



SINGAPORE AERO ENGINE SERVICES Sustainability Report 2023

We keep airlines flying to connect your world.



About this Report

This report is the first Sustainability report from SAESL.

In this report, SAESL demonstrates its commitment to integrating sustainable practices into our business operations including our strategy, ESG (environment, social, governance) initiatives and progress report for the year from 1 January to 31 December 2023. We will be publishing our sustainability report annually.

SAESL adopts the operational control approach in defining its reporting scope and boundary, therefore this report includes only its operations in 10 and 11 Calshot Road and 3 Loyang Way 2, Singapore.

This report has been prepared with reference to the GRI standards. External assurance for this report has not been sought, but we will review this at an appropriate time when our reporting framework, format and content mature.

We welcome feedback from our stakeholders and members of the public on this report at enquiry@saesl.com.sg.

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Sustainability Highlights

Solar Panels

4 SAESL buildings equipped with solar panels covering an estimated 7% of total electricity usage.



EV Charger

5-year partnership with Shell to install 3 new EV charging points at SAESL multi-storey carpark.



Digital Business cards

Business cards have been digitalised as part of the company's effort to go paperless and reducing printing and wastages of unused cards.



Refreshed Purpose, Vision, Mission, Values (PVMV)

Reviewed and refreshed PVMV by SAESL's CEO and senior leaders, incorporating the key aspect of Sustainability and foster alignment of the senior

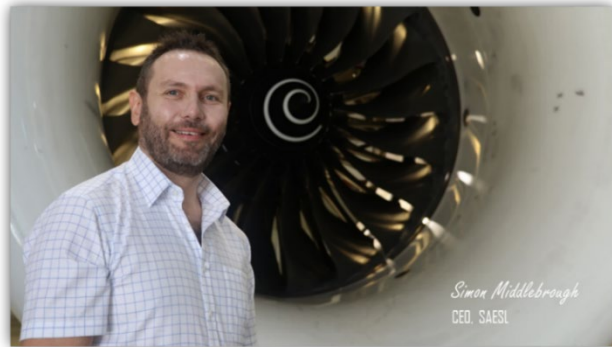


Hydroponics for the Community

An initiative to raise awareness on Singapore 30-by-30 food security goal within SAESL and amongst supported schools and communities in Eastern Singapore.



Message from the CEO



2024 marks the first publication of SAESL's sustainability report. This is our commitment to integrating sustainability into the way we work, think, and behave. We enacted our sustainability strategy in 2023 and incorporated into our new and refreshed purpose, vision, mission, and values as we chart the new chapters of our expansion plan and strategic partnerships to propel us to greater heights in the engine MRO industry.

There is a strong recovery of the aviation industry with increased flight activities to pre-pandemic level. We are investing US\$180million over the coming 4 years to expand our facilities and integrate advanced technologies to increase our capacity by 40% and serve the rising engine MRO demands. We have partnered with Singapore Economic Development Board (EDB), JTC Corporation, Employment and Employability Institute (e2i) and NTUC Learning Hub (NTUC LHUB) to facilitate the expansion of our MRO operations in Singapore, as well as support our talent development and recruitment efforts. This is a significant milestone for SAESL in positioning us as a global leader in engine MRO and a key player in the aerospace ecosystem in Singapore. This will create new opportunities for our employees to grow and thrive in a dynamic and rewarding environment.

Safety is utmost important to SAESL in terms of people and our product. We continue to drive our safety culture programmes to raise situational risk awareness and ensure safety for all our employees. Just as important as the safety of our people, we emphasise the importance of ensuring our product safety and quality for our airline customers through review and update of our SAESL enhanced workstreams. In 2023, we re-engaged Hudson Global Consulting to re-evaluate our standing in terms of culture and how we move past our blind spots to grow.

Being part of the Singapore business landscape, SAESL believes in engaging and developing our next generation of talents. We proactively engaged the local educational institutions and welcomed students through our doors to develop an appreciation of and passion for the aerospace industry.

SAESL is committed to working with our OEM and regulatory partners towards the decarbonisation of the aerospace industry – in particular this will mean co-operation and implementation of Sustainable Aviation Fuel (SAF) in line with the ramp up in production over the coming years; SAESL has already run its Rolls-Royce engines on test beds in Singapore with SAF blended fuel and is ready to meet the future requirements of this industry-critical activity.

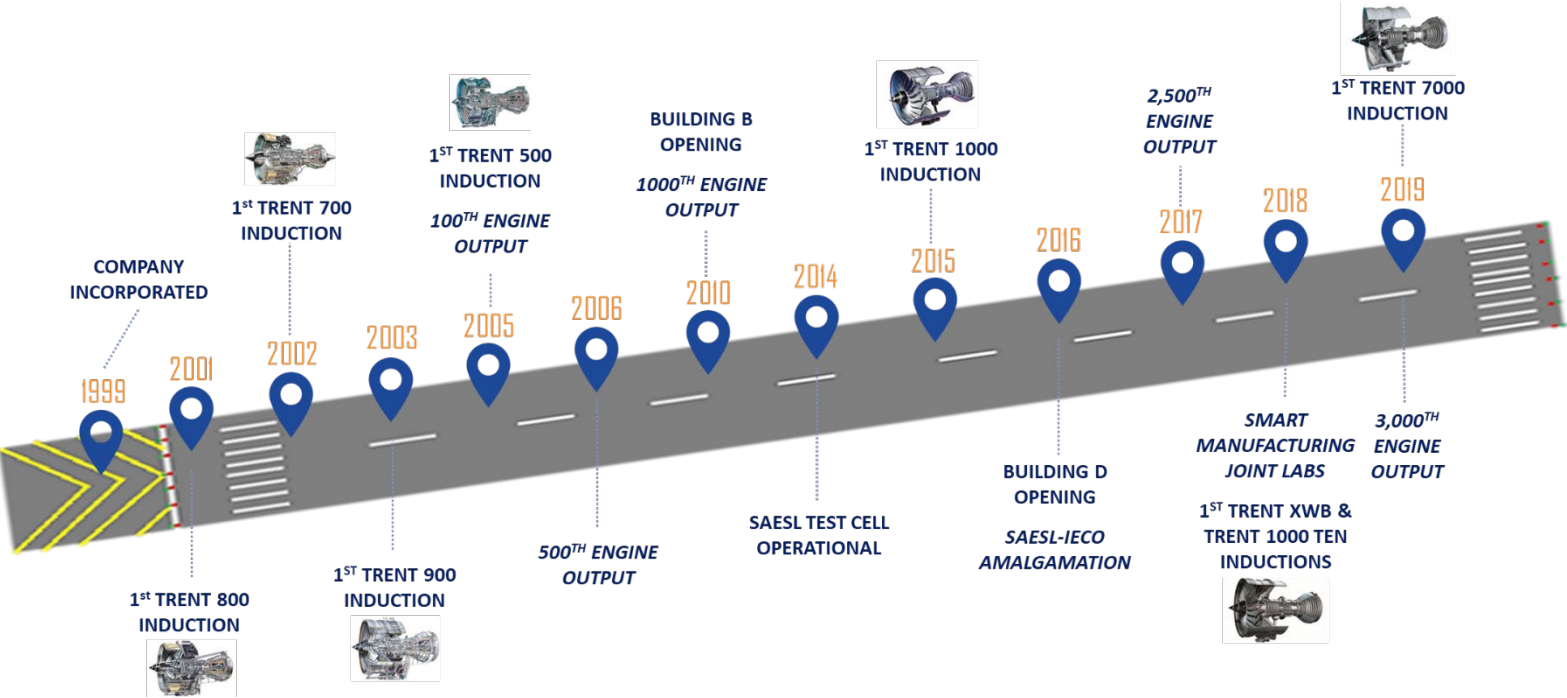
In 2024, SAESL continues to dive deeper into our sustainability journey to ensure a sustainable future for our employees, communities and key stakeholders.

