **(See Annex C: SG Eco Fund's Second Grant Call.)**

6 Mr Gan Kim Yong, Minister for Trade and Industry, articulated the Government's plans to transition Singapore to a low-carbon economy, through the Government's Singapore Energy Transition plans and Green Economy Strategy. In greening Singapore's economy, it is critical to decarbonise the energy sector, as consumers seek greener forms of electricity to reduce their carbon footprint. The Government will continue to decarbonise the energy sector, by enhancing the energy and carbon efficiency of natural gas power plants, accelerating solar deployment, working with our partners to develop the regional grid, and exploring low-carbon energy solutions.

7 Minister Gan highlighted that the global transition to a low-carbon economy brings about new opportunities in areas such as green finance, carbon services and trading, and sustainable tourism. The Government will continue to partner businesses and workers, and foster a conducive environment for them to adapt to and take advantage of these opportunities. He added that Singapore's strong innovation ecosystem positions us well to develop new solutions in the green economy, such as in low-carbon hydrogen and carbon capture, utilisation and storage. He called on key stakeholders, including industry and researchers, to collaborate and advance the research and development of low-carbon solutions. While some of these solutions will take time to mature and become commercially viable, acting early can help catalyse Singapore and the region's decarbonisation efforts.

8 Mr S Iswaran, Minister for Transport, announced measures to significantly reduce carbon emissions in the land transport sector, with a target of reducing peak emissions by 80 per cent by or around mid-century. He also announced that every HDB town will be Electric Vehicles (EV)-Ready by 2025, with LTA launching the first large-scale tender for charging points at HDB carparks later this year. LTA will plan and coordinate the upgrading of electrical infrastructure for EV charging. New legislation to ensure safe and reliable EV charging will also be introduced, with public consultation set for later this year.

9 The Government will also continue to work closely with various stakeholders to electrify more vehicle segments. Minister Iswaran announced LTA's commitment to electrifying half of Singapore's public bus fleet by 2030. LTA will also extend the statutory lifespan of electric taxis from eight to 10 years, and at least 50 per cent of Singapore's taxi fleet will be electric taxis by 2030. Most importantly, the Government will continue to promote public transport and active mobility, which are the greenest ways to commute. **(See Annex D: Reducing Peak Land Transport Emissions by 80%.)**

10 Mr Desmond Lee, Minister for National Development, announced measures to support the transition towards a low-carbon built environment, and the development of growth opportunities in this area. The Government has committed an additional \$45 million of funding for the enhanced Green Buildings Innovation Cluster (GBIC) programme, to support the development, test-bedding and deployment of green technologies and solutions for buildings.

GREEN PLAN



New initiatives under the HDB Green Towns Programme will also bring the community in to better support the sustainability of our HDB towns.

11 As we continue to transform Singapore into a City in Nature, Minister Lee shared key progress updates in our greening journey. He also shared ambitious plans for how we will continue to leverage R&D to innovate and find new solutions to improve urban sustainability, by investing an additional \$64 million into the 'City in Nature' and 'Greater Sustainability' pillars under the Cities of Tomorrow R&D programme.

12 Mr Chan Chun Sing, Minister for Education, highlighted the important role of our Institutes of Higher Learning (IHL) in making sustainability a competitive advantage for Singapore. He shared how IHLs are making sustainability a strategic priority in their plans and are leveraging their research and innovation capabilities to develop new products and solutions, in partnership with and support of local industry. He also spoke on how the IHLs are developing the skills and competencies among graduates and the workforce so that they can access new green opportunities. ***(See Annex E: Strengthening Our Contributions towards the Green Economy and Empowering the Next Generation of Sustainability Leaders.)***

13 Updates on the key targets and initiatives of the Government, in support of our enhanced Nationally Determined Contribution, Long-Term Low-Emissions Development Strategy, and the Green Plan are summarised in **Annex F**.

– End –

Annex A: Enhancements to the Energy Efficiency Fund (E2F) – Energy Efficient Technologies Grant

Annex B: RIE2025 Funding

Annex C: SG Eco Fund's Second Grant Call

Annex D: Reducing Peak Land Transport Emissions by 80%

Annex E: Strengthening Our Contributions towards the Green Economy and Empowering the Next Generation of Sustainability Leaders

Annex F: Update on Key Targets and Initiatives of the Singapore Green Plan

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
SINGAPORE

ANNEX F: UPDATE ON KEY TARGETS AND INITIATIVES OF THE SINGAPORE GREEN PLAN 2030

[Note: Targets and initiatives that have not been previously announced are labelled 'New'. Targets and initiatives announced since the launch of the Green Plan are labelled 'Update'.]

S/N:	Sub-Thrusts and Initiatives:	(Year to Achieve) Targets:	Key Progress (as of Dec 2021 unless stated otherwise):
Overall National Emissions Target			
a	Net zero goal	[Update] Singapore will raise our climate ambition to achieve net zero emissions by or around mid-century.	<ul style="list-style-type: none"> At Budget 2022, the Government announced that Singapore will raise our climate ambition to achieve net zero emissions by or around mid-century. The Government will consult with industry and citizen stakeholder groups to firm up a specific net-zero year, and finalise our plans before making a formal revision of Singapore's Long-Term Low-Emissions Strategy (LEDS) in the later half of 2022.
b	Carbon tax	[Update] Carbon tax rate will be raised to \$25/tCO ₂ e in 2024 and 2025 and \$45/tCO ₂ e in 2026 and 2027, with a view to reaching between \$50 and \$80/tCO ₂ e by 2030.	<ul style="list-style-type: none"> At Budget 2022, the Government announced that the carbon tax rate will be raised to \$25/tCO₂e in 2024 and 2025 and \$45/tCO₂e in 2026 and 2027, with a view to reaching between \$50 and \$80/tCO₂e by 2030. The revised carbon tax levels will provide an appropriate price signal and impetus for businesses and individuals to reduce their carbon footprint in line with net zero goal. Revenue generated will be used to support decarbonisation efforts and transition to a green economy, and cushion impact on businesses and households. The Government will continue to consult stakeholders on support measures, the transition framework for emissions-intensive trade-

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
CONNECTING SINGAPORE

ANNEX F: UPDATE ON KEY TARGETS AND INITIATIVES OF THE SINGAPORE GREEN PLAN 2030

[Note: Targets and initiatives that have not been previously announced are labelled 'New'. Targets and initiatives announced since the launch of the Green Plan are labelled 'Update'.]

S/N:	Sub-Thrusts and Initiatives:	(Year to Achieve) Targets:	Key Progress (as of Dec 2021 unless stated otherwise):
			exposed facilities, and the framework for the use of carbon credits. The details will be announced in 2023, ahead of the implementation of the revised carbon tax framework in 2024.
City in Nature			
a	City in Nature i. More green spaces <ul style="list-style-type: none"> Set aside 1,000ha of green spaces, of which 200ha will be new nature parks. New nature parks will provide more recreational options, and protect nature reserves from urbanisation. Nature Ways and park connectors will strengthen ecological connectivity. ii. More naturalised parks and urban infrastructure to provide shade, cool the environment, improve air	(2026) Develop over 130 ha of new parks, and enhance around 170 ha of existing parks with more lush vegetation and natural landscapes (2030) Plant 1 million more trees across Singapore (2030) Have an additional 200ha of new nature parks (2030) Every household will be within a 10-minute walk from a park (2030) Have 500km of park connectors (2030) Restore and enhance 30ha of forest, marine, and coastal habitats (2030) Have 200ha of skyrise greenery	<ul style="list-style-type: none"> Efforts to develop and enhance the parks are ongoing. These include new parks at Teachers' Estate (7.6ha) and Cambridge Road (0.5ha), as well as the rejuvenation of Mount Faber Park. From the launch of the OneMillionTrees movement in 2020 till Feb 2022, more than 320,000 trees have been planted across the island. Several new nature parks, e.g. Rifle Range Nature Park, Mandai Mangrove and Mudflat, and Khatib Bongsu Nature Park are currently being developed, totalling about 180ha. Over 9 in 10 households are within a 10-minute walk from a park. Total length of the Park Connector Network (PCN) is about 370km now. Over 12ha of forest, marine and coastal habitats have been restored. There are 143ha of skyrise greenery.

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
SINGAPORE

ANNEX F: UPDATE ON KEY TARGETS AND INITIATIVES OF THE SINGAPORE GREEN PLAN 2030

[Note: Targets and initiatives that have not been previously announced are labelled 'New'. Targets and initiatives announced since the launch of the Green Plan are labelled 'Update'.]

S/N	Sub-Thrusts and Initiatives:	(Year to Achieve) Targets:	Key Progress (as of Dec 2021 unless stated otherwise):
	quality, and beautify our city.	(2030) Develop 300km of Nature Ways	<ul style="list-style-type: none"> 170km of Nature Ways have been put in place.
Sustainable Living			
a	A Green Citizenry that Consumes and Wastes Less <ol style="list-style-type: none"> Encourage water conservation and water-efficient practices for households and industries 	(2030) Reduce household water consumption to 130 litres per capita per day (LPCD)	Water Conservation and Water-Efficient Practices <ul style="list-style-type: none"> Household water consumption rose to 154/158 LPCD in 2020/2021, from 148-141 LPCD between 2016 and 2019.¹ <u>Smart Water Meter Programme to track usage and save water.</u>² Progressive roll-out of 300,000 smart water meters across residential, commercial, and industrial premises in Bukit Batok, Hougang, Tampines, Jurong West, Tuas, and new housing estates in Tampines North and Tengah. Meter installation has commenced in Tampines Central from January 2022.
	<ol style="list-style-type: none"> "Reduce, Reuse and Recycle" as a norm for citizens and businesses, with a national strategy to address e-waste, packaging waste and food waste 	<ul style="list-style-type: none"> (2026) Reduce the amount of waste-to-landfill per capita per day by 20%, or 0.29 kg/capita/day (2030) Reduce the amount of waste-to-landfill per capita per day by 30%, or 	<ul style="list-style-type: none"> [New] <u>Minimum charge of five cents per disposable carrier bag will be implemented at larger supermarkets in mid-2023 to encourage more sustainable consumption.</u> Supermarket operators will be required to publish information on the number of bags issued, amount of proceeds received from the bag charge, and how the proceeds are used.

¹ This is due to the COVID-19 pandemic, which resulted in people spending more time at home because of work from home and home-based learning arrangements, and increase in washing and cleaning by households to maintain higher hygiene standards.

² The smart water meters, complemented by a new web portal, allow users to view their near real-time water consumption data and receive alerts on suspected leaks and high usage so that they can optimise their water usage and fix leaks promptly.

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
SINGAPORE

ANNEX F: UPDATE ON KEY TARGETS AND INITIATIVES OF THE SINGAPORE GREEN PLAN 2030

[Note: Targets and initiatives that have not been previously announced are labelled 'New'. Targets and initiatives announced since the launch of the Green Plan are labelled 'Update'.]