About SAESL

Singapore Aero Engine Services Private Limited (SAESL) is a joint venture between Rolls-Royce and SIA Engineering Company, providing best in-class aero engine and component repair services for the successful Rolls-Royce Trent engine family. SAESL is one of the world’s largest Trent engine MRO facilities with capability to support all products in the Trent family and with a customer base that spans across 6 continents. We pride ourselves in servicing the best by the best.



Key Milestones



Our Services

Engine Overhaul

SAESL Engine Overhaul can support all levels of work scope such as hospital, check and repair and full refurbishment. Our core services cover the maintenance, repair and overhaul of engines, engine modules and components. These services include engine disassembly, LLP exchange, parts and accessory repair, documentation, modifications, engine assembly, engine testing, engineering support and web-based status reporting.



SAESL delivers best-in-class engine turnaround times at exceptional quality. Our continuous improvement culture means that we are always looking for ways to further enhance or optimise our service offerings to the customer. Our flexible engine strip and build processes, utilising both gantry and traditional methods, helps ensure fast customer response and turnaround. Furthermore, SAESL continues to invest in innovation and technology to remain at the forefront the MRO industry.

Engine Test Facility



SAESL has its very own state-of-the-art Engine Test Facility that is capable of testing engines up to 140inch diameter and 150k pounds of thrust.

This provides SAESL with the capability to carry out full engine test on Trent 700, 1000, 7000 and XWB.

Our Purpose, Vision, Mission and Values

We are guided by our purpose, vision, mission and values in our decision making and in shaping our culture.



PURPOSE

We keep airlines flying to connect your world

VISION

To be the most admired engine maintenance, repair and overhaul (MRO) facility
"Servicing the Best by the Best"

MISSION

We deliver engines safely, cost effectively, reliably and on time to our customers.

We partner our community in our ESG initiatives to support in building a sustainable future for the community and to develop our future talents.

We contribute to the MRO ecosystem as a valued player aligned with Singapore's industrial and global MRO hub strategy.

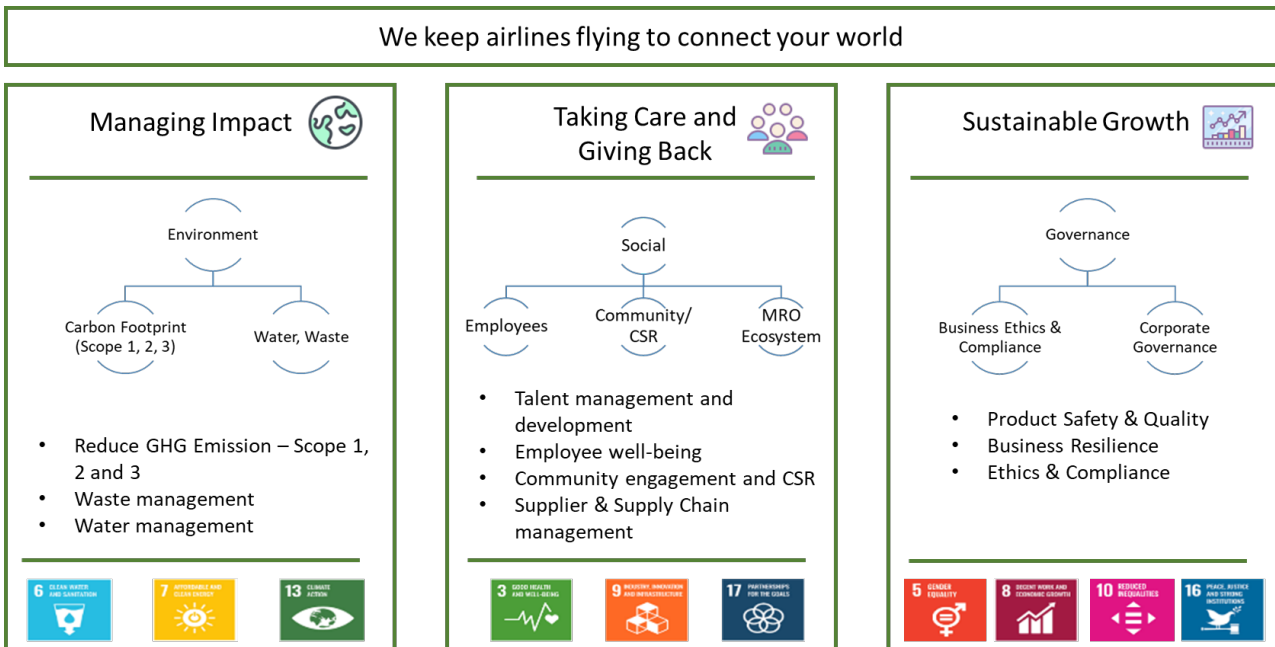
VALUES

Safety, Innovation, Respect, Teamwork, Integrity, Communication

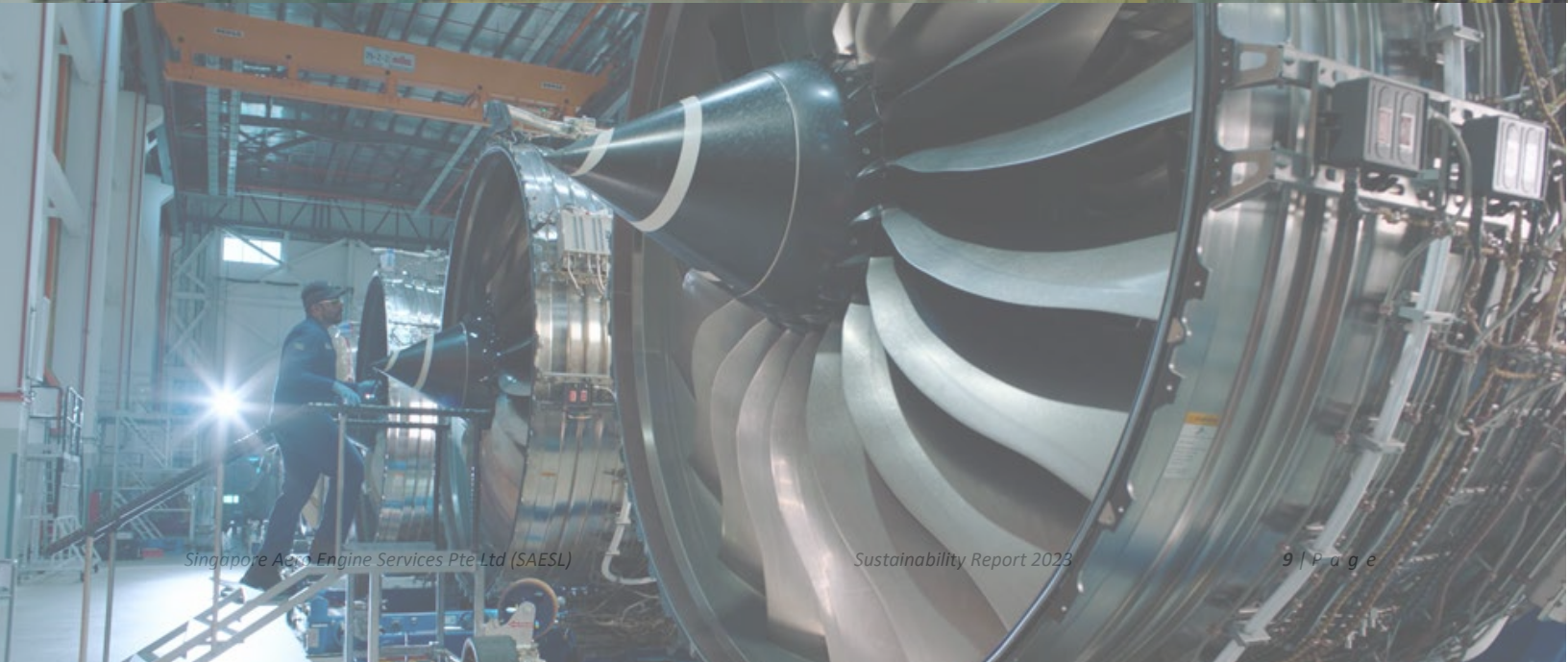
Sustainability Approach

Sustainability Framework

Our Sustainability Framework is driven by our Purpose and Mission. It outlines our approach towards sustainability management in our business and is built upon three pillars of Environment, Social and Governance.



Our Business



Customer Safety and Quality

Quality and Safety are the primary considerations for all operations always undertaken by SAESL. Evident by our Airworthiness approvals and other certifications attained, the integrity of our customers' engines and components are of the highest priority. To this end, we have established Quality and Safety Management to ensure that our customers' needs are fully met, while complying with all regulatory and legal requirements.

SAESL has established a culture of quality and safety that is embraced by all our employees, from the top management down to our competent workforce. This culture is nurtured through various training and awareness programmes, fostering an atmosphere of open reporting and prompt feedback between the leadership and the team who form the backbone of SAESL's core competencies.

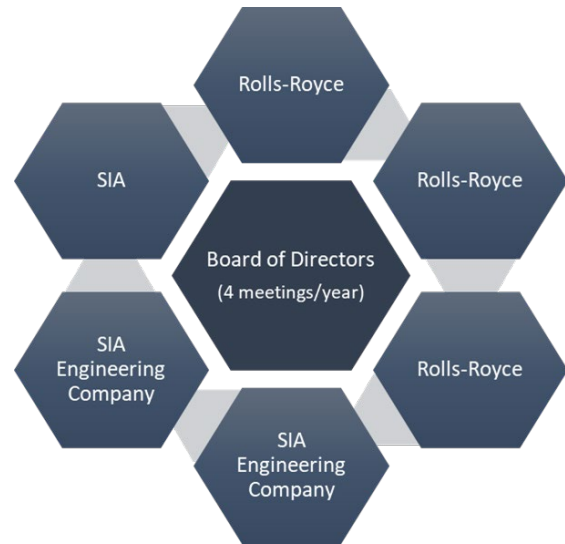
Code of Business Ethics

SAESL strongly believes that the long-term success and prosperity of the organisation depends on every employee to conduct our business in line with the highest ethical standards and applicable laws. SAESL is fully committed to adhering to applicable laws and conducting our business with integrity to uphold our reputation and improve our people and product safety. Our Code of Business Ethics contains general guidelines for conducting business with the highest ethical standards.

We have in place a whistleblowing channel that is independently managed by an external service provider at <https://secure.ethicspoint.eu/domain/media/en/gui/103341/index.html>. All information is treated with strict confidentiality and anonymous submission is accepted.