S/N:	Sub-Thrusts and Initiatives:	(Year to Achieve) Targets:	Key Progress (as of Dec 2021 unless stated otherwise):
		0.25 kg/capita/day	<ul style="list-style-type: none"> [Update] <u>E-waste Extended Producer Responsibility scheme</u>. Since the scheme started in July 2021, around 3,500 tonnes of consumer e-waste have been collected for recycling and the extraction of valuable materials. [Update] <u>Turning Semakau Landfill into an urban mine</u>. NEA and MPA are carrying out a study on the use of mixed materials from Semakau Landfill as reclamation fill. If successful, this will contribute to our efforts to extend the lifespan of Semakau Landfill beyond 2035. <u>Encouraging Singaporeans to embrace recycling as a way of life</u>. NEA has partnered the Singapore Institute of Technology to design a recycling container to encourage the segregation of recyclables from general waste. These containers will be distributed to households in 2022.
b	Green Commutes	(2030s) Achieve 75% mass public transport (i.e. rail and bus) peak-period modal share	<ul style="list-style-type: none"> In 2019, peak-period mass public transport modal share was 64%.
	i. Expand rail network with new stations or lines opening almost every year over this decade	(2030s) Expand rail network to 360km by early 2030s	<ul style="list-style-type: none"> Rail network has expanded to 245km, with opening of Thomson-East Coast Line Stage 2 in Aug 2021.
	ii. Purchase only cleaner-energy		

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
SINGAPORE

ANNEX F: UPDATE ON KEY TARGETS AND INITIATIVES OF THE SINGAPORE GREEN PLAN 2030

[Note: Targets and initiatives that have not been previously announced are labelled 'New'. Targets and initiatives announced since the launch of the Green Plan are labelled 'Update'.]

S/N:	Sub-Thrusts and Initiatives:	(Year to Achieve) Targets:	Key Progress (as of Dec 2021 unless stated otherwise):
	<p>public buses going forward</p> <p>iii. Encourage walking and cycling, by expanding the cycling network and repurposing roads for active mobility uses where possible</p> <p>iv. Develop new town concepts</p>	<p>(2030) Increase cycling paths to 1,300km</p>	<ul style="list-style-type: none"> Completed new cycling paths in Taman Jurong and Tampines in 4Q 2021. Total cycling path network is now ~500km.
c	<p>Eco Stewardship Programme</p> <p>i. Curriculum – Enhancing Humanities, Science and Character and Citizenship Education curricula to strengthen the teaching of sustainability concepts</p> <p>ii. Campus – Progressively deploying sustainability features to reduce net carbon emissions in schools</p> <p>iii. Culture – Developing an Eco Stewardship Programme</p>	<p>2030 Targets:</p> <ul style="list-style-type: none"> Achieve a two-thirds reduction of net carbon emissions from the school sector At least 20% of schools to be carbon neutral 	<ul style="list-style-type: none"> Our schools are making good progress on the goals of two-thirds reduction of net carbon emissions, and for 20% of schools to be carbon neutral by 2030. <ul style="list-style-type: none"> Thus far, 33 schools have installed solar panels. About 75% of schools are expected to complete installation of solar panels by 2025. [New] Development of an Eco Stewardship Programme (ESP) Toolkit to guide schools on enhancing environmental sustainability concepts in the curriculum. Schools will incorporate sustainability practices and habits in student development experiences, and enrichment programmes will be made available to all schools in 2022.

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
SINGAPORE

ANNEX F: UPDATE ON KEY TARGETS AND INITIATIVES OF THE SINGAPORE GREEN PLAN 2030

[Note: Targets and initiatives that have not been previously announced are labelled 'New'. Targets and initiatives announced since the launch of the Green Plan are labelled 'Update'.]

S/N:	Sub-Thrusts and Initiatives:	(Year to Achieve) Targets:	Key Progress (as of Dec 2021 unless stated otherwise):
	<p>Toolkit to share good practices and resources among schools</p> <p>iv. Community – Advancing community partnerships through Values in Action and Education and Career Guidance to groom sustainability leaders of the future</p> <p>Building on existing sustainability efforts in the IHLs</p> <p>All IHLs will continue to champion sustainability efforts so students and working adults can contribute to the green economy.</p>		<ul style="list-style-type: none"> • [New] The four ESP pilot schools³ are trialling digital learning resources on carbon footprint and sustainability concepts. These will be progressively made available to all schools from this year.

³ The four schools are Elias Park Primary School, Mee Toh School, Commonwealth Secondary School and Tampines Secondary School.

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
CONNECTING SINGAPORE

Energy Reset

a	Green Energy <ul style="list-style-type: none"> i. Increase efficiency with each new generation of gas-fired power plant to reduce carbon emissions ii. Green Singapore's electricity supply by tapping on the low-carbon potential of clean electricity imports iii. Adopt sustainable fuels for international trade and travel iv. Increase solar deployment together with the deployment of energy storage to address solar intermittency, enhance grid resilience, and support the transition towards a greener energy mix 	<ul style="list-style-type: none"> • (2025) Increase solar energy deployment to 1.5 GWp, which can meet around 2% of 2025 projected electricity demand • (2030) Increase solar energy deployment to at least 2 GWp, which can meet around 3% of 2030 projected electricity demand <p>(2030) Best-in-class generation technology that meets heat-rate/emissions standards and reduces carbon emissions</p>	Solar Deployment <ul style="list-style-type: none"> • As of 2Q 2021, installed solar photovoltaic (PV) capacity of 527 MWp. Increase Efficiency of Gas-fired Power Plants <ul style="list-style-type: none"> • [Update] Under the first Genco Energy Efficiency (EE) Grant, Call, \$37M was awarded to Senoko Energy, Tuas Power Generation, YTL PowerSeraya and PacificLight Power. The supported projects are expected to reduce carbon emissions by over 48 kilo tonnes per annum. Proposal evaluations for the second grant call are ongoing, with selected projects to be awarded by 2H 2022. • [Update] Amended the Energy (Resilience Measures and Miscellaneous Amendments) Act 2021, passed by Parliament in Nov 2021 and which came into effect on 29 Jan 2022, amended the Electricity Act to empower EMA to, among other things, implement policies,
---	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

SG GREEN PLAN

NCCS
NATIONAL CLIMATE CHANGE SECRETARIAT
SINGAPORE

STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE

MND
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE

MTI
SINGAPORE

MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
SINGAPORE

			strategies, and measures to require electricity licensees to reduce greenhouse gas emissions.
		(2030) Diversify electricity supply with low-carbon electricity imports	<p>Low-Carbon Electricity Imports</p> <ul style="list-style-type: none"> • [Update] Three trials/pilots for low-carbon electricity imports: <ol style="list-style-type: none"> i. Appointed YTL Power Seraya for a two-year trial to import 100 megawatts (MW) of electricity from Malaysia. ii. Appointed consortium led by PacificLight Power on a pilot to import 100 MW equivalent of non-intermittent electricity from a solar farm in Indonesia. iii. Lao PDR-Thailand-Malaysia-Singapore Power Integration Project to import up to 100 MW of power from Lao PDR to Singapore via Thailand and Malaysia, as a pathfinder for multilateral electricity trade trading in the region. • [Update] Singapore plans to import up to 4 gigawatts (GW) of low-carbon electricity by 2035. First Request for Proposal (RFP) for large-scale imports (up to 1.2 GW)

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
CONNECTING SINGAPORE

			<p>launched in Nov 2021, to commence by end 2027. Second RFP for remaining quantities (up to 4 GW, less what was awarded for the first RFP) is targeted to be launched in mid-2022, to commence by end 2035.</p>
		<p>Support solar deployment with at least 200 MW of energy storage systems (ESS) beyond 2025, which can power more than 16,000 households a day</p>	<ul style="list-style-type: none"> • [Update] EMA has worked with industry partners (such as Keppel Offshore & Marine, PSA Singapore, Sembcorp Industries, SP Group, and others) on R&D over the past few years to develop and test-bed innovative ESS solutions to meet national needs and develop local ESS capabilities.

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
CONNECTING SINGAPORE

		<p>Play active and important roles in fulfilling international goals</p> <ul style="list-style-type: none"> The International Civil Aviation Organization's aspirational goals of 2% annual fuel efficiency improvement from now to 2050 and carbon neutral growth from 2020 	<p>Sustainable Aviation</p> <ul style="list-style-type: none"> [New] Reduce international transport emissions with the use of alternative sources of energy. <ul style="list-style-type: none"> Develop the Singapore Sustainable Air Hub Blueprint by early 2023 Conducted a study of the operational and commercial viability of sustainable aviation fuels (SAF) at Changi Airport with Industry partners. A SAF pilot will be conducted at Changi Airport in 3Q 2022. CAAS signed an MOU with Airbus to launch a technical feasibility study of an airport hydrogen hub and the infrastructure requirements to support future hydrogen-powered aircraft operations. <p>[New] Convened an International Advisory Panel on Sustainable Air Hub in February 2022</p>
		<ul style="list-style-type: none"> The International Maritime Organization's (IMO) target to reduce greenhouse gas (GHG) emissions from international shipping by at least 50% by 2050 compared to 2008 levels, and to phase out such GHG emissions in this century 	<p>Sustainable Maritime</p> <ul style="list-style-type: none"> [New] Maritime Singapore Decarbonisation Blueprint 2050 launched at MOT's COS 2022. <ul style="list-style-type: none"> Announced plans and targets to reduce emissions from port terminals and harbour craft in the Blueprint. Established the Global Centre for Maritime Decarbonisation in Jul 2021, which will facilitate joint projects with industry and IHLs on green technologies and fuels. Partnering the industry and international ports to drive the adoption of alternative marine fuels and put in

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
CONNECTING SINGAPORE

			<p>place globally harmonised bunkering safety standards.</p> <ul style="list-style-type: none"> Worked with IMO to roll out NextGEN portal, which enables IMO Member States and industry to share information and collaborate on decarbonisation projects, in Sep 2021.
b	<p>Greener Infrastructure and Buildings</p> <p>i. Raise the sustainability standards of buildings through the Singapore Green Building Masterplan to pave the way for a low-carbon built environment</p>	(2030) Green 80% of buildings (by GFA) by 2030	<ul style="list-style-type: none"> We have greened more than 49% of our buildings (by GFA). <ul style="list-style-type: none"> Raised minimum energy performance requirements for new buildings and existing buildings undergoing major retrofitting. Revised the Green Mark scheme to set higher energy efficiency standards and emphasise other sustainability outcomes.
		(2030) 80% of new developments to be Super Low Energy (SLE) buildings from 2030 (by GFA)	<ul style="list-style-type: none"> Over the past year, close to 7% of new buildings (by GFA) have been certified as SLE buildings. Raised requirements for public sector buildings under GreenGov.SG. All new buildings and existing buildings undergoing major retrofitting must meet GM Platinum SLE standards. Launched the Built Environment Transformation Gross Floor Area (GFA) Incentive Scheme for new developments that achieve Green Mark Platinum SLE certification (among other requirements), in Nov 2021. Enhanced requirements for sites sold under Government Land Sales (GLS) programme to drive higher ITM outcomes, including sustainability, to take effect from 2Q2022.