Governance

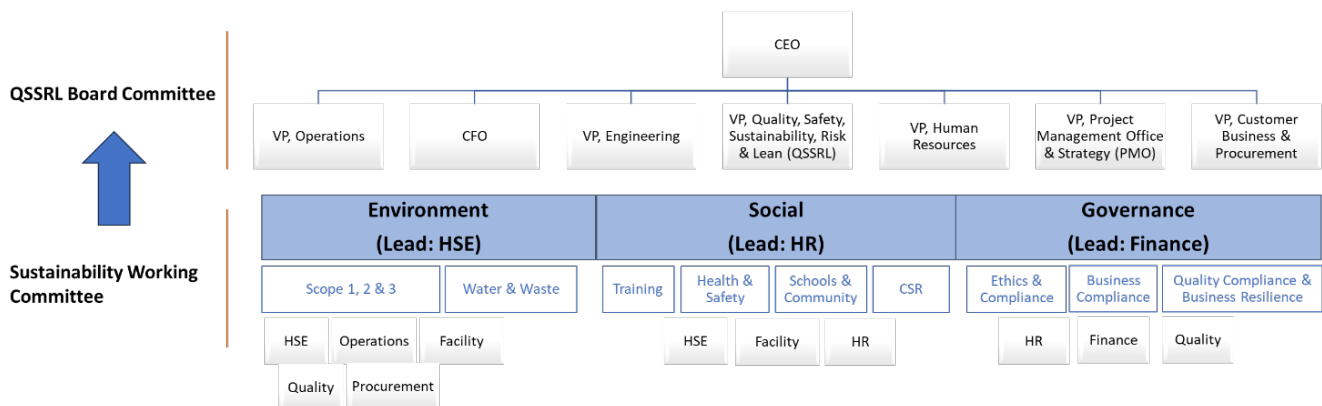
Our highest governance is our Board of Directors, comprising six non-executive directors that convene four times a year. The Board oversees safety, governance and sustainability through various Board Committees such as Board Safety Advisory Committee (BSAC), Management Committee such as Quality, Safety, Sustainability, Risk and Lean (QSSRL) Board Committee.



The BSAC comprises three non-executive directors from the Board with 1 representative each from Singapore Airlines (SIA), SIA Engineering Company and Rolls-Royce. The BSAC ensures that SAESL has an effective Safety and Health Management System in compliance with the regulatory requirements, review safety reports, operational reliability performance, accident investigation findings and ensuring actions are taken by the Management. The BSAC also ensures that the Board is apprised of safety and quality issues.

The senior leadership team, made up of Chief Executive Officer and seven Vice Presidents, oversees the business. The senior leadership team makes up the QSSRL Board Committee that governs safety, quality, risk management and sustainability management. The Committee meets no less than four times a year. It is responsible for the governance and oversight of Enterprise risk management, Business continuity management, Quality management, Safety management system, Health, Safety and Environment management and Sustainability strategy.

Supporting the QSSRL Board Committee on sustainability efforts is the Sustainability Working Committee. SAESL introduced a Sustainability Working Committee based on the three key pillars – Environment, Social, Governance – as key leads to drive progressive changes into the significant topics and to monitor its performance against SAESL sustainability targets.



Our People

SAESL employs a workforce of over 2,000 highly skilled people with technical expertise and Trent engine knowledge.

Our state-of-the-art working environment provides employees with access to the most advanced MRO techniques and training to support the growing Rolls-Royce Trent engine fleet.

This includes new engine types such as the Trent 1000 which powers the Boeing 787 Dreamliner and the Trent XWB which powers the Airbus A350.



Exception for PPE donning was made after risk assessment for photoshoot purposes.



Employee Health, Safety and Well-Being

Keeping our Employees Safe

SAESL emphasises safe work environment for our employees. Our safety management system is ISO 45001 certified and covers all of our sites fully operated by SAESL. Our safety framework includes components on roles and responsibilities, hazard identification and risk assessment processes, training and induction requirements, regular performance monitoring, incident investigations procedures, audits and inspections, reporting procedures.

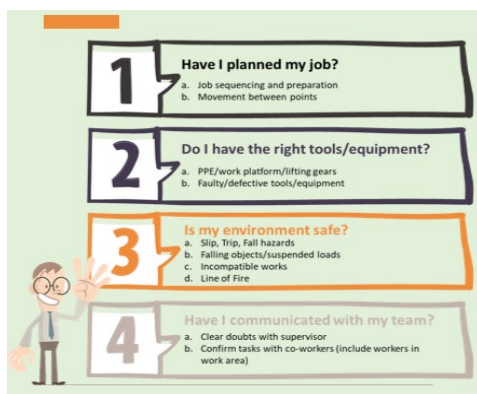
All employees are required to report work-related incidents to their Heads or direct supervisor for prompt escalation to Health, Safety and Environment (HSE) department for investigations and follow-up. Reporting channels include e-mail, and for confidential reporting on product and people safety event, employees may also choose to submit confidential reports via official third-party whistleblowing platform.

Safety Culture and Campaign

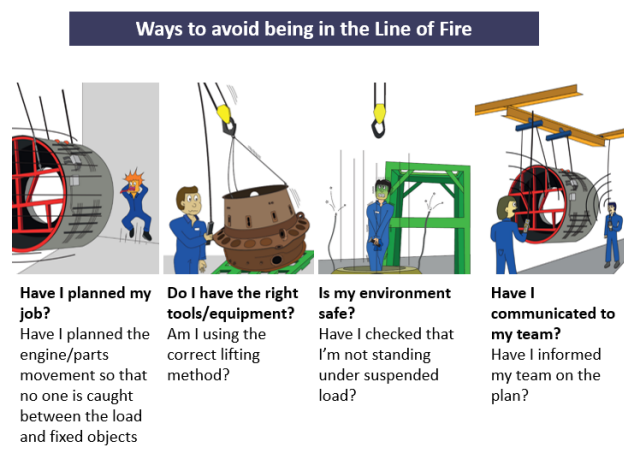
Dynamic Risk Assessment (4-Checks)

A Last-Minute Risk Assessment (LMRA) that is performed immediately before performing tasks to raise situational awareness, identify and exclude all potential safety, health, and environmental hazards.

The 4-Checks was designed internally and contextualised to SAESL operations. This is communicated Company-wide through various channels such as briefing to Safety Champions, contextualised examples for specific briefings at operations level and visual aids within the premise.



4-checks: Line of Fire



Operation Staff Safety Briefings

As part of embedding Safety through Operating System (OS), Safety and BBS-FOD champions were appointed in every Operations area and shift to be part of the Safety structure. The Champions were briefed on their responsibilities and tasks which included supporting safety programmes with oversight from functional groups. As part of ongoing engagement, champions conduct joint inspections with functional groups and participate in quarterly engagements.