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
CONNECTING SINGAPORE

		(2030) Achieve 80% improvement in energy efficiency (compared to 2005 levels) for best-in-class buildings by 2030.	<ul style="list-style-type: none"> Our best-in-class green buildings have achieved 65-70% improvement in energy efficiency over 2005 levels.
ii. Improve energy efficiency of water treatment through research and development	<ul style="list-style-type: none"> Investment in desalination and used water treatment technologies such as biomimetic membrane, blue energy and step-feed membrane bioreactor 	(2025) Reduce energy consumption of desalination process from current 3.5kWh/m ³ to 2kWh/m ³ (to be proven in R&D)	Greening Water Infrastructure <ul style="list-style-type: none"> Energy consumption for desalination has been reduced to 2.6 kWh/m³ based on current R&D efforts. <u>Biomimetic membranes</u>. Scale up development of biomimetic membranes⁴, to potentially offset 0.4 and 0.2 kWh/m³ of total energy of desalination and NEWater respectively. [Update] <u>Blue energy</u>. Scale up research in blue energy⁵ at Changi Water Reclamation Plant in 2022, to potentially offset 0.5 kWh/m³ of total energy of desalination.
iii. Reduce carbon footprint of water production through adoption of renewables (e.g. solar energy)		(2021) Generate sufficient solar energy from their floating solar panels to power 100% of Singapore's waterworks	<ul style="list-style-type: none"> <u>Floating solar panels</u>. Opened the 60 MWp Sembcorp Tengeh Floating Solar Farm at Tengeh Reservoir in July 2021, which can power 100% of Singapore's water treatment plants. In August 2021, another two smaller-scale installations of 1.5MWp each at Bedok and Lower Seletar Reservoirs became operational. The total energy generated from these floating systems is equivalent to 8% of PUB's total energy needs.
iv. Improve energy and resource efficiency of used water treatment plants		<ul style="list-style-type: none"> [Update] (2025) Increase solar capacity at rooftops of PUB's facilities by 12 MWp 	<ul style="list-style-type: none"> Launched a consultancy study for large-scale floating solar PV

⁴ Biomimetic membranes mimics the way plants and animals extract freshwater from seawater.

⁵ Blue energy is harnessed from the difference in salinity between NEWater reverse osmosis (RO) brine and seawater RO brine.

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
CONNECTING SINGAPORE

			<p>systems at Pandan (44 MWp) and Lower Seletar (100 MWp) Reservoirs.</p> <ul style="list-style-type: none"> <u>Rooftop solar panels.</u> PUB currently has 4.4 MWp rooftop solar capacity spread across six facilities, and will install another 12 MWp rooftop solar systems at 14 facilities by 2025.
c	Sustainable Towns and Districts i. Improve sustainability of existing towns and estates through the 10-year HDB Green Towns Programme: <ul style="list-style-type: none"> Introduce smart LED lighting to reduce energy consumption by up to 60% Increase total solar capacity on HDB rooftops from earlier target of 220 megawatt-peak (MWp) to 540 MWp by 2030 Pilot the Urban Water Harvesting System (UWHS) to recycle rainwater for non-potable uses and help mitigate flood risk 	(2030) To achieve a further 15% reduction in annual energy consumption (on top of the 10% reduction already achieved in 2020 from 2005)	<ul style="list-style-type: none"> Town Councils will be introducing smart lighting in existing estates from 2022.
		(2030) Achieve solar capacity of 540MWp	<ul style="list-style-type: none"> HDB is on track to meet the target of 540MWp of solar PV capacity by 2030.
		(2030) Achieve up to 2°C reduction in ambient temperature by 2030: <ul style="list-style-type: none"> For the sites where cool coatings have been applied on block facades and pavements For the sites where top decks of MSCPs have been repurposed for urban farming, skyrise greenery and community gardening by 2030 	<ul style="list-style-type: none"> The cool coatings pilot in Tampines commenced in 2021 and is on track towards completion by 2024. The top decks of 16 MSCPs will be converted to urban farms. Work is in progress.
		(2030) Reduce usage of potable water by more than 50% for common	<ul style="list-style-type: none"> HDB will be piloting the UWHS at selected sites shortly

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
CONNECTING SINGAPORE

	<ul style="list-style-type: none"> • Pilot cool coating for block facades and pavements in reducing ambient temperatures • Convert top decks of suitable multi-storey carparks (MSCPs) into urban farms, community gardens and skyrise greenery to increase green cover and enhance liveability • [NEW] Provide e-waste recycling bins and Light Emitting Surfaces (LES) signage to make HDB towns more sustainable • [NEW] Install more EV chargers within HDB carparks, and build more dual bicycle racks in our housing estates to promote green commute 	<p>areas by 2030, through piloting the UWS</p> <ul style="list-style-type: none"> • Details of new initiatives will be shared at a later stage 	
ii.	Make new HDB towns greener		

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
CONNECTING SINGAPORE

	and more sustainable		
	iii. Develop Jurong Lake District as a model sustainable mixed-use district		
d	Cleaner-Energy Vehicles <ul style="list-style-type: none"> i. Narrow the upfront cost gap between mass-market electric and internal combustion engine cars ii. Improve Electric Vehicle (EV) regulations and standards iii. Expand, and facilitate the use of the EV charging network 	<ul style="list-style-type: none"> • (2025) New registrations of diesel cars and taxis to cease. • (2030) All new car and taxi registrations to be of cleaner-energy models. • (2040) All vehicles to run on cleaner energy. • [New] (2030) Bus buys from now until 2030 will be primarily electric, and 50% of the bus fleet will be electric by 2030. • [New] (2025) Over 400 diesel buses will be replaced with electric buses by 2025. • [New] The statutory lifespan of electric taxis will be extended from eight to 10 years, and at least 50% of our taxi fleet will be electric by 2030. 	<ul style="list-style-type: none"> • Electric cars formed almost 4% of all new car registrations in 2021, up from 0.2% in 2020. • 60 electric buses have been deployed.
		<ul style="list-style-type: none"> • [New] (2025) All HDB towns to be 	EV Regulations and Standards <ul style="list-style-type: none"> • LTA worked with industry

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
SINGAPORE

		<p>EV-Ready by 2025.</p> <ul style="list-style-type: none"> (2030) 60,000 charging points nationwide by 2030, including 40,000 in public carparks and 20,000 in private premises. 	<p>stakeholders and academia to complete review of the national EV charging standards, Technical Reference 25 (TR25), to accommodate new EV charging technologies while ensuring safety. Updated TR25 was published in Feb 2022.</p> <ul style="list-style-type: none"> [New] MOT and LTA will introduce legislation on EV charging in 2022. Public consultation will be launched in the coming months. <p>EV Charging Network</p> <ul style="list-style-type: none"> There are 2,300 charging points across public and private carparks as of Jan 2022. First charging points at public carparks, under the pilot EV charging tender jointly issued by URA and LTA in Nov 2020, are operational. Remaining charging points will be fully deployed over the next few months. First charging points co-funded by LTA's EV Common Charger Grant (launched in July 2021) have been installed at condominiums. [New] LTA will launch the first large-scale tender for charging points at HDB carparks later this year. [New] LTA to take the lead to plan and finance the electrical infrastructure upgrades needed at residential carparks.
Green Economy			
a	<p>Sustainability as a New Engine for Jobs and Growth</p> <p>i. Green industries' production processes and</p>	<p>(2030) Jurong Island to be a sustainable energy and chemicals park</p> <ul style="list-style-type: none"> [Update] Increase the 	<p>Greening Industries' Production Processes and Energy Use</p> <ul style="list-style-type: none"> [Update] Launched \$6mil Jurong Island Renewable Energy RFP to test-bed innovative energy solutions in

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
CONNECTING SINGAPORE

	<p>energy usage, such as transforming Jurong Island into a sustainable energy and chemicals park, and improving industries' energy efficiency</p> <ul style="list-style-type: none"> • Leverage the base of energy majors and petrochemical companies to pilot and commercialise solutions in chemical recycling of plastics, CO₂ to aggregates, and transboundary carbon capture and storage 	<p>output of sustainable products such as bio-based fuels and chemicals by 1.5 times from 2019, where sustainable products accounted for 7% of the sector's manufacturing output</p> <ul style="list-style-type: none"> • [Update] House refineries and crackers that are top quartile in the world in terms of energy efficiency • [Update] Realise at least 2 million tonnes of carbon capture potential 	<p>renewable energy, energy storage and low-carbon solutions on Jurong Island. Jurong Island Innovation Challenge launched in Aug 2021 to crowdsource innovative ideas from start-ups and SMEs and the awardees will be announced in Mar 2022 (tbc).</p>
ii.	Develop Singapore into a sustainable tourism destination	<p>(2030) Singapore as a sustainable urban destination⁷</p> <ul style="list-style-type: none"> • [Update] Sentosa being one of the first precincts to be GSTC-D certified by 2022. 	<p>Sustainable Urban Destination</p> <ul style="list-style-type: none"> • [Update] Sentosa received the Top 100 (Green) Destinations Stories award focused on sustainable destinations in 2021.
iii.	Develop Singapore as a carbon services hub, with the requisite capabilities and networks across the value chain	<ul style="list-style-type: none"> • [Update] Develop indicators to measure success, such as visitor perception of Singapore as a sustainable urban destination and number of sustainability-certified establishments. 	<ul style="list-style-type: none"> • [Update] Launched Sentosa Carbon Neutral Network, Singapore's first business alliance committed to carbon neutrality by 2030.
iv.	Develop Singapore as a leading centre for		<ul style="list-style-type: none"> • [Update] STB became a member of the Global Sustainable Tourism Council (GSTC)

⁷ STB's efforts to develop Singapore into a "sustainable urban destination" will focus on sustainable experiences, products and touchpoints from the tourism perspective.

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
CONNECTING SINGAPORE

	green finance in Asia and globally, to support a sustainable Singapore and facilitate Asia's transition to a sustainable future	<ul style="list-style-type: none"> • [Update] Make sustainability fun (e.g., allow visitors to track and offset their carbon footprint through gamification). • [New] Launch the Hotel Sustainability Roadmap 	
	v. Strengthen Singapore as a vibrant location for global and local companies to develop new sustainability solutions for Asia, with R&D as an enabler, in areas such as sustainable packaging, decarbonisation, waste upcycling, urban farming, and water treatment	(2030) Singapore as a carbon services hub in Asia	Carbon Services Hub <ul style="list-style-type: none"> • In 2021, 13 firms anchored and expanded their carbon services offerings in Singapore (e.g., McKinsey, Mercuria). • Singapore is also home to carbon marketplaces, such as Air Carbon X and [Update] Climate Impact X. • [New] Singapore successfully won the joint bid with UK's Green Finance Institute to host the executive secretariat of the Taskforce on Scaling Voluntary Markets. Singapore also joined the Voluntary Carbon Markets Initiative.
	vi. Study the potential of low-carbon hydrogen and other emerging technology pathways for decarbonisation ⁶	(2030) Singapore as the leading centre for green finance to facilitate Asia's transition to a low-carbon and sustainable future	Leading Centre for Green Finance <ul style="list-style-type: none"> • Strengthen financial sector resilience to environmental risks. <ul style="list-style-type: none"> ○ [Update] Engaged experts to understand physical risk drivers in Asia to develop climate stress tests for financial industry in 2022. • Enhance sustainability-related
	vii. Support local enterprises to adopt sustainability practices/solutions/standards, enhance their resource		

⁶ Please refer to "Green Energy" for low carbon solutions and applications in industry and power generation (under "Energy Reset" pillar).

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
SINGAPORE

	(including energy) efficiency, and capture new business opportunities in sustainability		<p>disclosures and data.</p> <ul style="list-style-type: none"> ○ [Update] Roadmaps for mandatory climate-related financial disclosures by financial institutions and listed issuers. ○ [Update] Disclosure standards for Environmental, Social and Governance (ESG) funds. ○ [Update] Harness technology to create digital and data platforms for ESG ecosystem (Project Greenprint). <ul style="list-style-type: none"> • Anchored two new centres of excellence in 2021: <ul style="list-style-type: none"> ○ [Update] Sustainable Finance Institute Asia, to support implementation of sustainable finance policies in Asia. ○ [Update] Sustainable and Green Finance Institute, to groom a talent pipeline and equip companies with the knowledge to integrate sustainability into business strategies and investment decisions. • Deployed US\$1.8bn through Green Investment Programme to catalyse greater green investment activity and expertise. • [Update] Established a \$3bn Multicurrency Medium Term Note Programme and a Green Bond Framework to catalyse the flow of capital towards sustainable infrastructure projects (e.g., Tuas Nexus Integrated Waste Management Facility).
--	-----------------------------------------------------------------------------------------	--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
CONNECTING SINGAPORE

		<p>(2030) Anchored additional new and high-quality green jobs in financial sector and ancillary services</p>	<ul style="list-style-type: none"> Support the expansion of ESG capabilities of financial institutions and service providers. <ul style="list-style-type: none"> [Update] Deutsche Bank established its ESG Centre of Excellence in Singapore. [Update] Moody's Corporation is building a suite of ESG capabilities in Singapore to spearhead its sustainable finance agenda in the region. Build a pipeline of talent in green finance. <ul style="list-style-type: none"> [Update] Launching new Sustainable Finance Technical Skills and Competencies category in Institute of Banking and Finance's Skills Framework for Financial Services.
		<p>(2030) Singapore as a leading regional centre for developing new sustainability solutions</p>	<ul style="list-style-type: none"> [Update] \$6.5mil Carbon Zero Grand Challenge by PUB. [Update] Low-Carbon Energy Research Funding Initiative (FI) awarded \$55mil to 12 proposals, covering hydrogen and carbon capture, utilisation and storage. [New] \$80mil Closing the Resource Loop Funding Initiative (FI) to encourage a circular economy approach of recovering and reusing resources. \$87mil for Centres of Excellence (Nanyang Environment and Water Research Institute and the Separation Technologies Applied Research and Translation Centre). [Update] \$25mil Marine

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
CONNECTING SINGAPORE

			<p>Climate Change Science Programme to advance the science of marine climate change and address the challenges faced by coastal and marine environments.</p> <ul style="list-style-type: none"> • [New] Close to \$18mil 'City in Nature' research pillar under Cities of Tomorrow R&D Programme. • [New] Around \$46mil 'Greater Sustainability' FI under the Cities of Tomorrow R&D Programme. • [New] \$93.0mil Research Centres for Clean Energy FI (Solar Energy Research Institute of Singapore, Energy Research Institute @ NTU and Experimental Power Grid Centre) • [Update] Sustainability Open Innovation Challenge to catalyse innovative solutions across themes such as resource efficiency, green transport, and zero waste.
Resilient Future			
a	<p>Adapt to Sea-Level Rise and Enhance Flood Resilience</p> <ol style="list-style-type: none"> Carry out studies to explore coastal protection measures Develop coastal and inland flood model to assess risks 	<p>(2030) Complete formulation of coastal adaptation plans for City-East Coast, Jurong Island and North-West Coast (Lim Chu Kang, Sungei Kadut and [Update] Western Catchment Reservoirs)</p>	<ul style="list-style-type: none"> • Commenced development of Coastal-Inland Flood Model (Apr 2021) and site-specific study (SSS) for City-East Coast (May 2021). • Enacted the Significant Infrastructure Government Loan Act (SINGA) to allow the use of borrowing proceeds to fund major infrastructure, such as coastal protection and stormwater drainage infrastructure (May 2021).

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
CONNECTING SINGAPORE

	iii. holistically Ensure sustainable and reliable funding pool		
b	Keep Singapore Cool <ol style="list-style-type: none"> Deploy an island-wide network of climate sensors Conduct research and modelling Partner industry and public in urban heat mitigation, including cool materials pilots. 	(2030) To be determined from studies	<ul style="list-style-type: none"> Embarked on three-year Cooling Singapore 2.0 research project, to develop a Digital Urban Climate Twin of Singapore to simulate urban heat distribution and effectiveness of mitigation measures (Sep 2020). Launched the first tender for a trial of cool paints to cool ambient temperatures at ~130 HDB blocks in Tampines (Sep 2021).
c	Grow Local Sustainably <ol style="list-style-type: none"> Avail space and infrastructure for sustainable agriculture and aquaculture 	(2030) Meet 30% of Singapore's nutritional needs through locally produced food	<ul style="list-style-type: none"> [Update] Concluded six-month Lim Chu Kang (LCK) Master Plan stakeholder engagement exercise in Oct 2021 and launched tender for master planning consultancy services in Dec 2021. [New] From end-2022, SFA will launch new agri-land and sea spaces on 20+10-year leases to give farmers greater certainty for their farm investments.
	ii. Enhance funding support to incentivise agri-food industry to adopt highly productive, climate-resilient, and resource-efficient farming technologies		<ul style="list-style-type: none"> Launched the 30x30 Express Grant Call in Apr 2020 to expedite local food production. [Update] Launched the \$60mil Agri-Food Cluster Transformation (ACT) Fund in Apr 2021 to co-fund local farms' capital investments in productive and sustainable farming systems. From Apr 2022, fruited vegetable, mushroom and

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
CONNECTING SINGAPORE

			shrimp farming projects will have higher co-funding quantum (50% → 70%).
	iii. Conduct R&D under the Singapore Food Story R&D Programme to drive research innovation and plug existing technological gaps in sustainable urban food production, future foods and food safety science.		<ul style="list-style-type: none"> Over \$75mil of the Singapore Food Story R&D Programme awarded to over 30 projects. Ongoing work to conduct environmental studies, as well as monitor and manage the marine environment and aquaculture diseases.
	iv. Developing a local pipeline of skilled workers for agri-food sector		<ul style="list-style-type: none"> Developed Pre-Employment Training and Continuing Education Training programmes to support students and mid-career individuals interested in the agri-tech sector.
Green Government			
a	Excel with new and more ambitious targets for the public sector, including a carbon emissions target for the first time	<ul style="list-style-type: none"> (2025) Peak the Public Service's emissions (2030) Reduce energy and water use by 10% from the average of 2018-2020 levels, and reduce amount of waste disposed of by 30% from 2022 levels 	<ul style="list-style-type: none"> [Update] Introduced targets for buildings, information technology, transport and solar.

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
CONNECTING SINGAPORE

b	Enable a sustainable economy and green citizenry by embedding sustainability in core business areas, including procurement	-	<ul style="list-style-type: none"> • [Update] Incorporated sustainability as a consideration in the evaluation of government tenders, starting with event venue and accommodation, as well as public waste collection.
c	Excite public officers to contribute to sustainability in Singapore	-	<ul style="list-style-type: none"> • [Update] Organised campaign, dialogues and seminars to promote and raise awareness of sustainability among public officers.
Green Citizenry			
a	Transform our existing towns into Eco Towns by working with 3P partners to implement sustainability projects on the ground	-	<ul style="list-style-type: none"> • Tampines, Chua Chu Kang, and Nee Soon have been earmarked as Singapore's first Eco Towns. Latest initiatives include: <ul style="list-style-type: none"> • Plans in the pipeline to set up a district cooling network at Tampines Central. • Development of an Eco Town plan in partnership with residents in Chua Chu Kang.
b	Rally stakeholders and energise the community to action	-	<ul style="list-style-type: none"> • [Update] \$6.6 mil awarded in total to 105 projects under the SG Eco Fund. • More than 25,000 stakeholders engaged through platforms that enable co-creation and action for the Green Plan as of December 2021 including: <ul style="list-style-type: none"> ○ Green Plan Conversations ○ Engagement sessions, e.g. to develop the Lim Chu Kang Master Plan and the disposable carrier bag charge model ○ Youth Action Challenge and other platforms where stakeholder groups were given the

SG GREEN PLAN



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



Ministry of Education
SINGAPORE



Ministry of Sustainability
and the Environment
SINGAPORE



MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE



MINISTRY OF
TRANSPORT
CONNECTING SINGAPORE

			<p>opportunity to co-create solutions to tackle sustainability issues</p> <ul style="list-style-type: none"> ○ Mobilisation platforms such as the MSE Climate Action Week 2021, which rallied 63 partners from 3P sectors to organise over 130 activities to nudge members of public to take climate action.
--	--	--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



Ministry of Sustainability
and the Environment
— SINGAPORE —



National
Environment
Agency
Safeguard • Nurture • Cherish

MEDIA RELEASE

FOR IMMEDIATE RELEASE

ENHANCEMENTS TO THE ENERGY EFFICIENCY FUND (E2F) – ENERGY EFFICIENT TECHNOLOGIES GRANT

The support cap will be raised from the current 50 per cent to 70 per cent of qualifying costs per project from 1 April 2022

Singapore, 8 March 2022 – The National Environment Agency (NEA) will enhance the grant support cap for energy efficient technologies under the Energy Efficiency Fund (E2F). The support cap will be raised from the current 50 per cent to 70 per cent of qualifying costs per project from 1 April 2022. This will further lower the barrier for manufacturing companies, including SMEs, to adopt energy efficient measures, which will help reduce their energy costs and carbon emissions. The grant application and disbursement process for the E2F will be simplified to help applicants save both time and costs. NEA will also work with the Singapore Institute of Technology (SIT) to develop the next phase of the Energy Efficiency Technology Centre (EETC), which offers low-cost energy assessments for SMEs. These measures will support manufacturing SMEs to identify and invest in energy efficiency projects, and to prepare for a low-carbon future.

2 NEA administers the E2F which was launched in April 2017. The E2F supports companies in the industrial sector, including small- and medium-sized enterprises (SMEs), to improve energy efficiency. The E2F supports various energy efficiency and low carbon initiatives, such as investing in energy efficient equipment or technologies, energy management information systems, water-cooled chillers using low-global warming potential refrigerant¹, energy assessments and resource efficient design of new facilities. Currently, the E2F grant scheme co-funds up to 50 per cent of the qualifying cost of such projects.

3 As of January 2022, the E2F has supported 27 energy efficient technologies projects. These include retrofits of LED lighting, high efficiency air-conditioning systems, variable speed air compressors and boiler systems. These projects have achieved an estimated annual carbon abatement of around 1,600 tonnes, which is equivalent to taking about 500 cars off the road.

Increased E2F Grant Support for Adoption of Energy Efficient Technologies

4 In order to encourage a higher take-up of the grant, NEA will increase the maximum grant support cap for adoption of energy efficient technologies, currently at 50 per cent of the qualifying costs, to 70 per cent of the qualifying costs. The grants awarded to projects will vary, based on the carbon abatement achieved. Projects that achieve higher carbon abatement are eligible for higher grant support. E2F applications received by NEA from 1 April 2022 will be eligible for this increased support cap. The industry is encouraged to take advantage of this higher support and invest early in energy efficient technologies.

¹ Global Warming Potential (GWP) is a measure of the warming effect of a gas relative to the warming effect of an equivalent mass of CO₂ usually over a 100-year time horizon

Simplifying Grant Application and Disbursement Process

5 NEA is also making it simpler for companies to utilise the E2F to save them both time and cost. The measurement and verification of energy savings will be streamlined, while grant application and disbursement processes for standard retrofits projects involving LED lighting or small energy efficient air-conditioners will be simplified.

6 The enhancements will take effect from 1 April 2022. Please refer to the **Annex** for more details on the enhanced E2F grant.

Affordable Energy Assessments with the Energy Efficiency Technology Centre (EETC)

7 Companies starting out on their energy efficiency journeys are encouraged to tap on the affordable energy assessments offered by the EETC, a collaboration between NEA and the Singapore Institute of Technology (SIT) since 2020. The energy assessments will help companies establish an accurate picture of their current energy profile, allowing them to make informed decisions on the measures they could invest in to improve their energy efficiency.