Safety Briefing

Roles	Key Responsibilities/Tasks
BBS-FOD Champions	<ul style="list-style-type: none"> Assist Cell Head to champion programs and gather feedback. Engage CFT (QE/ME) and functional groups (HSE/Quality/RP) to drive programs. Check BBS-FOD circulars and communicate to Cell (start of shift brief) Conduct 1 BBS Observation per week. Lead FOD walk and update the FOD tracker during the daily ritual
Safety Champions	<ul style="list-style-type: none"> Assist Cell Head to champion programs and gather feedback. Engage CFT (QE/ME) and functional groups (HSE/Quality/RP) to drive programs. Check Safety and Quality circulars and communicate to Cell (start of shift brief) Conduct 1 compliance check per week. Support QSSRL and HCH Responsible Person compliance checks. Attend monthly safety meeting if appointed

Safety and BBS-FOD Champions Quarterly Engagement

Three sessions were conducted between 27th and 31st October, attended by 100 Champions from Calshot and Loyang, aimed to provide knowledge-sharing on:

- People Safety - Hazard Identification Techniques for Hand injury prevention, Slip, Trip, and Fall, Struck by Falling Object and Fall from height.
- Product Safety – FOD Prevention, Missing tooling action etc.

Through the engagement sessions, the Champions are equipped with necessary skills to act as catalysts for hazard identification and intervention, the best practices and techniques for identifying, assessing and mitigating risks. These sessions are hands-on experiential learning to enhance awareness and understanding.



Hand Injury Prevention (Cuts)



Slip, Trip Fall



Struck By Falling Object



Fall from Height

Engagement session in October 2023

Talent Attraction, Retention, Training and Development

Employee Training and Development at SAESL

At SAESL, we believe our people are our most valuable assets. We are committed to training and upskilling our employees to ensure their knowledge and technical skills remain current. The average hours of training per employee are detailed in the 2023 Performance section of this report, highlighting our dedication to nurturing our workforce and fostering continuous growth.



Internal Communications

Sustainability Issue 1 (2023)

Introduction to Sustainability

SAESL Sustainability Strategy

E- Environmental

S- Social

G- Governance

Sustainability is the balance between the environment, equity, and economy

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." - UN World Commission on Environment and Development

3 Core Pillars of Sustainability

- Governance (G)**: Refers to how an organisation is led and managed. It focuses on executive remuneration, risk management and internal controls, business ethics, etc.
- Environment (E)**: An organisation's environmental impacts from its operations, such as greenhouse gas emissions, natural resource management.
- Social (S)**: An aspect of sustainability that the impacts of organisation on people and society. It focuses on creating sustainable successful places that promote wellbeing and social development of people. It also supports human rights, social inclusion, health, safety, empowerment, wellness, community development, and many more.

17 Sustainable Development Goals (SDGs)

UN SDGs are global goals adopted by the United Nations (UN) in 2015 as a universal call for action to end poverty, protect the planet and ensure all people enjoy peace and prosperity by 2030. These 17 goals are inter-linked and action in one area often affects the outcome in others.

Regular publications are issued internally regarding sustainability to heighten awareness of our employees. Every 2 months, a specially curated sustainability write-up will be published on internal platforms accessible to all employees. In addition, our initiatives toward sustainability goals are being shared by our senior leaders at quarterly business performance reviews. Thematic sharings and initiatives are also published on an ad-hoc basis.



SAESL Energy Saving Initiatives Poster

Equity, Diversity and Inclusion

Events

Girls in Aviation Day held at Temasek Polytechnic

SAESL participated in Girls in Aviation Day (GIAD) 2023, which approximately 300 girls aged between 8 and 17 years old attended. They were engaged in various STEM activities. The challenge at SAESL booth is to try their hands on engine assembly!



SAESL at GIAD 2023

A get-together on International Women's Day

Contest 2023



Senior leaders celebrating Women in our workforce

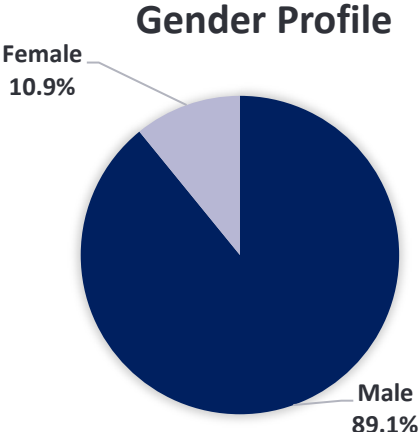
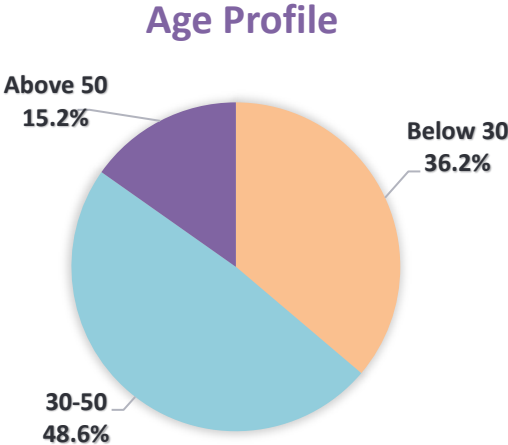
The event featured a panel discussion on Uplifting Women in Aviation between SAESL, Kyndryl Singapore and Women In Aviation International Singapore by esteemed speakers from diverse backgrounds. This was part of our various initiatives to embrace gender equity, workplace diversity and inclusion in SAESL.



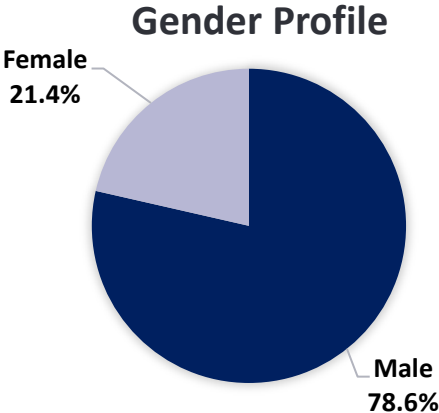
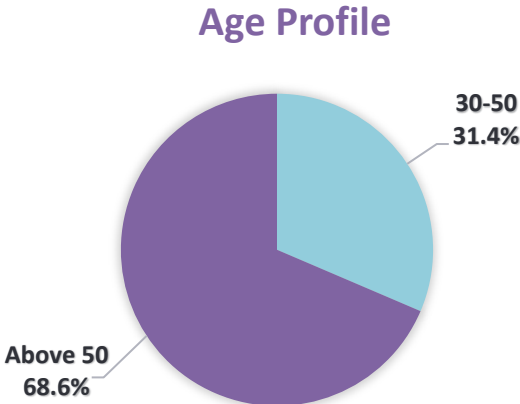
Diversity of Employee Profile

In 2023, we have 2,003 employees.