8 Over and above energy assessments, the EETC is also developing Singapore's workforce – training a pipeline of engineering students in industrial energy efficiency, and upskilling existing engineers or energy efficiency practitioners. NEA will be partnering SIT to develop the next phase of the EETC to develop manpower capabilities in energy efficiency as Singapore transits to a low-carbon economy. Enhancements to the EETC will include setting up a training-and-simulation centre to provide a facility for learners to learn and practise their craft in a controlled and safe environment, while replicating real-world conditions. More details will be announced when ready.



- End -

About the National Environment Agency

The National Environment Agency (NEA) is the leading public organisation responsible for ensuring a clean and sustainable environment for Singapore. Its key roles are to improve and sustain a clean environment, promote sustainability and resource efficiency, maintain high public health standards, provide timely and reliable meteorological information, and encourage a vibrant hawker culture. NEA works closely with its partners and the community to develop and spearhead environmental and public health initiatives and programmes. It is committed to motivating every individual to care for the environment as a way of life, in order to build a liveable and sustainable Singapore for present and future generations.

For more information, visit www.nea.gov.sg

Details on the Enhanced Energy Efficiency Fund for Energy Efficient Technologies

Grant Objective	Encourage manufacturing companies, particularly SMEs, to invest in energy efficient equipment or technologies
Grant Support	<p>Co-funding of up to 70 per cent of the qualifying costs which include:</p> <ul style="list-style-type: none"> • External manpower • Equipment or technology • Professional services <p><i>Singapore GST is excluded</i></p> <p>Disbursement requests must be audited by an external Certified Public Accountant (CPA) appointed by the company if the grant amount is more than \$100,000². All costs incurred for engaging the CPA shall be borne by the company.</p>
Grant Eligibility Criteria	All Singapore-registered owners or operators of existing or proposed manufacturing facilities (i.e. SSIC code from 10XXX to 32XXX) with group annual sales turnover of less than S\$500 million. The facility where the project will be implemented must be sited and operating in Singapore.
Project Eligibility Criteria	The project must involve installation and use of energy efficient equipment or technologies with proven track record of energy savings in an industrial facility. The project must result in measurable and verifiable energy savings.
Examples of Eligible Projects	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>LED Lightings (Efficacy of at least 100 lumens/watt)</p> </div> <div style="text-align: center;">  <p>Air-Conditioners, including Variable Refrigerant Flow (VRF) systems (Listed as 4/5 ticks under NEA's Energy Labelling Scheme)</p> </div> </div>

² Audit by an external CPA will be waived for grant amount not exceeding \$100,000.

	<div data-bbox="636 224 858 378"></div> <div data-bbox="692 423 799 454">Motors</div> <div data-bbox="549 461 949 548">(Registered as IE4 and above under NEA's Minimum Energy Performance Standard)</div> <div data-bbox="1050 224 1318 418"></div> <div data-bbox="1016 461 1358 535">Compressed Air System Dryers</div> <div data-bbox="590 629 903 808"></div> <div data-bbox="596 853 900 963">Chilled Water System Air Handling Units Refrigeration System</div> <div data-bbox="1082 629 1286 808"></div> <div data-bbox="1027 853 1347 963">Boiler System Furnaces and Ovens Heat Recovery System</div>
<p>Measurement and verification (M&V) requirement</p>	<p>M&V requirement waived for motor, lighting (excluding lighting controls), and air-conditioner (including variable refrigerant flow system) retrofit projects.</p> <p>For all other projects, applicants must submit an M&V Plan and an M&V report before and after project implementation respectively. Details include:</p> <ul style="list-style-type: none"> • M&V methodology to measure and verify the realised carbon abatement after implementation; • Baseline and post-implementation energy performance measurements; and • Carbon abatement calculations. <p>A facility-level M&V approach* can be considered when the project(s) implemented are expected to reduce facility energy consumption by at least 10 per cent of the type of consumed energy (e.g. electricity). For example, a company could implement multiple projects on separate systems that collectively yield a significant amount of energy savings.</p> <p><i>*NEA will assess on a case-by-case basis if a system-level M&V would be appropriate.</i></p>



\$220 MILLION ALLOCATED TO DRIVE NEW INITIATIVES IN WATER TECHNOLOGIES AND RESOURCE CIRCULARITY UNDER RIE2025

8 MARCH 2022 – The Government has allocated \$220 million under the Research, Innovation and Enterprise 2025 (RIE2025) Urban Solutions & Sustainability (USS) domain to drive new initiatives in water technologies and resource circularity. This draws from the National Research Fund, under the five-year RIE2025 tranche. These initiatives will help us achieve our ambitious Singapore Green Plan 2030 targets while optimising our limited resources.

Closing the Resource Loop Funding Initiative

2 Of this, the National Environment Agency (NEA) will administer a new \$80 million Closing the Resource Loop (CTRL) Funding Initiative that supports the Green Plan and the Zero Waste Masterplan. The funding will support research and development (R&D) on sustainable resource recovery solutions for key waste streams such as e-waste, plastics and food, and finding useful and safe applications for treated waste residues.

3 The new \$80 million CTRL Funding Initiative will build upon the R&D work carried out under the earlier Waste-to-Energy (WtE) programme and the Closing the Waste Loop (CTWL) Funding Initiative. The CTRL Funding Initiative will support the implementation of the waste-related initiatives under the Green Plan through capabilities arising from the R&D, with greater efforts on technology translation and test-bedding efforts. CTRL will contribute to our efforts to pursue a circular economy approach under the Zero Waste Masterplan to achieve a sustainable, resource-efficient, and climate-resilient Singapore. [See [Annex A](#) for more details.]

Centres of Excellence Programme for Water Technology R&D

4 Another \$87 million has been allocated to support R&D efforts in three water technology focus areas: (i) Desalination and Water Reuse; ii) Used Water Treatment; and iii) Waste Reduction and Resource Recovery under the RIE2025. The funding will go towards supporting the Nanyang Environment and Water Research Institute (NEWRI) and Separation Technologies Applied Research and Translation (START) under the Centre of Excellence (CoE) Programme. These Centres of Excellence have amassed considerable capabilities in R&D, attracting talent and investments from all over the world, and enriching Singapore's water industry.

5 The investments in these Centres of Excellence will go towards developing high impact solutions for our national water needs. It will also be an economic multiplier and will spur private sector R&D spending, jobs creation and technology spin-offs in the water industry and adjacent sectors. For example, under RIE2020, NEWRI has deployed nine technologies with local and global applications in areas such as water purification, and anchored investments from global companies in Singapore.

New Desalination Integrated Validation Plant to be Commissioned

6 In RIE2025, PUB will require START to build on its existing achievements and deepen its expertise in separate technologies for desalination through the design and operation of a Desalination Integrated Validation Plant (IVP). The IVP will integrate the most promising technologies, configure and optimise them at the system level to validate if lower energy consumption and superior performance can be achieved. If successful, the IVP will reduce the

system-level energy consumption of desalination to $<2\text{kWh/m}^3$, taking PUB one step closer to attaining net-zero carbon emissions by mid-century. [See [Annex B](#) for more details.]

7 Through our investments in RIE2025, we will continue to create and capture economic value, and find new solutions that can help Singapore and the rest of the world move towards a green and low-carbon future.

- End -

About the Ministry of Sustainability and the Environment

The Ministry of Sustainability and the Environment (MSE) is committed to providing Singaporeans with a clean and sustainable environment, and resilient supplies of safe food and water.

MSE works alongside its three statutory boards – the National Environment Agency (NEA), PUB, Singapore's National Water Agency, and the Singapore Food Agency (SFA) – to achieve this mission through innovation, technology, and vibrant partnerships with the private, public, and people (3P) sectors.

For more information, please visit <http://www.mse.gov.sg/>

CLOSING THE RESOURCE LOOP FUNDING INITIATIVE

Background

In 2014, NEA was awarded \$25 million under RIE2015 for the Waste-to-Energy (WtE) programme to enhance energy and resource recovery from Singapore's municipal solid waste via R&D. In 2017, a further \$45 million was awarded to NEA under RIE2020 for the Closing the Waste Loop (CTWL) Funding Initiative. Both are intended to tackle the challenges posed by the increasing generation of waste, scarcity of resources and land constraints for waste management through R&D.

2 Singapore's Zero Waste Masterplan, launched in 2019, charts the path towards the vision of a Zero Waste Nation. It sets out national waste management targets to:

- a) Achieve a 70 per cent overall recycling rate; and
- b) Reduce the amount of waste sent to Semakau Landfill per capita per day by 30 per cent by 2030.

3 Under the Singapore Green Plan 2030, the goal is to frontload national efforts and achieve a 20 per cent reduction in waste-to-landfill per capita per day within five years (or by 2026).

4 Our efforts to close the waste loops of three key priority waste streams – e-waste, packaging (including plastic) waste and food waste – will contribute to achieving national waste targets and extending the lifespan of Semakau Landfill beyond 2035. The Green Plan also strengthens Singapore's commitments under the UN 2030 Agenda for Sustainable Development and the Paris Agreement.

Closing the Resource Loop (CTRL) Funding Initiative

5 The main objectives¹ for the CTRL Funding Initiative are as follows:

- a) Increase resource recovery: To achieve 70 per cent overall recycling rate by 2030;
- b) Increase landfill lifespan: To reduce the daily per-capita amount of waste sent to landfill by 20 per cent by 2026, and 30 per cent by 2030, thereby extending the lifespan of Semakau Landfill beyond 2035; and
- c) Promote environmental sustainability: To develop sustainable and environmentally friendly solutions, that are adopted and commercialised.

6 Additional goals for the CTRL Funding Initiative include raising digitalisation and automation, as well as mitigating carbon emissions, which apply across the following three R&D tracks:

- a) **Resource Recovery:** Treatment and recovery of resources from three key waste streams: e-waste, plastic waste, and food waste, as well as other waste streams such as paper, horticulture, and wood generated in large quantities;
- b) **Residues as Resources:** Treatment of residue streams, e.g., incineration bottom ash, incineration fly ash, non-incinerable waste and mixed materials that can be recovered from Semakau Landfill and their safe applications of these treated

¹ These objectives are to be achieved together with policy interventions and industry adoption.

materials (e.g., non-structural concrete, caisson infill, sea embankment and land reclamation); and

- c) **Rethinking Energy from Waste:** Novel solutions to maximise energy and resource recovery and minimise carbon footprint.

Upcoming plans for CTRL Funding Initiative

7 NEA will be launching a series of competitive grant calls along these R&D tracks over the next five years. Institutes of higher learning, research institutes and private sector partners are welcome to participate in these grant calls.

- End -

CENTRE OF EXCELLENCE PROGRAMME FOR WATER TECHNOLOGY R&D

The Centre of Excellence (CoE) Programme, established in 2006, aims to develop world-class research centres in key water technology areas. The CoE Programme provides funding to CoEs located within our local Institutes of Higher Learning to build up critical R&D expertise, engage industry in collaborative innovation and research, and also serve as training receptacles for R&D talent.

2 Formed in 2008, the Nanyang Environment and Water Research Institute (NEWRI) is a global research institute based in the Nanyang Technological University (NTU). It has been carrying out research activities with PUB and the industry, to reduce the water sector's energy dependency, improve real-time water quality monitoring, and reduce industrial water consumption. In RIE2020, NEWRI was awarded funding to build strong linkages with the industry and develop technologies with strong commercialisation potential.

3 Separation Technologies Applied Research and Translation (START) was launched in 2016 to translate innovative technologies to commercial products. Over the past five years, START has developed broad capabilities in membrane fabrication at industrial scale; the design, construction and testing of elements and modules; and the design of pilot systems for testing in real-life scenarios. This has enabled START to conduct 15 translational projects involving collaborations with industry.

4 CoEs will work on new technologies that contribute to the key outcomes of:

- a) Reducing energy consumption of desalination from current R&D achievement of 2.6kWh/m³ to <2kWh/m³
- b) Improving used water treatment energy self-sufficiency from current R&D achievement of 85% to 95%
- c) Reducing the amount of dewatered sludge to be incinerated from 0.16 kg dry solids/m³ used water to 0.11 kg dry solids/m³ used water

- End -



FACTSHEET

26 PROJECTS AWARDED \$2.6M FUNDING UNDER SG ECO FUND'S SECOND GRANT CALL

1 26 more projects have been awarded funding of \$2.6 million under the SG Eco Fund's second grant call. These projects are from the Main category and range from community gardens and wildlife conservation, to recycling and gamification of sustainable practices.

2 This brings the total number of successful applications under the second grant call to 68. Funding for 42 projects under the Sprout category was announced earlier in December 2021. The new Sprout category was introduced during the Fund's second grant call to simplify the application process for projects seeking funding of up to S\$10,000. The evaluation process is also faster, typically taking about two months from the close of the grant call, compared to four months for Main category applications. A total of 241 applications were received during the second grant call, which was open from 26 August to 17 October 2021. Please refer to the **Annex** for the full list of awarded projects.

3 Since its launch, 105 individuals and organisations have been awarded a total of \$6.6 million from the SG Eco Fund to support their ground-up sustainability initiatives. The \$50 million SG Eco Fund was launched in November 2020 by the Ministry of Sustainability and the Environment. The Fund supports ground-up projects that involve the community and advance environmental sustainability in Singapore, including climate change mitigation, waste reduction, as well as the conservation of nature and biodiversity.

5 Interested applicants can learn more about the SG Eco Fund at www.mse.gov.sg/sgecofund and look out for future grant calls.

- End -

About the Ministry of Sustainability and the Environment

The Ministry of Sustainability and the Environment (MSE) is committed to providing Singaporeans with a clean and sustainable environment, and resilient supplies of safe food and water.

MSE works alongside its three statutory boards – the National Environment Agency (NEA), PUB, Singapore's National Water Agency, and the Singapore Food Agency (SFA) – to achieve this mission through innovation, technology, and vibrant partnerships with the private, public, and people (3P) sectors.

For more information, please visit <http://www.mse.gov.sg/>

AWARDED PROJECTS FOR SG ECO FUND 2nd GRANT CALL MAIN CATEGORY
(Between \$10,000 - \$1,000,000 in funding)

S/N	Recipient/Organisation	Project Title and Summary
1.	Beyond Social Services	<u>Bukit Ho Swee Food Security and Circularity Hub</u> <ul style="list-style-type: none"> Establish an edible community garden and community kitchen Conduct gardening and cooking workshops to support the nutritional needs of the community
2.	Brickland Citizens' Consultative Committee	<u>Re:Purpose, Re:New, Re:Gen – Increasing Awareness, Encouraging Involvement, Educating through Action</u> <ul style="list-style-type: none"> Engage residents to collect and upcycle unwanted materials (e.g. plastics, fabric, wood and e-waste) into products for public spaces and homes Partner with Ngee Ann Polytechnic students to design and develop upcycled products Conduct roving exhibitions and upcycling workshops to raise awareness and showcase upcycled products
3.	Butcher Polish Pte Ltd	<u>Minus1Bottle: Plastic-Free Cleaning Detergent Vending Machines</u> <ul style="list-style-type: none"> Pilot packaging-free vending machines that dispense multi-purpose and eco-friendly cleaning chemicals for residents to collect using their own upcycled containers Train and deploy volunteers to educate the public on the environmental costs of single-use plastics and conduct collection drives for plastic containers
4.	F&N Food Pte Ltd	<u>Recycle N Save 2.0</u> <ul style="list-style-type: none"> Deploy Reverse Vending Machines (RVMs) at new locations to encourage more members of public to recycle empty beverage containers and study behavioural patterns Conduct outreach and engagement activities in schools, such as recycling competitions, assembly talks, student projects and themed missions

		<ul style="list-style-type: none"> Partner with artists and designers to upcycle the beverage containers into 3D printed artworks such as benches and planters
5.	Heartbeat@Bedok	<u>Food Waste Segregation and Treatment Project at Heartbeat@Bedok</u> <ul style="list-style-type: none"> Install an on-site food waste digester to recycle food waste generated by F&B tenants at Heartbeat@Bedok Compost will be distributed to residents and used for landscaping at Heartbeat@Bedok Conduct monthly go-green programmes to raise awareness about sustainability
6.	Hong Kah North Citizens' Consultative Committee	<u>HKN ECO Hub</u> <ul style="list-style-type: none"> Set up an Eco Hub which comprises exhibits on energy efficiency and recycling, a message board to promote used goods exchange, and a rooftop edible community garden for residents to grow edibles Conduct community programmes such as recycling collection drives, repair workshops, and green handicraft and home-gardening workshops
7.	Huang Yi Quan, Tan Lay Hoon, Chee Chin Yong, Felicia Tan Bee Lay	<u>Create an Eco Friendly, Healthy & Sustainable Environment in Tse Tho Aum Temple & Community</u> <ul style="list-style-type: none"> Convert underutilised carpark spaces into an aeroponic community garden to grow edibles Conduct monthly workshops to educate the community on edible gardening
8.	Insect Feed Technologies	<u>The Ark @Republic Poly – Securing the Future of Our Food Together</u> <ul style="list-style-type: none"> Establish a modular Black Soldier Flies waste processing facility at Republic Polytechnic to recycle food waste into fertiliser and animal feed Engage students and residents in the collection and recycling of food waste through food waste drop-off points and upcycling activities
9.	National Library Board	<u>Library 2121</u> <ul style="list-style-type: none"> Design and deploy an interactive installation at various public locations to showcase sustainability issues and green products

		<ul style="list-style-type: none"> • Collaborate with Plastic Lite SG and the community to develop an eBook on Singapore's environmental memories • Work with green community groups to design and produce book benches made from upcycled material • Benches, which will be deployed at parks across Singapore, will showcase environmental messages and resources
10.	Nee Soon South Citizens' Consultative Committee	<u>Moving Towards Low Food Waste Community</u> <ul style="list-style-type: none"> • Set up a Black Soldier Flies composting hub and community bins to collect food waste from residents and F&B outlets, and recycle it into compost • Train volunteers as sustainability ambassadors, and conduct workshops on food waste management and composting
11.	Netatech Pte Ltd	<u>Farm For Diversity</u> <ul style="list-style-type: none"> • Set up an urban rooftop farm at MINDS Woodlands and train Persons with Disabilities (PWDs) to grow edibles • Partner with MINDS to produce training programmes that will be developed into an urban farming playbook for the PWD community
12.	People's Association (Zhenghua Constituency Office)	<u>Sustainable Community Gardens</u> <ul style="list-style-type: none"> • Set up food waste composting machines at community gardens across the division • Install wall art infographic to educate the community on food wastage and the recycling process • Train community gardeners as food waste recycling ambassadors to educate residents and manage the composting machines
13.	Post-Museum	<u>Renew Earth Sweat Shop (3rd Edition)</u> <ul style="list-style-type: none"> • Partner schools and organisations to conduct workshops on how to reuse and repurpose textile waste
14.	Pui Cuifen, Chen Ching Wei	<u>Project Black Gold 2.0</u> <ul style="list-style-type: none"> • Expand existing community compost sites and engage new audiences in compost-making

		through educational videos and compost-making sessions
15.	Radin Mas Community Club	<u>Smart Rooftop Garden</u> <ul style="list-style-type: none"> • Set up a rooftop community garden to grow edibles • Conduct workshops on agri-tech, sustainability and food security for schools and the community
16.	SeedFuel Pte Ltd	<u>FoodCycle: Towards a More Sustainable Singapore</u> <ul style="list-style-type: none"> • Create a circular and sustainable community food production model at a community garden in Nee Soon East with a solar-powered aerobic dry digester • Train and engage nearby residents, schools and F&B businesses to contribute their food waste and participate in gardening activities
17.	Singapore Islamic Scholars and Religious Teachers Association (PERGAS)	<u>PERGAS Green Space</u> <ul style="list-style-type: none"> • Install a rooftop hydroponics garden to engage volunteers in the Malay-Muslim community to grow edibles • Partner with CLF Mendaki to promote urban farming and sustainability-related activities
18.	Singapore Management University (SMU)	<u>A Sustainable City Campus – Driving Waste to Zero</u> <ul style="list-style-type: none"> • Develop a waste management programme which will include installing smart waste compactors and food waste digestors, as well as engaging F&B tenants, staff and students to reduce and recycle their food waste • Use Artificial Intelligence to analyse food waste and improve the waste management process in SMU
19.	Singapore Zoological Gardens	<u>“Ranger Academy” Platform for Primary Schools</u> <ul style="list-style-type: none"> • Implement an interactive plug-and-play school programme to educate students on wildlife conservation and environmental sustainability • Students will embark on environment-themed missions and complete a series of activities related to sustainability
20.	Sport Singapore	<u>Sustainable Green Community @ Bukit Canberra</u>

		<ul style="list-style-type: none"> Implement a hydroponics gardening programme at Bukit Canberra Integrated Hub, which includes growing edible produce and organising activities on food sustainability topics Harvest will be distributed to the needy residents in Sembawang
21.	SusGain Pte Ltd	<u>Driving Sustainable Behaviour Change Among 3 GenZ Communities in Singapore</u> <ul style="list-style-type: none"> Run sustainability challenges in educational institutions using the SusGain application to encourage the adoption of sustainable practices
22.	Sustainable Living Lab	<u>Reverse Repair Kopitiam</u> <ul style="list-style-type: none"> Conduct repair visits in low-income communities to promote repair as a waste reduction approach Train and empower members of low-income communities to become local handymen for their community
23.	Felicia Tan, Semuel Soong, Oliver Tan, Song Yong How	<u>The Giving Garden - Learning, Sharing, and Giving</u> <ul style="list-style-type: none"> Set up a community garden to produce vegetables for distribution to the residents Conduct monthly workshops on farming and gardening-related topics
24.	U Farm Pte Ltd	<u>U Farm - Growing Human, Social and Natural Capital Through Farms in Communities</u> <ul style="list-style-type: none"> Set up a farm, which will employ Persons with Disabilities Conduct workshops to engage residents on farming and sustainability Collaborate with Pasir Ris Constituency Office and Sustainability Action Group to implement Applied Learning Programmes for schools
25.	Uniqtech Entertainment D1 Racing	<u>D1 for Community 0W 0C</u> <ul style="list-style-type: none"> Conduct eco-friendly drone racing events Involve the community in collecting and upcycling waste to create drones and assets for drone-racing
26.	WWFS Conservation Fund	<u>Cyber Spotters 2.0</u>

		<ul style="list-style-type: none"> • Partner organisations and the community to address illegal wildlife trade • This includes training volunteers to identify and remove such online listings
--	--	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

AWARDED PROJECTS FOR SG ECO FUND 2nd GRANT CALL SPROUT CATEGORY
(Up to \$10,000 in funding)