Overall



Executive Team



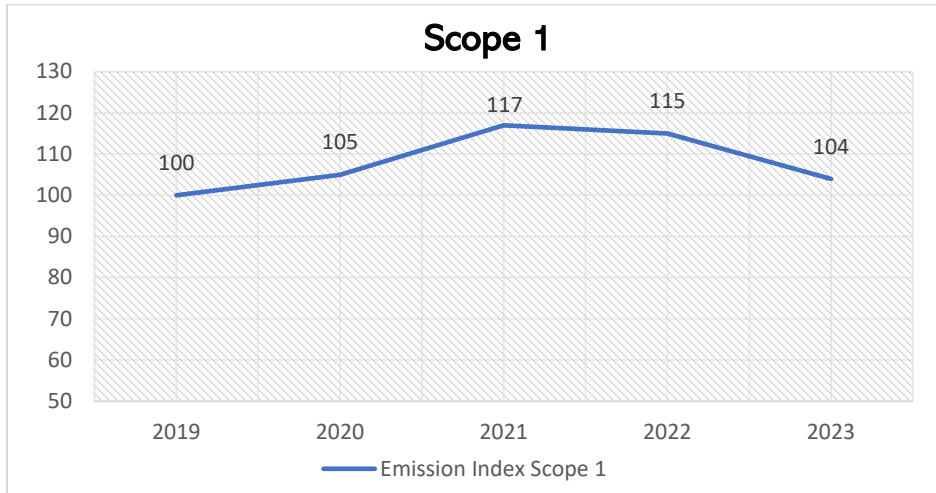
Our Environment



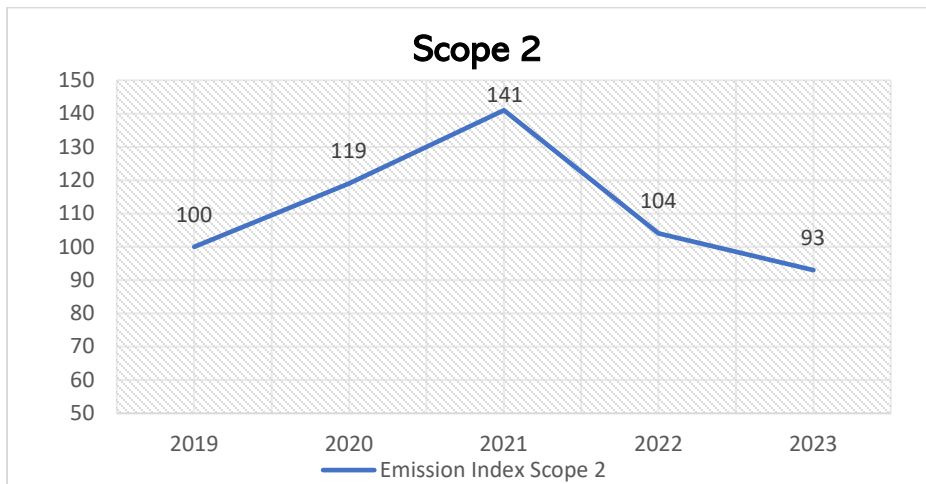
Energy and Emissions

Greenhouse Gas (GHG) Emissions Index

We measure our emission profile to our baseline year which we have set at 2019.



For Scope 1, the GHG emission index is derived based on the amount of carbon emission (tCO₂e) per engine tested for the year against the 2019 baseline year. The performance has been relatively flat, and we are working towards sustainable aviation fuel (SAF) and improving jet fuel efficiency.



For Scope 2, the GHG emission index is derived based on the amount of carbon emission (tCO₂e) per engine shipped for the year against the 2019 baseline year. In 2023, we have embarked on energy saving initiatives to reduce our electricity consumption which have reflected an improvement in our GHG emission for Scope 2.

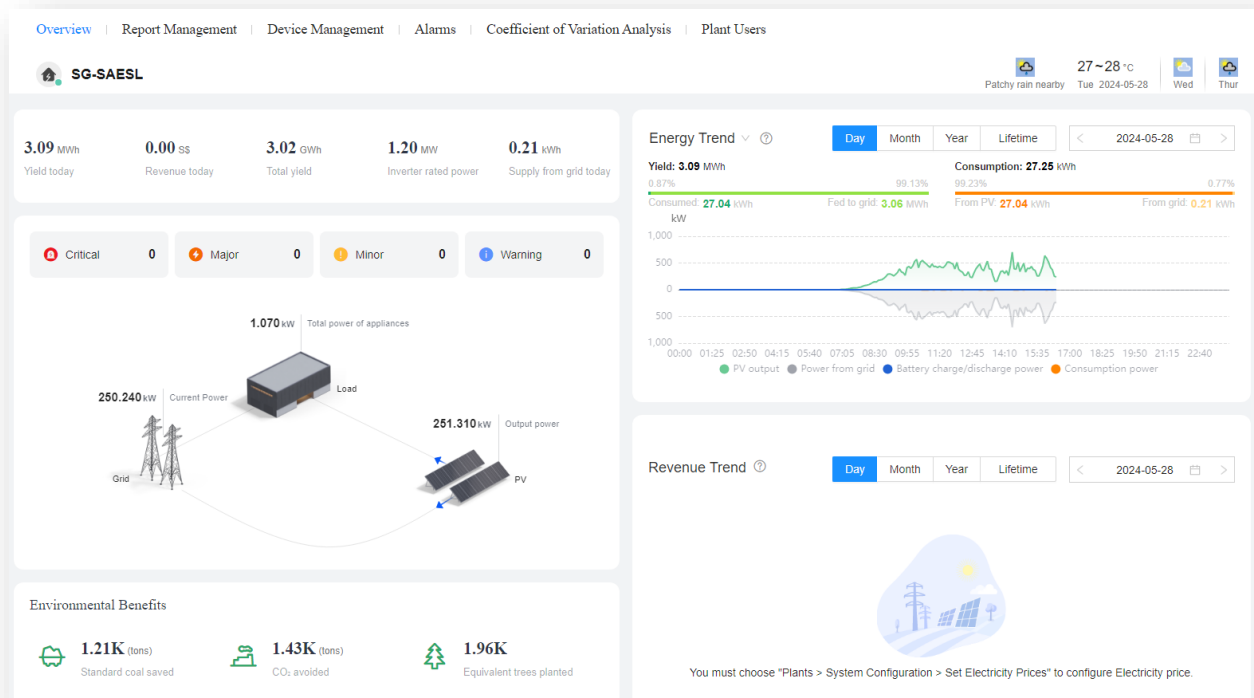
Energy Saving Initiatives

Solar Panels

We have installed solar panels on the roof of our buildings along Calshot Road. We generate renewable energy of approximately 7% of our electricity usage in 2023, and we have sold the renewable energy certificates (REC) to our benefit.