S/N	Recipient/Organisation	Project Title and Summary
27.	ACS International	<u>Compost for the Community</u> <ul style="list-style-type: none"> • Establish a food waste recycling programme and run composting workshops for the school community and parents
28.	Amplefresh Pte Ltd	<u>Singapore Food Sustainability Community Engagement</u> <ul style="list-style-type: none"> • Organise programmes at Choa Chu Kang Public Library to educate the community on food security issues, such as food production and food waste
29.	Buddhist Compassion Relief Tzu-Chi Foundation (Singapore)	<u>Tzu Chi x PaGamO Environmental Education E-sports World Cup - Singapore Region</u> <ul style="list-style-type: none"> • Organise an environmental online competition that covers nine topics • Training sessions will be conducted to build participants' knowledge of environmental issues
30.	Cassandra Yip Ai Lin, Sheryl Chan Si Ern, Po Qian Hwee, Dennis Tan Wei Jie, Audrey Lim Ya Zi, Syam Lekshmi, Tasha Phua Xinci (members of Earth School Singapore)	<u>Student Heroes in Environmental Leadership Development (SHIELD) 2022</u> <ul style="list-style-type: none"> • Organise an environmental education programme to train and groom student leaders from primary schools • Student leaders will be mentored to implement an environmental project in the community
31.	Chua Chu Kang Citizens' Consultative Committee	<u>Giving Food Waste a Purpose</u> <ul style="list-style-type: none"> • Collect food waste from the community and recycle it into compost via vermicomposting • Train community gardeners on vermicomposting, who will then go on to

		educate residents on turning food waste into compost
32.	EM Services Pte Ltd	<u>Enhancing Nature and Biodiversity in HDB Estates with Biodiversity Nodes</u> <ul style="list-style-type: none"> • Create biodiversity nodes in Tiong Bahru, Bukit Merah View and Kim Tian to attract butterflies, bees and birds and promote pollination using pollinator-attracting plants • Once established, run engagement programmes with preschools to expose children to horti-tech and biodiversity in their neighbourhood
33.	Go Green Sparks Ltd	<u>Community Online/Offline Workshops</u> <ul style="list-style-type: none"> • Recruit and train volunteers to organise sustainability-related activities and engage the community
34.	Greensquare Pte Ltd	<u>Greensquare Community Engagement</u> <ul style="list-style-type: none"> • Set up textile waste collection points at community centres and malls and educate the public on textile waste
35.	Hang Ying Qi, Amelia Teo Wei Fang	<u>Toh Yi Community Compost</u> <ul style="list-style-type: none"> • Implement a volunteer-managed community compost programme in Toh Yi estate
36.	Happy Universe LLP	<u>Train the Teacher on Environmental Care Activities</u> <ul style="list-style-type: none"> • Train kindergarten educators to deliver an eight-session sustainability curriculum
37.	HEB Ashram Halfway House	<u>Sustainability of Eco Garden</u> <ul style="list-style-type: none"> • Revamp the existing garden to include new and improved planting areas and an aquaponics setup • Local community and family members of the residents will be engaged through gardening-related activities
38.	Hwa Chong Institution	<u>Building a Circular and Resilient Food Community System with Insects</u>

		<ul style="list-style-type: none"> • Set up a food waste management system and research facility using Black Soldier Flies • School community will be involved in segregating and upcycling food waste, and conducting research on food waste valorisation
39.	Interseed	<u>Sustainability Initiatives Map</u> <ul style="list-style-type: none"> • Build an interactive dashboard of “sustainability initiatives near me” for their existing digital platform, which will help the public find sustainability programmes according to their interest, commitment level and location
40.	Koh Jia An Matthew, Timothy Chee	<u>BAUM Movement</u> <ul style="list-style-type: none"> • Enhance the sustainable investing digital platform with community features, resources and events on sustainable investing • Users of the online platform will be able to build their own investment portfolio based on the Environmental, Social, Governance (ESG) information provided
41.	Land Transport Authority	<u>Upcycling of Train Seats</u> <ul style="list-style-type: none"> • Work with students from ITE College West, Rapid Transit Engineering Department, to upcycle and refurbish MRT cabin seats from decommissioned trains • Refurbished seats will be placed in public locations for the community to use
42.	Lim Hui Zhen, Kruthika Eswaran, Terese Anne Teoh Hui Shan, Aarti Giri (members of Plastic-Lite SG)	<u>Bounce Bags - Share Bags for Our Shared Planet</u> <ul style="list-style-type: none"> • Implement reusable bag sharing points at public locations, and conduct bag collection drives with the community
43.	Maple Bear Academy Pte Ltd	<u>Little Green Fingers</u> <ul style="list-style-type: none"> • Build an edible garden in the preschool for children to gain hands-on experience of growing edible plants • A portion of the harvest will be donated to community organisations
44.	Maya Hari, John Desmond Sheehy,	<u>Share the Green - 65 Pasir Panjang</u>

	Huang Huanmin	<ul style="list-style-type: none"> Partner Shopback and ThirdSpace to build an edible community garden and run community programmes
45.	Moulmein-Cairnhill CCC (OurGreenMoCa)	<u>Keep Pek Kio Clean and Green</u> <ul style="list-style-type: none"> Design and install an exhibition comprising education boards and a “rubbish tracker” within the community to raise awareness about littering and recycling
46.	Moulmein-Cairnhill CCC (OurGreenMoCa)	<u>Therapeutic & Edible Garden for Seniors</u> <ul style="list-style-type: none"> Build a senior-friendly garden and conduct various gardening activities for the community
47.	Mushroom World	<u>Diverting Food Waste from Incineration to Grow Edible Mushrooms and Biodegradable Products</u> <ul style="list-style-type: none"> Conduct workshops and hands-on activities to teach the community how to repurpose waste for mushroom cultivation
48.	Neo Zhi Xuan, Zheng Junze, Gaurav Keerthi, Gillianne Papasine	<u>Recycle Go Where</u> <ul style="list-style-type: none"> Develop a web application that provides users with information on where and how to recycle specific items in Singapore
49.	Ng Kok Keong, Lim Lee Kem, Yu Soh Jen	<u>The Green Wall of Singapore</u> <ul style="list-style-type: none"> Pilot an automated vertical hydroponics set-up at Jurong Pioneer Junior College and train students to conduct urban farming
50.	Ng Ziyan Derlyn, Teo Yu Ning, Serini Upeksha Rajaguru, Ying Fangfei Anna	<u>k.sugi</u> <ul style="list-style-type: none"> Recycle plastic and food waste into 3D printed products, and provide a source of income for lower-income mothers
51.	Nova Ceceliana Nelson, Ma Kin Hong	<u>Closed Loop Collective</u> <ul style="list-style-type: none"> Design a closed-loop self-sustaining grow bed system at Goodman Grows Community Farm, which integrates hydroponics, aeroponics and vermicomposting to grow herbs and vegetables

		<ul style="list-style-type: none"> Food waste will be collected from neighbourhood businesses and converted into compost
52.	Nurture Tots Preschool Pte Ltd	<u>Urban Farming Edu-tainment for the Young at Heart</u> <ul style="list-style-type: none"> Establish an inter-generational urban farming programme that engages pre-school kids, parents and grandparents on food resilience and farming concepts through a hydroponics setup at the preschool
53.	Pack It Collective Pte Ltd	<u>How to Reduce Plastics Usage in E-commerce?</u> <ul style="list-style-type: none"> Collect and upcycle cardboard waste from e-commerce businesses into a honeycomb material, which can be used to replace plastic wrap for e-commerce delivery of goods
54.	PCF Sparkletots Preschool @ Sengkang East Blk 143	<u>Planting for a Sustainable Singapore in Horizon and Sparkletots Secret Garden</u> <ul style="list-style-type: none"> Build an edible community garden to teach pre-schoolers about vegetable cultivation and composting
55.	Pinevale Condominium	<u>Pinevale by the Bay</u> <ul style="list-style-type: none"> Create an edible garden to engage residents living within and in the vicinity of the condominium on environmental concepts such as farming and composting
56.	Ping An Green Residents' Committee	<u>Composters@ChaiChee</u> <ul style="list-style-type: none"> Start a food waste reduction programme, which includes workshops, house visits and a central composting set-up within the neighbourhood.
57.	Semula Pte Ltd	<u>I Love Tampines - A Passion Project by Semula</u> <ul style="list-style-type: none"> Work with North East CDC to conduct plastic collection drives and plastic recycling workshops
58.	Stridy Limited	<u>Stridy Limited</u>

		<ul style="list-style-type: none"> Introduce new features to the Stridy litter-picking app to help establish new partnerships, conduct litter-picking events, and encourage more community members to pick up litter
59.	Soh Bee Ling, Soh Chye Ann	<u>Eco-Enable Art</u> <ul style="list-style-type: none"> Conduct a series of workshops which senior participants can attend to discuss various environmental topics, create art pieces based on environmental themes, and make pro-environmental lifestyle changes post-workshop
60.	Tan Jing Xiang, Nicholas Chin Hao Rong	<u>Rejuvenation Via Waste</u> <ul style="list-style-type: none"> Set up composting facilities on the rooftop of Beauty World Centre and engage the community to donate their food waste and attend composting workshops
61.	Tembusu CSR	<u>Sustainability Animated Videos</u> <ul style="list-style-type: none"> Create animated videos on environmental topics such as plastic waste. Children will be invited to participate in an environmental challenge
62.	The Green Collective SG Pte Ltd	<u>Composting Kampung</u> <ul style="list-style-type: none"> Recruit and train green advocates on home composting, who will then train members from their own communities
63.	The Saturday Movement	<u>Lengkok Bahru Edible Community Farm</u> <ul style="list-style-type: none"> Set up an edible community farm and train resident volunteers on how to farm
64.	Waterways Watch Society	<u>ECO Bike Tour</u> <ul style="list-style-type: none"> Conduct guided bicycle tours at Jurong Lake Gardens The tours will include an educational sharing on biodiversity in Singapore and the impacts of litter, as well as a litter-picking activity
65.	William Lee	<u>Upcycling of the Plastic Bottles</u>

		<ul style="list-style-type: none"> Collect used plastic bottles in the school and teach students how to upcycle the plastic bottles into self-watering gardening pots
66.	Wong Han Teng, Crasta Renita Sophia, Sophia Koo Shi Hui	<u>CMSC – WeGarden</u> <ul style="list-style-type: none"> Set up modular community gardens at worker dormitories to grow edible vegetables and fruits, as well as to improve foreign workers' mental, physical and nutritional health
67.	Wong Peng Liang	<u>Community DIY production: From Raw Food Waste into Eco-enzyme Natural Cleaner</u> <ul style="list-style-type: none"> Provide start-up kits and online workshops to teach residents how to convert vegetable and fruit peels into natural cleaners
68.	Yong Wiltau, Loh Lai Chun	<u>Community Farming/Composting at Seletaris Condominium</u> <ul style="list-style-type: none"> Start a food waste segregation, composting and farming programme for the community



Factsheet

No.1 Hampshire Road Singapore 219428
www.lta.gov.sg

Date of Issue: 8 March 2022

Reducing Peak Land Transport Emissions by 80% *LTA will intensify electrification and sustainability efforts across public and private transport*

Land transport emissions peaked at 7.7 million tonnes of carbon dioxide equivalent (MtCO₂e) in 2016, well in advance of the 2030 timeline set at the national level. The Government is committed to further lowering land transport emissions, and has set a new target of reducing emissions from the 2016 peak by 80% by or around mid-century. Vehicle electrification, along with the decarbonisation of the power grid, will be a needle-mover.

2 To pave the way, the Land Transport Authority (LTA) will ramp up the electrification of our public bus fleet and incorporate more clean energy measures into our transport infrastructure. In addition, more will be done to spur the adoption of electric vehicles (EVs), including our taxi fleet.

Electrification of public buses and taxis

3 LTA has committed to having a 100% cleaner energy bus fleet by 2040. 60 electric buses have already been purchased and deployed to help us better understand the operational and technical considerations of a larger-scale rollout. Moving forward, bus buys from now until 2030 will primarily be electric. By 2030, half of our public bus fleet will be electric buses, as LTA replaces diesel buses that have reached their statutory lifespan. We will replace over 400 diesel buses by 2025.

4 Our point-to-point sector also plays an important role in reducing land transport carbon emissions. We are encouraged that some taxi operators have already embarked on the electrification of their fleets. Our taxi operators have committed that at least half of our taxis will be electric by 2030. To support this, LTA will extend the statutory lifespan of all electric taxis from eight years to 10 years. This will give operators more time to optimise their electric taxi investments. For private hire cars, 50% of the GrabRentals fleet will go electric by 2030. LTA will continue working closely with private hire car operators to increase EV adoption.

Building up EV infrastructure and regulatory frameworks

5 To drive the adoption of electric vehicles, every HDB town will be EV-Ready by 2025. This means LTA will deploy charging points in all HDB carparks (~2,000 car parks) by 2025, with a minimum of three chargers in each carpark at the beginning and more to

be deployed as EV adoption picks up pace. To this end, LTA will be launching a large-scale tender for HDB carparks in the first half of 2022. This is another significant step towards achieving our target of 60,000 charging points by 2030.

6 LTA will take the lead to progressively upgrade the required electrical infrastructure in all residential estates, to ensure there is sufficient electrical capacity to support EV charging. The upgrades will be financed by LTA through the issuance of green bonds, and the costs will be recovered from EV charging operators and EV users over the longer term. LTA is working with relevant agencies to develop the implementation details.

7 New legislation to ensure safe and reliable EV charging will also be introduced, with public consultation set for later this year. Details of the public consultation will be shared with the industry and published on LTA's website when ready.

Certificate of Entitlement (COE) Category A: Revised Maximum Power Output (MPO) Threshold for Electric Cars

8 As part of our ongoing efforts to support the adoption of electric cars, we will revise the Category A Maximum Power Output (MPO) threshold for electric cars from 97kW to 110kW. This will allow more mass-market electric cars to come under Category A.

9 The MPO threshold for Categories A and B was set at 97kW in 2013, given the predominantly internal combustion engine (ICE) car population then. This threshold will continue to apply for non-electric cars.

COE Category	Current <i>(for COEs obtained before May 2022's first COE bidding exercise)</i>	Revised <i>(for COEs obtained from May 2022's first COE bidding exercise onwards)</i>
A	Car with engine capacity up to 1,600cc and MPO up to 97kW (130bhp)	Car, except fully electric car, with engine capacity up to 1,600cc and MPO up to 97kW (130bhp); and fully electric car with MPO up to 110kW (147bhp)
B	Car with engine capacity above 1,600cc or MPO above 97kW (130bhp)	Car, except fully electric car, with engine capacity above 1,600cc or MPO above 97kW (130bhp); and fully electric car with MPO above 110kW (147bhp)

10 This change will take effect from the first COE bidding exercise in May 2022, which will take place from 4 to 6 May 2022.

Harnessing solar power in our public transport infrastructure

11 To reduce carbon emissions and lower energy costs, LTA will install solar panels on the roofs of new or recently-upgraded land transport infrastructure such as rail and bus depots, offices and facility buildings. This will support LTA's existing plans to achieve

the solar energy deployment targets of 16 megawatt-peak (MWp) by 2025 and 25 MWp by 2030.

12 In addition, LTA will call an open tender in March this year to deploy solar panels on other land transport infrastructure, including the upcoming Integrated Train Testing Centre, pedestrian overhead bridges and covered linkways.

13 Through the open tender, LTA will be able to contribute up to 20MWp of additional solar capacity. This is equivalent to the power needed to charge up to 285 single deck e-buses for an entire year. LTA will continue to incorporate more solar panels into our transport infrastructure where possible.

Strengthening our Contributions Towards the Green Economy and Empowering the Next Generation of Sustainability Leaders

The Ministry of Education (MOE) is actively nurturing our students to learn, practice and contribute to a sustainable Singapore. Today, environmental sustainability is integrated into our educational institutions – in curriculum, campus infrastructure, institution culture and practices, and ongoing partnerships with the community.

As part of our continued efforts under the Singapore Green Plan 2030 (SGP30), we will nurture the next generation of environmental stewards in our schools and Institutes of Higher Learning (IHLs) through the following ways:

- A. Enhance curriculum and skills training to prepare graduates for the green economy;
- B. Explore research, innovation, and community projects to advance our sustainability goals; and
- C. Advance the Eco Stewardship Programme (ESP) in schools

Enhance curriculum and skills training to prepare graduates for the green economy

- Our IHLs are investing in skills for the future so that graduates and working adults can tap on new opportunities presented by the growth of the green economy. They have refreshed their course offerings and are introducing specialised courses and common modules to equip individuals with forward-looking skills to thrive in emerging green jobs or existing jobs that are being “greened”.
- They provide training in areas such as sustainable built environment, green engineering solutions, green finance, and environmental sciences.

Explore research, innovation, and community projects to advance our sustainability goals

- Our IHLs partner with companies, agencies and the community on research and innovation projects as part of their hands-on approach to sustainability education, and have been developing and deploying new solutions that advance national sustainability efforts.

Living laboratories to enhance national sustainability efforts

- Some IHLs use their own campuses as ‘living laboratories’ to support national research and talent development efforts.
 - The ITE-SembCorp Centre for Sustainable Solutions at the institute of Technical Education (ITE) College East is a training centre for integrated sustainable solutions with an emphasis on photovoltaic systems. Launched in 2021, the centre aims to train about 440 students and mid-career professionals annually to build up the skilled manpower needed for the growing solar industry in Singapore.

- Researchers from Republic Polytechnic (RP) are developing a solution to turn incineration bottom ash (IBA) into construction aggregates that can be added to produce ready-mixed concrete. This is done through an encapsulation process using an RP-innovated formulation that creates a protective layer to prevent toxic heavy metals from leaching to the environment.
- Launched in Jan 2022, Temasek Polytechnic's (TP) Integrative Built Environment Centre (IBEC) aims to train around 2,000 students and working professionals on the different aspects of sustainability and the built environment through internship opportunities, real-world project collaborations, as well as exposure to the latest technologies in the sector.
- The National University of Singapore's (NUS) SDE4 building is an award-winning net zero energy building powered by more than 1,200 rooftop photovoltaic panels. Part of the College of Design and Engineering, SDE4 has a range of architectural features which enables the efficient and sustainable use of energy and water. Functioning as a living laboratory for sustainable development, SDE4 is a cutting-edge eco-conscious facility which inspires innovative research in future green buildings, in collaboration with industry and Government agencies.
- Since its launch in 2014, the Nanyang Technological University, Singapore (NTU Singapore) initiated the Renewable Energy Integration Demonstrator - Singapore (REIDS), a testbed on Semakau Island, has been a living lab for the design, demonstration and testing of sustainable and cost-effective energy solutions for off-grid and urban communities. For instance, a massive wind turbine at the R&D facility, can generate enough wind energy to power as many as 35 Housing Development Board flats annually. Integrating multiple energy sources and storage solutions to reduce the nation's carbon footprint, REIDS is one of NTU's largest living testbeds.
- The Singapore Management University (SMU), in collaboration with Imperial College London, established the Singapore Green Finance Centre in 2020 as the first centre of excellence to support and transform businesses in Singapore and the Asian region in the areas of Sustainability, Climate and Green Finance. Supported by industry partners and the Monetary Authority of Singapore, the centre promotes high-impact research, educational programmes, and new talent development.

Supporting local enterprises to deploy sustainable solutions

- In partnership with industry, IHLs are empowering local enterprises and organisations to reduce their carbon emissions.
 - Nanyang Polytechnic (NYP) and Schneider Electric launched a Sustainability Experience Centre in Jan 2022 to assist small and medium enterprises (SMEs) to implement energy efficient initiatives at the workplace. The centre aims to

reach out to 100 companies by 2023, with NYP staff and students co-creating solutions to help these companies reach their sustainability goals.

- Set up in 2006, Ngee Ann Polytechnic's (NP) Environmental & Water Technology Centre of Innovation (EWTCOI) provides SMEs with practical and market-driven technology solutions in the areas of waste reduction, water and energy efficiency. EWTCOI has partnered with local start-up, Firmbase, to develop water filtration membranes with anti-clogging properties that can operate at a lower pressure, reducing energy consumption by about five per cent. EWTCOI has also been supporting the local F&B industry with technology that reduces water consumption by up to 30 per cent.
- Singapore Polytechnic has an ongoing collaboration with Grundfos, a global water technology company, to jointly develop energy-saving and water-saving smart solutions to help local industries achieve sustainable development, and be better positioned to maintain their competitiveness globally.
- Since 2021, the Singapore Institute of Technology has been working with Singapore-based agritech company Archisen on an agrivoltaics project – rooftop hydroponic farms that harvest electricity from the sun and use probiotics to better grow leafy greens and herbs. This aims to build greater self-sufficiency in local food production and encourage adoption of renewable energy resources.
- The Singapore University of Technology and Design and SingHealth will explore research and innovation initiatives to achieve a smart, low-carbon status for the Changi General Hospital campus and the upcoming integrated general and community hospital campus at Bedok North.

Partnering communities and encouraging youths to champion sustainability

- Our IHLs engage and partner communities on sustainability projects to save resources and energy.
 - Students at the Singapore University of Social Sciences partner Bamboo Builders, a social enterprise, and SG Food Rescue, a ground-up initiative, to tackle food waste.
- The IHLs also encourage youth engagement and ownership to create ripple effects among the wider community.
 - In collaboration with the National Youth Council, students from the six Autonomous Universities and ITE participated in an inter-Varsity Youth Conversation, where they brainstormed and discussed ideas to achieve the vision of the SGP30. Representatives from the government, think-tanks and civic society also shared their views during panel discussions.

Advance the Eco Stewardship Programme (ESP) in schools

- Announced at COS 2021, MOE's Eco Stewardship Programme has built on existing environmental efforts in schools to holistically nurture Eco Stewards for our future. We have done this through the 4Cs (Curriculum, Culture, Community and Campus) from primary to pre-university levels:

Curriculum

- We have since refreshed our Humanities, Science, and Character and Citizenship Education curricula to enhance the teaching and learning of sustainability concepts. To make student learning more authentic, we have co-developed digital and hands-on learning resources with partners such as Sembcorp and Energy Market Authority.

Culture

- To strengthen the importance of sustainability as an integral part of our Culture, sustainability practices that students can adopt as daily habits have been incorporated into Everyday Responsibilities, such as saving energy and water, and reducing food waste. The Eco Stewardship Programme Toolkit that is being developed will include good practices and resources for schools to further support them in their sustainability journey.

Community

- We will continue to further partnerships with the community in enrichment, Values in Action and Education and Career Guidance.

Campus

- To support the move to reduce net carbon emissions in schools, we are progressively deploying sustainability features such as solar panels and energy-efficient LED lights.