Solar panels at SAESL rooftop



SAESL Solar Dashboard

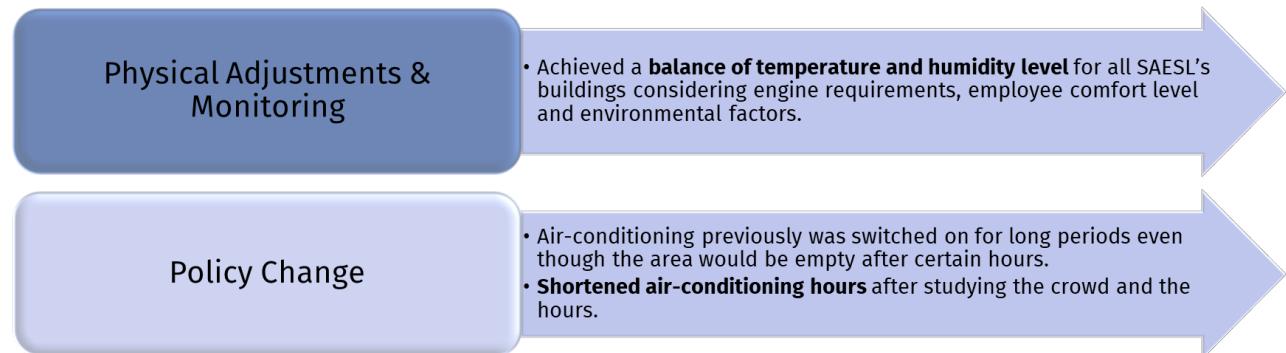
LED Light Replacement

We have installed LED lights based on regulatory requirements and power specification, which resulted in approximately **135,000kWh** energy saved in a year.



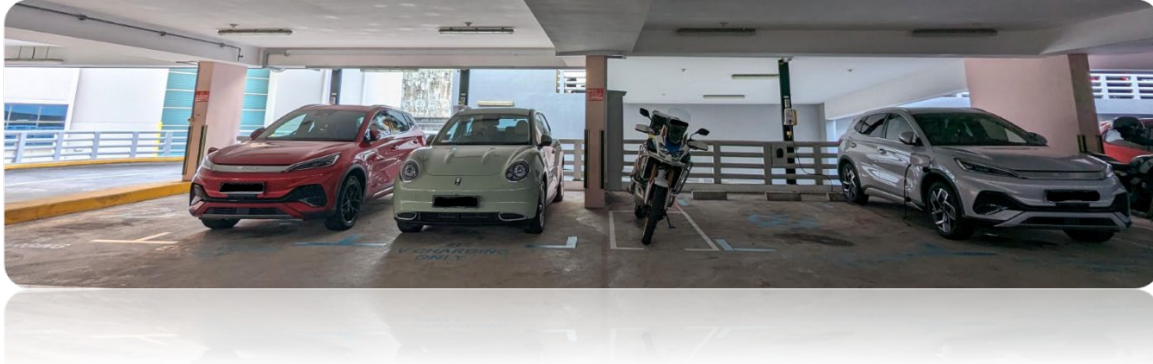
Temperature Optimisation

In Singapore's climate, we have air-conditioning for the comfort of our employees. We took a 2-prong approach to improve energy efficiency in air-conditioning usage while managing humidity control and employee comfort:



Electric Vehicle (EV) Chargers

We installed 3 EV charging points with 5 dedicated EV parking lots added within our multi-storey carpark to encourage staff to switch to EV.



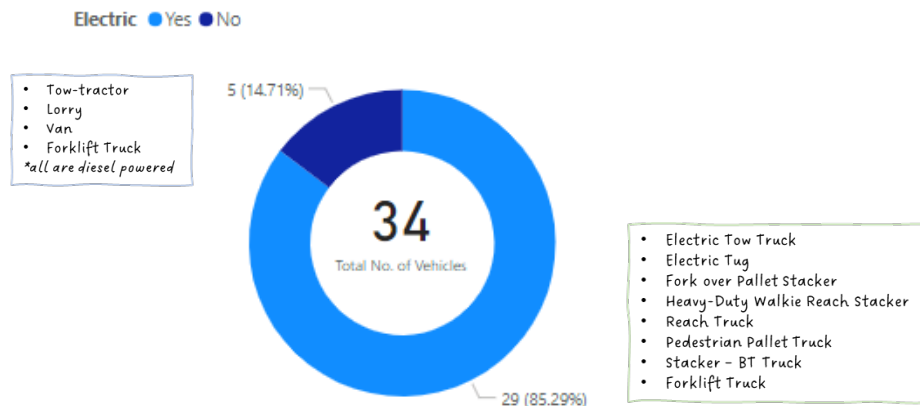
5-year partnership with Shell



SAESL staff enjoy a preferential rate to charge at SAESL MSCP

Conversion of Fleet Vehicles to Electric Models

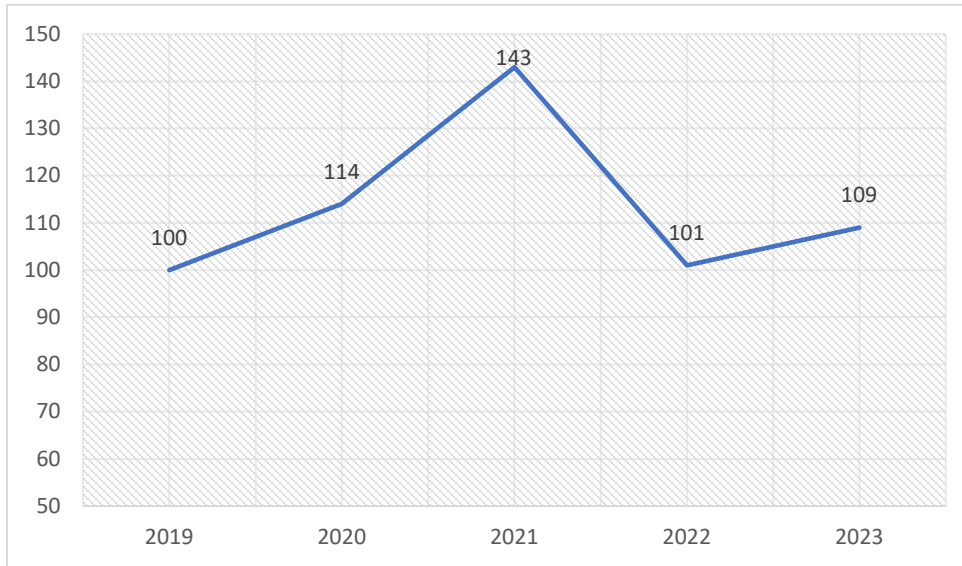
We are progressively converting our fleet vehicles to electric models when the renewals are due.



Number of Electric Vehicles (as of Aug '23)

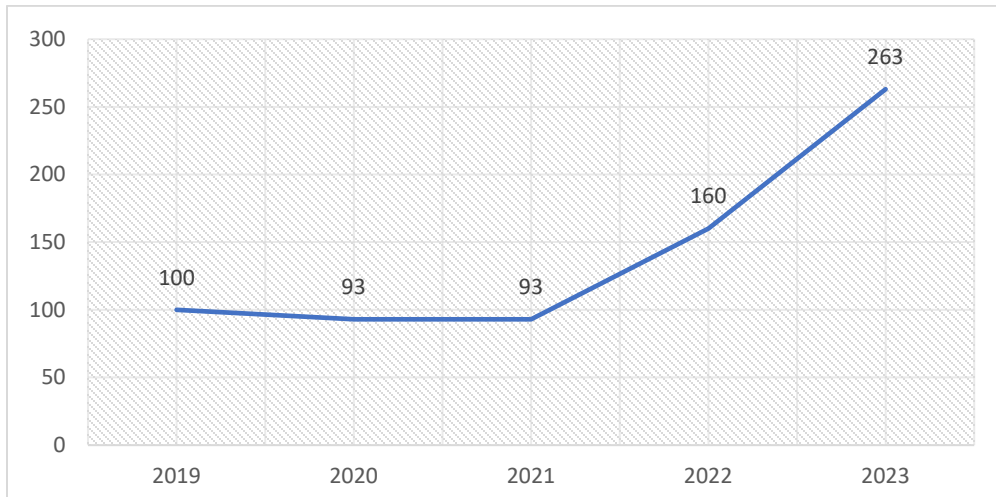
Water and Waste Management

Water Withdrawn per Engine Index



The water withdrawn index is based on the water consumed (m³) per engine against our 2019 baseline year. Our 2023 water consumption was similar to that of our baseline year.

Waste Recycling Rate per Engine Index



The waste recycling index is based on the amount of waste (kg) recycled per engine against our 2019 baseline year. It registered a significant improvement in 2023 compared to our baseline year.

Waste Reduction Initiatives

Implementation of Recycling Bins at Warehouse and Bin Centre



Recycling bins at Warehouse



Recycling bins at Bin Centre

Implementation of Digital Business Cards

As part of our efforts to go paper-less, we have digitalised our business cards for our employees. With the digital business card, we reduce the wastages from unused physical business cards and employees can update their contact details whenever they need to without the need to reprint and discard old cards.



Our Community



Community Engagement Highlights



Pasir Ris Zone 10 Residents' Network



Tampines North Zone 5 Residents' Network

Hydroponics for the Community

In support of Singapore's 30-by-30 food security goal, we have initiated urban farming through hydroponics to raise awareness towards self-sufficiency among our employees, the schools and wider community in the Eastern region of Singapore.

April 2023:

Partnership with Dunman Secondary School



May 2023:

Partnership with Pasir Ris Zone 10 Residents' Network



July 2023:

CSR (Hydroponics) Volunteer Activity

- Distributed to community fridges located within Tampines region and All Saints Home



Nurturing Youths and Caring for our Community

Engaging Schools and Youth Groups

In line with our commitment to nurturing future talent, we actively engage educational institutions to broaden students' insights into careers within the aerospace industry. Through these interactions, we aim to inspire and develop the next generation of aerospace professionals. The students were introduced to who we are, what we do, and the fascinating science behind aircraft and aero engines. They were also brought on in-house tours to experience first-hand the sophisticated MRO process and cutting-edge technology. This initiative underscores our belief in developing talent from an early age and our dedication to the industry's future.

- Bedok View Secondary School



- Dunman Secondary School



- Youths from M3 (Mendaki, Muis and Mesra)



Engineering Sharing with A*STAR Advanced Remanufacturing and Technology Centre (ARTC)



Our colleague Teo Kwang Kok, Head of Engineering was invited to conduct a sharing session for the graduating students from Zhenghua Secondary School on 23 and 24 May. The students were introduced to fun facts about science of flight and SAESL's key developments and milestones to become the world's largest Maintenance, Repair and Overhaul (MRO) facility for Rolls-Royce Trent engines today.

SAESL Food Donation Drive 2023

SAESL actively participates in food donation drive on annual basis. Every year, we saw an incredible outpouring of generosity from our employees, who came together to support those in need within our community. The food items donated by our dedicated team were sent to the Food Bank Singapore, a vital organisation that provides sustenance to various groups. Together, we made a significant impact and fostered a sense of community and compassion within SAESL.



Donated food items sorted and delivered to Food Bank Singapore

Environmental Conservation

Hydroponics Garden

The hydroponics garden is part of Sustainability initiatives to raise awareness and contribute to Singapore’s 30-by-30 food security goal.



Goals:

- Raise awareness among and increase uptake by wider Community on urban farming.
- Contribute to Singapore’s ‘30 by 30’ food security goal.
- Tapped on our engineering expertise and employ technological solutions to run the system (e.g. closed loop water system, automation using sensors)

Our hydroponic unit



Complemented with solar panels.



Approximately 12 types of vegetables being grown (e.g. cai sim, cherry tomato, arugula, tang oh)



Complemented with rainwater harvest unit.



2 outdoor hydroponics units are installed at SAESL premises.



Maintained by Facilities team and staff volunteers.

CSR Volunteer Activity

In July, 6 staff from SAESL and 100+ students from Dunman Secondary School distributed approximately 80kg of vegetables to community fridges located within Tampines region and All Saints Home grown at the hydroponics garden.



2023 Performance

Indicator	Performance*
Environment	
Jet Fuel Efficiency improvement	4.4%
Electricity GHG Emissions (Scope 2) Reduction	6.7%
Waste Recycling Ratio	14.9%
Social	
Work-related Fatalities	0
Community Partnerships	16
Employee Training Hours (per year)	83.6
Governance	
Non-compliance Penalties	0
Corruption/Ethics [#] Cases	0

*Against 2022
#only corruption cases

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